

SAN FRANCISCO COMMUNITY RISK REDUCTION PLAN: AIR QUALITY HEALTH RISK IMPROVEMENT PLAN

Karen Cohn and Josh Pollak

San Francisco Community Risk Reduction Plan / August 28, 2017



San Francisco
Planning

Effects of Common Air Pollutants

RESPIRATORY EFFECTS



Symptoms:

- Cough
- Wheezing
- Phlegm
- Shortness of breath
- Chest tightness

Increased sickness and premature death from:

- Asthma
- Bronchitis (acute or chronic)
- Emphysema
- Pneumonia

Development of new disease

- Chronic bronchitis
- Premature aging of the lungs



Alveoli filled with trapped air

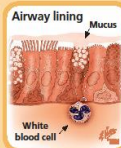
How Pollutants Cause Symptoms

Effects on Lung Function

- Narrowing of airways (bronchoconstriction)
- Decreased air flow

Airway Inflammation

- Influx of white blood cells
- Abnormal mucus production
- Fluid accumulation and swelling (edema)
- Death and shedding of cells that line airways



Increased Susceptibility to Respiratory Infection

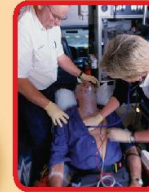


Normal



Lung with respiratory infection

CARDIOVASCULAR EFFECTS



Symptoms:

- Chest tightness
- Chest pain (angina)
- Palpitations
- Shortness of breath
- Unusual fatigue

Increased sickness and premature death from:

- Coronary artery disease
- Abnormal heart rhythms
- Congestive heart failure
- Stroke

How Pollutants Cause Symptoms



Normal heart rhythm

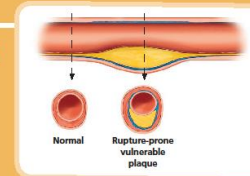
Abnormal heart rhythm

Effects on Cardiovascular Function

- Low oxygenation of red blood cells
- Abnormal heart rhythms
- Altered autonomic nervous system control of the heart

Vascular Inflammation

- Increased risk of blood clot formation
- Narrowing of vessels (vasoconstriction)
- Increased risk of atherosclerotic plaque rupture



Normal

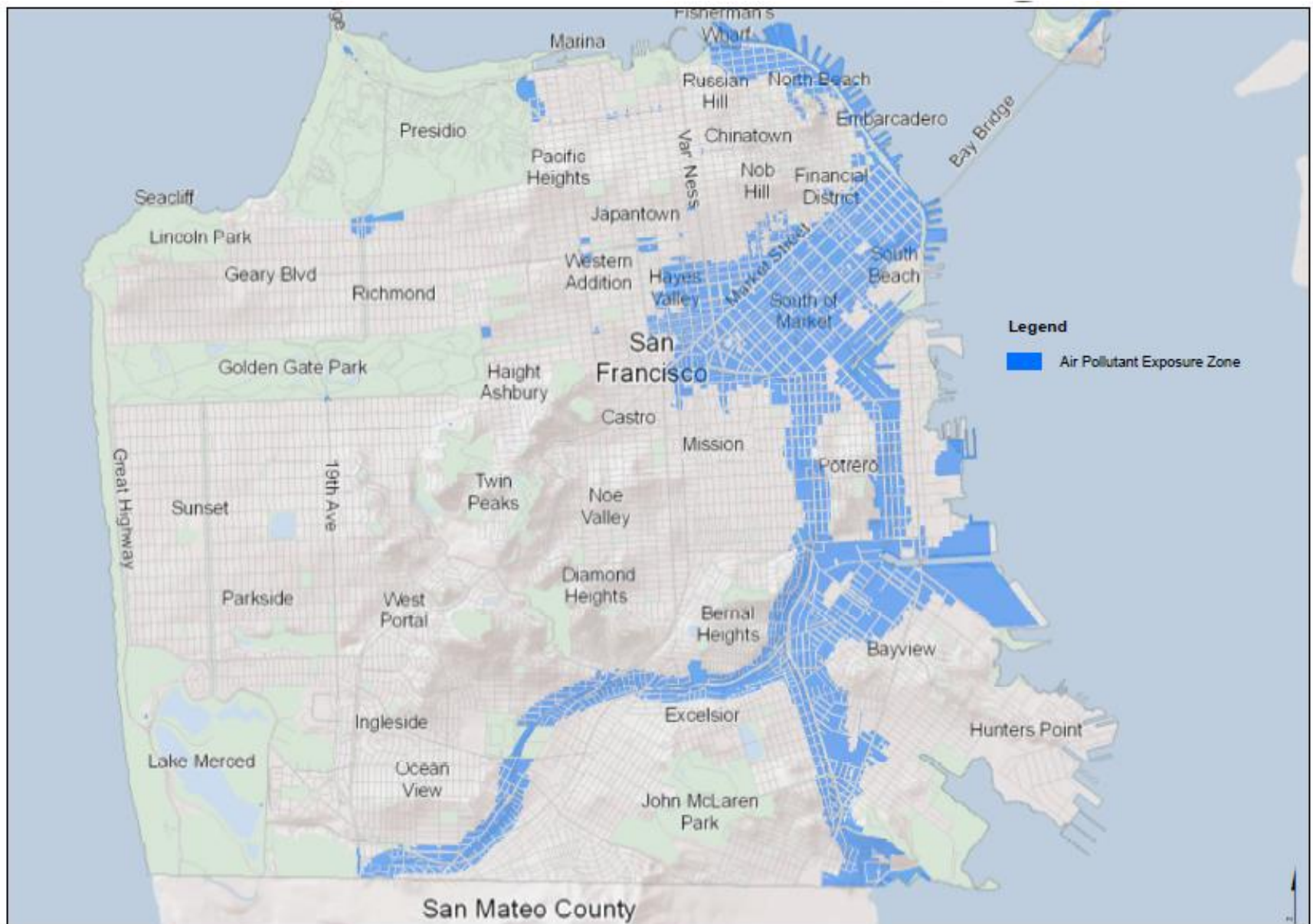
Rupture-prone vulnerable plaque



Reduce your risk by using the Air Quality Index (AQI) to plan outdoor activities – www.airnow.gov

