

Health Effects of Air Pollution

Environmental Justice Community Partnership

Presented at:

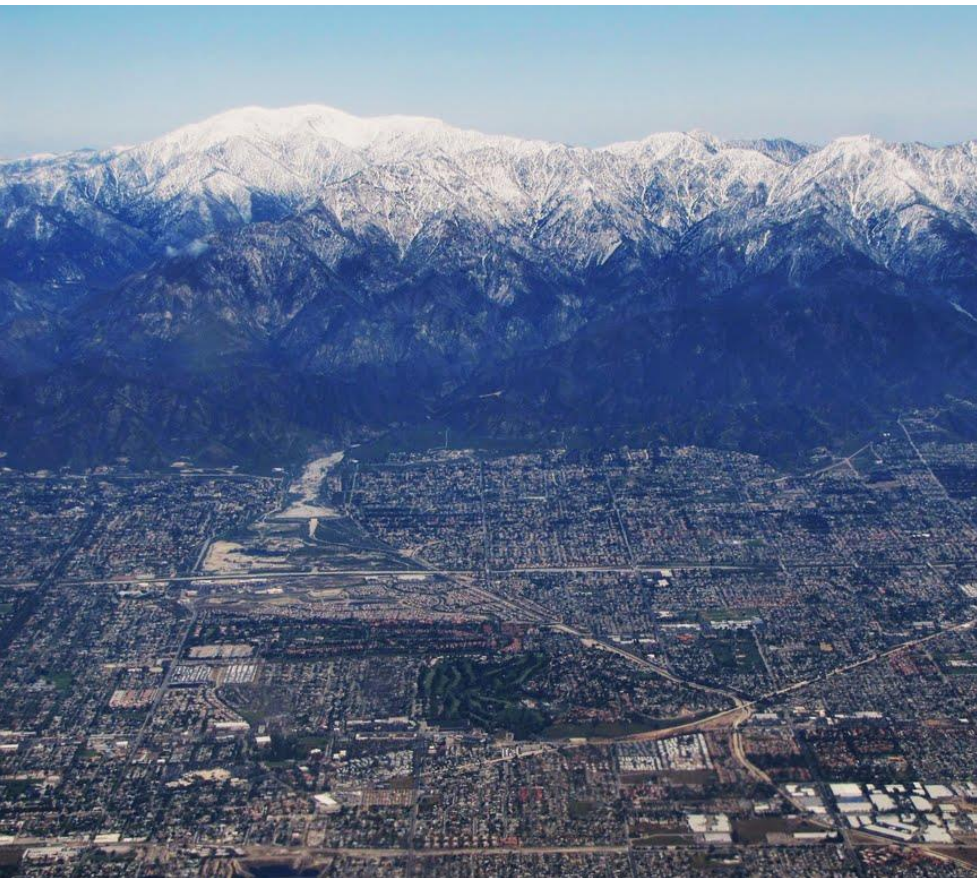
Coachella Valley Mosquito & Vector Control
District (CVMVCD)

43420 Trader Place

Indio, CA



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South Coast Air Quality Management District



NOAA

Gases:

Oxygen, Nitrogen Oxides, Sulfur
Oxides, Ozone...

Liquids and solids:

Dust, smoke particles, water
droplets...

When does it become **air pollution**?

When their **concentration** is **high enough**
for a **sufficient time** to interfere with human
health and/or cause environmental damage

Criteria pollutants

Common throughout the U.S.

