Advisory Council Overview

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Jack P. Broadbent
Executive Officer/Air Pollution Control Officer

Jeff McKay
Deputy Air Pollution Control Officer

ADVISORY COUNCIL HISTORY

- Originally 20 members
- Skills and Experience with Air Pollution preferred, not required
- Required a broad mix of members of the regulated community, as well as members of public health agencies and active environmental organizations

SENATE BILL (SB) 1415
HEALTH & SAFETY CODE (H&SC) AMENDMENTS

- SB 1415 amended the S&HC as of July 1, 2015
- Reconstituted the membership of the council to include seven appointed members
- Members should be skilled and experienced in the fields of air pollution, climate change, or the health impacts of air pollution and to include a diversity of perspectives, expertise, and backgrounds
- Advisory Council members serve a term of two years

ADVISORY COUNCIL MISSION

"Advise and consult with the bay district board and the bay district air pollution control officer in effectuating the purposes of" the Air District.

STANLEY R. HAYES (Current Chair)

PRINCIPAL (EMERITUS), RAMBOLL

MS, Aeronautics & Astronautics,
Stanford University
BS, Mechanical Engineering,
Stanford University

- More than 40 years experience in air pollution science and engineering, including air quality modeling and health risk assessment
- Fellow, Air & Waste Management Association
- Chair, Advisory Council, Bay Area Air Quality Management District (member: 1995-2007, 2009-)
- Member, U.S. EPA Science Advisory Board panel on EPA risk assessment methods
- Chair/Co-Chair, A&WMA national and international specialty conferences on climate change, greenhouse gas reporting, and homeland security
- Several hundred air dispersion and health risk assessments of a wide range of industrial facilities
- More than seventy scientific papers and presentations
- Several hundred technical reports on air-related topics

SEVERIN BORENSTEIN

E.T. Grether Professor of Business Administration and Public Policy, Haas School of Business
Research Associate of the Energy Institute at the Haas School of Business
Affiliated Faculty, Energy & Resources Group, UC Berkeley
Research Associate of the National Bureau of Economic Research

Ph.D., Economics, MIT
BA, UC Berkeley

- Published extensively on oil, gasoline, and electricity markets, and other industries
- Recent research on the impact of oil prices on gasoline markets, alternative models of retail electricity pricing, and the economics of renewable energy and climate change
- Past member of the editorial board of the *Journal of the Association of Environmental and Resource Economists*
- 1997-2003, member of the Governing Board of the California Power Exchange
- Served on the Emissions Market Assessment Committee, which advised the California Air Resources Board on the operation of California's Cap and Trade market
- Chaired California Energy Commission's Petroleum Market Advisory Committee from 2015 until 2017

MICHAEL T. KLEINMAN (Current Vice Chair)

Professor Environmental Toxicology
Co-Director of the Air Pollution Health Effects Laboratory
Adjunct Professor in School of Medicine
University of California, Irvine

Ph.D., Environmental Health Sciences,
New York University, NY
MS, Chemistry (Biochemistry),
Polytechnic Institute of Brooklyn

- Chair: Scientific Review Panel on Toxic Substances (Cal\EPA); Member: Board of Scientific Councilors (USEPA)
- Member: AB 617 Community Air Protection Program Consultation Group
- Expertise in the health effects of air pollution focusing on effects of ambient particles and gases on blood pressure, heart rhythms and inflammation
- Studies of the link between asthma and environmental exposures to ambient particles
- Research on mechanisms of cardiopulmonary injury following inhalation of toxic compounds by which particulate matter exposure affects pathological and physiological changes in the heart and lungs
- Studies of toxicology of manufactured and combustion-generated nanomaterials

TIMOTHY E. LIPMAN

Co-Director of the Transportation Sustainability Research Center
University of California - Berkeley

Ph.D., Environmental Policy Analysis,
Univ. of California - Davis
MS, Transportation Technology and Policy
Univ. of California - Davis
BA, Stanford University

