



**South Coast
Air Quality Management District**

21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

**NOTICE OF SPECIAL MEETING
OF THE GOVERNING BOARD**

Day One: May 10, 2018 - 1 - 5 p.m.
Day Two: May 11, 2018 - 9 a.m. - 12 p.m.

Renaissance Indian Wells • Crystal Ballroom
44400 Indian Wells Lane, Indian Wells, CA 92210

AGENDA

It is expected that items 1 through 5 will be completed on Day One. However, items may be taken in any order and items may be heard on either day.

<p>Day One</p>	
<ul style="list-style-type: none"> • Welcome 	<p>Dr. William A. Burke Chairman</p>
<p>1 Faster, Smarter, Greener: Transforming Urban Mobility</p> <p>Dr. V. Sumantran explores issues related to urban mobility and proposes a scalable and adaptable framework that can help guide our society’s efforts to transform urban mobility to becoming sustainable and future-relevant.</p>	<p>Dr. V. Sumantran Chairman, Celeris Technologies</p>
<p>2 Update on 2016 Air Quality Management Plan</p> <p>The 2016 Air Quality Management Plan (AQMP) was adopted in March 2017. Staff will provide an update on implementation of key 2016 AQMP measures, including rule development.</p>	<p>Philip Fine DEO/Planning, Rule Development & Area Sources 909.396.2239</p>

<p>3 Financing Clean Air: Status Update and Options</p> <p>Staff will present a summary of existing funding sources available to incentivize zero- and near-zero emission equipment, and discuss pros and cons of potential future funding sources.</p>	<p>Wayne Nastri Executive Officer 909.396.3131</p>
<p>4 Update on Information Management Projects</p> <p>Staff will provide an update on key Information Management projects, both current and future. These projects highlight significant aspects of SCAQMD's Information Technology progression. The presentation will include information on SCAQMD's eGIS Open Data Portal, Replace Your Ride Web application, move to the cloud with Office 365, and cyber security.</p>	<p>Ron Moskowitz ADEO/Information Management 909.396.3329</p>
<p>5 Recommendations Regarding SCAQMD FY 2018-19 Budget</p> <p>Staff will present concepts for reaching a balanced budget for FY 2018-19 and will seek recommendations from the Board.</p>	<p>Sujata Jain ADEO/Finance 909.396.2804</p>
<p>CLOSED SESSION</p> <p>CONFERENCE WITH LEGAL COUNSEL - INITIATING LITIGATION</p> <p>It is necessary for the Board to recess to closed session pursuant to Government Code Sections 54956.9(a) and 54956.9(d)(4) to consider initiation of litigation (four cases).</p>	
<p>Day Two</p>	
<p>6 Implementation of AB 617</p> <p>AB 617 was signed into law in August 2017 addressing toxic air contaminants and criteria pollutants through community monitoring, emission reduction plans, enhanced statewide emissions reporting, Best Available Retrofit Control Technology implementation, and incentive funding. Staff will provide an overview regarding AB 617 implementation activities highlighting the initial work for community identification and prioritization.</p>	<p>Jo Kay Ghosh, Matt Miyasato Health Effects Officer 909.396.2582 DEO/Science & Technology Advancement 909.396.3249</p>

<p>7 Update on Local Toxics Investigations and Coastal Odors</p> <p>Staff will summarize efforts in the cities of Paramount and Compton, and along the coastal areas.</p>	<p>Marian Coleman, Jason Low</p> <p>DEO/Compliance & Enforcement 909.396.2415</p> <p>ADEO/Science & Technology Advancement 909.396.2269</p>
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<p>8 Potential International Partnerships with Ports for Emission Reductions</p> <p>This item will discuss the need to achieve emission reductions from ocean going vessels (OGVs), the limitations and barriers posed by the current international regulatory scheme, and local incentive programs. Staff will provide an overview of a novel potential approach to collaborate with Pacific Rim ports to achieve emission reductions. The approach would leverage the power of each port’s incentive program along a particular shipping route to encourage accelerated deployment of cleaner OGVs as well as lower emission retrofits.</p>	<p>Sarah Rees</p> <p>ADEO/Planning, Rule Development & Area Sources 909.396.2856</p>
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Public Comment
Members of the public may address the Governing Board concerning any agenda item before or during consideration of that item (Govt. Code Section 54954.3). Speakers will be limited to three (3) minutes or less on each agenda item. At a special meeting, no other business may be considered. The agenda for this meeting is posted at SCAQMD Headquarters, 21865 Copley Drive, Diamond Bar, CA, and at 44400 Indian Wells Lane, Indian Wells, CA, at least 24 hours in advance of the meeting.

Adjournment

Document Availability
All documents (i) constituting non-exempt public records, (ii) relating to an item on the agenda, and (iii) having been distributed to at least a majority of the Governing Board after the agenda is posted, are available prior to the meeting for public review at the South Coast Air Quality Management District Clerk of the Boards Office, 21865 Copley Drive, Diamond Bar, CA 91765, and will also be available at the Retreat site (44400 Indian Wells Lane, Indian Wells, CA 92210) on the days of the meeting.

Americans with Disabilities Act
The agenda and documents in the agenda packet will be made available, upon request, in appropriate alternative formats to assist persons with a disability [Govt. Code Section 54954.2(a)]. Disability-related accommodations will also be made available to allow participation in the Board Retreat. Any accommodations must be requested as soon as practicable. Requests will be accommodated to the extent feasible. Please contact Clerk of the Boards at 909-396-2500 from 7 a.m. to 5:30 p.m. Tuesday through Friday, or send the request to cob@aqmd.gov.

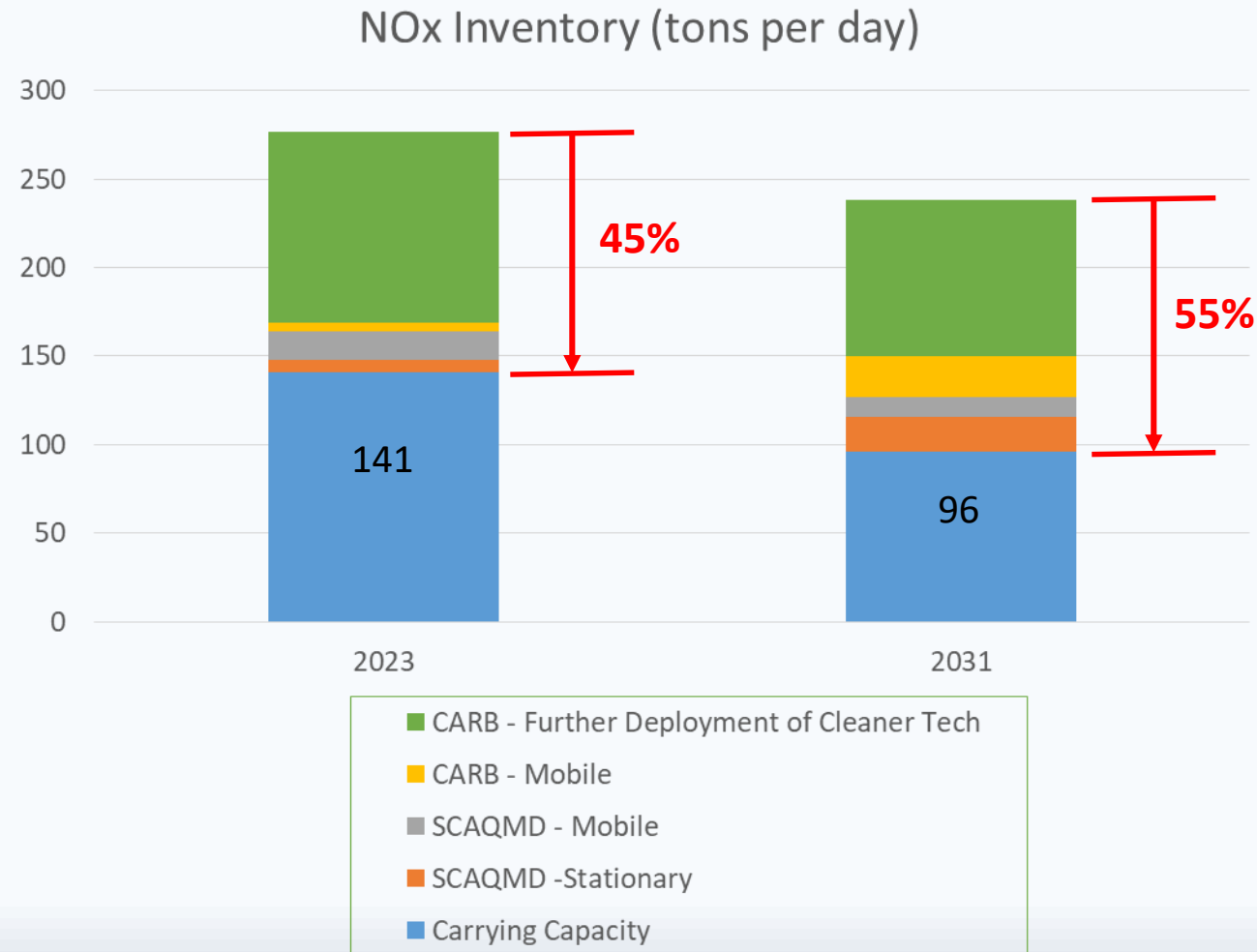


Update on 2016 Air Quality Management Plan

SCAQMD Governing Board Retreat

May 2018

2016 AQMP - Overall Control Strategy (NOx)



SCAQMD Measures:

- Stationary Sources
 - ✓ Regulations
 - ✓ Incentives
- Mobile Sources
 - ✓ Fleet Rules
 - ✓ Facility-based
 - ✓ Incentives

CARB Measures:

- Mobile Sources
 - ✓ Regulations
 - ✓ Incentives
 - ✓ Further Deployment
- Consumer Products

2016 AQMP Implementation

- Rule Activity
 - ✓ Stationary sources (SCAQMD)
 - ✓ Mobile sources (CARB)
- Incentives
 - ✓ Incentive RFP Issuance (SCAQMD)
 - ✓ Additional State Funding
 - ✓ SIP Creditability
- Policy Development
 - ✓ Lifecycle analysis for residential applications (NEAT model)



NOx / VOC Control Measures

AQMP Control Measure	SCAQMD Activity	Schedule
RECLAIM Assessment (CMB-05)	Rules 2001, 2002 Rules 1146, 1146.1, 1146.2 Rule 1118.1 Rule 1110.2 Rule 1134 Rule 1135 Rule 1109.1 Rules 1147.1, 1147.2 and 1147.3	January 2018 June 2018 September 2018 September 2018 October 2018 November 2018 December 2018 2019
Non-Refinery Flares (CMB-03)	Rule 1118.1	September 2018
Incentive Measures: Stationary Sources (CMB-01) Commercial and Residential Applications (CMB-02) Residential Building Energy Use (ECC-03) Mobile Sources (MOB-14)	Up to \$61M Request for Proposals released January 2018	81 proposals received – evaluation in progress
Coatings, Solvents, Adhesives, and Sealants (CTS-01)	Rule 1168	October 6, 2017 <i>(1.4 tpd > 1 tpd VOC AQMP commitment)</i>

Toxic Control Measures

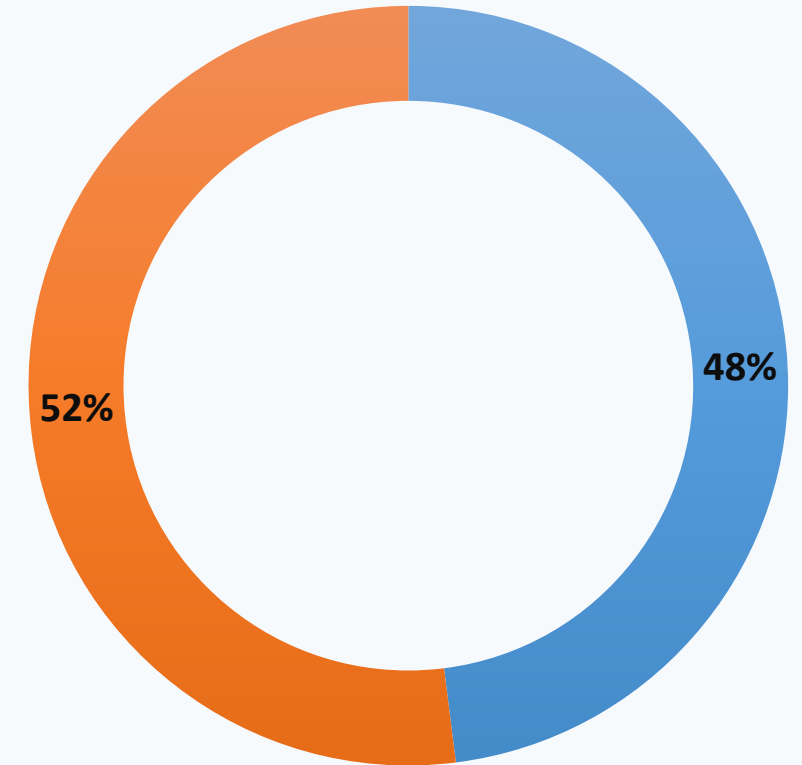
AQMP Control Measure	SCAQMD Activity	Schedule
Metal Particulate from Metal Grinding Operations (TXM-01)	Rule 1430	March 3, 2017
Metal Particulate Emissions from Contaminated Soil (TXM-04)	Rule 1466	July 7, 2017
Lead Emissions from Stationary Sources (TXM-07)	Rule 1420	December 1, 2017
Metal Particulate Emissions from Plating and Anodizing Operations (TXM-02)	Rule 1469	July 2018
Toxic Emissions from Metal Melting Facilities (TXM-06)	Rules 1407, 1407.1	September 2018

SCAQMD Mobile Source Control Measures

AQMP Control Measure	SCAQMD Activity	Schedule
Facility-Based Mobile Source Control Measures (MOB-01 to MOB-04, EGM-01)	Staff recommendation for each sector for Board consideration.	May 4, 2018
Fleet Rule Enhancement (MOB-07 and MOB-08) <i>plus adopted Board motion</i>	Rule 1190 series – sponsored legislation for expanded authority	2019-2020 (pending legislative authority)

Request for Proposals for Incentive Projects

- Up to \$61M broad-based RFP released in January 2018 and closed on April 11, 2018
 - Funding from existing Special Revenue Funds
- 81 proposals received
 - 42 stationary source projects
 - 39 mobile source projects
 - Total requested funding = \$379M
 - Some projects may be appropriate for other funding sources



■ Mobile Source Projects ■ Stationary Source Projects

CARB Mobile Source Control Measures / Rule Development

- Adopted Measure
 - South Coast Incentive Measure (HD Vehicles) – March 2018
 - 1,300 drayage / refuse trucks
 - 1 tpd of NOx reductions in 2023 (out of 3 tpd commitment)
- Upcoming Rule Activities
 - Zero-Emission Airport Shuttle Buses – August 2018
 - Innovative Clean Transit – August 2018
 - Last Mile Delivery – November 2018

Summary

2016 AQMP adopted 14 months ago

- Met VOC emission reduction commitment and submitted to SIP
- Continuing significant rulemaking activity 
 - Comprehensive transition of RECLAIM to command-and-control rules
 - Suite of toxic rules ensuring lower risk exposure in local communities
- Continuing policy development
 - Residential appliances
 - Stationary source incentives program guidelines
 - Facility-based measures
- Incentive measures – secured additional funding, seeking more

AQMP	AQMP rules adopted within two years
2007	11
2012	3
2016	5 + 16 scheduled

Questions?

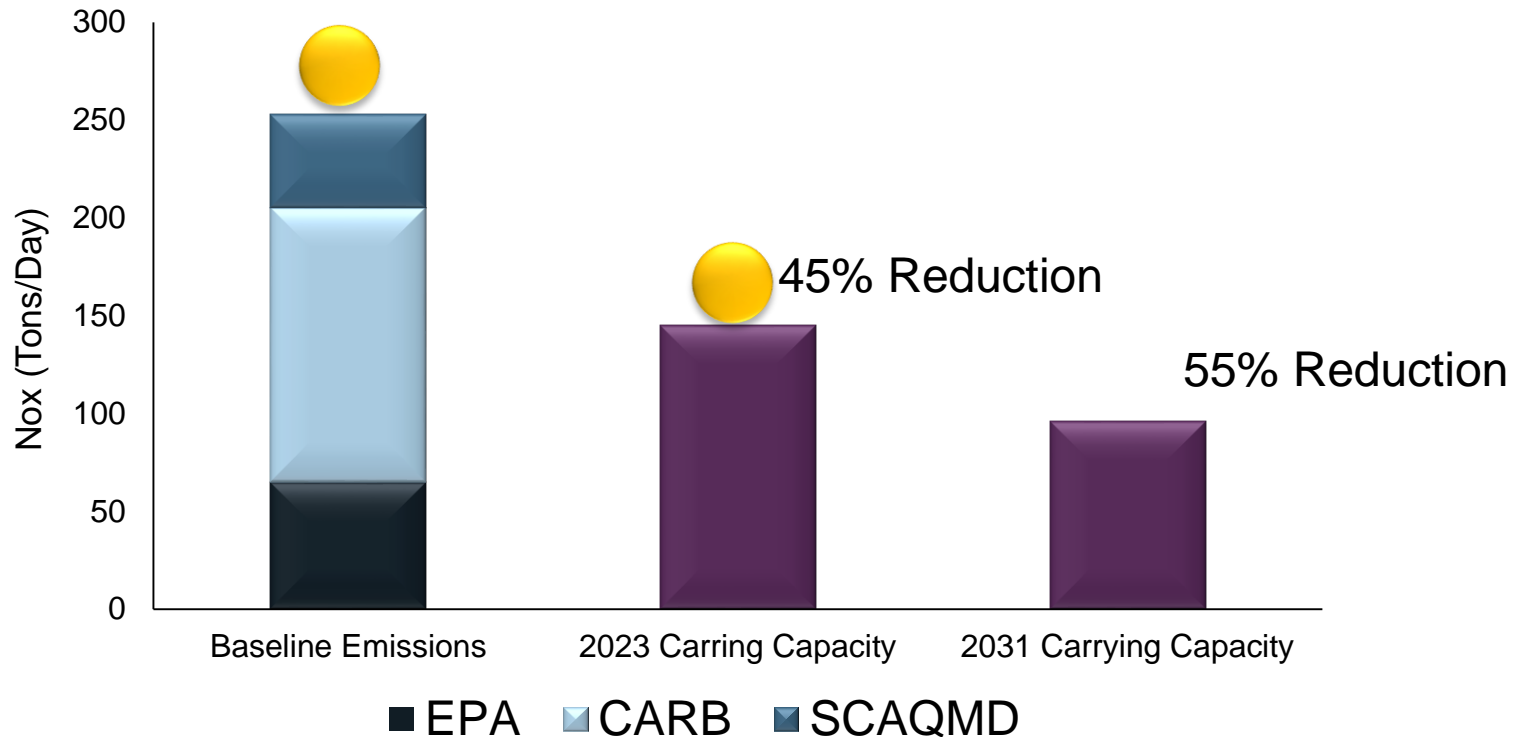
Financing Clean Air: Status Update and Options



