AGENDA: 8

2017 Spare the Air Campaign

Lisa Fasano

Board of Directors

October 18, 2017

Advertising

- Launched in 2016; adapted & expanded for 2017
- Focus on carpooling
- Meet Bob TV
- Andy Washburn TV

Better commute, brought to you by carpooling.

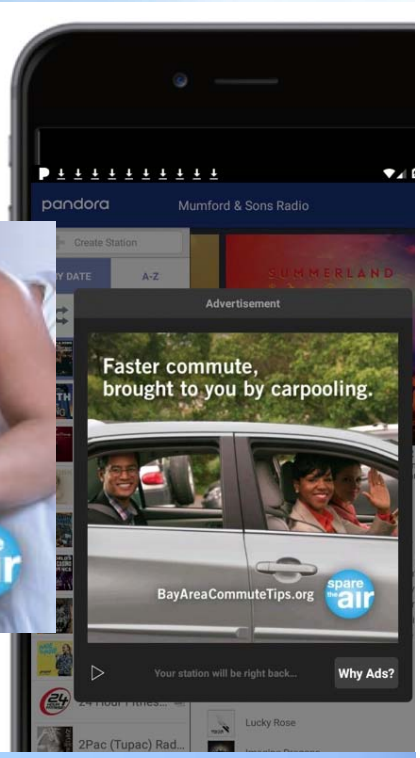
spare the air

BayAreaCommuteTips.org

spare the air

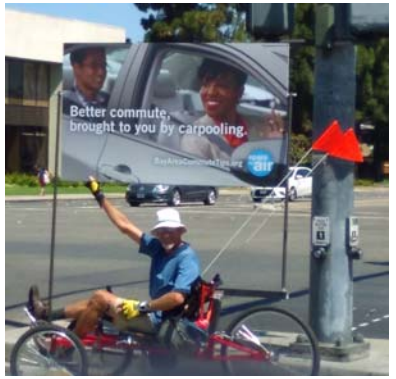
Campaign Highlights

- TV, radio, print, online, mobile, outdoor and in-stadium ads in 6 languages
- Updated BayAreaCommuteTips.org
- 15 million+ online & mobile advertising impressions
- Continued partnership with 511 and the rideshare apps to cross-promote carpooling



Campaign Highlights

- Wrapped four Oakland Broadway Shuttle buses
- Partnered with Capitol Corridor
- @ 75+ Bay Area events
- Bike outreach in 35 communities



Social Media

- Spare the Air Alert posts gained largest impressions
- Social media impressions
  - Twitter: 337,663
  - Facebook: 262,164
  - Instagram: 9,927
- Social Media Followers:
  - Twitter: 10,794
  - Instagram: 839
  - Facebook: 15,851 likes/followers

Social Media

- Partnered with companies and other agencies
- Launched creative campaigns to drive engagement

Instagram

Media Relations

- Called 14 Spare the Air alerts
- Held casual carpool & anti-idling press events
- Back to school carpool event at Redwood HS in Larkspur
- Currently working with CHP and MTC to promote carpool

Map shows which SF neighborhoods are hit hardest by air pollution

By Rachel Swan | September 4, 2017 | Updated: September 4, 2017 6:55pm

News

'Excessive' heat anticipated Sunday, Monday in much of Bay Area; air quality advisory issued

Isaiah Su, 5, of Sunnyvale, keeps cool at the Civic Center fountains in Cupertino, California, in this file photo from June 19, 2017. The National Weather Service issued a heat advisory for much of the Bay Area Sunday. (Gary Reyes/ Bay Area News Group)

Employer Program

- Working with 511 to promote commute alternatives
- Hosted employer focus groups
- Expanding website content
- Carpool Now events:
  - Santa Clara University
  - County of Sonoma
  - County of Marin
  - Ariat/Abaxis
  - Workday

Help your employees find a better way to work.

The **Spare the Air Employer Program** helps Bay Area businesses find alternatives to driving alone for their employees.

Benefits to your business and employees:

- **Save by reducing payroll taxes** for each participating employee.
- Commuter benefits **improve employee morale and productivity.**
- Employees **save up to 40 percent on transit expenses** using pre-tax dollars.
- **Biking or walking to work is healthier,** reducing insurance claims and sick leave.

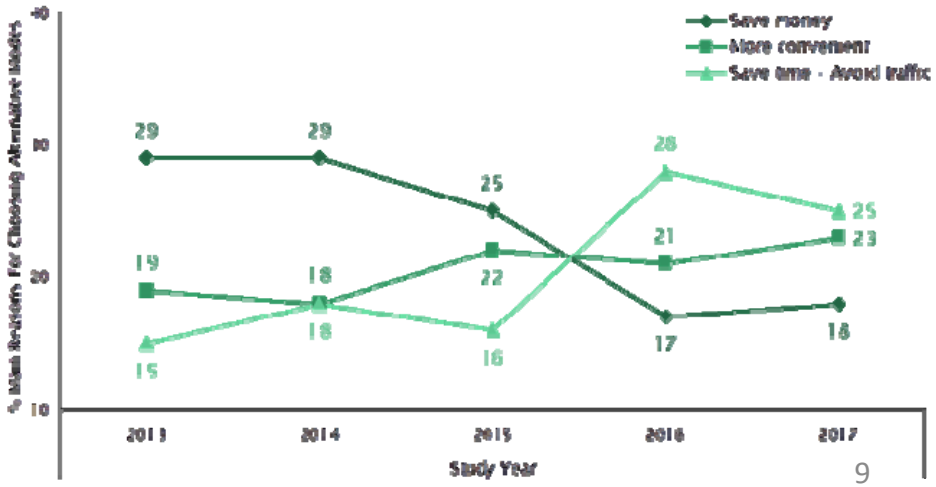
The Spare the Air Employer Program provides assistance to help your employees start carpooling to work. At our on-site Carpool Now events, employees will learn about their carpool options and connect with coworkers to form carpools. Successful Carpool Now events require a minimum of 300 employees at the worksite and executive support.

Registration and all services are **free** for Bay Area businesses.

Visit EmployersSpareTheAir.org to learn more!

Research

- Recall of Spare the Air mentions from news up significantly - from **61% to 83%**
- **52% carpooled** in the week prior to the interview.
- Motivated by saving time/avoiding traffic
- 10,570,275 VMT per week reduced



AGENDA: 9

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Winter Spare the Air Season 2017-18 Update

Wayne Kino
Director of Compliance and Enforcement

Wood Burning Device Rule Summary

- Regulation 6, Rule 3 - Adopted 2008 and amended 2016;
- To qualify for a “sole source of heat” exemption, the wood-burning device must be an EPA-certified wood-burning device and registered;
- Requires disclosure describing the negative health impacts of $PM_{2.5}$ when selling, leasing, or renting properties with a wood-burning device;
- Requires rental properties in natural gas service areas to have a permanently installed form of heat that does not burn solid fuel; (effective November, 2018)
- Limits installations in new building construction to only non-wood-burning devices; and
- Allows forecasting beyond the next day for predicting possible excess PM 2.5 levels regionally.