- Co-Director for the UC Berkeley Transportation Sustainability Research Center
- Research Affiliate with the Lawrence Berkeley National Laboratory
- Research on the transformation of energy systems to support motor vehicles and buildings while reducing greenhouse gas emissions
- Research on electric-drive vehicles, fuel cell technology, combined heat and power systems, biofuels, renewable energy, and electricity and hydrogen energy systems infrastructure
- Chair of the Alternative Transportation Fuels and Adv. Vehicle Tech. Committee (ADC80) of the Transportation Research Board (National Academies)
- 2005 Climate Change Fellow with the Woods Institute at Stanford University

JANE CS LONG

Senior Fellow and Council Member of the California Council on Science and Technology
Associate Director for Energy and Environment, retired, Lawrence Livermore National Lab

Ph.D., Ground Water Hydrology,
UC Berkeley
BS, Engineering,
Brown University

- Chairman of the California Council on Science and Technology's committee on California's Energy Future
- Current work involves strategies for dealing with climate change including reinvention of the energy system, geoengineering, and adaptation
- Past Dean of the Mackay School of Mines, University of Nevada, Reno
- Past Department Chair for the Energy Resources Technology and the Environmental Research Departments at Lawrence Berkeley National Lab.
- Fellow of the American Association for the Advancement of Science

PRESENTATIONS TO THE ADVISORY COUNCIL
Efficacy of GHG Caps at Refineries

- California Air Resources Board (CARB)
  - Richard Corey, Executive Officer
  - Sam Wade, Chief, Transportation and Fuels Branch
  - Jason Gray, Manager, Climate Change Market Monitoring Section
- California Energy Commission
  - Gordon Schremp, Senior Fuels Specialist
- Stakeholders
  - Communities for a Better Environment (CBE) – Greg Karras
  - 350 Bay Area – Letter
  - Gary Rubenstein, Sierra Research on behalf of CCEEB and WSPA

ADVISORY COUNCIL MEETINGS
Efficacy of Greenhouse Gas (GHG) Caps at Refineries

- Council deliberation was conducted in six full-day meetings on:
  - December 3, 2015
  - February 3, 2016
  - April 25, 2016
  - July 19, 2016
  - October 3, 2016
  - February 6, 2017

ADVISORY COUNCIL OPINION

Conclusion on Key Question:

The Council concludes that facility-level caps on Bay Area refinery GHG emissions are unlikely to be effective in mitigating global climate change. GHG reduction policies are effective in providing climate protection only if total global GHG emissions are reduced, and if leakage occurs (that is, GHG emissions are shifted outside of the Bay Area to other locations instead of being reduced), which is likely with refinery GHG caps, such caps would not provide such protection.

ADVISORY COUNCIL POLICY RECOMMENDATION (1 of 2)

Policy Recommendation:

The Council recommends that the Air District identify, systematically evaluate, prioritize, and adopt Bay Area GHG reduction policies and measures, including ones directed at refineries as appropriate, that are effective in reducing total global GHG emissions, minimize leakage risk, and complement and reinforce GHG reduction measures adopted by CARB (e.g., GHG cap-and-trade and methane reduction programs), USEPA, and others.

ADVISORY COUNCIL POLICY RECOMMENDATION (2 of 2)

Policy Recommendation:

The Council recommends that the Air District address community concerns about toxics and criteria pollutants directly, through established programs, rather than indirectly as co-benefits of GHG reduction policies. The approach embodied in proposed Regulation 11, Rule 18 is consistent with this recommendation.

ADVISORY COUNCIL NEXT AREA OF FOCUS
Particulate Matter

- **March – Sept 2018** - Focus initially on Diesel

- **Sept 2018 – Dec 2019** –
  Continue work on Health Effects:
  - Differentiated PM
  - Undifferentiated PM
  - Ultra-fine PM
- **Goals:**
  - What should we prioritize? How low is low enough?