- Carbon Monoxide ([CO](#))
- Lead ([Pb](#))
- Nitrogen Dioxide ([NO₂](#))
- Particulate matter ([PM](#))
- Ozone ([O₃](#))
- Sulfur Dioxide ([SO₂](#))

Toxics*

Community specific

- Arsenic
- Hexavalent Chromium
- Benzene
- Nickel
- Selenium
- Mercury
- ... dozens more

* **Not to be confused with** **toxins**

- Both can cause **health effects**
 - (Different concentrations and different exposure times)
- Both are **monitored and regulated** by South Coast AQMD

Particulate Matter (PM)

The sum of all solid and liquid particles suspended in the air

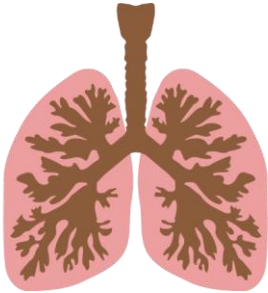
Classified by size:

- **PM₁₀**
 - Coarse particles
- **PM_{2.5}**
 - Fine particles
- **PM_{0.1}**
 - Ultrafine particles



Image courtesy of the U.S. EPA

PM Health Effects



Respiratory:

- Asthma
- Bronchitis
- Lung function
- Irritation
- Premature death



Cardiovascular:

- Worsened heart disease
- Premature death



Cancers:

- Lung cancer



Reproductive:

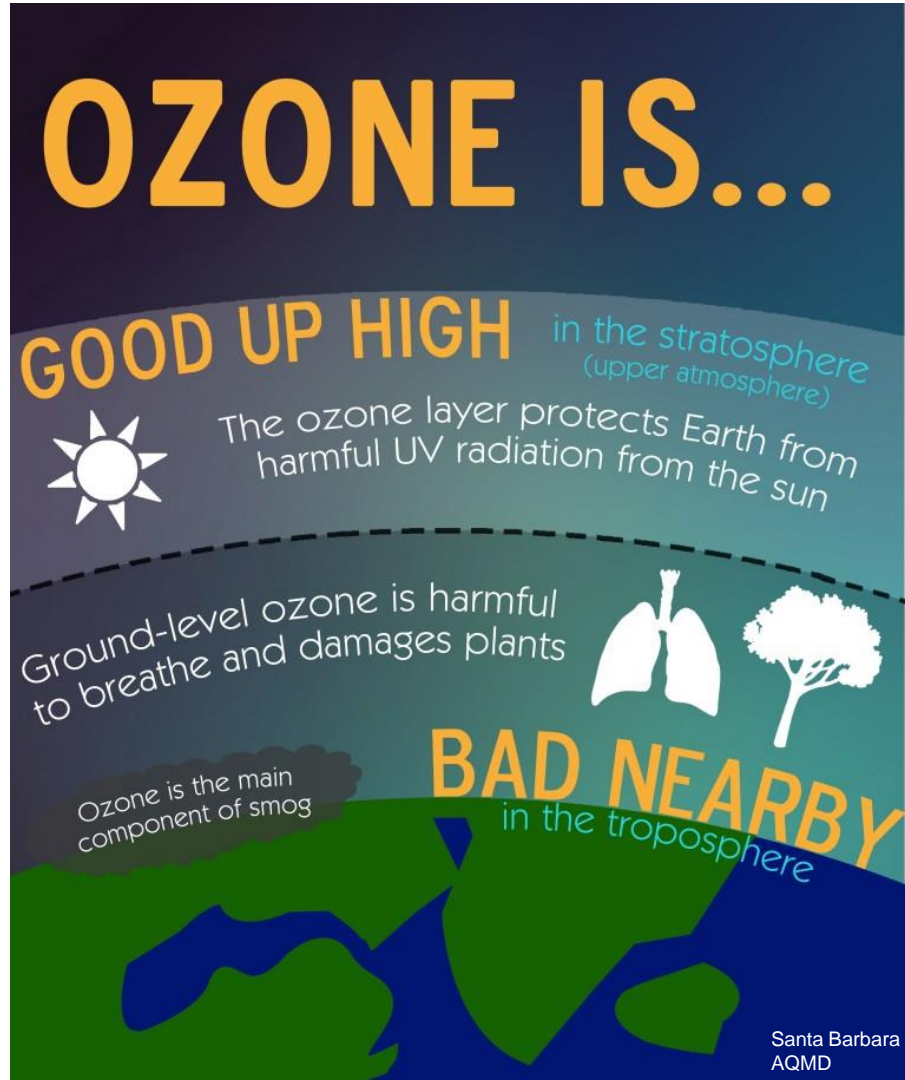
- Low birth weight

School absences

Increased Hospital admissions

Ozone

- ▷ Invisible **gas**
- ▷ Harmful at **ground level**
- ▷ Main component in smog in our area
- ▷ Secondary
 - ▷ It forms in the atmosphere