Winter PM2.5 Seasons

Year	Days > 35 $\mu g/m^3$ (micrograms per cubic meter of air)	Winter Spare the Air Alerts
2011/2012	11	15
2012/2013	1	10
2013/2014	15	30
2014/2015	6	23
2015/2016	0	1
2016/2017	0	7

Wood Smoke Enforcement

	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
***WSTA* Alerts**	4	15	10	30	23	1	**7**
$PM_{2.5}$ Excesses	1	11	1	15	6	0	**0**
Complaints	1,373	3,777	2,316	5,091	3,834	1,302	**1,542**
Info Packets	592	11,476	3,720	1,768	2,029	577	**577**
Violations	61	359	178	267	155	1	**91**
Exemptions	49	76	91	150	193 + 23 Seasonal	215 + 1 Seasonal	**129 + 1 Seasonal**

Enforcement Highlights

- Violations: 91
  - 69 - 1st NOV Wood Smoke Awareness Course or $100 penalty
  - 21 - 2nd or 3rd NOV $500 (increased with additional NOVs)
  - 1 - Visible Emissions Violation
  - 117 -Total Exemptions – 116 registered EPA Certified Devices, 1 non-functional heater

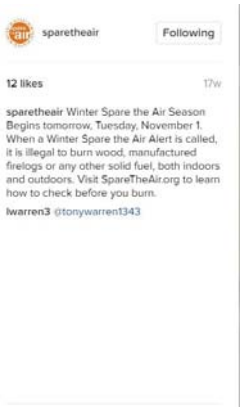
- Complaints: 1,542
  - 40 addresses with 5 or more complaints
  - 5 addresses with 20 or more complaints
  - 2 address with 50 or more complaints
  - 84 complaints by 1 person

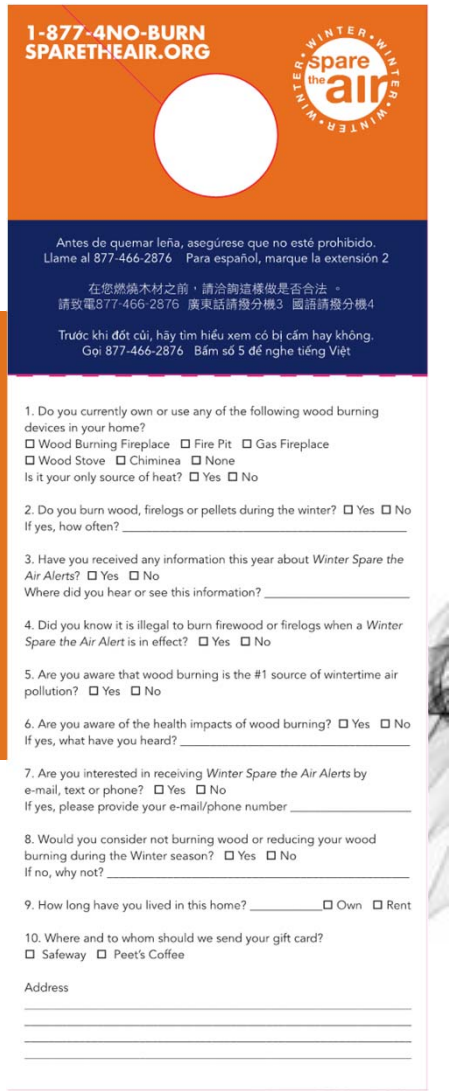
Winter Spare the Air Campaign

- Emphasize health effects
- Poor air quality indoor and outdoor
- TV spot with cigarette ‘logs’ in fireplace

Social Media & Outreach

- Continue to use social media to educate residents about the benefits of not burning
- Door to Door outreach & tabling @ events





Wood Smoke Reduction Incentive Program

$750
decommission

$1,000
natural gas devices

$3,500
electric heat pump

- Additional “plus-up” funding provided for:
  - **+ $1,500** for high wood-smoke area
  - **+ $1,500** for approved sole source of heat exemptions
  - **+ $8,500** for low-income
- Max Woodsmoke Reduction Grant Award up to $12,000

Wood Smoke Information by County

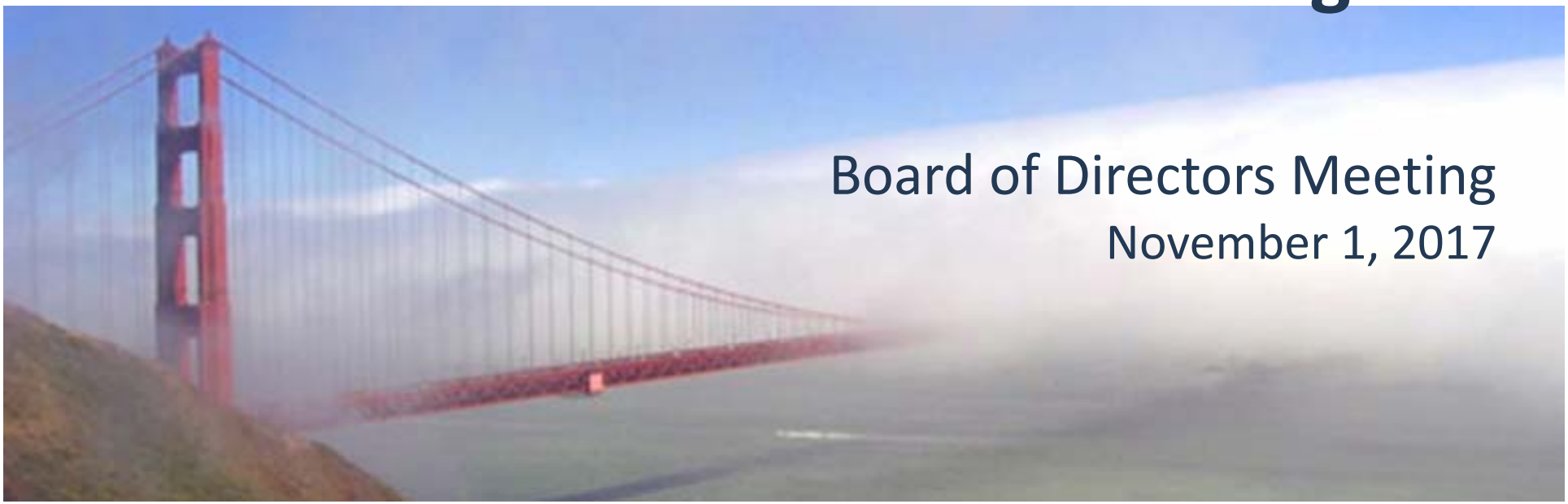
County	Complaints	Violations	Grants	Awards
Alameda	277	10	188	$515,000
Contra Costa	208	7	217	$488,750
Marin	231	13	97	$361,250
Napa	44	11	25	$93,750
San Francisco	46	0	21	$64,750
San Mateo	130	13	94	$235,250
Santa Clara	434	5	194	$409,000
Solano	37	8	17	$53,250
Sonoma	128	24	20	$154,750
Total	***1535***	***91***	***903***	***$2,375,750***

Next Steps

- Continue coordinating with ARB/CAPCOA to secure State funding to augment future Air District funding
  - Approved - $5 million state-wide for 2018/2019
  - Proposed - $50 million state-wide in subsequent years
- Assess emissions reductions from the new rule amendments and the grant program replacements.
- At the Board's discretion, add additional funds to continue additional district-wide changeouts.
- Return to the Board in the Spring of 2019 with recommendations for further methods to achieve wood smoke reductions.

AGENDA: 10

Informational Presentation on Toxic Air Contaminants and Control Programs



Board of Directors Meeting
November 1, 2017

Phil Martien, Ph.D., Air Quality Engineering Manager
Jaime Williams, Engineering Division Director
Bay Area Air Quality Management District

Overview

- What are Toxic Air Contaminants (TACs)?
- What are sources of TAC emissions?
- How do we assess TAC health impacts?
- How have Bay Area TAC levels been changing?
- How does the Air District mitigate TAC emissions?

What are Toxic Air Contaminants?