AGENDA: 4

Review of Air District Priorities

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Jack P. Broadbent
Executive Officer/Air Pollution Control Officer

Joint Executive Committee/ Advisory Council Meeting ● Monday, March 26, 2018

UPDATE ON AIR QUALITY

- Traditional Regional Pollutants
  - Ozone (O3)
  - Fine Particulate Matter (PM2.5)
  - Toxic Air Contaminants (TACs)
- Climate Pollutants (e.g. GHGs)
- Focus on local exposure
- Monitoring technology evolving quickly
- Public support and interest growing

KEY RULE MAKING EFFORTS

- AB 617 Implementation
- Refinery Focused Rules
- Groundbreaking methane rules

AB617 Protecting Community Health

Executive Committee & Advisory Council
March 26, 2018

Henry Hilken
Planning & Climate Director

Bay Area Air Quality Management District

AB 617 background

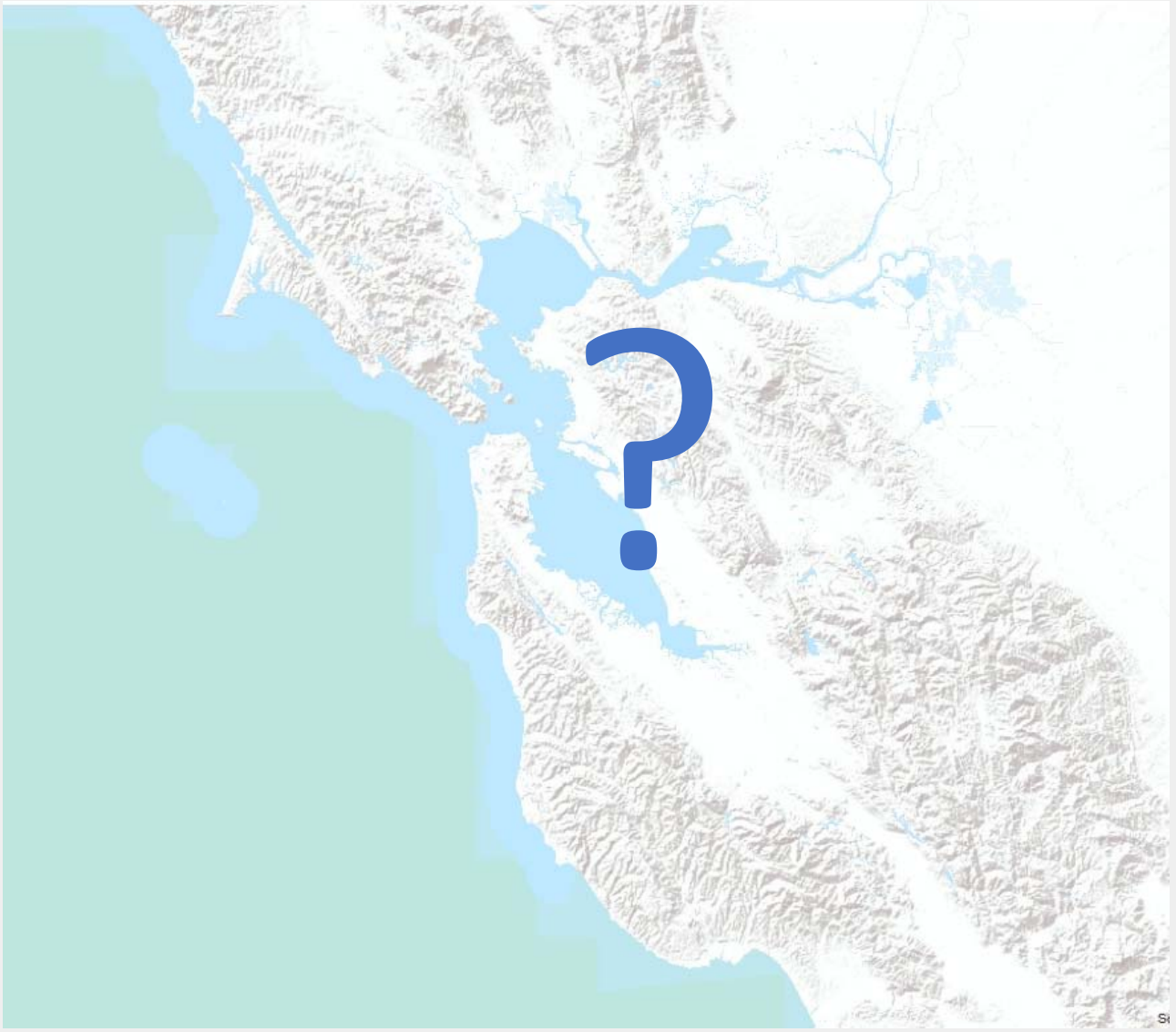
- Originated in negotiations regarding the extension of Cap & Trade program (AB 398)
- Responds to advocates' concerns with continued high levels of air pollution in local communities
- Directly addresses toxics and criteria pollutants in the most impacted communities