Ozone Health Effects

- ▶ Changes in lung function
- ▶ Throat irritation
- ▶ Chest discomfort
- ▶ Increases in respiratory symptoms
 - ▷ Trouble breathing
- ▶ Exacerbation of asthma

Increases in school absences
Increased mortality rates

Higher risks of asthma for children living
in communities with higher ozone levels
(*USC Children's Health Study*)

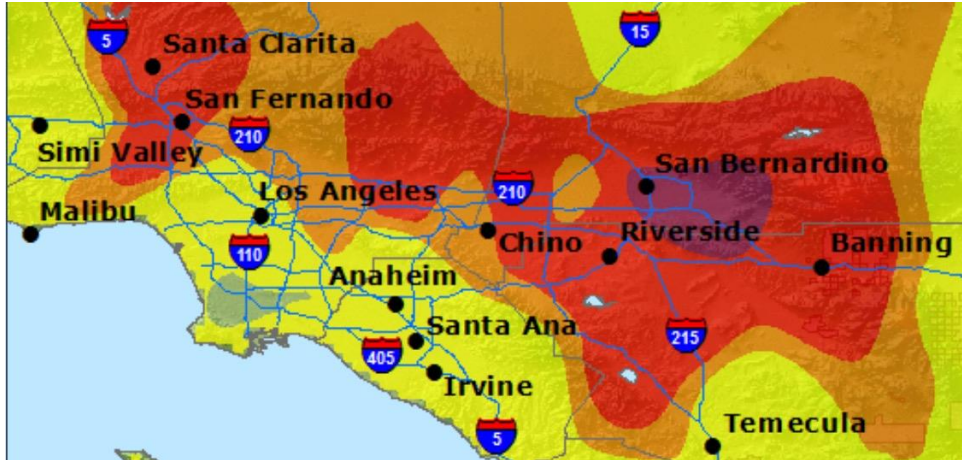


Air Quality Index (AQI)

Five major air pollutants regulated by the Clean Air Act:

- **Ground-level ozone**
- **Particulate**
- Carbon monoxide,
- Sulfur dioxide
- Nitrogen dioxide.

Early evening



www.airnow.gov

AQI Value

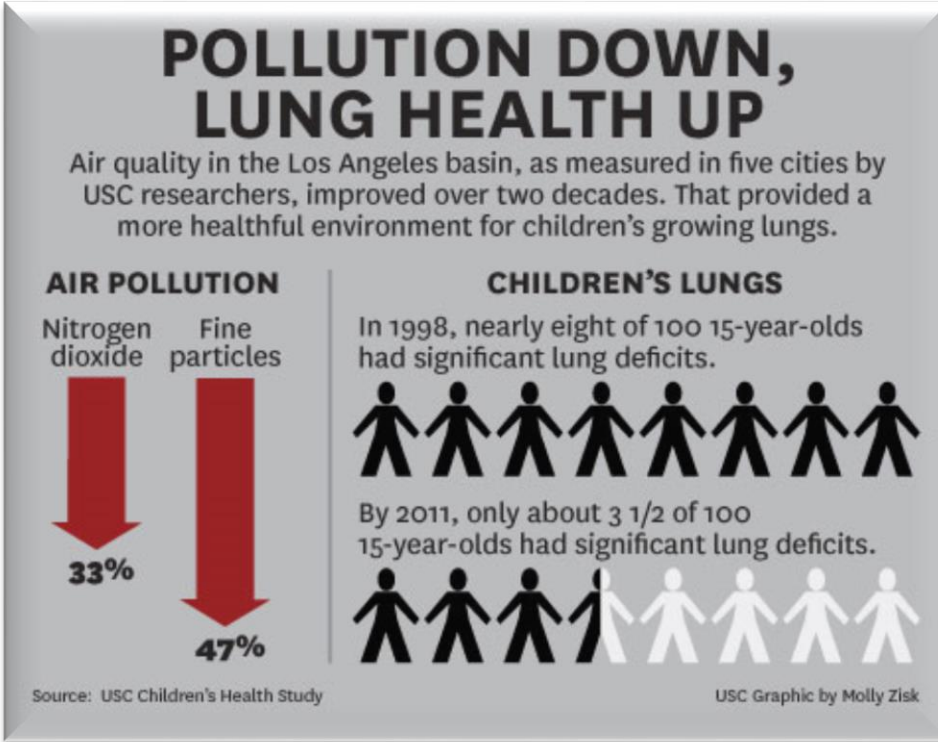
Good
(0–50)