SCAQMD Governing Board Retreat
May 2018



NO_x Sources



From baseline with all existing rules implemented

AQMP Financial Incentives Need



NOx Total Need 98 Tons/Day

Incentive Program Needs

250,000
Engines
by 2023

350,000
Engines
by 2031

Cost:
\$1 Billion or
More
Per Year
Incentives

2017-2018 Incentive Funding Successes - State (New)

\$107.5 million
one-time
(AB 134)

Greenhouse
Gas Reduction
Fund

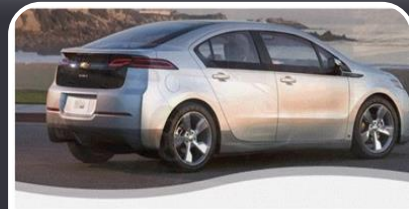


\$35 million
annually
(Starts 2020)

AB 1274/
Extend Smog
Abatement Fee



2018 CARB Funds Available to Spend in SCAQMD



 CLEAN VEHICLE
REBATE PROJECT™

Hybrid and ZE
Truck & Bus
Voucher Incentive
Program

\$80 Million



Clean Vehicle
Rebate Program

\$18 Million



Ports
Improvements

\$70 Million

2018 CARB Funds Available to Spend in SCAQMD



Enhanced Fleet
Modernization
Program (EFMP)

\$15 Million



Agricultural
Equipment
(FARMER)

\$2 Million



State Reserve
Fund (Off-Road
Equipment)

\$3 Million

2017-2018 Trucks/Cargo Handling Equipment



Proposition 1B (Final Year)
\$117 M

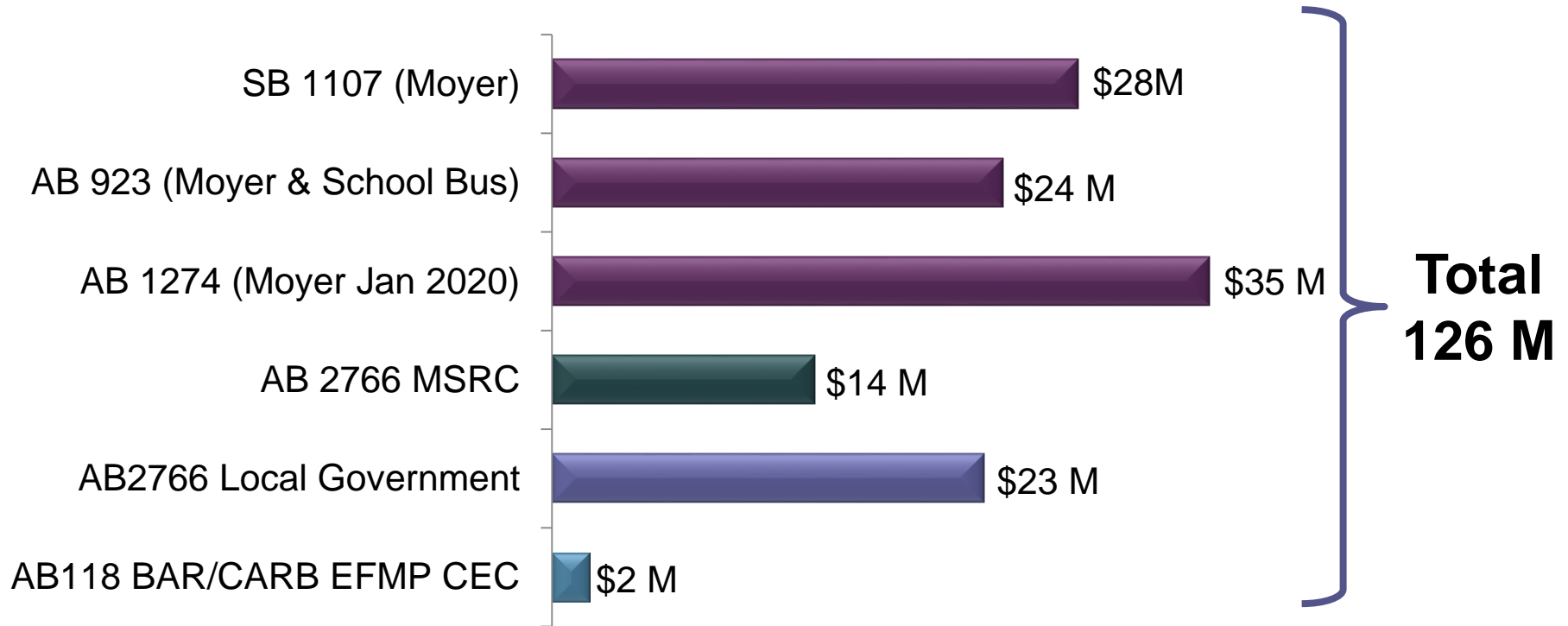


CEC (Trucks)
\$8 M



Ports (Trucks)
\$4 M

Ongoing State and Local Funding Sources



Settlement and Rule Mitigation Fees NO_x - VOC

Rule 1121
Residential
Water Heaters



Rule 1111
Residential
Furnaces



Rule 1118
Refinery Flares



Rule 1173
Refinery and
Chemical
Plants
Leak Detection



- Ongoing Rule Mitigation Fees (Varying Periods)
- Recent \$61 million RFP (Settlement and Mitigation Fees)

Other Potential Funding



- VW Settlement
 - Estimated: \$40 M per year over 5 years
 - Anticipate next year

Federal Incentive Funding Sources 2017



Total Incentive Funds 2017-18



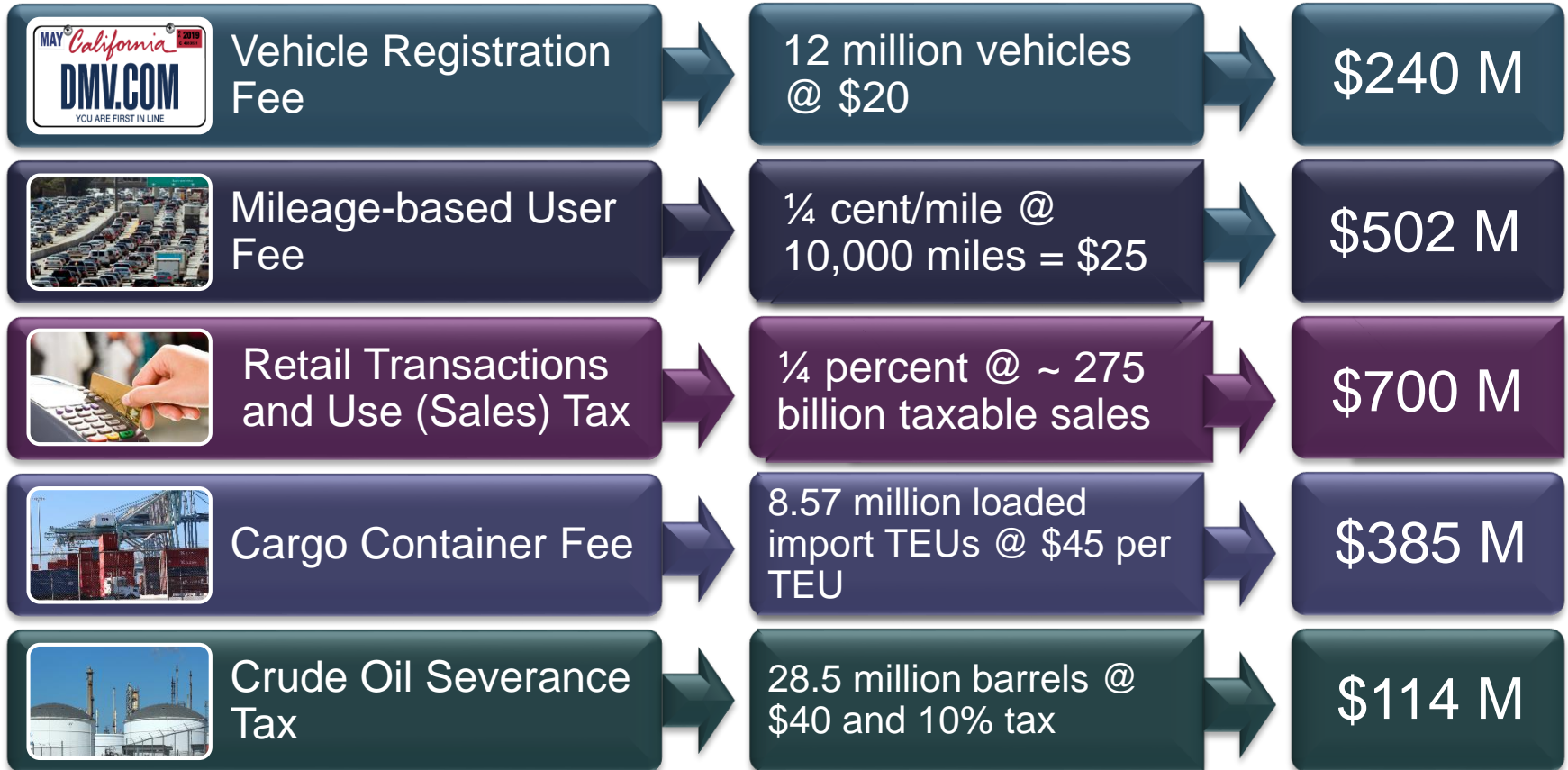
- One-time
 - State \$446 M
 - Local \$61 M
- Ongoing* \$91 M
- Total (State/Local)** \$598 M
- Federal*** \$8 M
- **Grand Total \$606 M**

* Additional \$35 M starting 2020

** Does not include potential funding from VW Settlement

*** Additional \$6M DERA FY 2018

State/Local Funding Options (Quantifiable) (Millions Annually)



State/Local Funding Options (Unquantifiable)

**Donations –
Individuals/
Foundations/
Corporate**
(If no conflict)

**Benefit
Assessments**
(e.g., Near
Freeways/
Railyards)

**Port
Differential
Rate
Structures**
Trucks, Ships
Major funding
for earlier
Clean Truck
Program

**CEQA
Mitigation
Fund**
(World
Logistics
Center)

**Air Quality
Investment
Fund in Lieu
of Offsets**

**Special
Interest
License
Plates**



State/Local Options Tabled



Property Tax

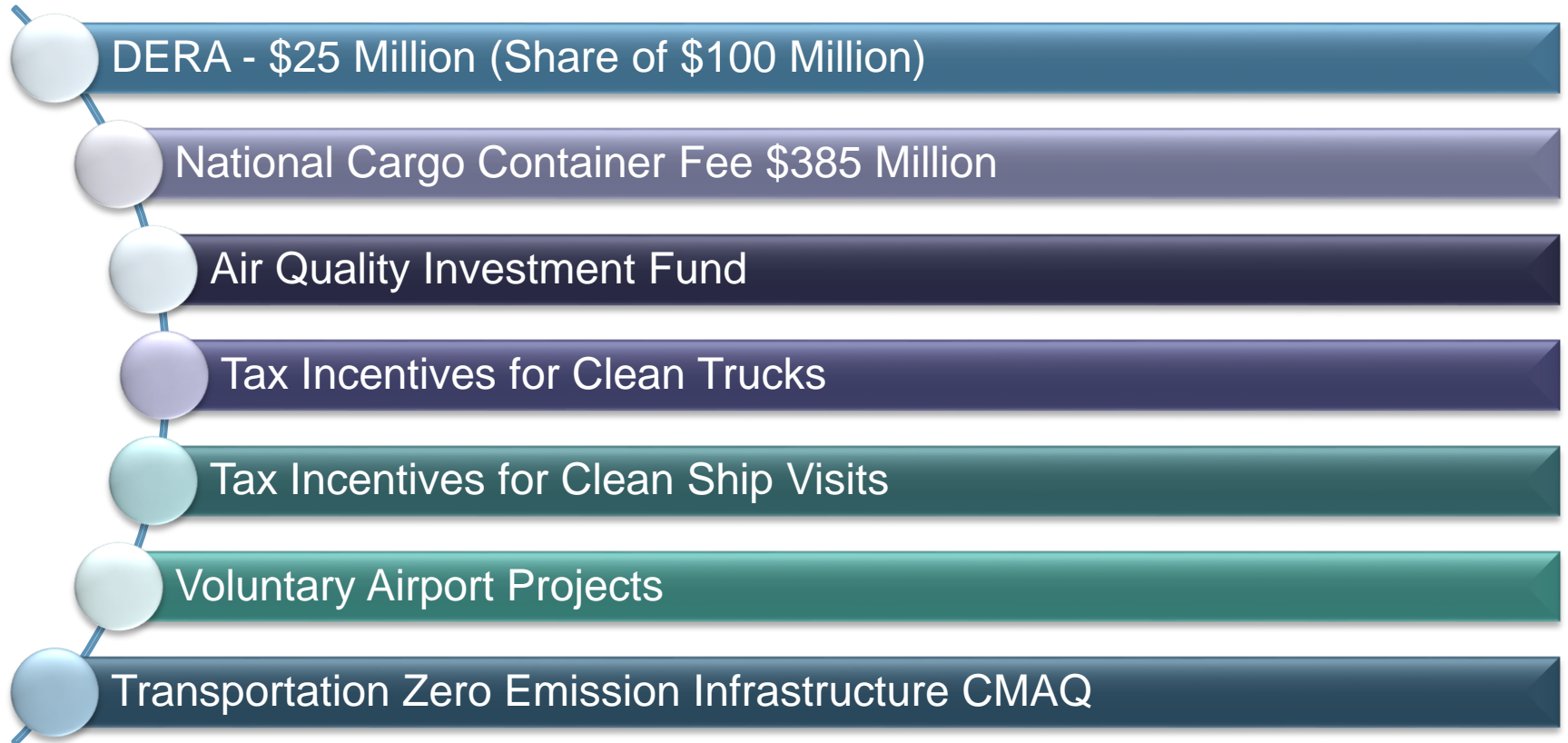
Would have to take from other agencies' share



Vehicle Fuel Tax

SB 1 (2017) already using;
cumbersome reallocation process

Potential Federal Funding Sources



Pros and Cons



Vehicle Registration Fee

Pros

- Easily collected, precedent, can mitigate motor vehicle pollutants

- Not proportional to pollution per car, unless proportional structure designed
- SB1 limits willingness to increase
- Requires legislation
- Regressive unless exemptions or tax credit

Cons

Pros and Cons



Mileage-based User Fee

Pros

- Raises large amounts from small per-mile fee
- More proportional to pollution than registration fee but doesn't credit clean cars

- Exemptions complicate administration
- May appear significant if collected annually
- Privacy concerns

Cons

Pros and Cons



Retail Transactions and Use (Sales) Tax

Pros

- Large revenues from small tax
- Shifts costs to some of those who benefit from goods movement
- Everyone pays for clean air

- Requires legislation

Cons

Pros and Cons



Cargo Container Fee

Pros

- Relatively large revenues without large effect on price of goods
- Shifts costs to those benefiting from goods movement, local and national
- Many legal issues especially if not adopted nationally
- Possible competitive impact on California ports if not adopted nationally

Cons

Pros and Cons



Crude Oil Severance Tax

Pros

- Places burden on source of large amounts of pollution
- Statewide preferable
- Impact on fuel prices/production?

Cons



Funding Incentives Working Group Update

- Meeting April 27, 2018
- Feedback:
 - Container fee
 - Fee on barrels oil refined
 - Most trucks domestic not related to ports
 - Broadest possible base
 - Portfolio approach

Funding Incentives

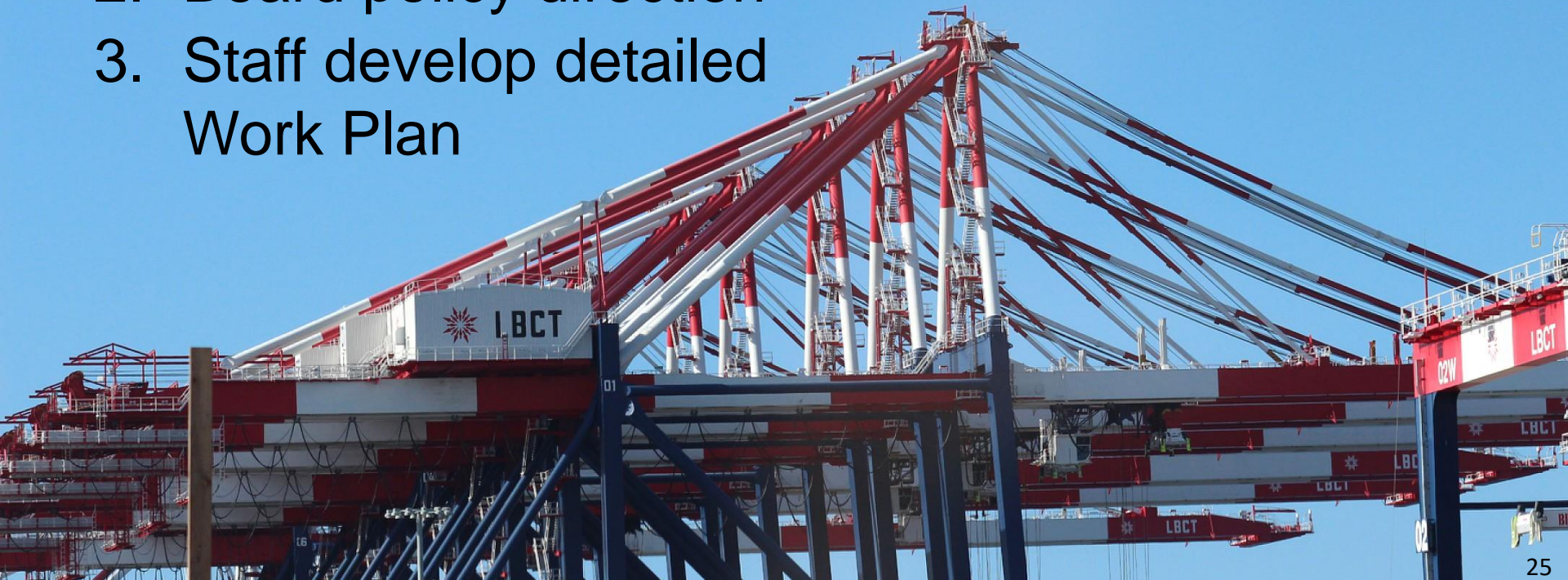
Working Group *(Continued)*

- Voters prefer sales tax to car fees
- Sales tax not regressive
- Provide option to “turn off” fee by reducing emissions
- Incentives not always financial-clean truck lanes
- Need business/community support



Next Steps

1. Administrative Committee Recommendations
2. Board policy direction
3. Staff develop detailed Work Plan



Questions?