AB 617 program components

- Community selection
- Community monitoring
- Emission reduction action plans
- Emissions inventory
- Incentives
- BARCT Update/Clearinghouse

Community Selection

*State requires districts to work with communities to select all areas in the region that have a **"high cumulative exposure burden"** and then **prioritize** areas for community monitoring or actions plans over the next 6 years.*



How do we select all candidate communities?

- High pollutants
  - fine particles
  - toxics
  - ozone
- Mortality
- Cancer risk
- ER visits and hospitalizations due to air pollution

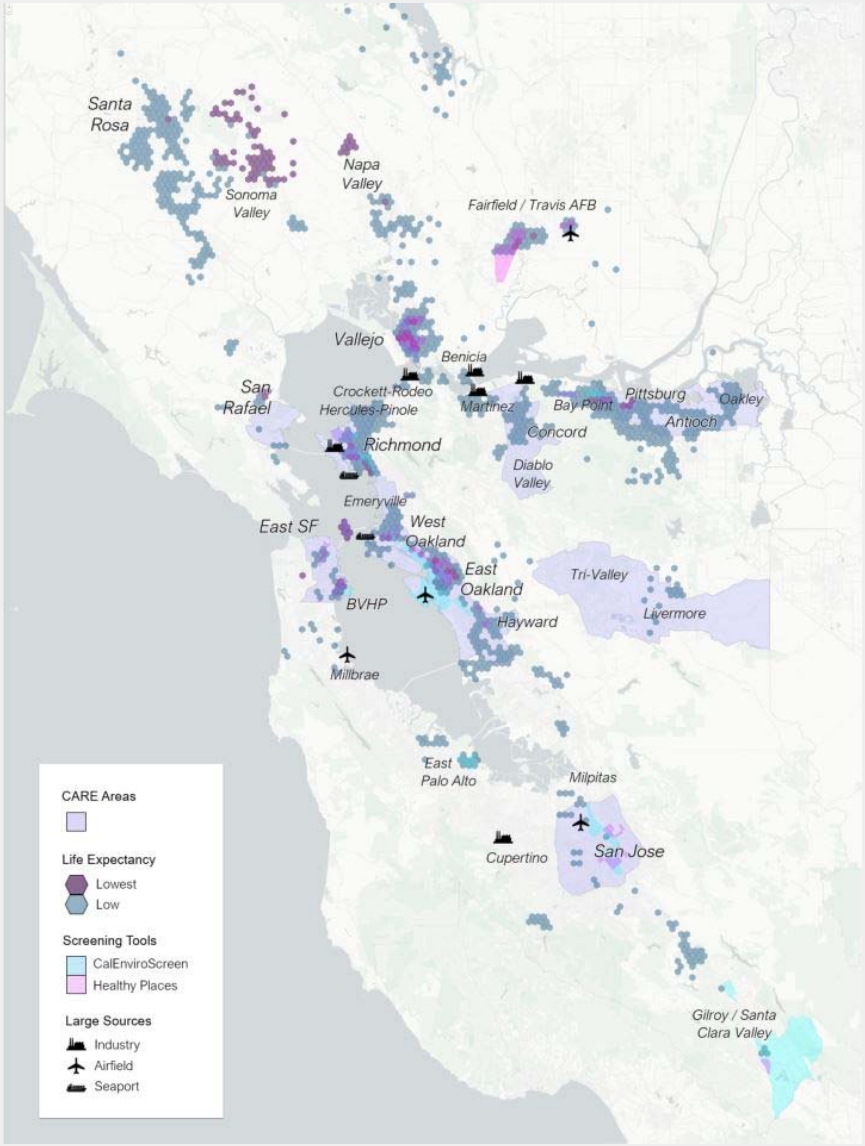
- Life expectancy
- Low birth weight
- Diesel exhaust
- Traffic
- Socioeconomic factors
- Education
- Housing costs
- Access to transportation