Moderate
(51–100*)

Unhealthy
for Sensitive
Groups
(101–150)

Unhealthy
(151–200)

Very Unhealthy
(201–300)



Last 30 Years:

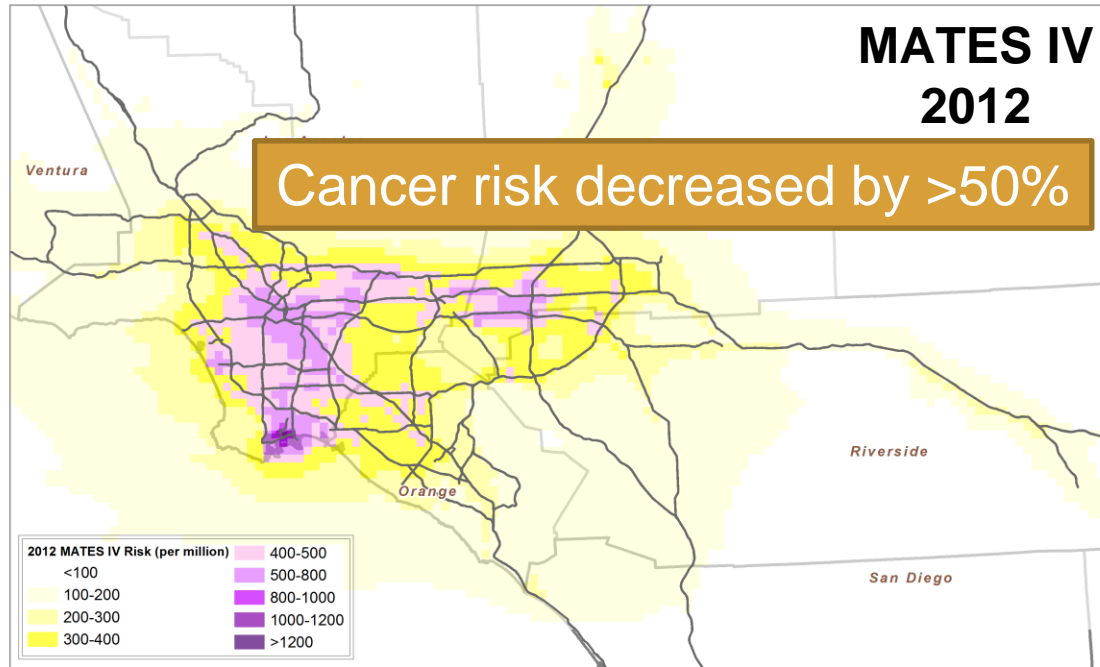
- Population increase
- Number of cars increase
- Productivity increase
- Job increase
- **Pollution levels have fallen.**

Study found Millennials in Southern California breathe easier than Gen-Xers who came of age in the '90s.