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Update on Information Management Projects

SCAQMD Governing Board Retreat

May 2018



South Coast
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Agenda

- Office 365
- Replace Your Ride
- EGIS Open Data Portal
- Cyber Security



Office 365

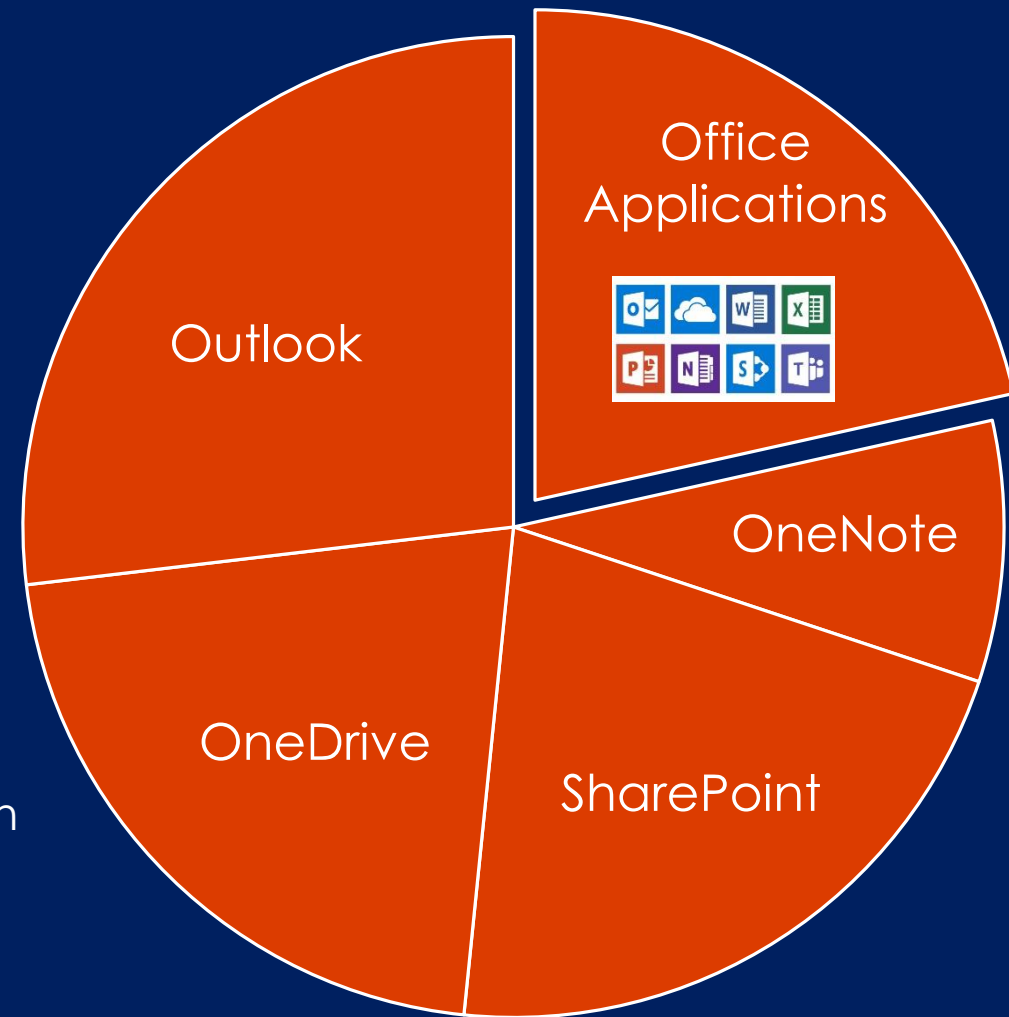
- Access from Anywhere Anytime
 - Outlook, Word, Excel, PowerPoint
- Collaborate in Real Time
- Available on Multiple Platforms Including Mobile
- E-Discovery of Email and Files
- Reduces Internal Email Servers
- 99.9% Guaranteed uptime





Office 365

- Outlook
 - 50 GB storage
 - Increased collaboration
- OneDrive
 - Personal file storage
 - Agency file storage
 - File sharing capabilities
- SharePoint
 - Create internal websites with collaboration
- OneNote
 - Digital note taking
- Office
 - Access to the latest version of Office
 - Collaborate simultaneously



Office 365 Collaboration Demo

Microsoft Office x aqmd Team Site x Fiber Cableupg R x

Secure | https://aqmd.sharepoint.com/:w:/r/_layouts/15/Doc.aspx?so...

Word Online Fiber Cableupg RFP2017 - Saved Share Mark Henninger

FILE HOME INSERT PAGE LAYOUT REVIEW VIEW Tell me what you want to do

Ron Moskowitz is editing this document.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

REQUEST FOR PROPOSALS

DATA CABLING INFRASTRUCTURE UPGRADE

RFP #P2017-XX

This is mark editing. SCAQMD requests proposals for the following purpose according to terms and conditions attached. In the preparation of this Request for Proposals (RFP) the words "Proposer," "Contractor," and "Consultant" are used interchangeably. This is Ron editing.

PURPOSE

The purpose of this RFP is to identify and select vendor(s) capable of providing the SCAQMD with the most cost-effective fiber data cabling infrastructure upgrade.

INDEX – The following are contained in this RFP:

Section I Background/Information

Section II Contact Person

PAGE 1 OF 48 COUNTING... ENGLISH (U.S.) TRACK CHANGES: ON 100% HELP IMPROVE OFFICE

Microsoft Office x aqmd Team Site x Fiber Cableupg R x

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Word Online Fiber Cableupg RFP2017 - Saved Share Ron Moskowitz

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South Coast
AQMD

Agenda

- Office 365
- Replace Your Ride
- EGIS Open Data Portal
- Cyber Security



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Replace Your Ride (RYR)

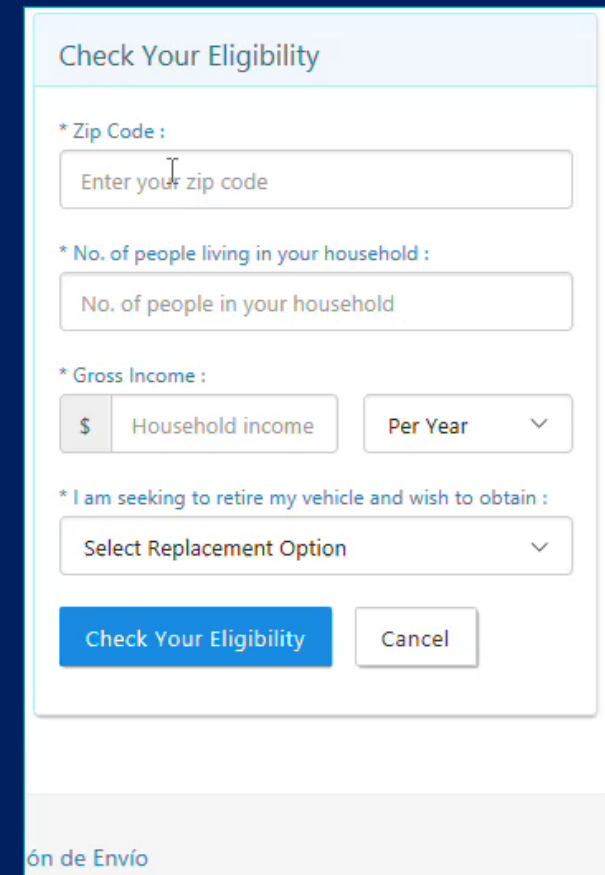
Highlights

- Removes high polluting vehicles from roads
- \$21.5 Million spent to date
- Approximately \$25 Million in funding available
- Provides up to \$9,500 in incentives
- Targeted to low income & disadvantaged

RYR Web-Based Application

- Phase 1: Start June 2016 – Go live June 2017
 1. Online application submittal
 2. Online application processing
- Phase 2: Start July 2017 – in production February 2018
 1. Fund Management
 2. System Administration
 3. Management reporting

Incentive Estimator



Check Your Eligibility

* Zip Code :
Enter your zip code

* No. of people living in your household :
No. of people in your household

* Gross Income :
\$ Household income Per Year

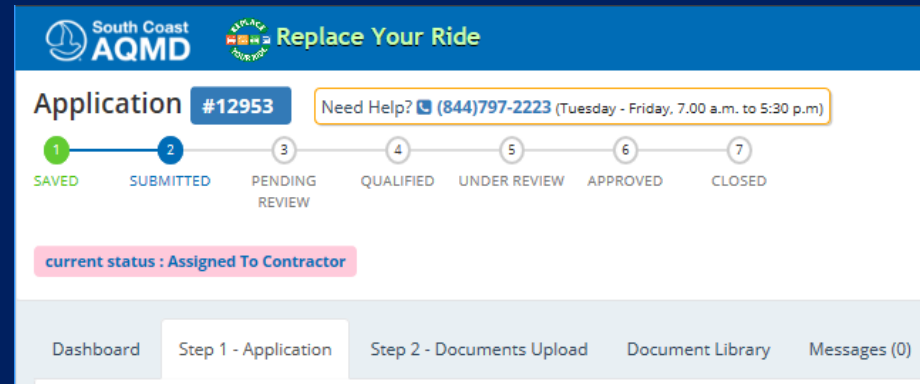
* I am seeking to retire my vehicle and wish to obtain :
Select Replacement Option

Check Your Eligibility Cancel

ón de Envío

RYR Application Highlights

- Reduces time to process incentives
- User experience
 - Ease of use
 - Reduce application & processing time
 - Applicants can check status
- Increase evaluation efficiency
 - Work flow automation & checklists



The screenshot displays the 'Replace Your Ride' application portal for South Coast AQMD. The header includes the agency logo and the title 'Replace Your Ride'. Below the header, the application number '#12953' is shown, along with a help contact: '(844)797-2223 (Tuesday - Friday, 7:00 a.m. to 5:30 p.m)'. A progress bar indicates the application's status through seven steps: 1. SAVED, 2. SUBMITTED, 3. PENDING REVIEW, 4. QUALIFIED, 5. UNDER REVIEW, 6. APPROVED, and 7. CLOSED. The current status is 'Assigned To Contractor'. A navigation menu at the bottom includes 'Dashboard', 'Step 1 - Application', 'Step 2 - Documents Upload', 'Document Library', and 'Messages (0)'.



Filing an application is as easy as:

Retiring Vehicle Information

VIN (Vehicle Identification Number)* ⓘ

Vehicle License plate *

Odometer Reading * ⓘ

Vehicle Make Year * ⓘ

Vehicle Make * ⓘ

Vehicle Model * ⓘ

Vehicle Powered by*

Replacement Option

I am seeking to retire the vehicle described above and wish to obtain * ⓘ

How did you learn about the program * ⓘ



South Coast
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Replace Your Ride Next Steps

- Cloud-based implementation
- Multi-Tenancy use





South Coast
AQMD

Agenda

- Office 365
- Replace Your Ride
- EGIS Open Data Portal
- Cyber Security



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EGIS Open Data Portal

- Publish GIS Information for Public Access
- Facilitate Information Access and Discovery by the Public and other Agencies
- Map Data (Feature Layers)
- Web Maps
- Develop New Applications and Solutions



South Coast
AQMD

EGIS Open Data Portal Demo

The screenshot shows a web browser window with the following elements:

- Browser Tab:** SCAQMD
- Address Bar:** <https://data-scaqmd-online.opendata.arcgis.com>
- Page Header:** SCAQMD Open Data Portal (with logo) and a user profile for Mark.
- Main Content Area:** A large banner image of a blue sky with white clouds and green foliage at the bottom. Centered on the banner is the text "South Coast Air Quality Management District" in a large, white, sans-serif font. Below this text is a search bar with the placeholder text "Search for Open Data" and a magnifying glass icon.
- Footer:** A dark blue horizontal bar containing the following text: "Welcome! This is SCAQMD's public platform for exploring and downloading open data, building apps, and engaging to solve air quality issues. Open data demonstrates SCAQMD's commitment to transparency, engagement and collaboration. The South Coast AQMD believes all residents have a right to live and work in an environment of clean air and is committed to undertaking all necessary steps to protect public health from air pollution, with sensitivity to the impacts of its actions on the community and businesses."



South Coast
AQMD

Agenda

- Office 365
- Replace Your Ride
- EGIS Open Data Portal
- Cyber Security



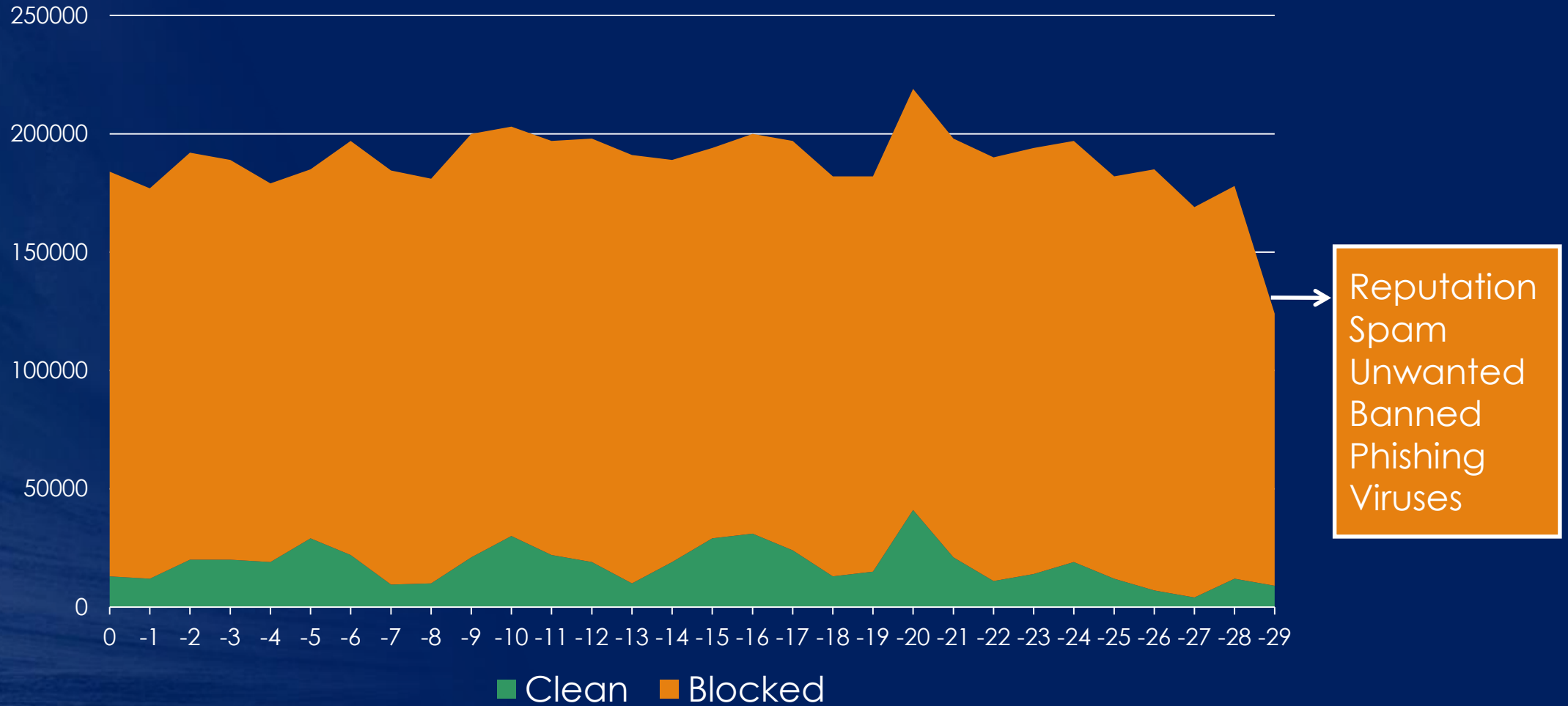
Cyber Security

- Is Everyone's Responsibility
- \$2 Million Cybersecurity Insurance per Member, \$25 Million Aggregate
- Threats
 - Social Engineering
 - Baiting
 - Phishing, Spear Phishing, Whale Phishing
 - Pretexting
 - Quid Pro Quo
 - Spam
 - Tailgating
 - Hacking
 - Ransomware
 - Viruses
 - Email Threats



Cyber Security

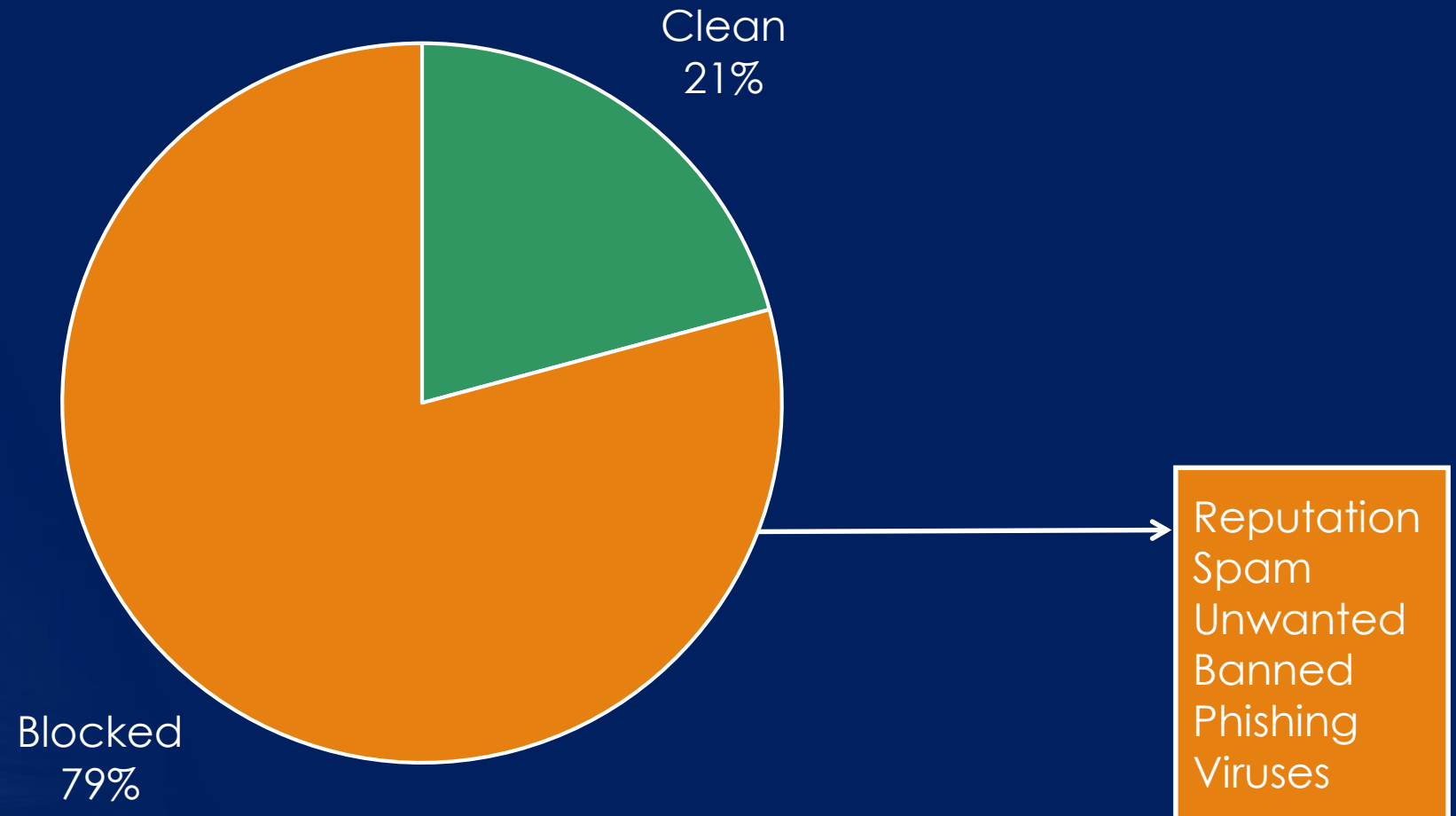
Incoming Email Statistics (last 30 days)