- Oil refineries
- Cement plants
- Chemical plants
- Marine ports
- Airports

1. Additional impacts includes all data indices from CalEnviroScreen and Healthy Places Index

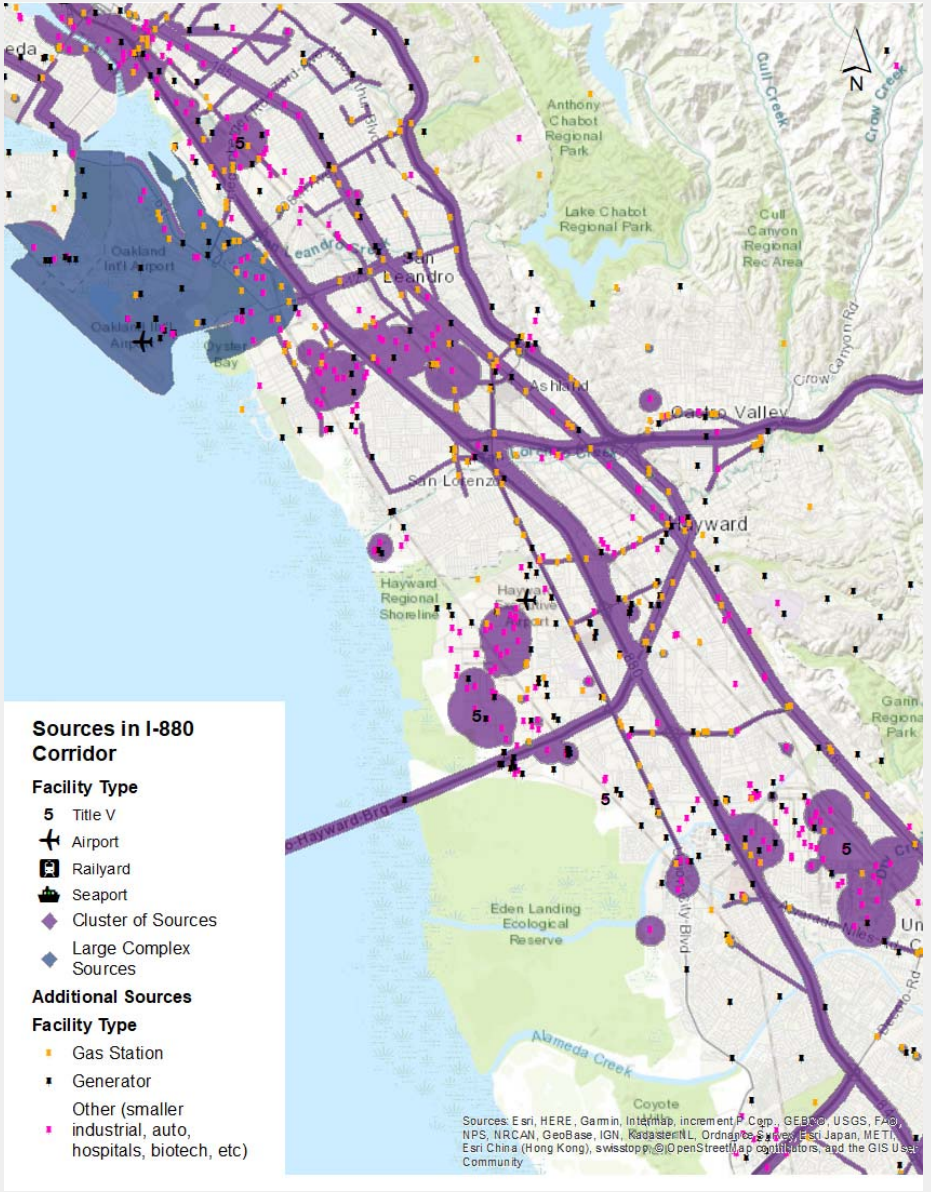
Community Selection –
Criteria Under Consideration