- Compounds defined as toxic air contaminants (TACs) in the California Health and Safety Code
- More than 200 compounds
- Hazards to human health
  - Cancer
  - Non-cancer, chronic health impacts
  - Acute health impacts

(Sections 39655 & 39657)

Example TACs and Health Impacts

	Toxic Air Contaminant	Cancer	Chronic	Acute
	Diesel Exhaust	• Lung	• Respiratory system	
Organic Compounds	**Benzene**	• Leukemia • Myeloma • Lymphoma	• Blood cells	• Development • Immune system • Blood cells
Organic Compounds	**1,3-Butadiene**	• Leukemia • Lymphoma • Other types	• Reproductive system	• Low birth weight
Metals	**Chromium (VI)**	• Lung	• Respiratory system	
Metals	**Mercury**		• Development • Nervous system • Kidney	• Development • Nervous system • Kidney

TAC Emission Sources

Diesel Exhaust Particulate Matter

TAC Emission Sources

Organic Gases

- Benzene
- 1,3-Butadiene
- Formaldehyde
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Many others

TAC Emission Sources

Metals

- Chromium (VI)
- Nickel
- Mercury
- Lead
- Cadmium
- Arsenic
- Others

Regulatory Authority

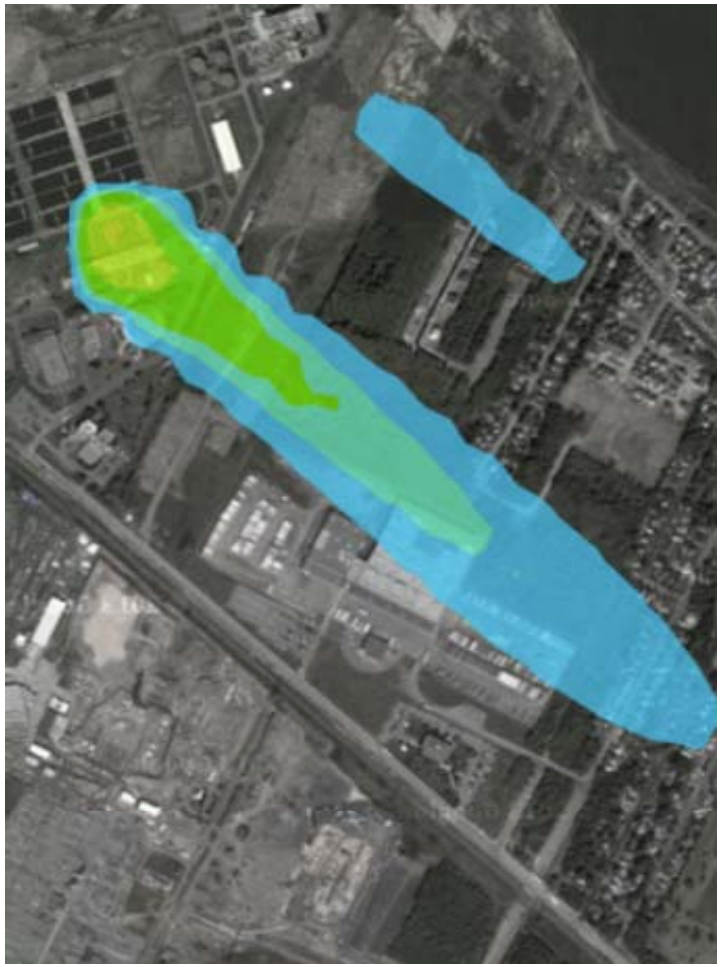
- Bay Area Air District
  - Primary regulatory authority over stationary sources
- State Air Resources Board
  - Intrastate mobile sources—cars, trucks, cargo handling equipment
- U.S. EPA
  - Interstate mobile sources—trains, aircraft & ocean going vessels

California Environmental Protection Agency
AIR RESOURCES BOARD

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Regulatory Framework for TACs

- Facility or project **health risk assessments (HRAs)** are conducted to determine local impacts
- TACs are regulated at the source by control technologies, permit conditions, and fuel requirements
- Unlike criteria pollutants, TACs are not compared to ambient standards to determine regional attainment



How Do We Measure Impacts?

- **Cancer Burden** – The theoretical probability of contracting cancer when continually exposed for a lifetime (70 years) to a given concentration of a substance. Presented as the number of chances in a million of contracting cancer.

- **Acute Hazard Index** - The potential non-cancer health impacts resulting from a one-hour exposure to toxic substances.

- **Chronic Hazard Index** - The potential non-cancer health impacts resulting from exposure to toxic substances usually lasting from one year to a lifetime.