Cyber Security

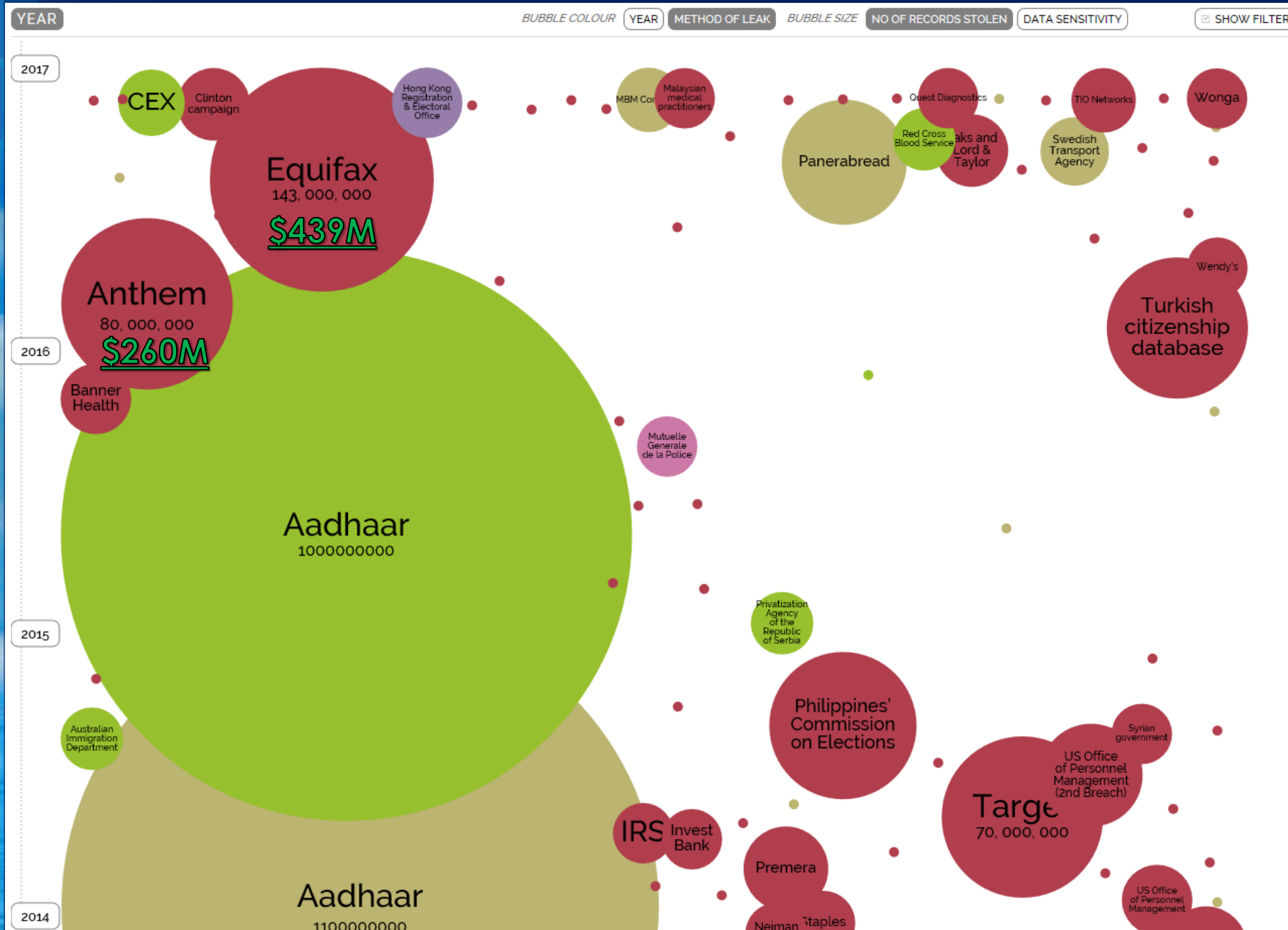
Incoming Email Statistics (30 day average)





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AQMD

Select Data Breaches



- **Accidentally published**
- **Hacked**
- **Inside job**
- **Lost/stolen device or media**
- **Poor security**

\$79 Per Record
Average Direct Cost
(Ponemon Institute LLC)



Cyber Security and Technology Risk Plan

- Current Security Has Some Strengths but also Some Weaknesses
- Developed a Program of Three Project Groups
 - Data Loss Prevention
 - Security Awareness Training
 - Network Monitoring Improvement
- Benefit Is That Our Risks Will Be Within Our Tolerance
- Phased over Time
- Execution Governance Will Be Standard (IT Steering Committee)



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AQMD

Questions?

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FY 2018-19 SCAQMD Budget

SCAQMD Governing Board Retreat
May 2018

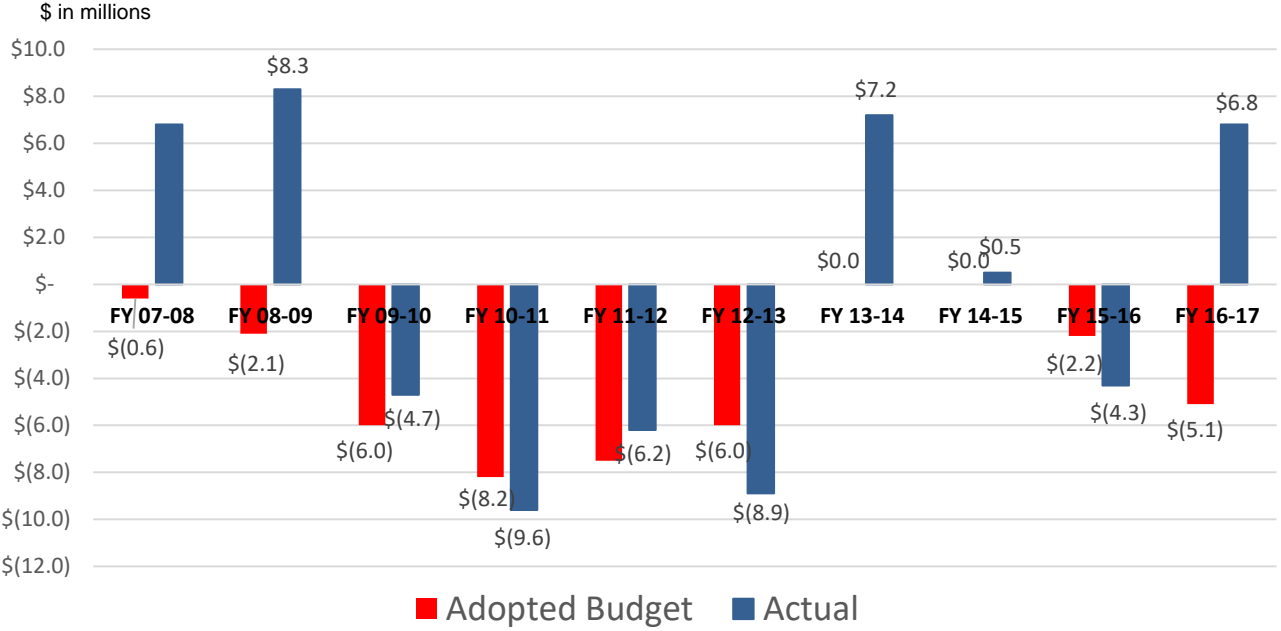


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AQMD

Discussion Items

- Governing Board expressed concern that the FY 2018-19 budget was not balanced
- Wanted to discuss cost cutting measures to balance the FY 2018-19 budget

Historical Budget Information



History of SCAQMD Adopted Budgets

- Budget salary savings at 8% while actual salary savings over the last ten years averaged 10%
- Budgeted penalty & settlement revenue at \$5M while actuals over the last ten years averaged \$9.3M
- Used unreserved fund balance to balance the budget

Proposed Actions to Balance Draft FY 2018-19 Budget (Deficit of \$3.6M)

- Increase vacancy rate (from 8% to 9% = \$1.4M)
- Capital outlay reduction (\$1.1M)
- Services and supplies reduction (\$1.1M)

FY 2018-19 General Fund Draft Budget Summary Before Cost Reductions

	FY 2017-18			FY 2018-19
	<u>Budget</u>	<u>Amended*</u>	<u>Estimate</u>	<u>Proposed</u>
Revenue**	\$147.0	\$157.7	\$150.4	\$162.6
Program Cost	<u>\$149.9</u>	<u>\$162.4</u>	<u>\$151.3</u>	<u>\$166.2</u>
Change to Fund Balance	<u>-\$2.9</u>	<u>-\$4.7</u>	<u>-\$0.9</u>	<u>-\$3.6</u>

*Board approved changes through March 2018.

**FY 2018-19 Proposed Revenue Budget includes a projected CPI fee increase of 3.4% with an additional 10.67% increase for Title V annual operating permit renewal and permit processing fees and an additional 4% for Non-Title V annual operating permit renewal and permit processing fees.

Proposed FY 2018-19 General Fund Budget Summary After Cost Reductions

	FY 2017-18			FY 2018-19
	<u>Budget</u>	<u>Amended*</u>	<u>Estimate</u>	<u>Proposed</u>
Revenue**	\$147.0	\$157.7	\$150.4	\$162.6
Program Cost	<u>\$149.9</u>	<u>\$162.4</u>	<u>\$151.3</u>	<u>\$162.6</u>
Change to Fund Balance	<u>-\$2.9</u>	<u>-\$4.7</u>	<u>-\$0.9</u>	<u>\$0.0</u>

*Board approved changes through March 2018.

**FY 2018-19 Proposed Revenue Budget includes a projected CPI fee increase of 3.4% with an additional 10.67% increase for Title V annual operating permit renewal and permit processing fees and an additional 4% for Non-Title V annual operating permit renewal and permit processing fees.

FY 2018-19 General Fund Draft Budget Five Year Projection Before Cost Reductions

(\$ in millions)	FY 17-18 Estimated	FY 18-19 Projected	FY 19-20 Projected	FY 20-21 Projected	FY 21-22 Projected	FY 22-23 Projected
STAFFING		876.4	886	886	886	886
Revenues *	\$150.4	\$162.6	\$167.6	\$167.2	\$166.1	\$168.0
Program Costs	\$151.3	\$166.2	\$174.6	\$173.8	\$172.1	\$168.4
Change in Fund Balance	-\$0.9	-\$3.6	-\$7.0	-\$6.6	-\$6.0	-\$0.4
UNRESERVED FUND BALANCE (at Year-End)	\$44.2	\$40.6	\$33.6	\$27.0	\$21.0	\$20.6
% of REVENUE	29%	25%	20%	16%	13%	12%
<ul style="list-style-type: none"> Includes projected CPI fee increase of 3.4% for FY 2018-19 with the second year of an additional fee increase approved by the Governing Board in June 2017,(10.67% for Title V annual operating permit renewal and permit processing fees and an additional 4% for non-Title V annual operating permit renewal). FY 19-20 includes CPI of 3% with the third year of the fee increase for Title V facilities approved in June 2017. FY 20-21, FY 21-22 and FY 22-23 have CPI fee increases of 2.9%, 2.9% and 2.8% respectively. 						

FY 2018-19 General Fund Budget

Five Year Projection After FY 18-19 Cost Reductions

(\$ in millions)	FY 17-18 Estimated	FY 18-19 Projected	FY 19-20 Projected	FY 20-21 Projected	FY 21-22 Projected	FY 22-23 Projected
STAFFING		876.4	886	886	886	886
Revenues *	\$150.4	\$162.6	\$167.6	\$167.2	\$166.1	\$168.0
Program Costs	\$151.3	\$162.6	\$174.6	\$173.8	\$172.1	\$168.4
Change in Fund Balance	-\$0.9	\$0.0	-\$7.0	-\$6.6	-\$6.0	-\$0.4
UNRESERVED FUND BALANCE (at Year-End)	\$44.2	\$44.2	\$37.2	\$30.6	\$24.6	\$24.2
% of REVENUE	29%	27%	22%	18%	15%	14%
<ul style="list-style-type: none"> Includes projected CPI fee increase of 3.4% for FY 2018-19 with the second year of an additional fee increase approved by the Governing Board in June 2017,(10.67% for Title V annual operating permit renewal and permit processing fees and an additional 4% for non-Title V annual operating permit renewal). FY 19-20 includes CPI of 3% with the third year of the fee increase for Title V facilities approved in June 2017. FY 20-21, FY 21-22 and FY 22-23 have CPI fee increases of 2.9%, 2.9% and 2.8% respectively. 						

Questions?

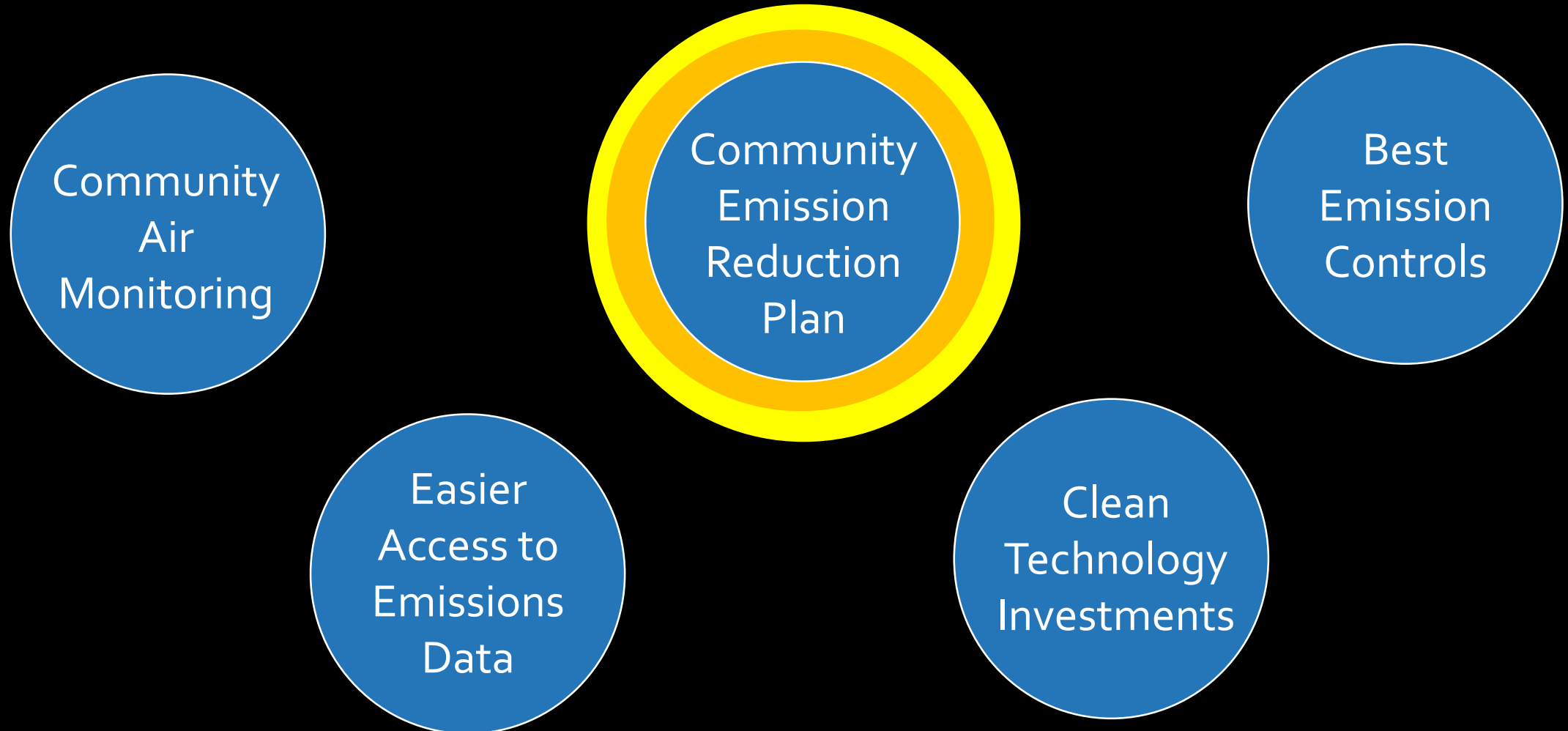


South Coast
AQMD

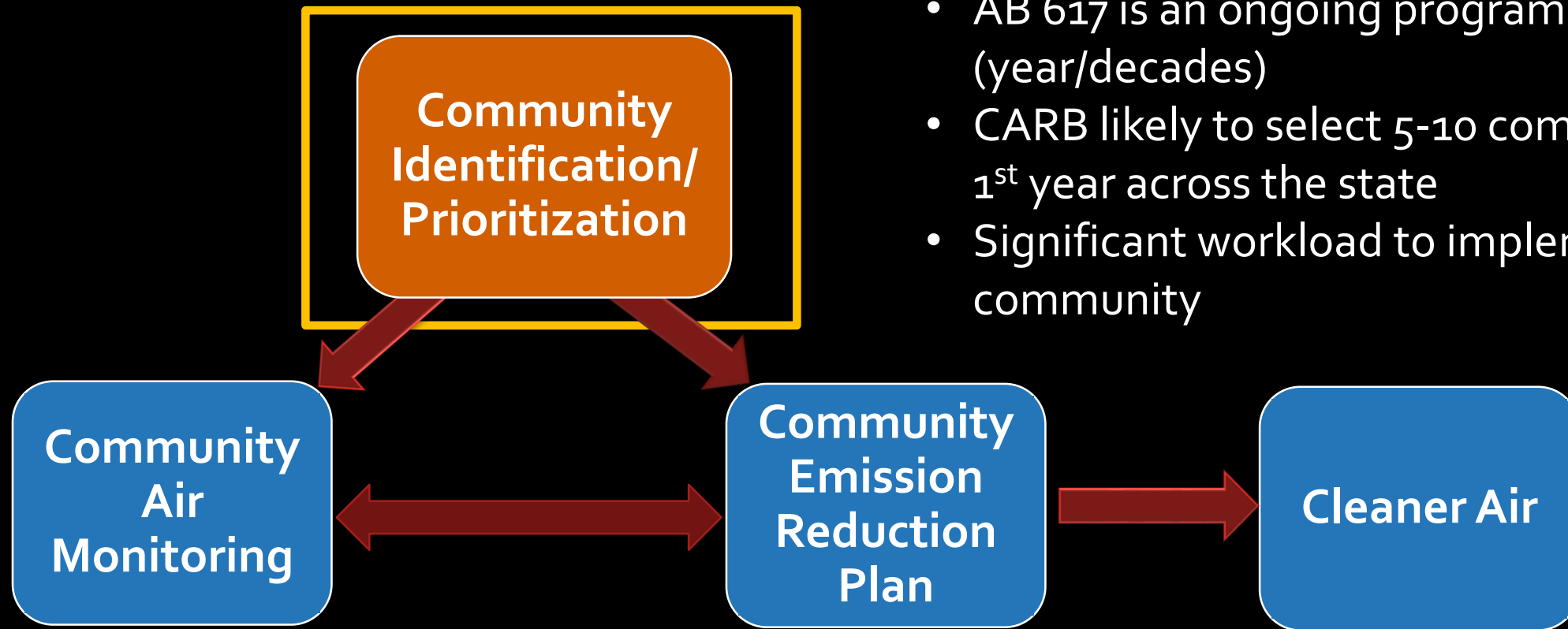
IMPLEMENTATION OF AB 617

SCAQMD Governing Board Retreat
May 2018

FIVE MAIN AB 617 ELEMENTS



COMMUNITY IDENTIFICATION & PRIORITIZATION FOR AB 617



- AB 617 is an ongoing program (year/decades)
- CARB likely to select 5-10 communities for 1st year across the state
- Significant workload to implement in each community

PROPOSED GUIDING PRINCIPLES FOR COMMUNITY IDENTIFICATION & PRIORITIZATION FOR AB 617

- Prioritize disadvantaged communities that are disproportionately affected by air pollution
 - HSC § 39711: "...based on geographic, socioeconomic, public health, and environmental hazard criteria..."
- Utilize appropriate existing data and tools, especially those that have gone through the public process
- Thoughtfully consider and integrate public input
- Prioritize communities with known local sources of air pollution where Community Plans would have significant and additional positive impacts

OUTREACH – MEETINGS & PRESENTATIONS

Completed through 5/1/2018:

- **5** SCAQMD Community Meetings
 - Commerce, Wilmington, Riverside, San Bernardino, Anaheim
- **2** SCAQMD EJ Community Partnership meetings discussing AB 617
 - Indio, Irvine
- **8** Community Meetings hosted by other organizations and elected officials
- **16** Government agency meetings, workshops, advisory groups, staff briefings
- **1** Media interview
- **2** Academic presentations



South Coast
AQMD

VENGA Y HABLEMOS
sobre como mejorar la calidad
del aire en su comunidad

Mediante la Ley de la Asamblea (AB) 617 & 134

Martes, 27 de marzo del 2018
6:00 PM – 8:00 PM
Las puertas se abrirán a las 5:30 PM.
¡Venga a conocernos!