- CARE Areas
- Areas with large sources
- Areas with health vulnerability and pollution impacts, identified with statewide tools
- Areas with low life expectancy



Sources that Impact the I-880 Corridor

- Oakland Airport
- Freeways and major roadways
- Railroads
- Large distribution centers



How do we prioritize communities for action?

Air Quality	Health Burden/Vulnerability	Other Factors?
• Fine particles • Toxics • Ozone	• Life expectancy • Lung disease • Heart disease	?

Community Monitoring: Objectives

- Characterize ambient concentrations
  - population exposure
  - maximum concentration from single large sources
  - local impacts
- Measure routine emissions from stationary sources
- Incident response monitoring
- Research monitoring

Community Monitoring: Role

Community monitoring helps to reduce inequitable air pollution exposure by:

- Identifying localized elevated air pollution issues
- Determining contribution of sources
- Providing a method for tracking effectiveness of community emission reduction plans

Community Monitoring: Screening

- Can be conducted by district or communities
- Can include observations other than pollution concentrations
- Mobile monitoring to identify persistent relative differences in cumulative exposure for some pollutants
- Dense network of low-cost sensors
- Satellite observations
- Require fixed-site high-quality data collected simultaneously as an ‘anchor’

Community Monitoring: Challenges

- Work with each community to design a unique monitoring plan
- Data must be available to the public
- Leads to more complex data collection, communications, and management
- Requires ongoing planning and evaluation to ensure effectiveness

Emission Reduction Plans

- Local air quality conditions and impacts
- Emission reduction targets
- Sources
  - stationary
  - mobile (including indirect/magnet)
- Emissions inventory by source
- Specific emission reduction strategies
- Implementation schedule
- Enforcement plan
- Method for tracking progress

Emissions Inventory

- Annual stationary source emissions reporting for facilities:
  - already subject to mandatory GHG reporting
  - emits 250 tons/year or more of any nonattainment pollutant/precursor
  - has an “elevated prioritization score” based on cancer or noncancer impacts
- Uniform statewide annual reporting for criteria and toxic emissions
- Direct reporting to state of stationary sources emissions
- Third party verifier

Incentives

$50 Million:

- Reduce diesel from mobile sources
- Prioritize impacted communities
- Dirty fleet replacement
- Voluntary participation
- Under contract by June 30, 2019
- Funds spent by June 30, 2021

Best Available Retrofit Control Technology

- Non-attainment pollutants
- Determine Best Available Control Technology
- Coordinate with state and other districts
- Adopt BARCT implementation schedule
  - include Cap & Trade sources
  - consider:
    - benefits to local community
    - cost effectiveness
    - air quality attainment benefits
  - deadline December 31, 2023

AB 617 Statutory & Program Deadlines

DATE	MILESTONE
March 9, 2018	Deadline for communities to self-nominate
April 30, 2018	Initial list of all possible communities submitted to ARB
July 31, 2018	Final list of communities for monitoring and plans to ARB – recommendation for year 1; years 2 through 6
October 1, 2018	ARB selects Year 1 communities for monitoring and/or planning
June 30, 2019	Initial round of grant funds contracted out
July 1, 2019	Air District deploys monitors
October 1, 2019	Air District adopts community action plan(s)
December 31, 2023	BARCT must be implemented