Exposure and Toxicity Determine Health Impacts

Emission to air

Ambient concentration

Breathed in

Damage to health

Exposure

Toxicity

Exposure and Toxicity Determine Health Impacts

Emission to air

Ambient concentration

Breathed in

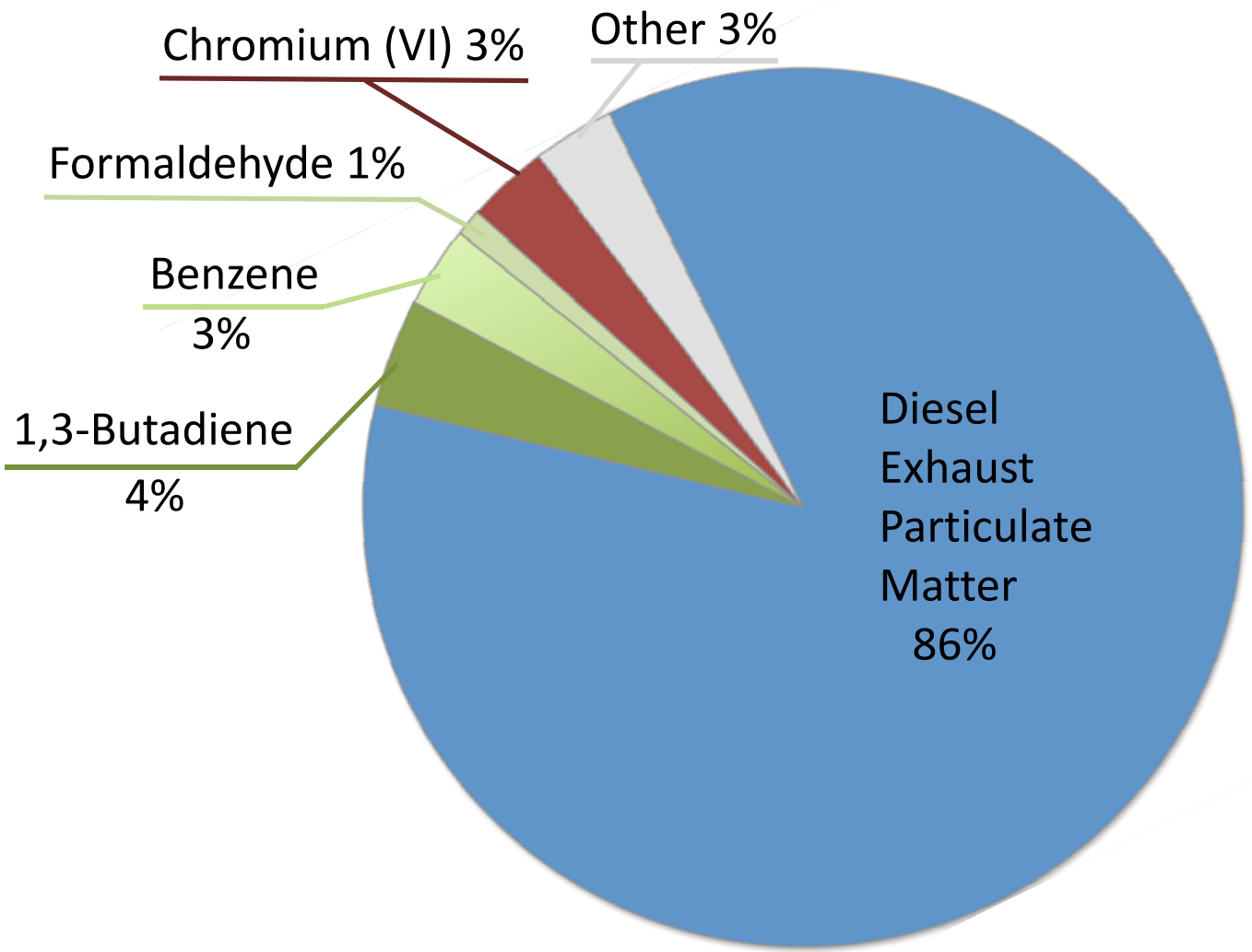
Damage to health

Exposure

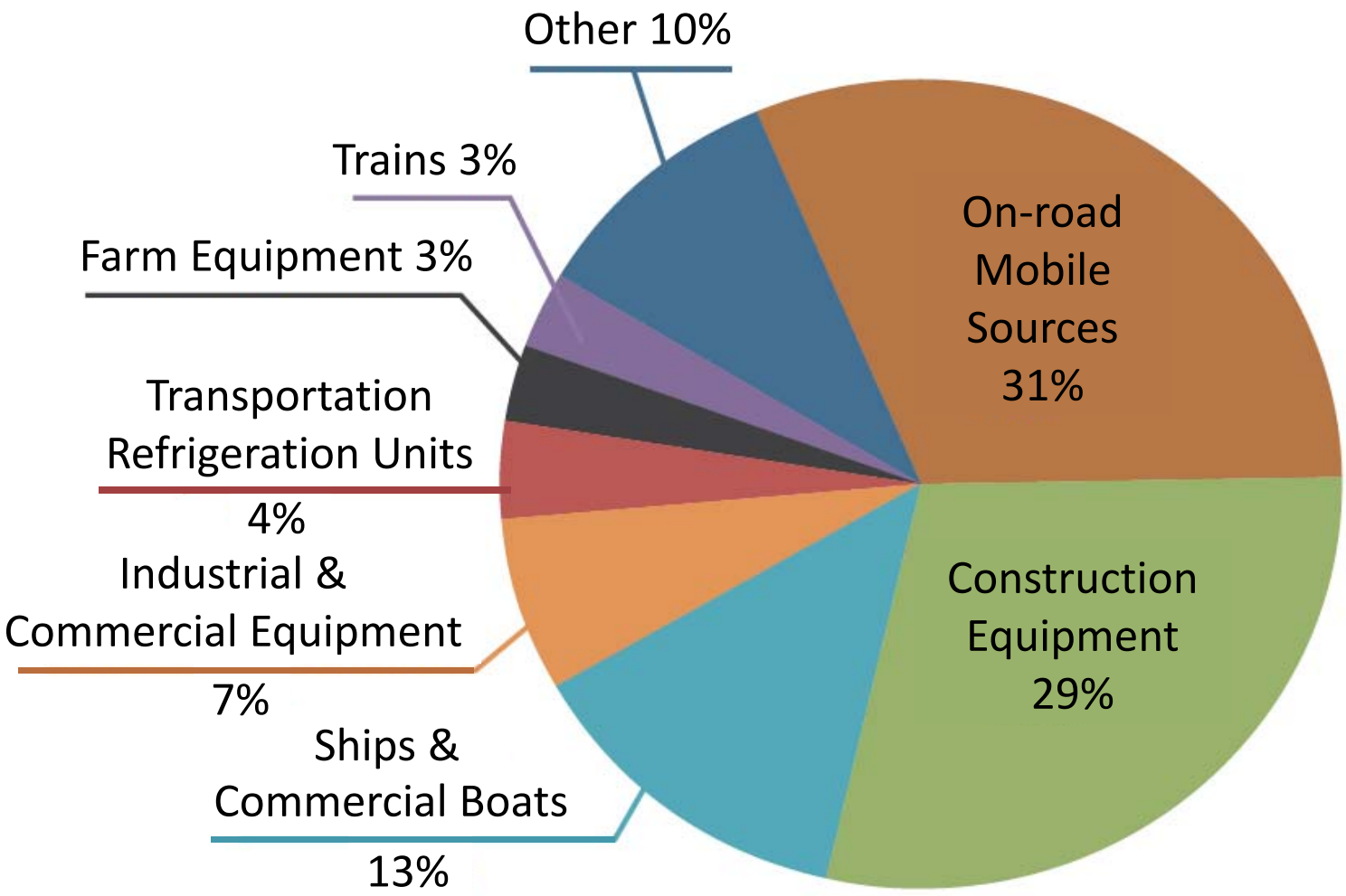
Toxicity

Office of Environmental Health Hazard Assessment (OEHHA) develops guidelines

Cancer Risk Weighted Emissions by Pollutant (2005)



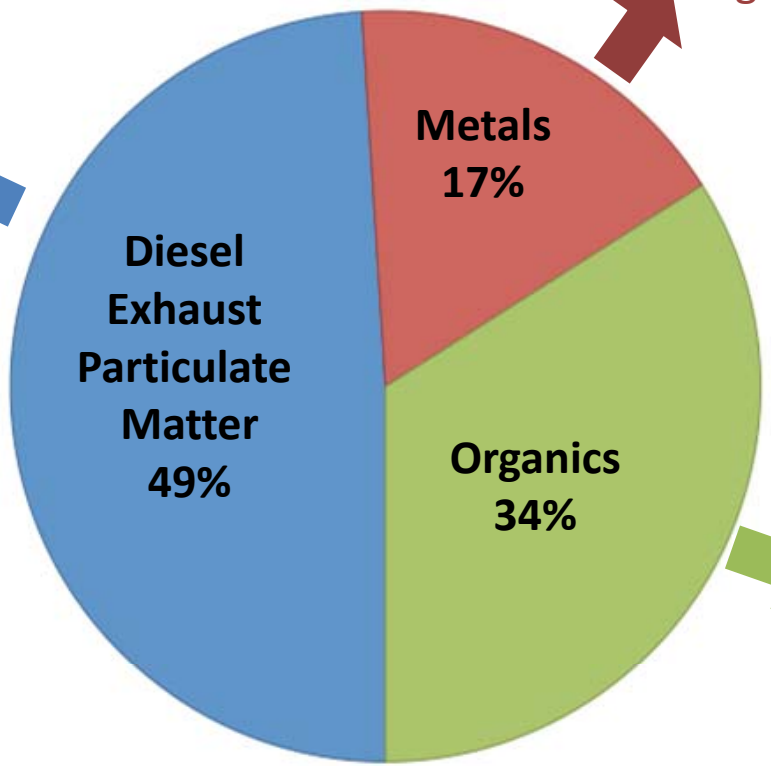
Cancer Risk Weighted Emissions by Source Category (2005)



Cancer-risk-weighted Emissions Stationary Sources (2015)