Centro de administración del
Condado de Riverside
4080 Lemon St.
Riverside CA 92501

The background of the flyer features a collage of images: a person playing soccer on a field, a city skyline, a large industrial facility with many shipping containers, and a mountain range.

KEY INPUT RECEIVED TO DATE: PRIORITY FACTORS FOR COMMUNITY IDENTIFICATION & PRIORITIZATION

Air pollution sources

Diesel sources (freeways, trucks, warehouses, railyards)

Oil production & processing (wells, refineries)

Landfills, scrap yards, hazardous waste sites

Proximity/land use factors

Schools near air pollution sources/ industrial areas

Concentration of industries

Green spaces

Population factors

Population density

Low income

Communities of color

Access to healthcare

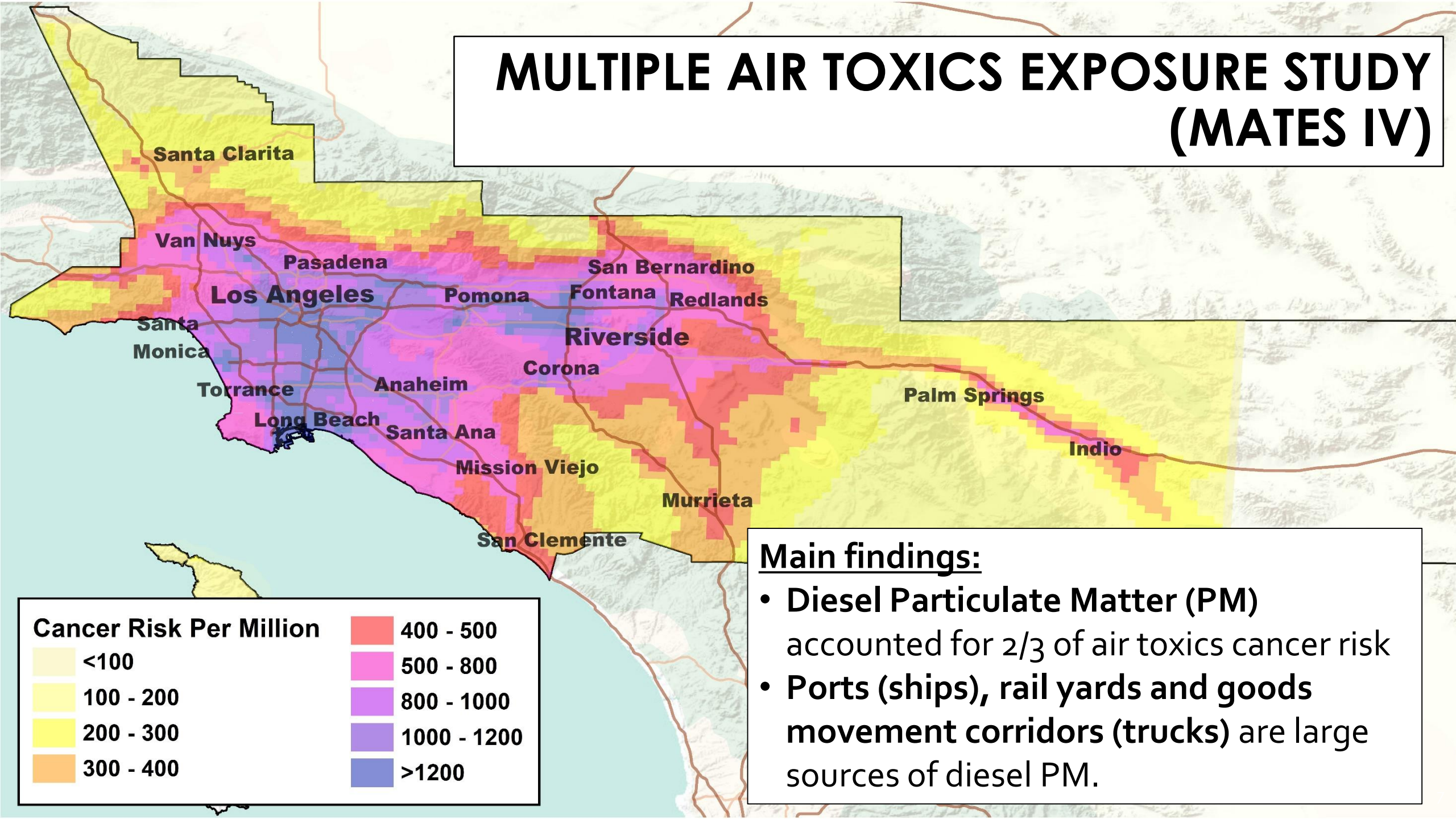
Asthma, cancer rates

Education levels

Children & elderly

Community Input received **through May 7, 2018** will be considered for inclusion & Year 1 prioritization

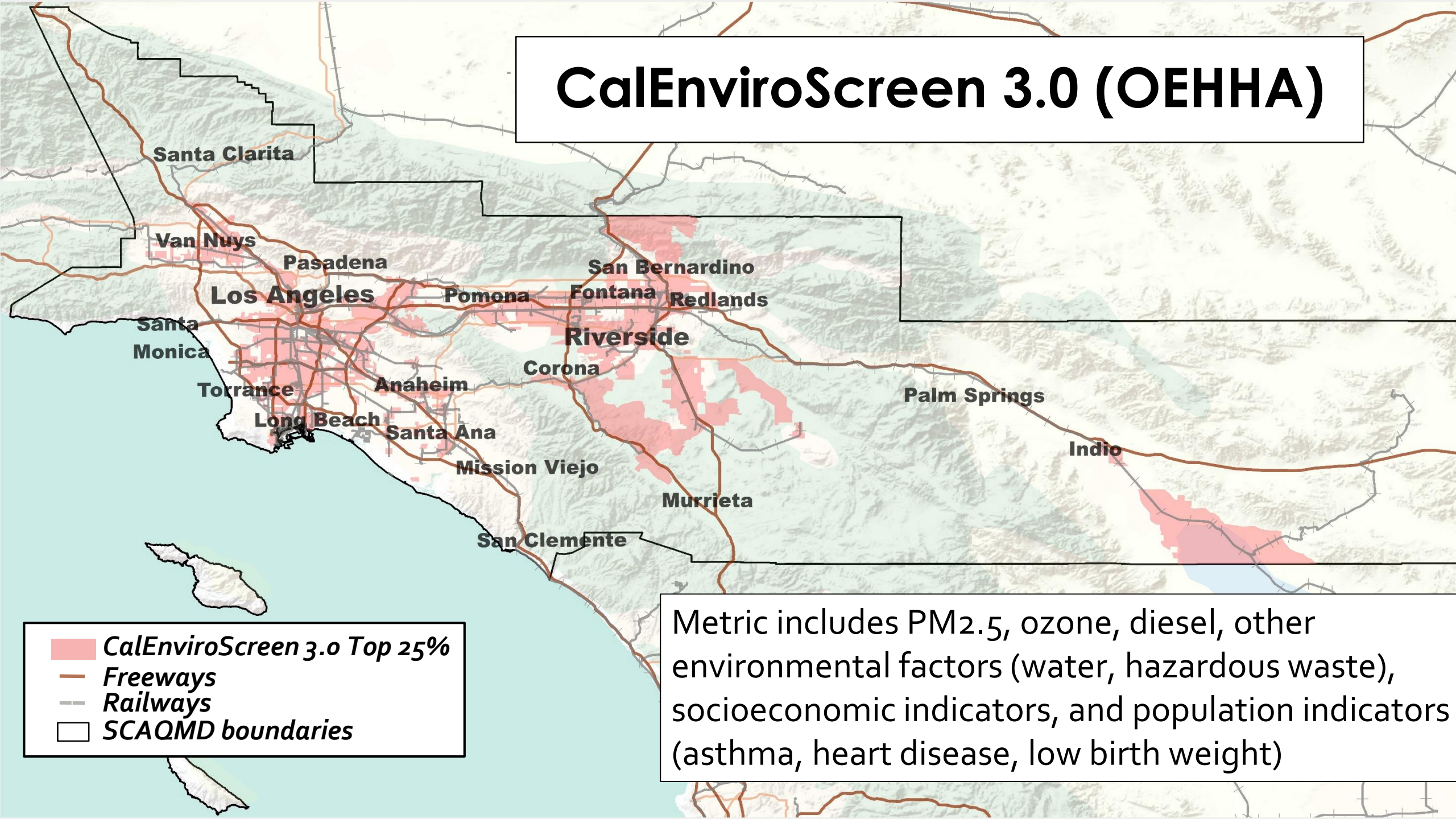
MULTIPLE AIR TOXICS EXPOSURE STUDY (MATES IV)



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.

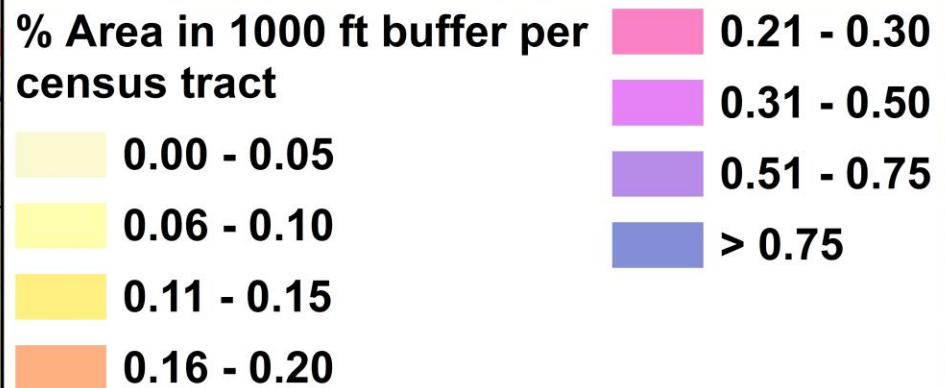
CalEnviroScreen 3.0 (OEHHA)



- *CalEnviroScreen 3.0 Top 25%*
- *Freeways*
- - *Railways*
- *SCAQMD boundaries*

Metric includes PM_{2.5}, ozone, diesel, other environmental factors (water, hazardous waste), socioeconomic indicators, and population indicators (asthma, heart disease, low birth weight)

PROXIMITY OF SCHOOLS TO INDUSTRIAL AREAS



Estimated the overall fraction of the area within 1000 feet of each school that is zoned for industrial use, averaged across each census tract

PRELIMINARY LIST OF COMMUNITIES UNDER CONSIDERATION FOR AB 617

- **April 20, 2018** – Presented preliminary list to Stationary Source Committee
- **April 30, 2018** – Provided report to CARB with updates and preliminary list of communities
 - List updated with additional self-recommended communities, and addition of community names for cities/unincorporated areas that were within the community groupings
- **Next steps:** Prioritize the list of communities, and recommend communities for Year 1 implementation

METHODS AND CRITERIA FOR COMMUNITY IDENTIFICATION

- Identified communities under consideration for AB 617 **using a broadly inclusive approach**. Prioritizing communities is the next step.

Preliminary list includes:

- CalEnviroScreen 3.0 score in top 25%
- MATES IV air toxics cancer risk in top 25%
- Areas with >20% industrial land use within 1000 feet from schools
- Communities that were self-recommended or requested during SCAQMD AB 617 community meetings

PRELIMINARY LIST OF COMMUNITIES UNDER CONSIDERATION FOR AB 617 (ALPHABETICAL ORDER, 57 COMMUNITIES)

LOS ANGELES COUNTY

- Azusa / Duarte / Monrovia / Arcadia (East) / North 605
- Bell / Bell Gardens / Commerce / Maywood / Cudahy
- Canoga Park / Northridge / Reseda / Van Nuys / Panorama City / Winnetka / Tarzana
- Commerce / Maywood / Cudahy
- Compton Watts/ Rancho Dominguez / Victoria / Willowbrook
- Culver City (East) / Palms (East)
- Downey / Bell / Bell Gardens / Bellflower
- Downey / Bellflower / Lakewood (North) / Cerritos (North)
- Downtown Los Angeles
- East LA Interchange / Boyle Heights / East Los Angeles
- El Monte / South El Monte / Avocado Heights / Hacienda Heights / West La Puente
- Gardena / Alondra Park / Lawndale / Central 110
- Glendale (Central & South) / Burbank
- Hollywood / Los Feliz / Atwater Village / Echo Park / Silver Lake
- Inglewood / Hawthorne / Westmont
- La Puente / Covina / West Covina / Baldwin Park
- Long Beach (East) / Signal Hill
- LAX / Lennox / El Segundo / Del Aire
- Montebello
- Pacoima / North Hollywood / Sun Valley / San Fernando / Sylmar
- Paramount / Long Beach (North) / East Rancho
- Dominguez
- Pasadena near I-210

- Porter Ranch
- San Gabriel / Rosemead / Monterey Park / Alhambra (South)
- Santa Fe Springs / Norwalk / West Whittier / Los Nietos / Pico Rivera
- Santa Monica (East)
- South Gate / Lynwood
- South and Southeast LA/ Huntington Park / Florence – Firestone / Walnut Park
- Torrance
- Westlake / Koreatown / Midcity / Mid-Wilshire
- Wilmington / Long Beach (West) / Carson / San Pedro / West Carson / Harbor City (East)

ORANGE COUNTY

- Anaheim / Fullerton (South) / Orange (North & Central)
- Buena Park
- Costa Mesa
- Huntington Beach
- La Habra
- Santa Ana / Garden Grove (East)
- Westminster / Garden Grove / Stanton / Garden Grove (East)

RIVERSIDE COUNTY

- Beaumont
- Corona / Temescal Valley
- Eastern Coachella Valley

- Hemet / San Jacinto
- Lake Elsinore
- Mira Loma / Jurupa Valley / Eastvale / Pedley
- Moreno Valley
- Perris / Nuevo
- Riverside (Central & East) / Rubidoux / Highgrove
- Riverside (West) / Pedley

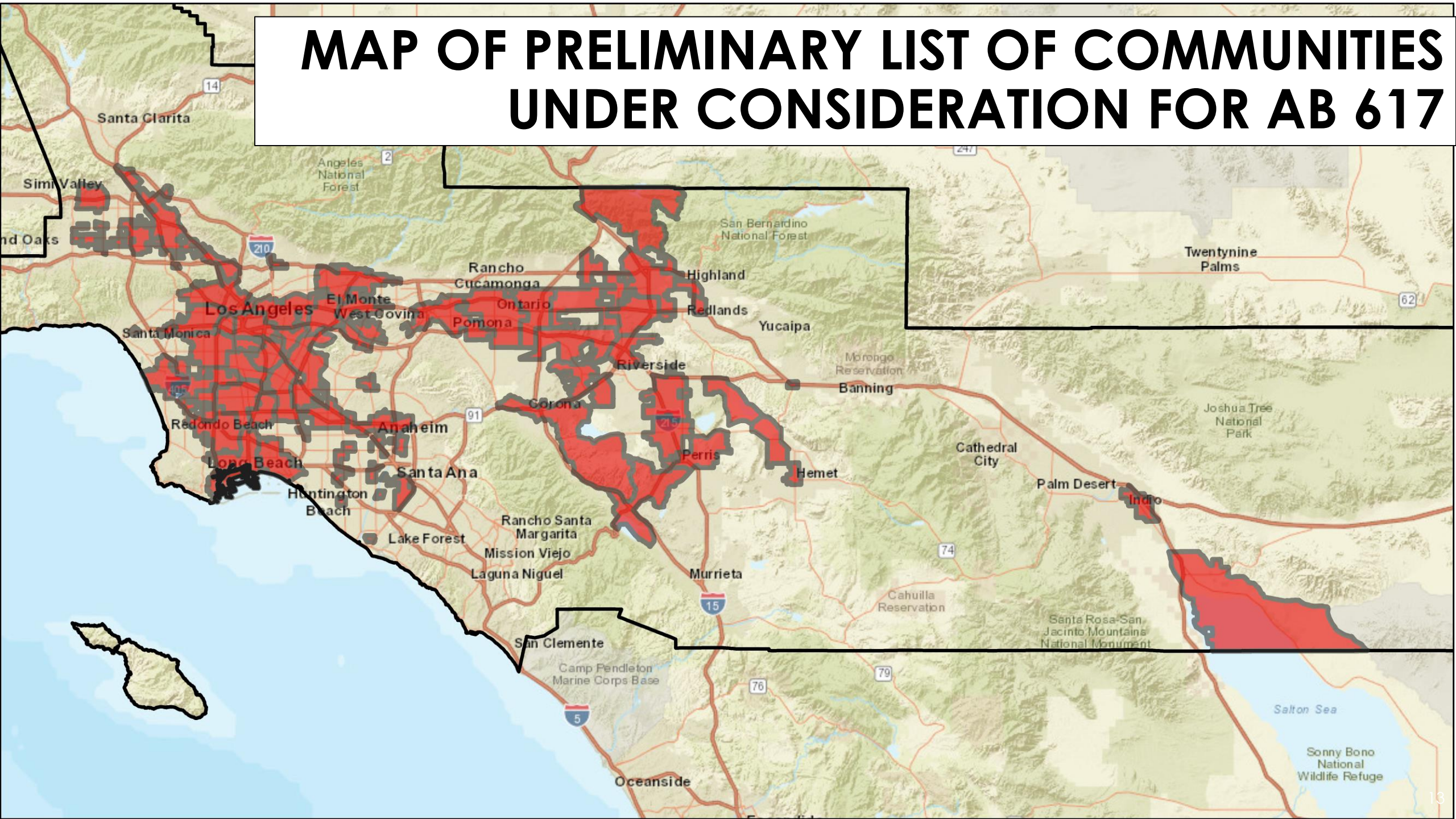
SAN BERNARDINO COUNTY

- Bloomington / Fontana / Rialto
- Colton / Grand Terrace / San Bernardino (Southwest)
- Highland / Crestline
- Ontario (East) / Rancho Cucamonga
- Redlands / Loma Linda
- San Bernardino / Muscoy