CARE Provides Foundation for AB 617

CARE program's extensive technical analysis, health data, community engagement, and mitigation planning provide robust foundation for AB 617 implementation

West Oakland

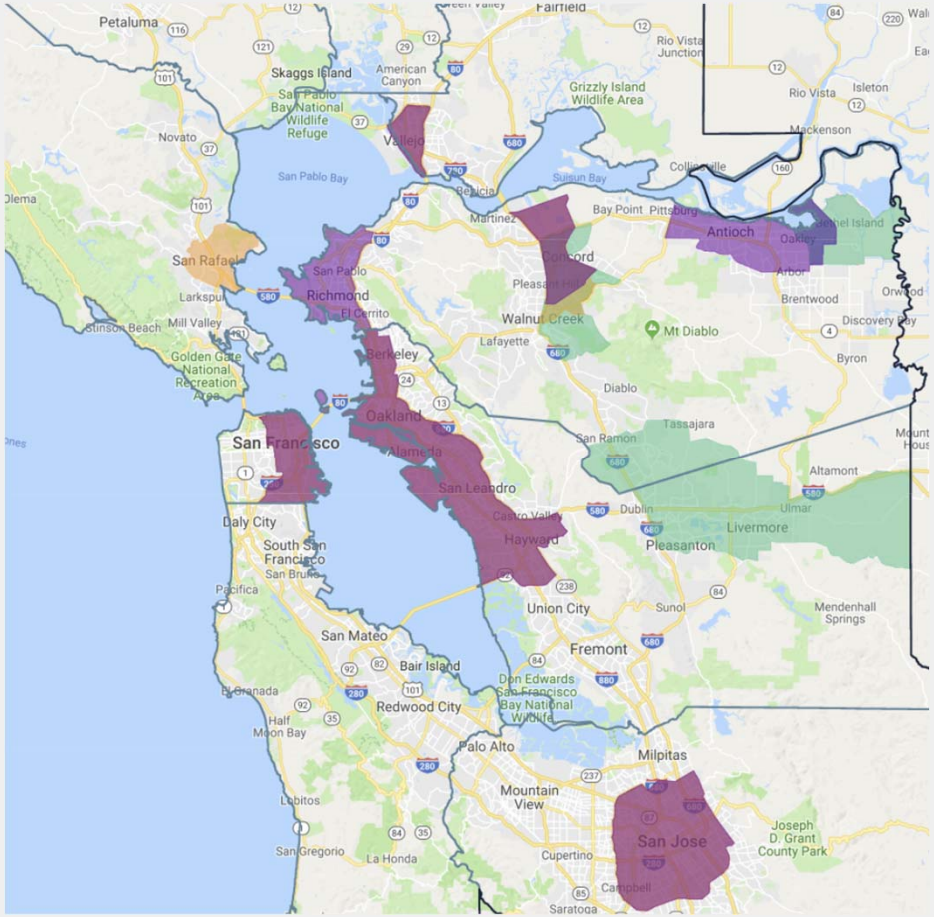
- Collaborate with community groups
- Collaborate with Air Resources Board, MTC, Port of Oakland, City of Oakland and others
- Technical analysis of local pollution and health conditions
- Funding clean up of diesel equipment

Richmond

- Expand fence line and community monitoring in refinery communities

San Francisco

- Detailed emissions inventory modeling, mapping, and policies to reduce exposure



Early AB 617 Actions

- Risk Reduction Action Plan in West Oakland - *leveraging their experience to develop first action plan*
- Community monitoring in Richmond – *characterize exposure and determine pollutant sources*

What's next?

March 2018	• Begin community meetings
April 30, 2018	• Air districts submits candidate community areas, i.e. all high cumulative exposure burden areas, to State
July 31, 2018	• Final recommendation to State on Year 1, Year 2-5, Years 6+ communities
October 1, 2018	• State selects Year 1 communities
Fall 2019	• State selects additional communities (and annually thereafter)
Ongoing	• Develop actions plans for West Oakland and community monitoring in Richmond