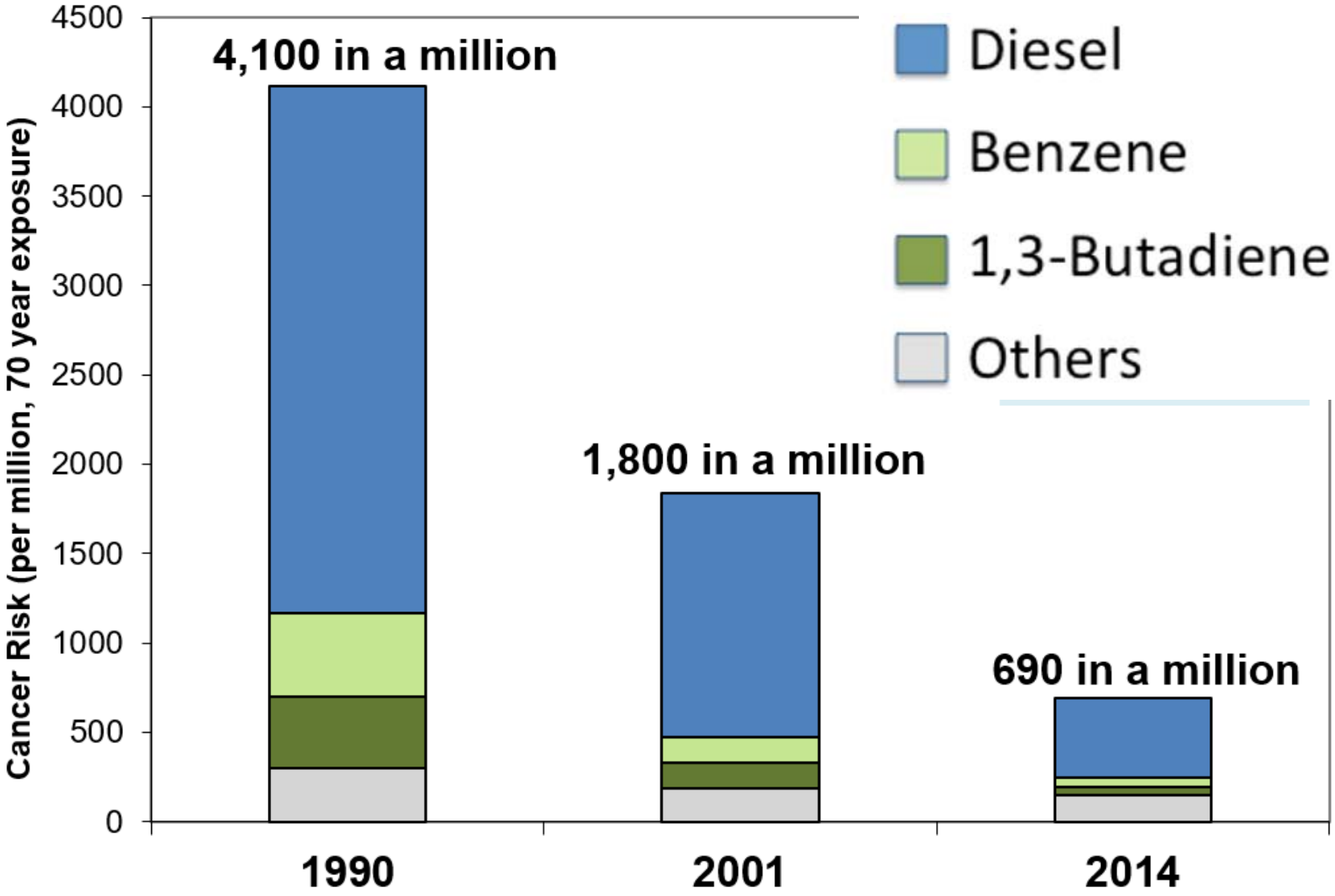
Diesel PM from backup generators and diesel engines at a wide variety of facility types

Most toxic metals from refineries (68%) and industrial fugitive sources (35%)