CROSS COUNTY

- Cerritos / Buena Park / Artesia / La Mirada / Hawaiian Gardens
- Ontario (West) / Montclair / Upland / Claremont (South)
- Pomona / Chino / Walnut (East) / San Dimas (South)

MAP OF PRELIMINARY LIST OF COMMUNITIES UNDER CONSIDERATION FOR AB 617



COMMUNITY SELF-RECOMMENDATIONS

- 70 total self-recommendation forms received through 5/1/18
- 13 self-recommended communities (alphabetical order):

LOS ANGELES COUNTY

- Carson
- East Los Angeles
- Maywood
- Northridge
- Paramount
- Porter Ranch
- Wilmington

ORANGE COUNTY

- Buena Park

RIVERSIDE COUNTY

- Riverside/Corona (Corona – Terramor, Corona - Trilogy at Glen Ivy, Sycamore Creek, Temescal Valley)
- Jurupa Valley (Limonite, Mira Loma, Sunny Slope, Van Buren)

SAN BERNARDINO COUNTY

- Rancho Cucamonga (Alta Loma, Etiwanda)
- San Bernardino (North Rialto, West San Bernardino)

OTHER

- Inland Southern California/Inland Empire

PROPOSED METHODS AND CRITERIA FOR INITIAL COMMUNITY PRIORITIZATION

- Start with preliminary list
- Evaluate factors for each community:
 - **MATES IV** cancer risk
 - **CalEnviroScreen 3.0** score
 - Average **school** proximity to **industrial land use** and **freeways**
 - **Special monitoring studies** conducted by SCAQMD that identified elevated criteria pollutants or air toxics
 - **Self-recommendation** received
- Combine into overall priority level
- **Seeking public input**

ADDITIONAL FACTORS TO CONSIDER IN INITIAL IMPLEMENTATION SCHEDULE

**Past or current
community
monitoring and/or
emission reduction
programs**

**Local
administrative
and technical
resources**

**Community
interest and
readiness,
participation
and
partnerships**

NEXT STEPS

Need to refine prioritization criteria, prioritize and recommend communities for initial implementation schedule

DATE	MILESTONE
May-June 2018	Conduct 5 public meetings to seek input on prioritization criteria
June 15, 2018	Stationary Source Committee – consider recommended communities and prioritization (including implementation schedule)
July 6, 2018	Governing Board Meeting – consider recommended communities and prioritization (including implementation schedule)
Sept 27-28, 2018	CARB Board considers statewide strategy and decides on implementation schedule

FIVE MAIN AB 617 ELEMENTS

Community
Air
Monitoring

Community
Emission
Reduction
Plan

Best
Emission
Controls

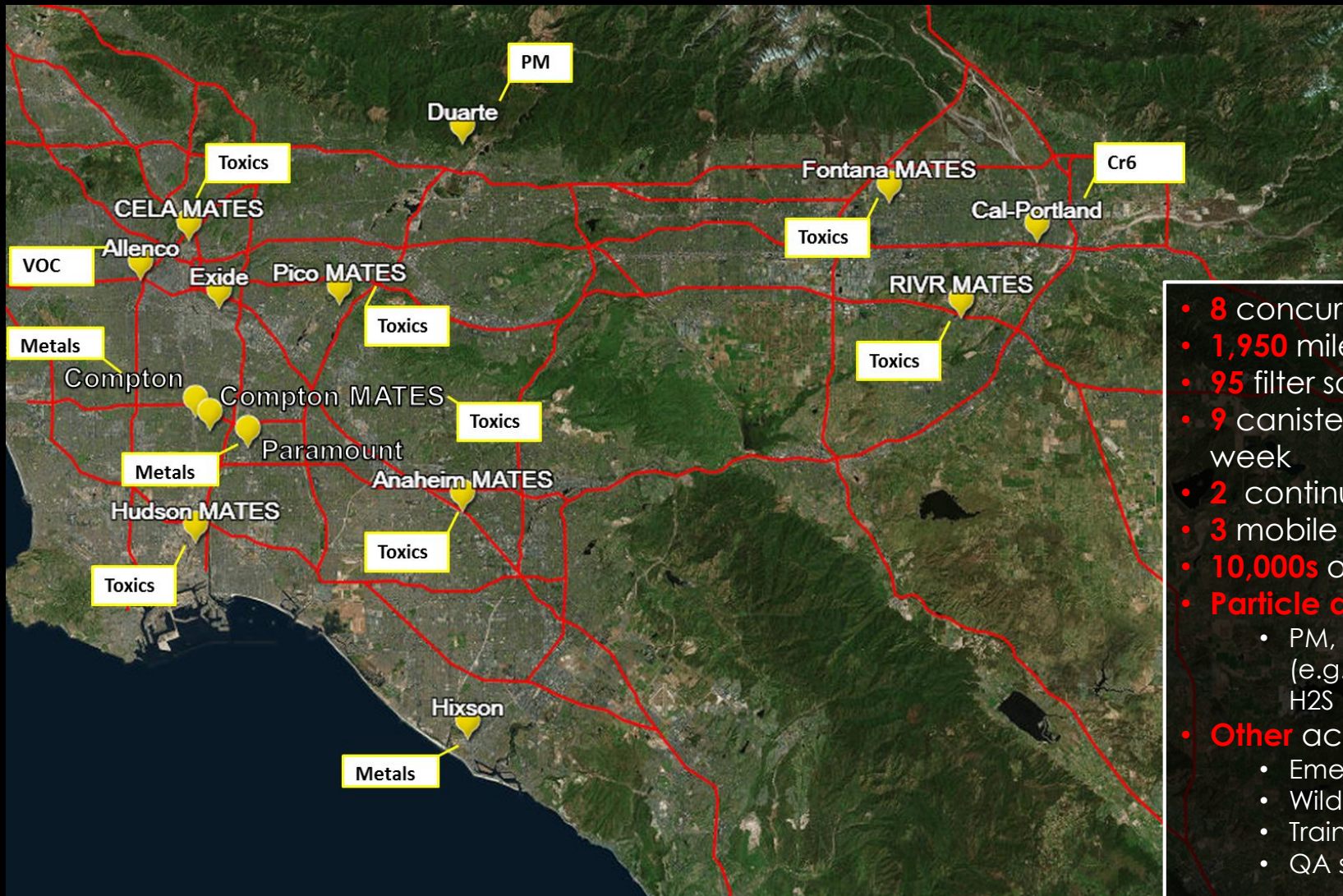
Easier
Access to
Emissions
Data

Clean
Technology
Investments

AB 617 MONITORING STRATEGY

- Capability to measure criteria and air toxic pollutants in local communities – Toolbox Approach
 - Traditional methods (FRM, FEM, EPA guidance)
 - Advanced methods (sensors, remote sensing, mobile platforms)
- Build from existing experience and tools from recent and ongoing air monitoring projects
 - Paramount
 - Community Air Toxics Initiative
 - MATES V

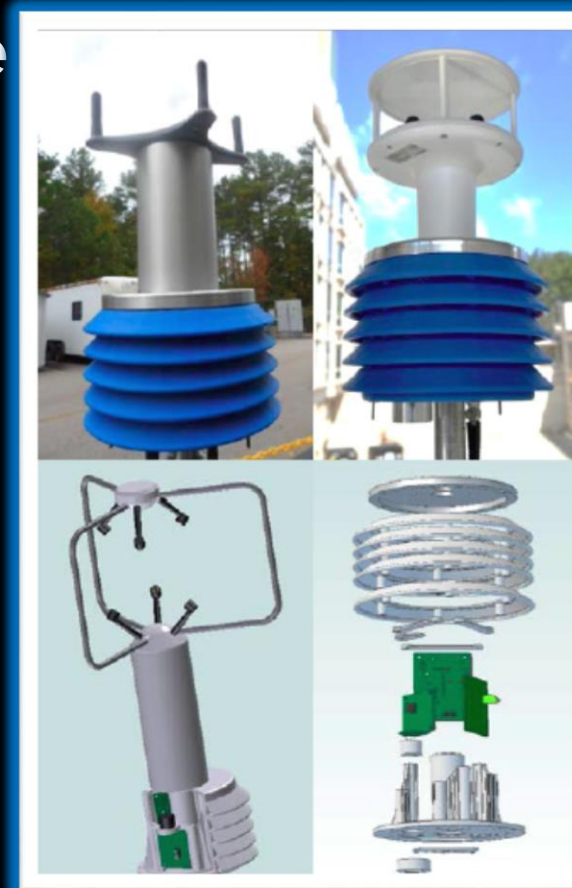
SCAQMD SPECIAL MONITORING NETWORK



- **8** concurrent studies
- **1,950** miles traveled per week
- **95** filter samples collected per week
- **9** canister samples collected per week
- **2** continuous monitors
- **3** mobile platforms
- **10,000s** of data points per week
- **Particle and gas** monitoring
 - PM, UFPs, BC, air toxics (e.g., Cr6+ and VOCs), CH4, and H2S
- **Other** activities
 - Emergency response
 - Wildfire monitoring
 - Training activities
 - QA support for Federal programs

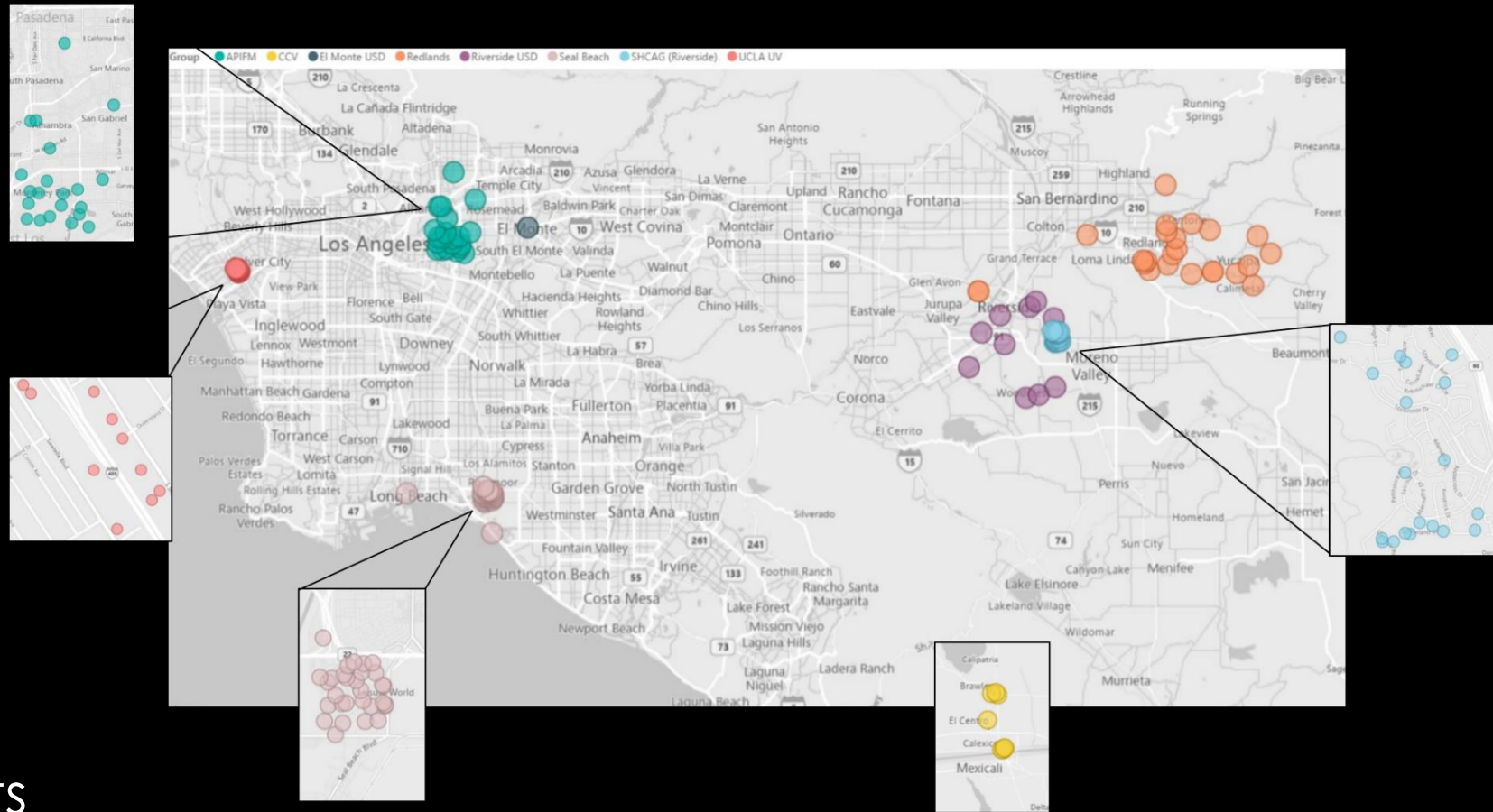
AIR QUALITY SENSORS

- **AQ-SPEC: Most comprehensive sensor evaluation program in the Nation**
- **AB 617 related efforts:**
 - **Community education**
 - **Validation of satellite air quality data**
 - **Developing sensor certification/ verification program**



SENSOR NETWORKS & COMMUNITY ENGAGEMENT

- Nine Sensor Project Deployments
- Community engagement
 - Air quality & sensor training
 - Needs assessment
 - Inform air quality improvement projects



AIR MONITORING STATIONS

- Continuous monitoring
 - ✓ Ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, PM10, PM2.5, meteorology
- Time-integrated sampling
 - ✓ TSP, PM10, PM2.5, metals, carbon, VOCs, air toxics, PM speciation
- Samplers collect pollutants on various media
 - ✓ Teflon filters, quartz fiber filters, canisters
- Chemical analysis is performed in laboratory



LABORATORY

Full range of ambient and compliance analyses

- Ambient particulate matter
 - ✓ Mass, ions, metals, carbon, Cr6+, lead
- Ambient gases
 - ✓ Air toxics, ozone precursor VOCs, sulfur compounds
- Source-test samples
- Bulk Samples
- Asbestos
- Method development



STATIONARY REAL TIME METAL MEASUREMENTS

- **Specifications:**
 - Detects over 20 metals (except Cr6+) in ng/m³
 - High time resolution
 - Wind Speed and direction
- **Applications:**
 - Fence-line monitoring
 - Source apportionment
 - Source directionality and trends analysis
 - Provide information on short duration events



NEAR REAL TIME METALS – MOBILE PLATFORM

- Variety of fast time response instruments for the measurement of pollutants
 - VOCs
 - BC
 - Toxic metals including Cr6+
- Plume mapping



MOBILE AIR TOXICS LABORATORY



- Survey major refineries and other petroleum facilities

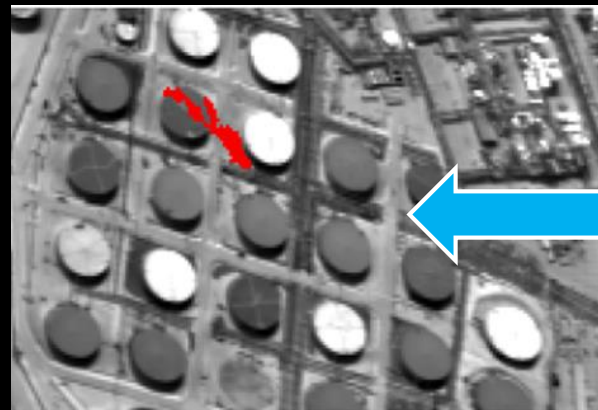
- Fenceline and community mobile monitoring
- Identify sources and community levels



FLIGHT-BASED AIR TOXICS MEASUREMENTS



- Survey large areas, including refinery areas
- Detect plumes and emissions
- Guide ground-based efforts

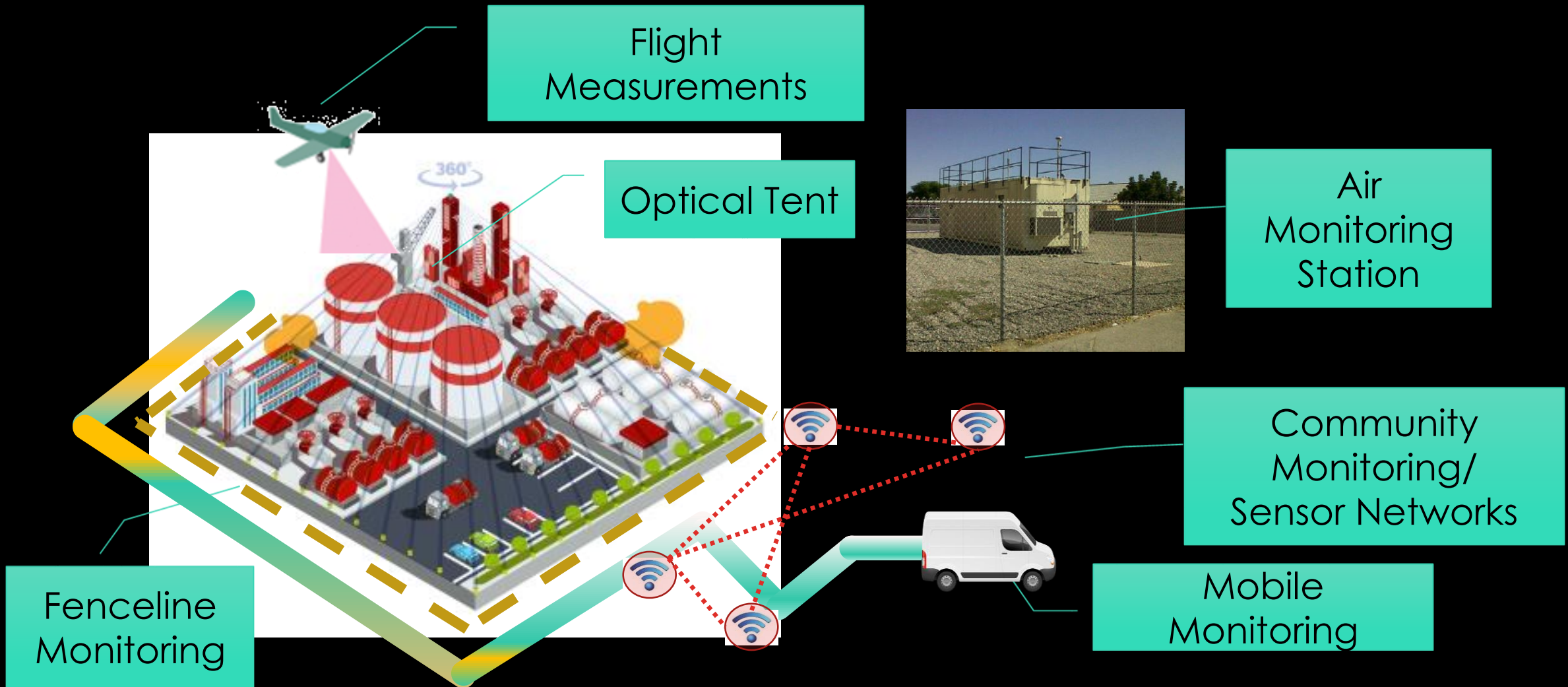


OPTICAL TENT (FACILITY-BASED AIR TOXICS MONITORING)



- Continuous facility monitoring
- Real-time leak detection
- Quantify long-term emissions

COMPLEMENTARY APPROACHES TO AB 617 MONITORING



PROVIDING ACCESS AND MEANING TO DATA

- Telemetry
 - Data Acquisition
 - Portability
- Computing
 - Cloud services
 - Server hardware
- Visualization
- Messaging
 - Alerts
 - Intuitive to the public



PATH FORWARD

- Prioritize communities
- Increase the air monitoring and data communication toolboxes
- Provide input and guidance on the statewide AB 617 plan
- Community outreach
- Conduct initial surveys on the priority communities
- Commitment for obtaining ongoing funding to support program implementation

Denos su opinión

- Identificación de la comunidad y cómo enfocar la p
- Cómo se define "Comunidad"
- Recomendaciones de comunidades específicas

El Formulario de Auto-Recomendación Comunitaria para
Disponble AQUÍ y en www.AQMD.gov/AB617

- Ubicación de la comunidad
- Descripción de la comunidad
- Descripción de las necesidades
- Descripción de lo que le preocupa a la comunidad en relación a la contaminación del aire

Para
 7 de M
 del 20



QUESTIONS?