Better air quality → Better health

Multiple Air Toxics Exposure Study (MATES)

- 10 monitoring sites
- Focus on **toxics** exposure and risk



You can make a difference

▶ Stay informed

- ▶ Check daily air pollution forecasts in your area.
- ▶ Sign up for air alerts
- ▶ www.airnow.gov and www.aqmd.gov & SCAQMD's app

More information

Criteria pollutants

- **EPA's (Environmental Protection Agency)**
 - <https://www.epa.gov>
- **California Office of Health Hazard Assessment (OEHHA):**
 - <https://oehha.ca.gov>

Toxics

- **Agency for toxic substances & disease registry's ToxFAQs:**
 - <https://www.atsdr.cdc.gov>

Summary

- ▶ Air pollution is linked to many health effects
 - ▷ Different pollutants cause different health outcomes depending on their **concentration** and the **exposure time**
 - ▷ Ozone: Respiratory system
 - ▷ PM: Cardiovascular and respiratory effects
- ▶ **Improved air quality** in Southern California is linked to improved children's respiratory health
- ▶ You can personally **take action** in protecting your health and those that you love.
- ▶ SCAQMD continues to monitor and reduce criteria pollutants and toxics in the South Coast Basin



Cleaning the Air **in the Most Impacted** **Communities**

AB617, A new opportunity





5 Main Components

Air
Monitoring

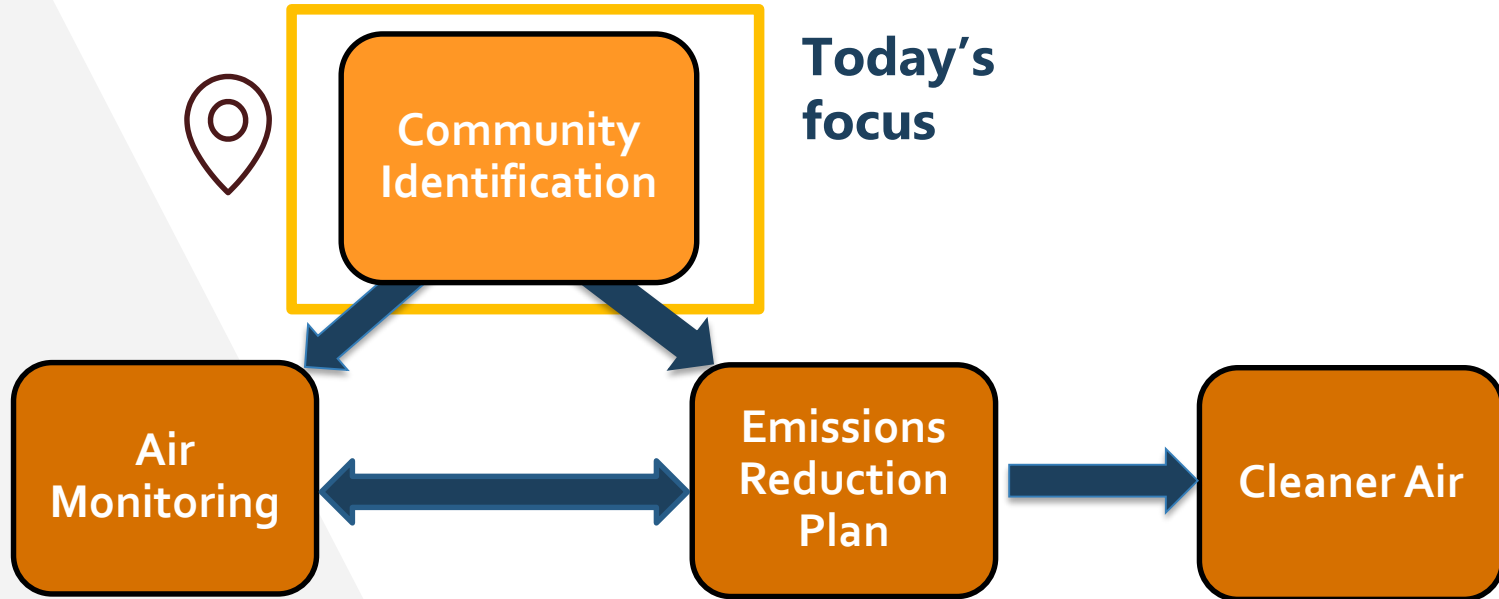
Community
Emissions
Reduction
Plan

Best
Emission
Controls

Easier
Access to
Emissions
Data

Clean
Technology
Investments

Community ID



Approach

Community
Input

Available
Information

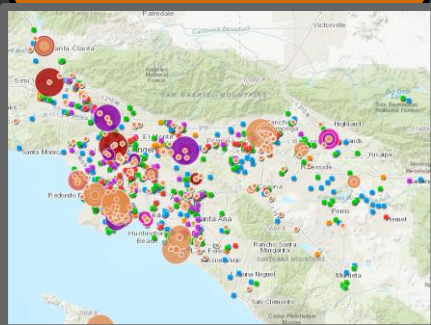
Community
Identification &
Prioritization



Available information

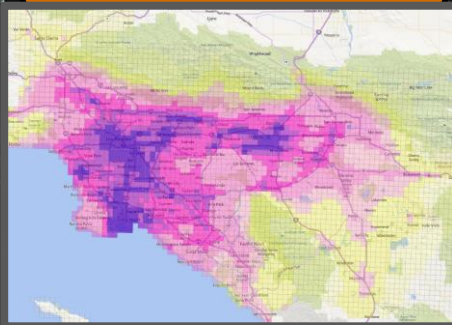
Source Location

Permitted Facilities,
Freight and
Transportation Corridors



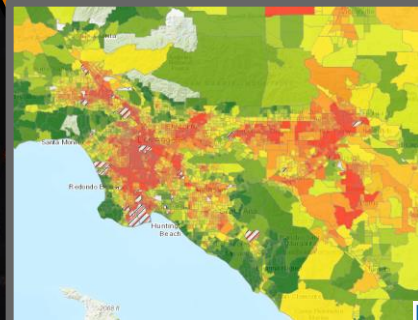
Multiple Air Toxic Studies (MATES)