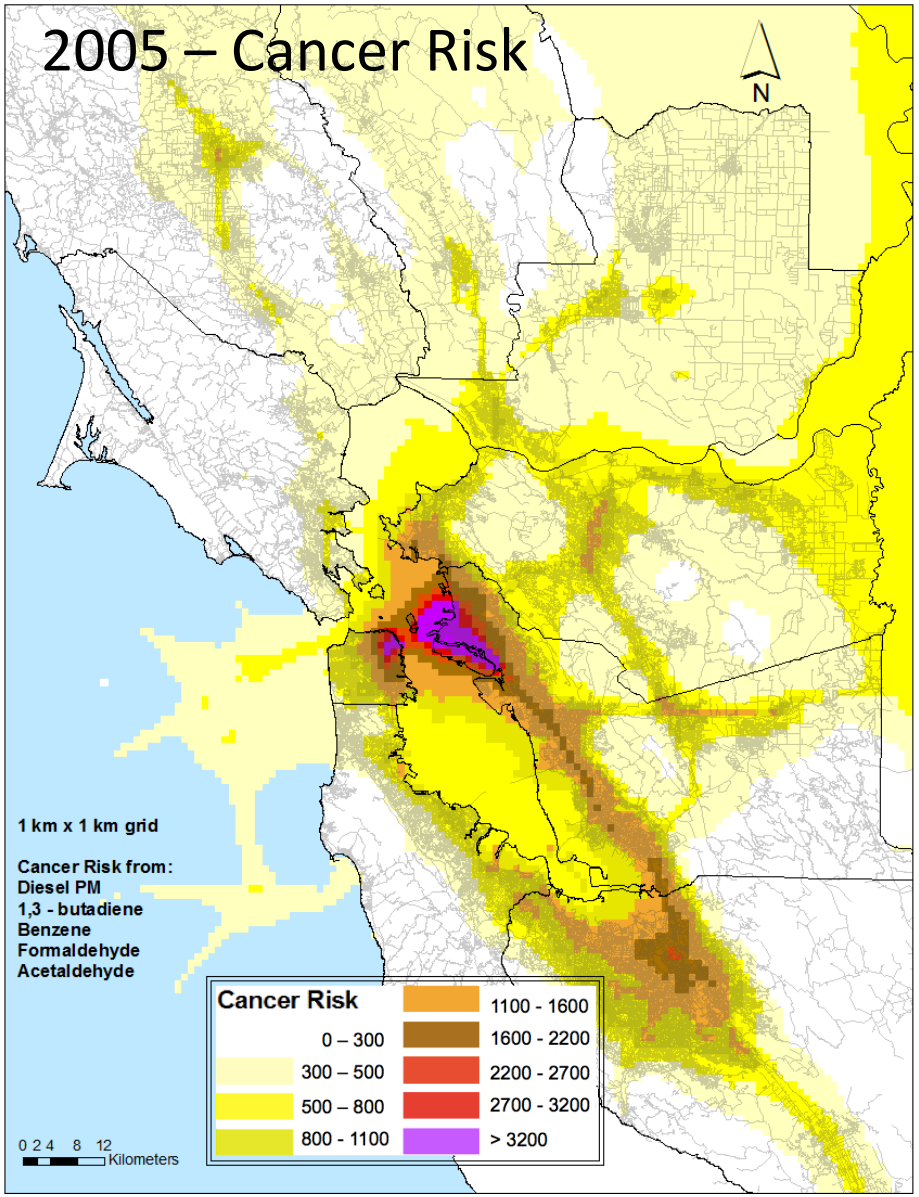


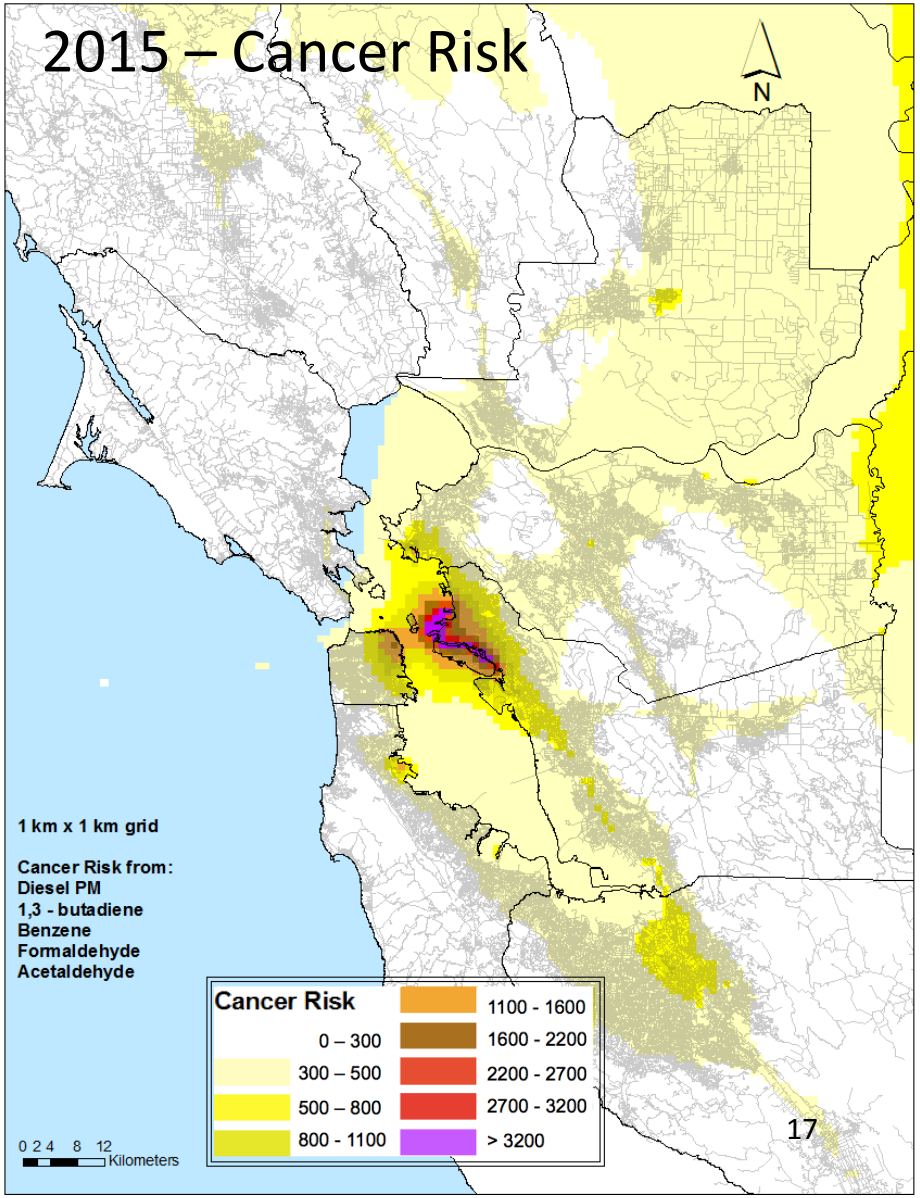
Largest sources of toxic organic compounds are refineries (33%), industrial fugitive sources (20%), and waste-sector facilities (34%)