AB 617

Assembly Bill

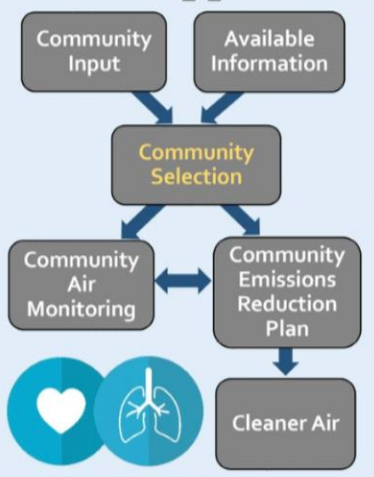
A new Opportunity
 for Communities
 impacted
 by Air Pollution



Key Goals



Tailored Approach



Provide Input

Community Selection Process
 Recommend your Community

- Step 1: Visit www.aqmd.gov/ab617
- Step 2: Fill out the web form
- Step 3: Submit your response

South Coast Air Quality Management District

@SouthCoastAQMD • www.aqmd.gov

909-396-3314 • ab617@aqmd.gov

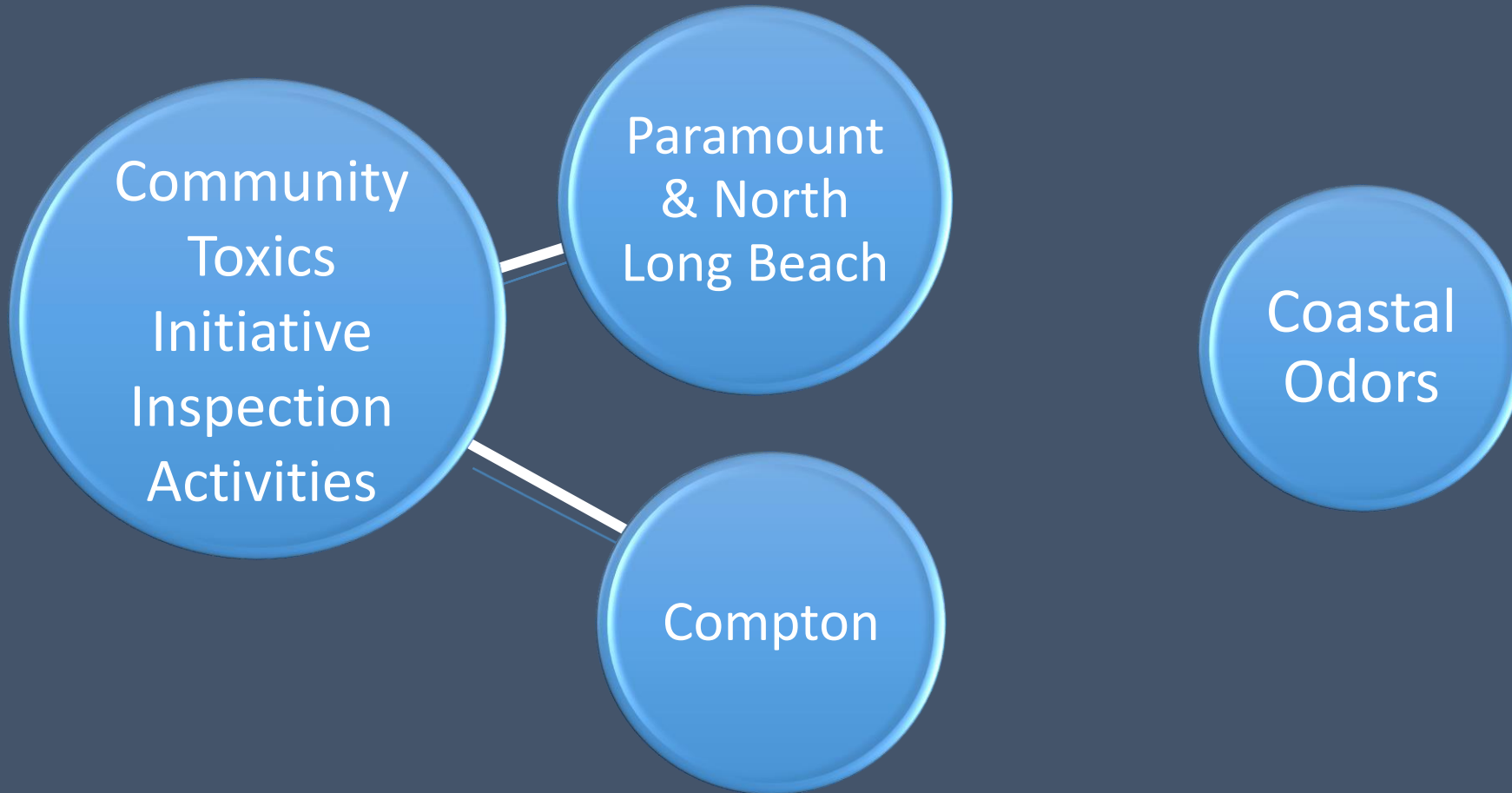
Update on Local Toxics Investigations and Coastal Odors



**SCAQMD Governing Board Retreat
May 2018**



Focused Investigations





Internal Collaboration

Compliance and Enforcement

Information Management
and Finance

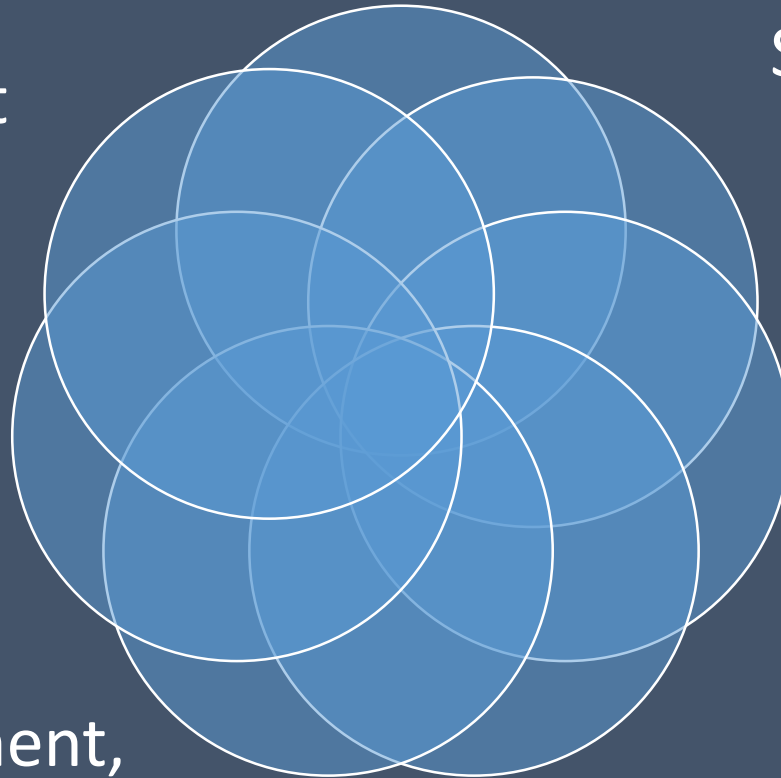
Science and Technology
Advancement

Legal

Legislative, Public
Affairs and Media

Planning, Rule Development,
and Area Sources

Engineering and
Permitting



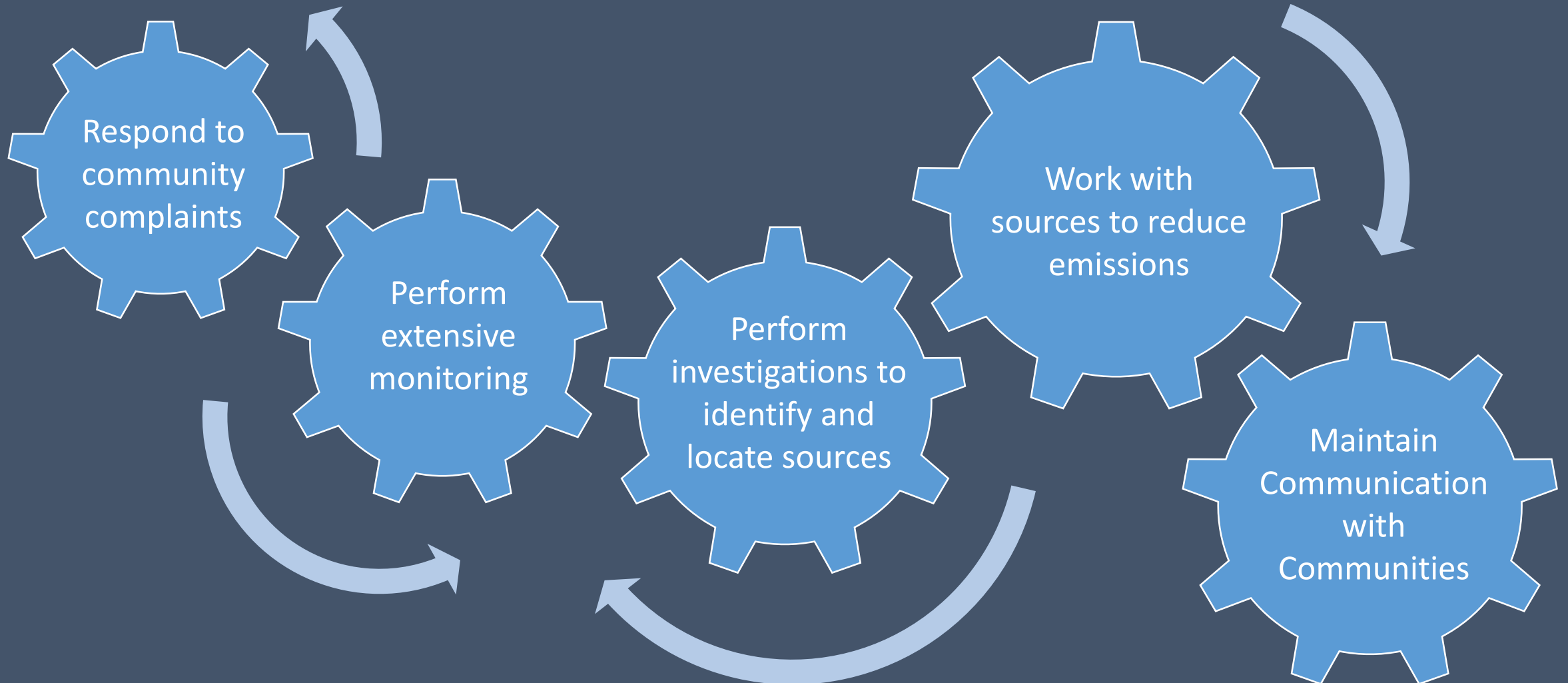
External Collaboration



- Multi-Agency Task Force
- Agency Complaint Referrals
- Cross-Training
- Information Sharing
- Developed all City Notice Sharing
- Weekly Agency Calls
- Town Hall Meetings
- Website Updates
- Ad-Hoc and Committee Meetings



Strategies for Hexavalent Chrome Investigations





Inspection Activities

Inspection Activity	Paramount and Long Beach (North)	Compton
Active Facilities with SCAQMD Permits	907	165
Concentrated Efforts	November 2016 – April 2017	June 2017 – April 2018
Facility Inspections	1,956	322
Survey Inspections	56	99
Complaints	4,159	272
Notices to Comply	815	178
Notices of Violation	237	61

Statistics From 1/1/2013 – Present

Instrumentation Used

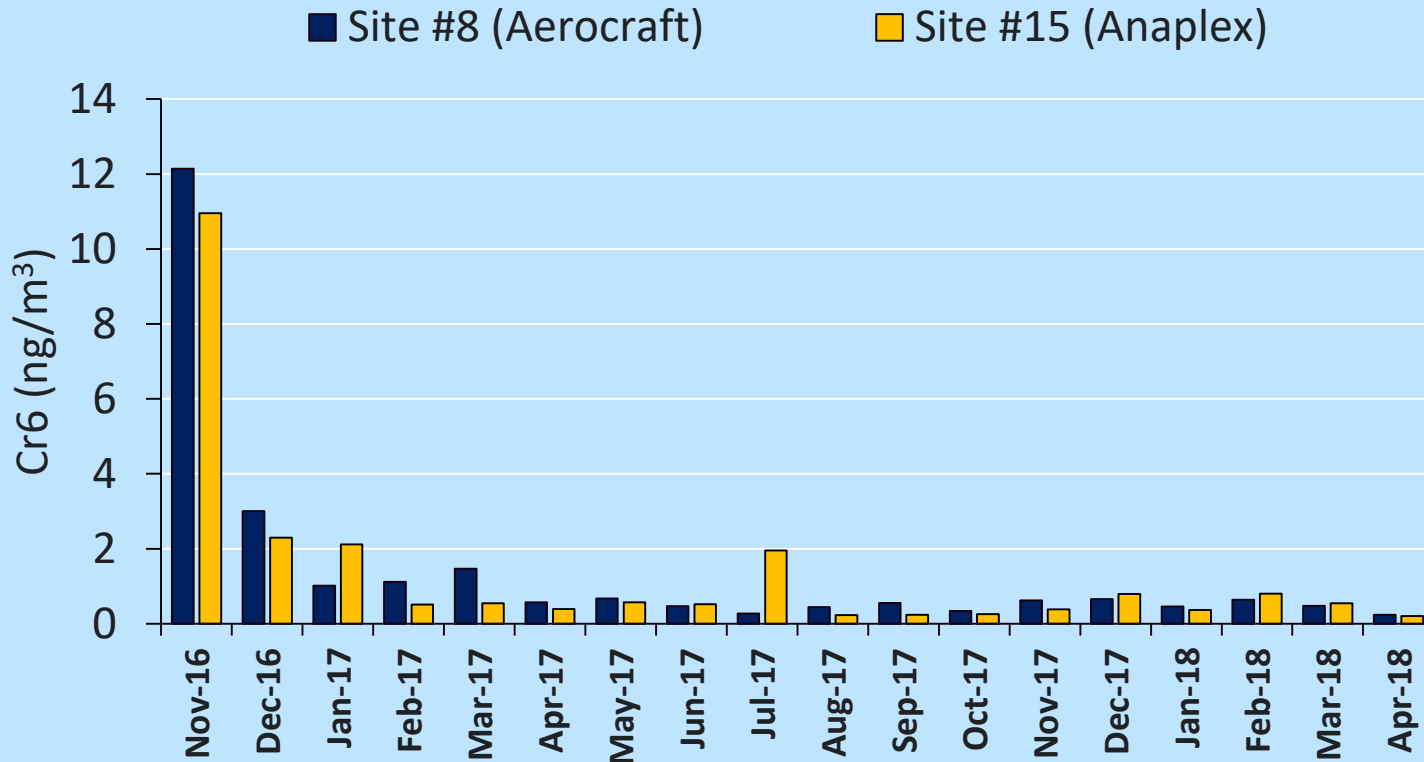
X-Ray Fluorescence (XRF) Analyzer



- Used as a screening tool to identify concentrated areas
- XRF identifies total chromium, not hexavalent chromium
- Elevated levels prompt further investigation

Paramount Air Monitoring

Monthly Average Hexavalent Chromium Levels



As of April 25, 2018

3657 Samples analyzed for hexavalent chromium at 48 sites since Oct 2016

21 Individual sources tested at 8 facilities to quantify their emissions

3 Companies (Anaplex, Aerocraft, and Lubeco) signed a Stipulated Order for Abatement

9 Curtailment orders (cease operations):
Anaplex: 5 times
Aerocraft: 4 times

Compton Air Monitoring

Average Hexavalent Chromium (June 2017 – April 2018)



As of April 25, 2018

719 Air samples analyzed for hexavalent chromium since June 2017

12 Air sampling sites located upwind and downwind of target facilities

9 Individual sources tested at 2 facilities to quantify their emissions

2 Multi-metals survey conducted around target facilities using a mobile monitoring platform

Additional Efforts to Find Metal Sources

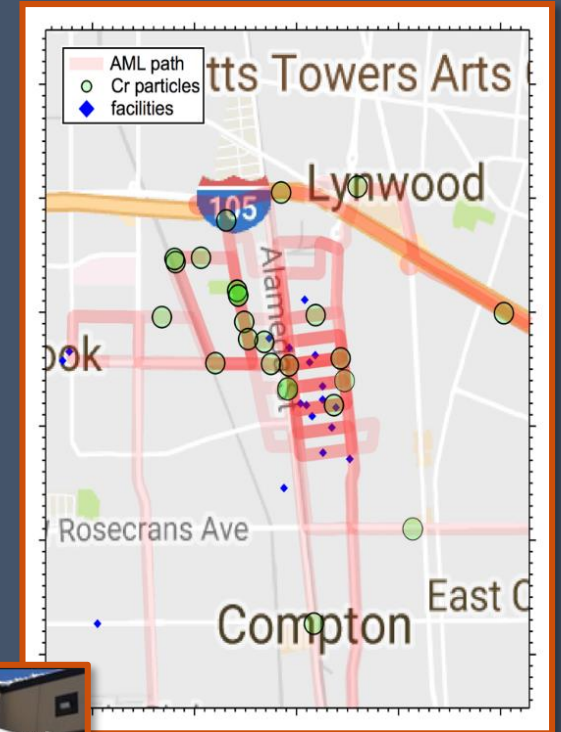
- Real-time Mobile Monitoring of Total Metals (UCSD/ CARB)
 - 7-day monitoring campaign in July and September, 2017 in Compton and Paramount
 - Total Cr and other metal particles were found throughout Paramount and Compton
 - Highest numbers of Cr detected in the industrial area of Compton (These results are still preliminary)