Air Toxics Cancer Risk

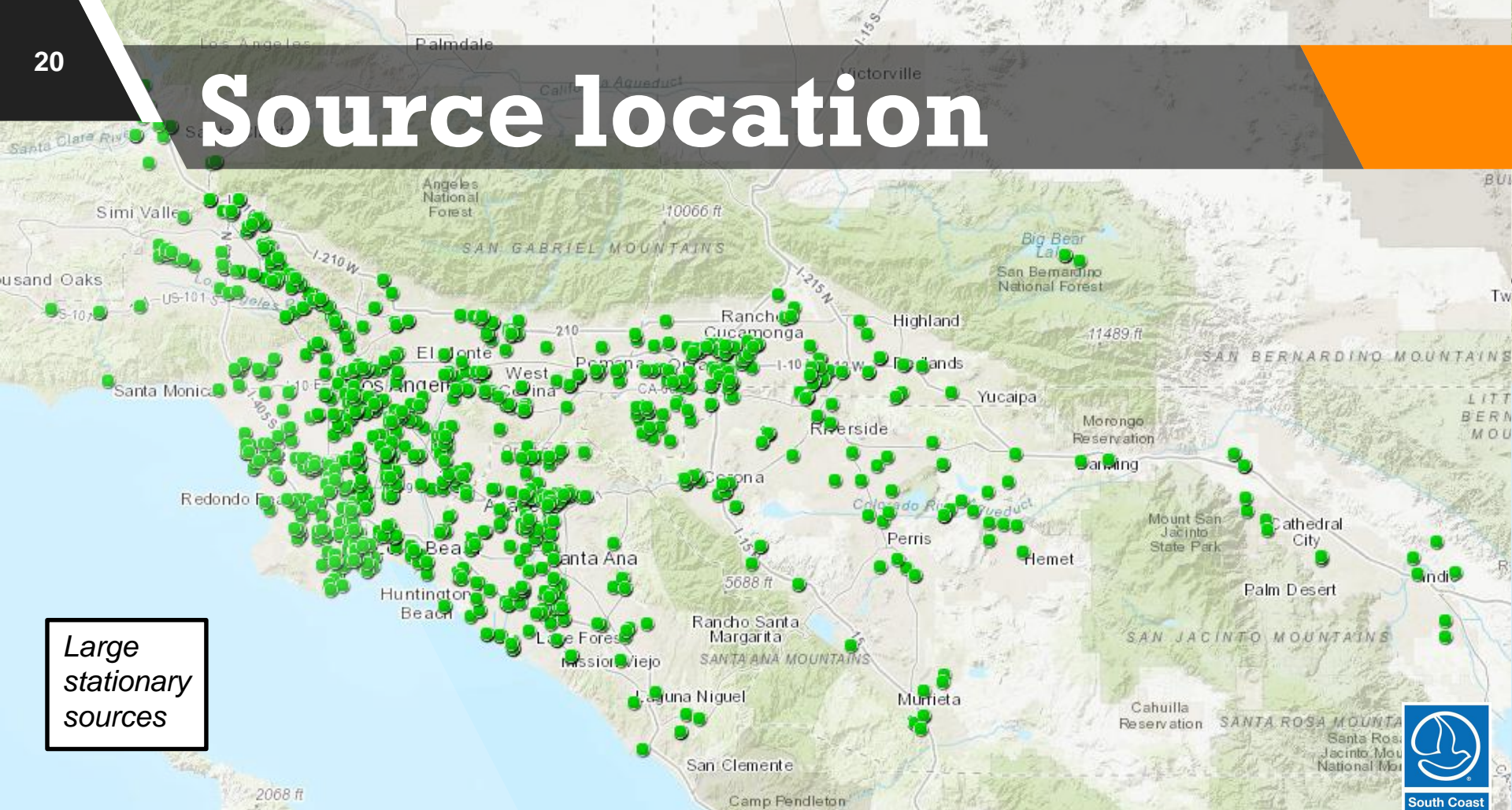


CalEnviroScreen 3.0

Socioeconomic Factors,
Environmental Factors

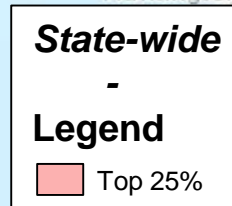


Source location



Large
stationary
sources

Environmental & Socioeconomic Indicators



CalEnviroScreen3.0

Air Toxics Cancer Risk

Main findings:

- **Diesel Particulate Matter (PM)** accounted for 2/3 of air toxics cancer risk
- **Ports (ships), rail yards and goods movement corridors (trucks)** are large sources of diesel PM.



Cancer Risk Per Million



MATES IV

Feedback

on Community Identification & Prioritization approach

- Community location
- Description of the community
- Description of needs
- Description of air pollution concern

By
May 7th
2018

Email a letter to:

ab617@aqmd.gov

Mail a letter to:

Attn: AB617 forms

*21865 Copley Dr. Diamond Bar, CA
91765*

Current SCAQMD approach

- ▶ Close coordination with California Air Resources Board (CARB)
- ▶ Using existing and new resources
- ▶ Pursuing early actions



2018 Timeline

Feb-
April

- SCAQMD receives public input on community selection criteria and recommendations

May-
June

- SCAQMD staff draft of communities and prioritization and seeks public feedback on draft list

July

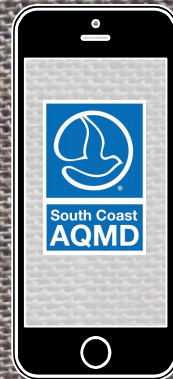
- SCAQMD Board considers list of communities and prioritization

Oct

- CARB board considers statewide AB617 strategy

**Stay
connected**

www.aqmd.gov/ab617



@SouthCoastAQMD



Discussion

- ▶ What type of information should we consider for selecting and prioritizing communities?
- ▶ What is the best way for us to get your input? (Email, website, social media, city governments...etc.)

For additional information:

Email: ab617@aqmd.gov

Phone number: (909) 396-3314



South Coast
AQMD

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