Bay Area Lifetime Cancer Risk from TAC Exposure

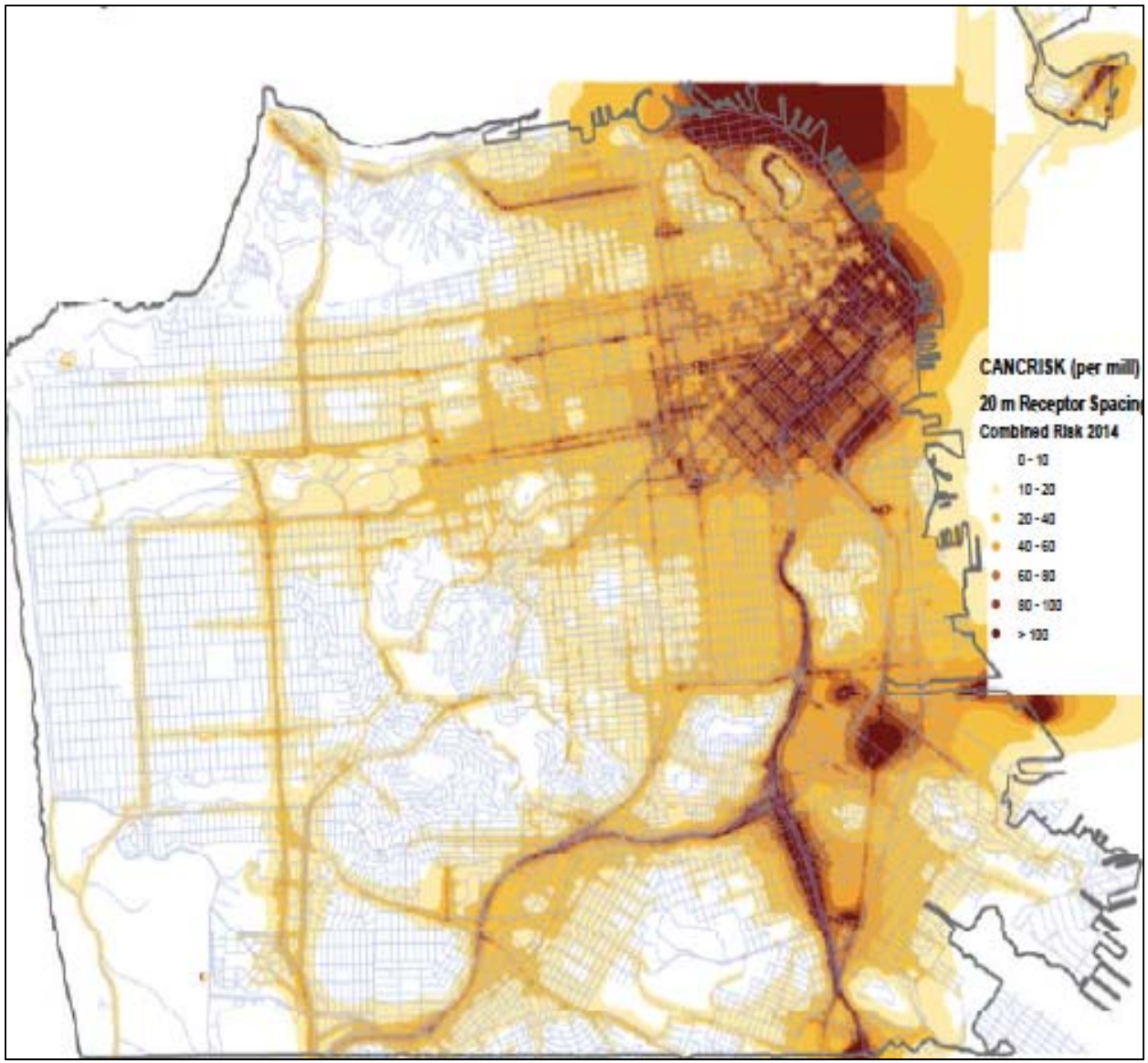


Overall Air Pollution Down, but Higher Risks in Some Communities



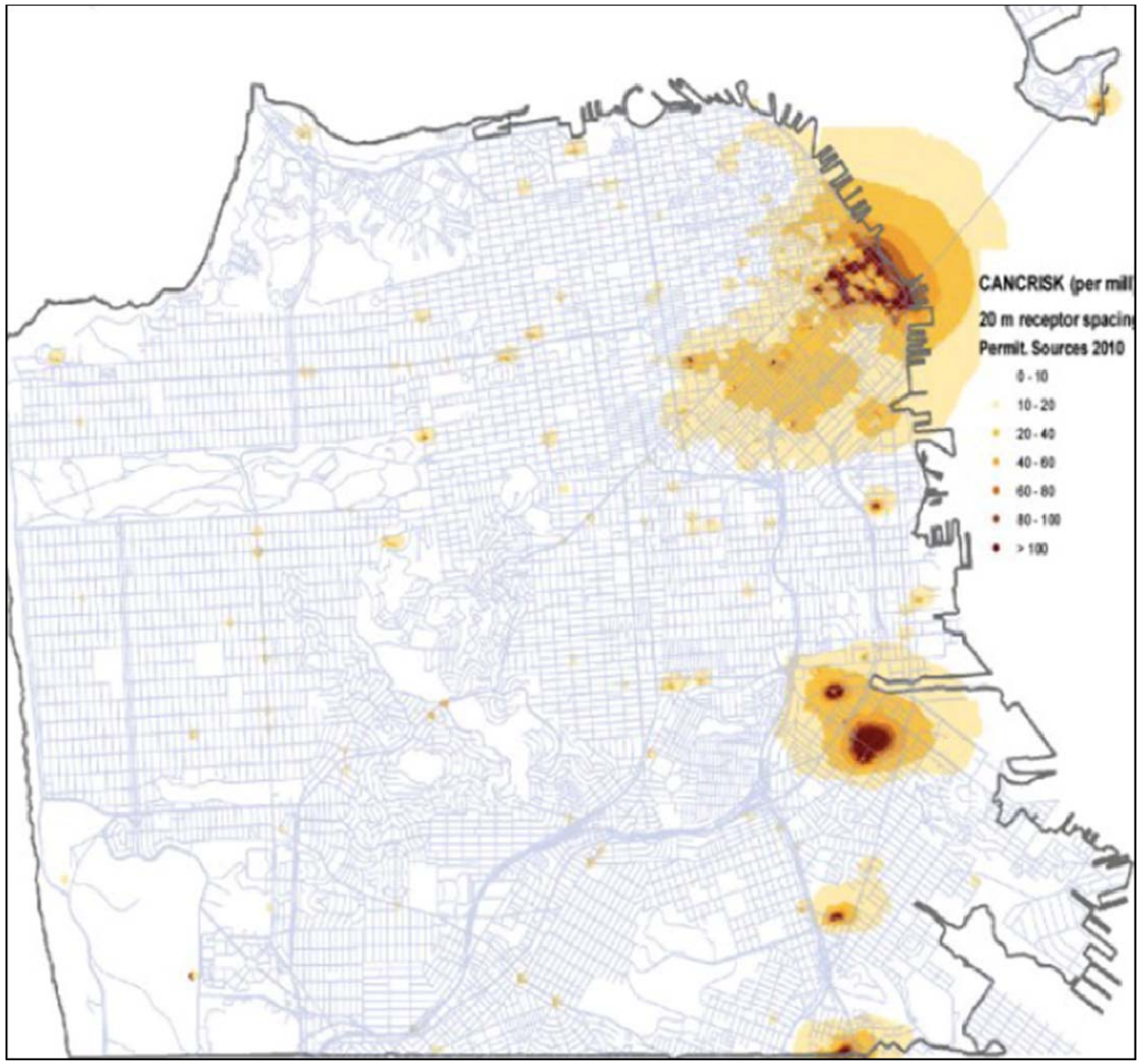


Exposure/Risk Depends on Location



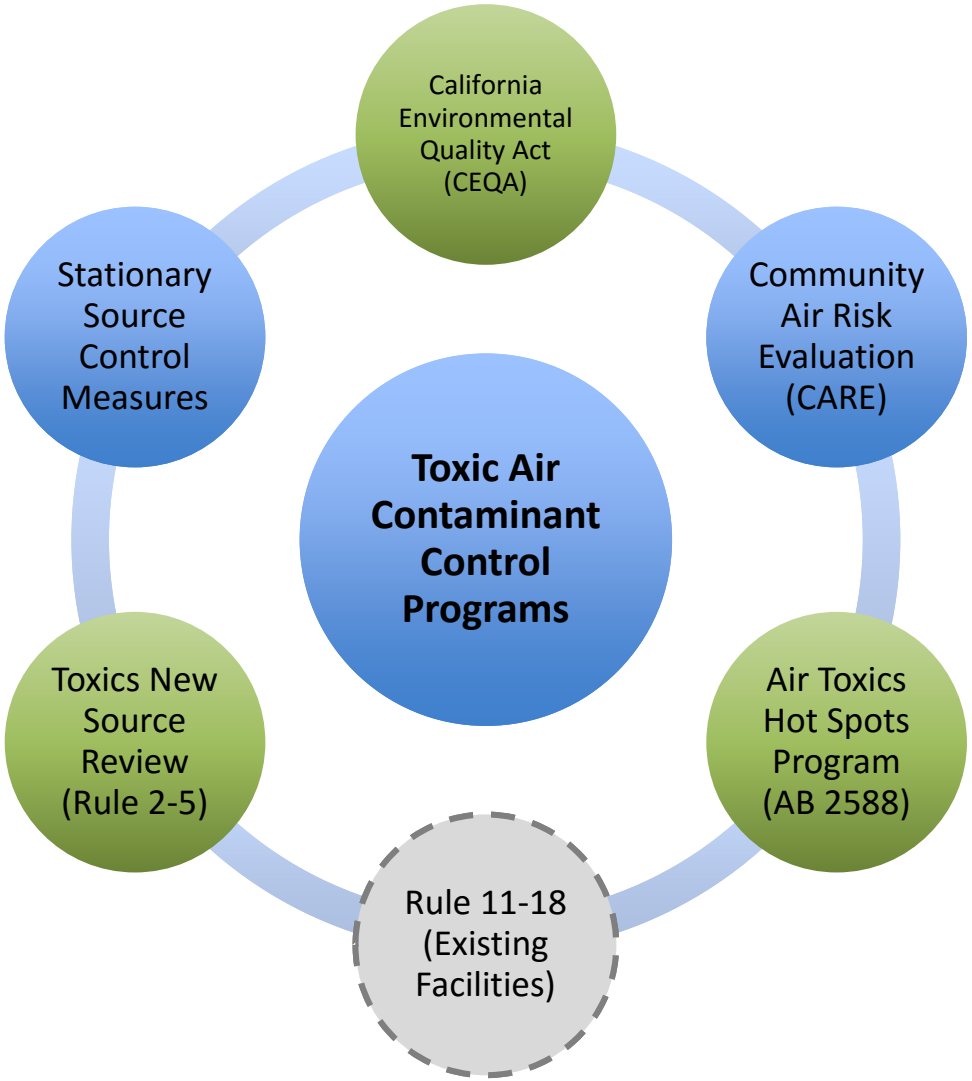
Cancer Risk: Combined Sources (2014)

Stationary Sources Contribute to Local Risk



Cancer Risk: Stationary Sources (2014)

TAC Impact Mitigation Programs



Toxics New Source Review (Rule 2-5)

- Evaluates new and modified sources of TACs through the permit application process