Aerosol Time-of-Flight Mass Spectrometer

Additional Efforts to Find Metal Sources

- Real-time Mobile Monitoring of Total Metals and Cr6+ (Aerodyne Research/ Desert Research Institute)
 - Conducted a 5-week monitoring campaign during March-April, 2018
 - Variety of fast time response instruments for the measurement of gas and particle phase species
 - More than **50 facilities** were monitored in **~10 different communities** including Paramount and Compton



*Areas visited by
Aerodyne/DRI between
03/03 and 03/09*



Additional Efforts to Find Metal Sources

- Concrete Construction Pilot Study
 - Samples collected during various concrete processes: **grinding, cutting, breaking, pouring**
 - Some elevated levels of Cr6+ observed
 - Highest during concrete cutting
 - Not exceeding OSHA threshold
 - Continue to gather more information for determining next actions

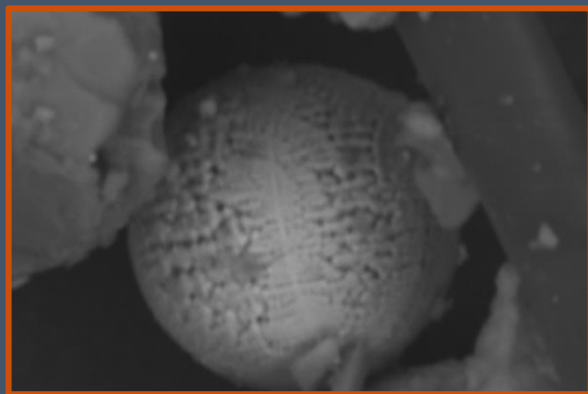
Additional Efforts to Find Metal Sources

- Furnace Study to Characterize Sources of Cr6+ (UCR)
 - Many industrial furnaces in the Basin
 - Several mechanisms may be causing increased production of Cr6+ at heat-treating furnaces
 - Characterize, quantify and perhaps identify the specific mechanisms that lead to Cr6+ production from industrial furnaces

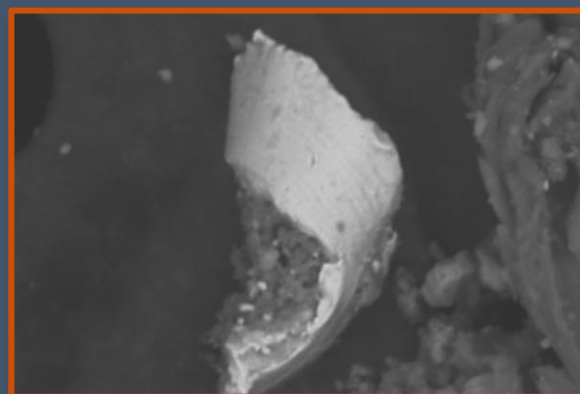


Additional Efforts to Find Metal Sources

- **Additional Laboratory Capability: Scanning Electron Microscope with Energy Dispersive Spectrometer (SEM-EDS)**
 - SEM-EDS provides information that can identify potential sources of toxic metals emissions
 - Identifies the morphology, size, and metal levels of particles



Spherical Metal Particle
Contains Titanium



Shaved Metal Particle
Contains Chromium, Iron, Nickel and Aluminum

Coastal Odor Complaint Investigations



- Complaint Area: Huntington Beach, Seal Beach, Long Beach
- Between 1/1/2016 to Present Approximately 1,376 Complaints have been Received Describing a Petroleum / Sulfur / Chemical Type Odor
- Enhanced Complaint Response



Coastal Odor Complaint Challenges

- Multiple potential sources (complaints report petroleum/sulfur/chemical odors)
- Odors are reported to originate on the shoreline and quickly dissipate
- More odor events are reported in warmer months
- Odor event frequency and intensity has been increasing in the last two years (more events of 5 or more complaints)

Instrumentation Used for Investigations

- Toxic Vapor Analyzer (TVA) with flame ionizing detector (FID) and photoionization detector (PID)
- Optical Gas Imaging Camera





Optical Gas Imaging Camera Footage



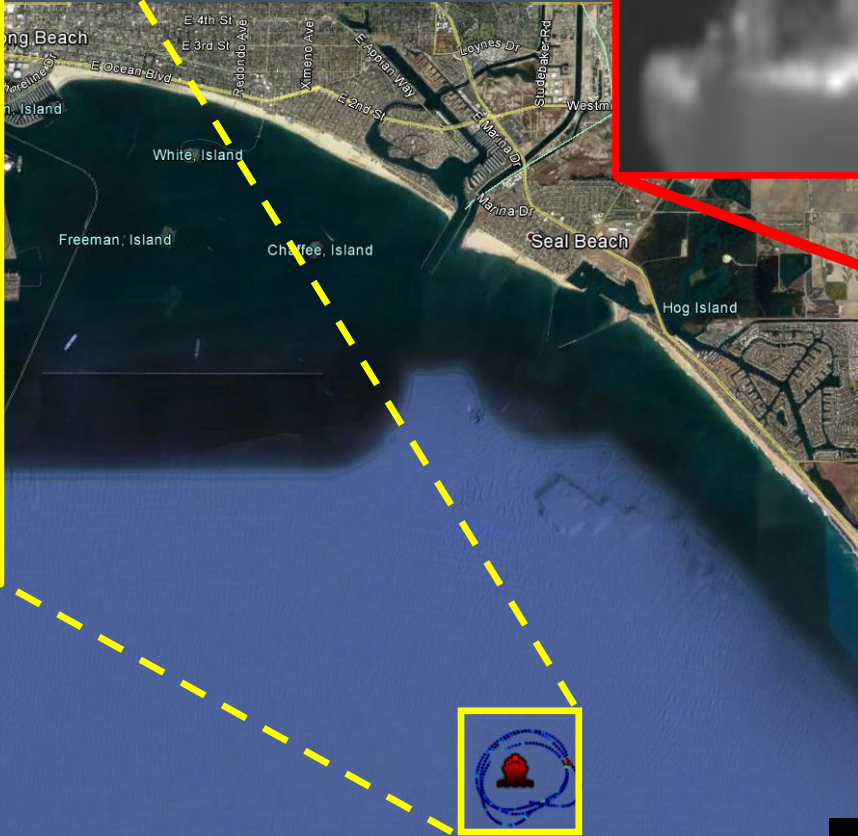
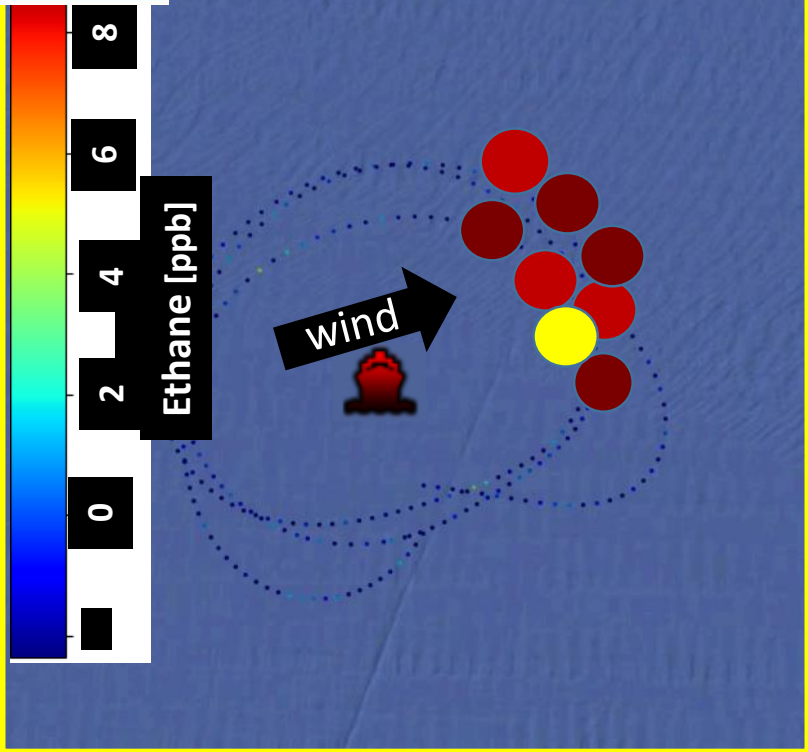
Monitoring Efforts for Coastal Odors

- Air samples are collected in SUMMA canisters and Tedlar bags during the odor investigations
 - Air samples are analyzed for the presence of volatile organic compounds and total reduced sulfur
 - Indicative of petroleum source
 - Final results are available online at www.aqmd.gov
- SCAQMD provided three hands-on training sessions for local fire departments and community residents on sample collection
- Meteorological models used to estimate the location of the odor source

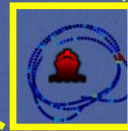




Airborne Monitoring



➤ Elevated methane and ethane measured downwind of an oil tanker ship



April 19, 2018

Data CSUMB SFML, CA OP
Data USGS
© 2018 Google



Next Steps

- Respond to air quality complaints and perform periodic surveillance to investigate potential sources of hexavalent chromium and coastal odors
- Continue air monitoring surveys to further assess potential sources
- Work Collaboratively with Other Agencies
- Post Updates on our Website at www.aqmd.gov

Questions?



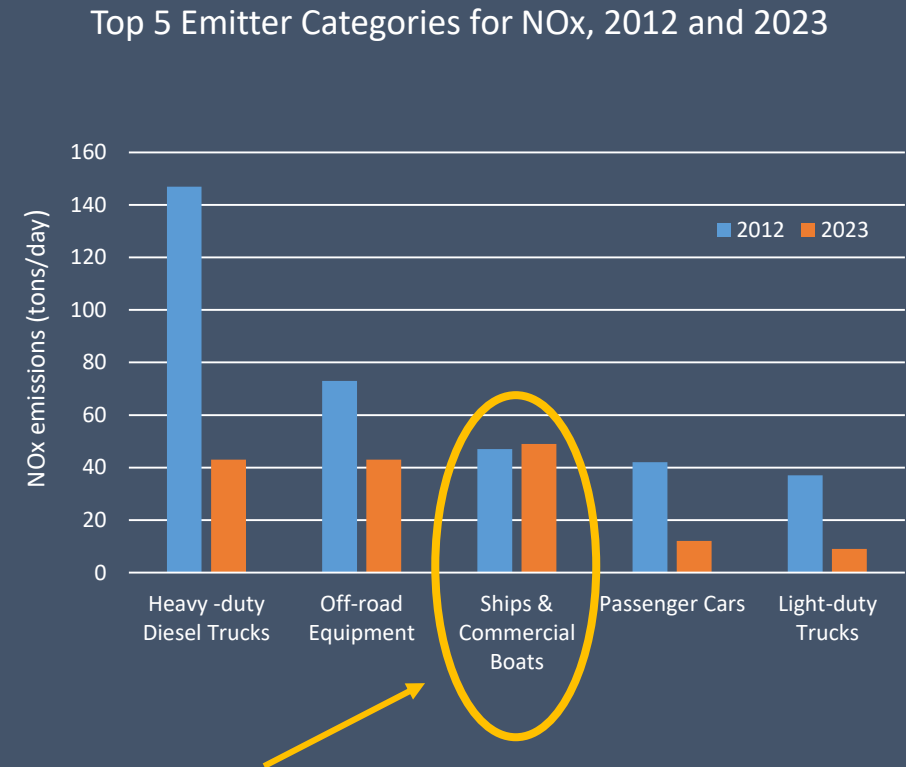
Potential International Partnerships with Ports for Emission Reductions

SCAQMD Governing Board Retreat

May 2018

Importance of Ship Emissions

- Ships and commercial boats were the 3rd largest contributor to NOx in 2012, and will be the top contributor in 2023
- Over 50% of NOx emissions from the ports are from ocean going vessels



Shipping is the only category with a projected increase in NOx emissions

Challenge #1

Limited
Regulatory
Authority

Most mobile sources are subject to CARB and EPA regulatory authority

Emissions from shipping are also subject to international regulatory authority

Challenge #2

Current
international
regulations not
sufficient

Require cleaner vessels (Tier 3 engines) in Emission Control Areas (ECAs) for vessels built after 2016

There is a glut of pre-2016 keels; new vessels are being built on pre-2016 keels and so don't require Tier 3 engines

International Maritime Organization (IMO)



- An agency of the UN based in London
 - Charged with developing a comprehensive regulatory framework for the shipping industry
 - Marine Environment Protection Committee (MEPC) addresses environmental regulations
 - MARPOL Annex VI governs air pollution from ships
 - Established regulations on SO_x and NO_x emissions; recently established GHG emission reduction goals
- IMO regulations are developed and implemented at a slow pace
- U.S. participates in IMO through the Federal government (Dept. of State, Coast Guard, sometimes EPA)

Current IMO Regulations for NOx

- Established classification of engines required for vessels based on year built

Year Built	Engine Tier	NOx Emissions
Pre-2000	Tier 0	uncontrolled
2000	Tier 1	9.8-17 g/Kwh
2011	Tier 2	15% cleaner than Tier 1
2016	Tier 3	75% cleaner than Tier 2

Emission Control Area (ECA) only

Current Emission Control Areas

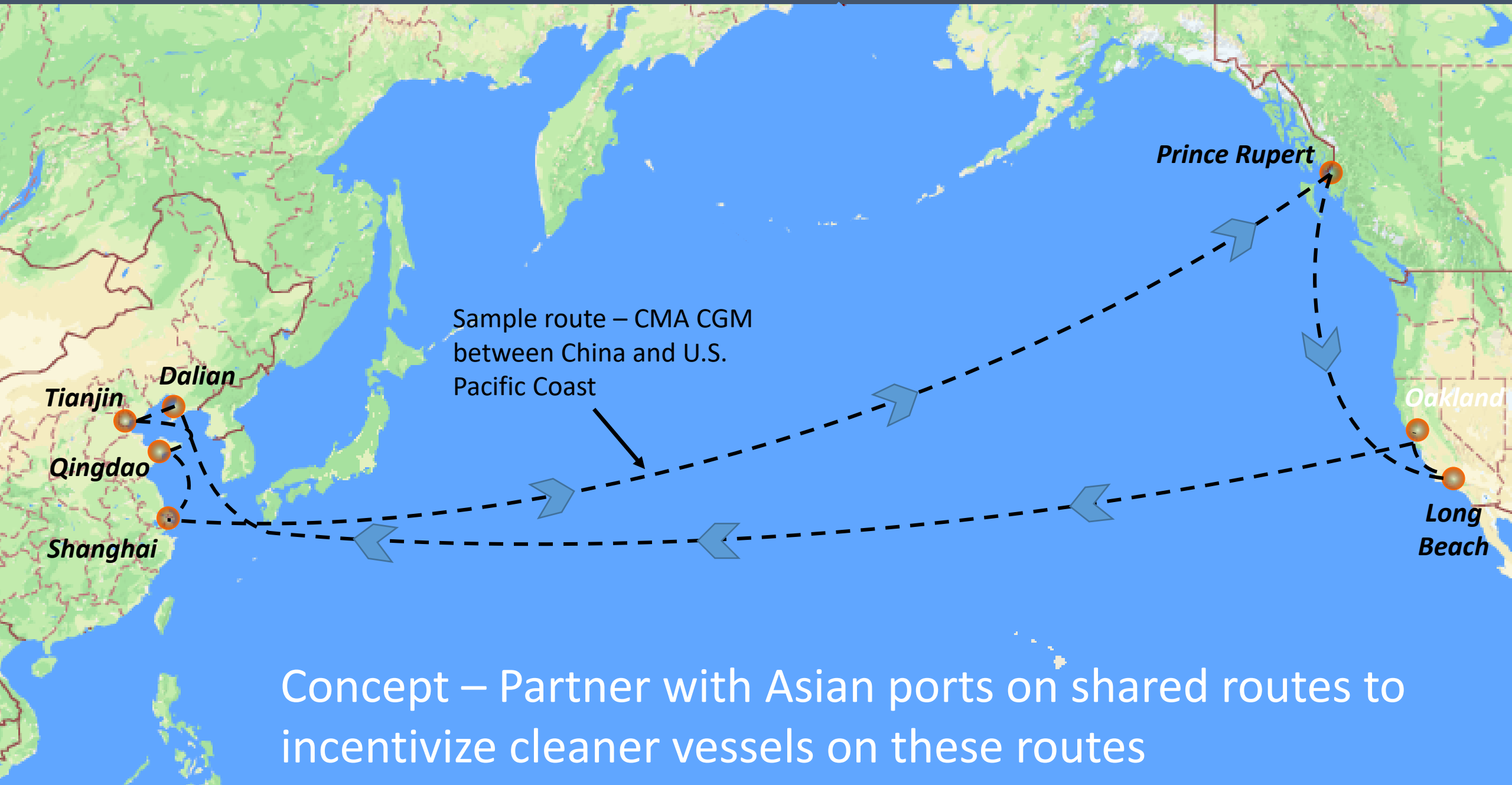


China has established their own “emission control zones” for SOx

- Imposes requirements within 200 nautical miles of an ECA
 - SOx: requires low sulfur fuel
 - NOx: requires vessels built after 2016 to meet Tier 3 engine standards
- North Sea and Baltic ECA will add NOx requirements in 2021

Issue: Few Tier 3 Vessels are Being Built

- Tier 0-2 vessels are not restricted from entering ECAs
- There is a surplus of pre-2016 keels; new vessels are being constructed on these keels
- Both San Pedro ports have incentive programs in place to attract Tier 3 vessels
 - Has not resulted in calls by Tier 3 vessels
 - In 2016, 79% of vessel calls were Tier 0 or Tier 1



Concept – Partner with Asian ports on shared routes to incentivize cleaner vessels on these routes

Partner with Asian Ports & Other Entities to Leverage Incentives

- Identify top ports in Asia that are on the same routes as Ports of LA/LB
- Collaborate with regional authorities/ports/shipping lines to develop a program where each participating port provides an incentive for a call by a cleaner vessel
- Each port's individual incentive is then leveraged to encourage changes in shipping behavior
 - Re-routing of existing Tier 3 vessels
 - Encourage construction of Tier 3 vessels on pre-2016 keels
 - Encourage retrofits of existing vessels cleaner than Tier 2

2016 Frequent Vessel Calls at Ports of LA/LB and Asian Ports



Motivation for China to Participate

- There are goals for both NOx emission reductions and emissions from the maritime sector in the national plan (5 year plan)
 - 20% reduction in NOx emissions from shipping by 2020 from 2015 levels
- Currently focused on PM, but NOx also contributes to PM issues
 - China has their own version of ECAs for SOx; could extend to NOx and move much faster than IMO
- Already starting to investigate incentive programs
- Interested in stepping up enforcement activities – lessons learned from SCAQMD

Challenges

- Behavioral
 - Need to better understand current shipping behavior and business models
 - Tailor incentives so that they are sufficient to change behavior
- Technology
 - Identify feasible retrofit technologies and costs
 - Technology demonstration projects
- Emission trade-offs
 - Avoid GHG disbenefit associated with some retrofit technologies

Next Steps

- Continue research & gathering information
 - Analyze satellite tracking data to confirm vessel routes
 - Collect information on feasible technologies & costs
 - Identify and work with key industry partners
- Build relationships with key Chinese partners
 - Meet with ports/regional authorities Summer 2018
 - Convene technology forum for retrofits Fall 2018
 - Continue meeting/information exchange through 2018-2019
 - Agreement on a joint incentive program Spring 2019

Working together we can reduce shipping emissions

Questions?