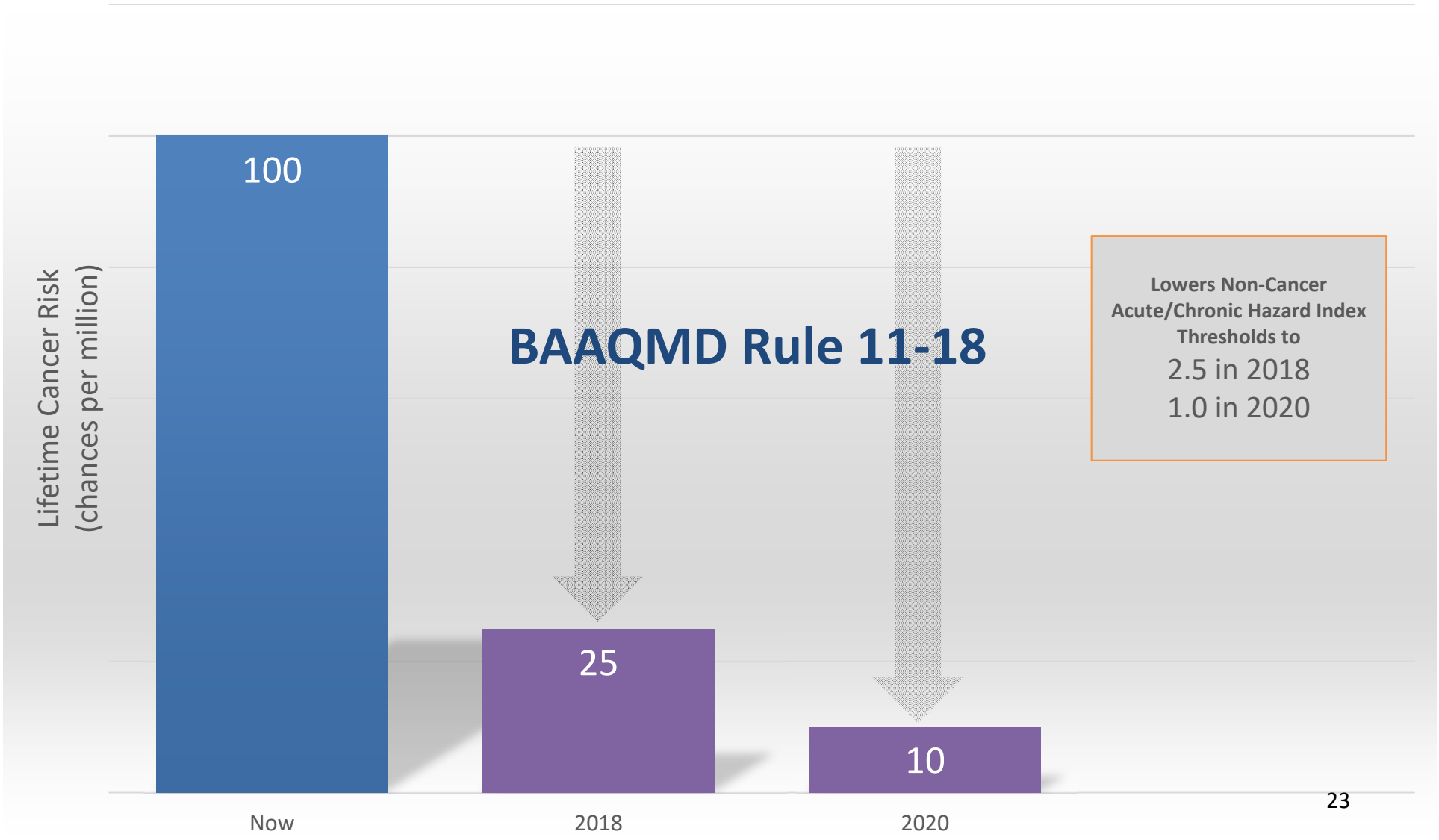
- Health Risk Assessment (HRA) Requirements
  - Requires project-based HRA if TAC Emissions exceed a trigger Level

- Risk Management (RM) Requirements
  - Requires Best Available Control Technology for Toxics (TBACT) if a source of air pollution exceeds risk thresholds:
    - Cancer Risk > 1.0 in a million; Chronic Hazard Index > 0.2
  - Limits Total Project Health Risks
    - Cancer Risk < 10.0 in a million; Hazard Index < 1.0

Air Toxics Hot Spots Program (AB 2588)

- Requires facilities to report TAC emissions to the State at least every four years
- At permit renewal time (annually), facilities are prioritized based on emissions and distance to residents/workers
- District collects fees and passes them on to the State
- Public Notification required for facilities with a Cancer Risk > 10 (Chronic or Acute Hazard Index > 1.0)
- Risk Reductions Required for facilities with a cancer risk > 100 (Chronic or Acute Hazard Index > 10)

Risk Action Thresholds



Health Risk Assessments

An analysis that describes the type and quantity of toxic air contaminants a person may be exposed to and estimates the potential health risks using scientific methods.

Project-Based
(New Source Review)

Facility Wide

California Environmental Quality Act
(CEQA)

Health Risk Assessment Process

Health Risk Assessment Considerations

- OEHHA assumptions for HRA guidelines are conservative and health protective

- Procedures vary based on location and purpose
  - State-by-state variation
  - CEQA vs. New Source Review vs. AB 2588

- Uncertainty regarding synergistic effects of multiple air toxics

Potential Risk Reduction Measures

- Install Control Technology
- Operating Time Restrictions
- Limit Throughput
- Use Alternate Fuels/Materials
- Increase Stack Height
- Change Stack Orientation
- Relocate Source

Diesel Engine Toxics Control Measures

Primary Risk Driver

Diesel Particulate Matter

- Alternative Fuels
- Reduce Operating Hours
- Relocate Device
- Adjust Stack Height
- Diesel Particulate Filter
- Oxidation Catalyst

Crematorium Toxics Control Measures

Primary Risk Drivers

Metals, Hexavalent Chromium

- Co-flow filter
- Gas scrubber
- Honeycomb catalytic adsorber
- Sodium bicarbonate & activated carbon control systems
- Solid-bed filters Increase Temperature
- Increase Exit Velocity
- Adjust Stack Height

Paint Booth Toxics Control Measures

Primary Risk Drivers

Ethylbezene

Thermal Oxidizer

Limit Throughput

Control Measure Examples

Source Category/Type	Toxic Air Contaminant	Control Measure
Crematory Retort	Metals Hexavalent Chromium	Increase Stack Height & Exit Velocity
Diesel Engine	Diesel Particulate Matter (DPM)	Diesel Particulate Filter
Landfill Gas Engine	Formaldehyde	Oxidation Catalyst
Kiln	Hexavalent Chromium (Cr6)	Baghouse
Paint Booth	Ethylbenzene	Thermal Oxidizer
Organic Storage Tanks (Petroleum Refining)	Benzene	Vapor Recover Dome Tanks
Electric Arc Furnace (Metal Melting)	Hexavalent Chromium (Cr6)	Enclosure with a Baghouse
Wind Rows (Composting)	Ammonia	Cover Aerated Static Piles with Biofilters
Soil Vapor Extraction	Benzene	Carbon Adsorption Oxidizers

Summary

- TAC emissions and risk are decreasing
- TACs are regulated at the source level or facility level
- TACs that are not significant at the regional level may be significant at the local level
- TAC from stationary sources are regulated at the source by control technologies, permit conditions, and other requirements

QUESTIONS

Summary of Ozone Seasons

Year	National 8-Hour	State 1-Hour	State 8-Hour
2014*	5	3	10
2015*	5	4	11
2016	15	5	15
2017	6	6	6

Spare the Air Alerts: 5/3/17, 5/22/17, 6/18/17, 6/22/17, 6/23/17, 8/1/17, 8/26/17, 8/27/17, 8/28/17, 8/31/17, 9/1/17, 9/2/17, 9/3/17, 9/4/17, 9/27/17, 10/10/17 – 10/19/17 (due to smoke from wildfires), 10/26/17, 10/27/17

Days > 0.070 ppm 8-hour NAAQS: 8/26/17, 8/28/17, 8/31/17, 9/1/17, 9/2/17, 9/3/17

Days > 35 µg/m^3 24-hr NAAQS: 9/1/17, 9/2/17, 9/3/17, 9/4/17, 10/10/17 – 10/18/17 (due to smoke from wildfires)

***Based on NAAQS of 0.075 ppm that was in place during those years**

Winter $PM_{2.5}$ Seasons

Year	Days > 35 µg/m^3	Winter Spare the Air Alerts
2013/2014	15	30
2014/2015	6	23
2015/2016	0	1
2016/2017	0	7

- **Spare the Air Alert Called for: 12/19/16, 12/20/16, 12/21/16, 12/22/16, 1/17/17, 1/30/2017, 2/1/2017**
- **Days > 35 µg/m^3 24-hr NAAQS: 9/1/17, 9/2/17, 9/3/17, 9/4/17, 10/10/17 – 10/18/17 (due to smoke from wildfires)**