AQI Levels of Health Concern	AQI Values	What Action Should People Take?
Good	0-50	Enjoy Activities
Moderate	51-100	People unusually sensitive to air pollution: Plan strenuous outside activities when air quality is better
Unhealthy for Sensitive Groups	101-150	Sensitive Groups: Cut back or reschedule strenuous outside activities Ozone: People with lung disease, children and older adults and people who are active outdoors Particle Pollution: People with heart or lung disease (including diabetics), older adults and children Carbon Monoxide: People with heart disease and possibly infants and fetuses Nitrogen Dioxide: People with lung disease, children and older adults Sulfur Dioxide: Active children and adults with asthma
Unhealthy	151-200	Everyone: Cut back or reschedule strenuous outside activities Sensitive groups: Avoid strenuous outside activities
Very Unhealthy	201-300	Everyone: Significantly cut back on outside physical activities Sensitive groups: Avoid all outside physical activities

Air Pollutant Exposure Zone Modeling



Health Code Article 38 for Enhanced Ventilation in Air Pollutant Exposure Zone



San Francisco CLEAN CONSTRUCTION ORDINANCE

Implementation Guide for San Francisco Public Projects

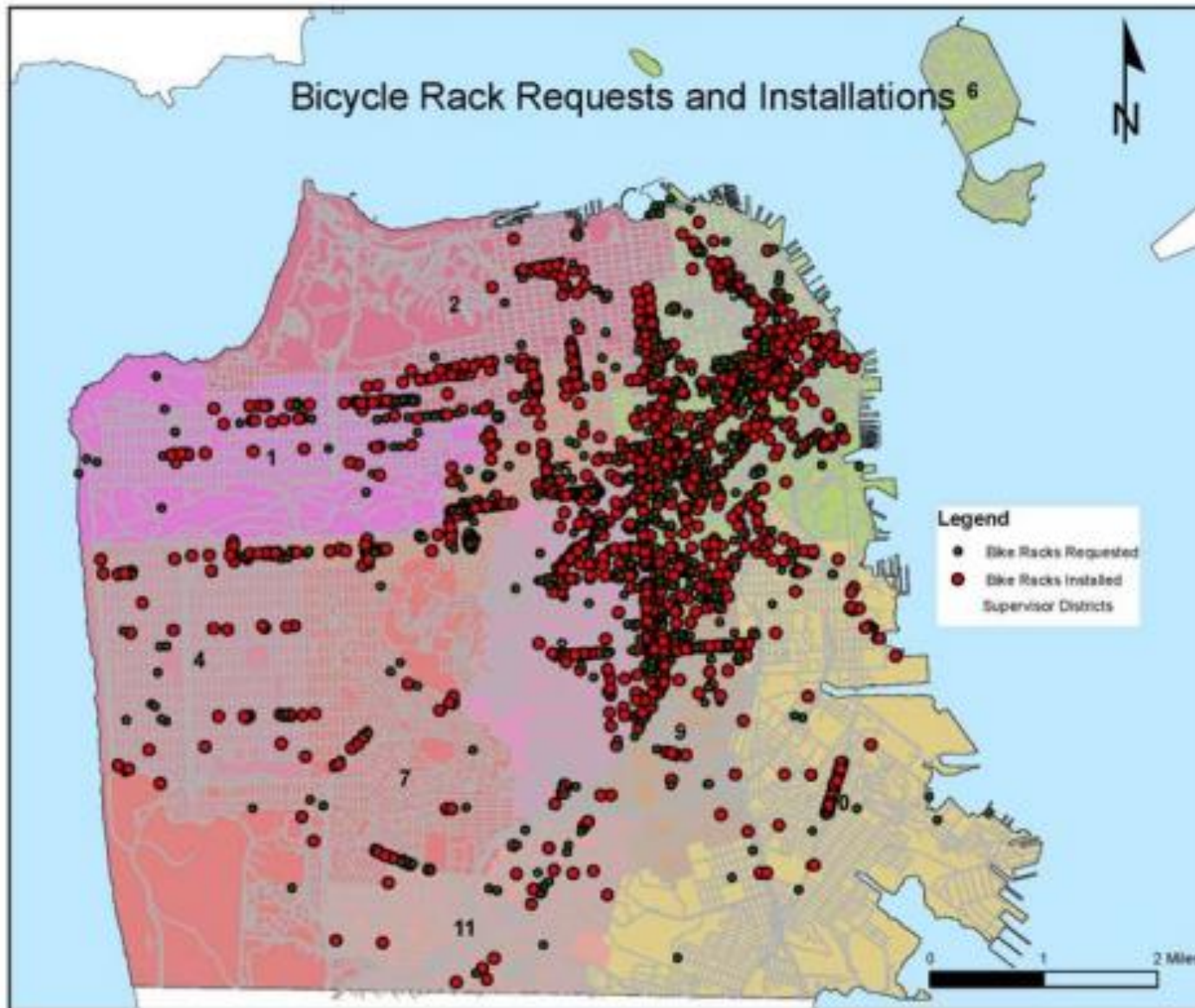


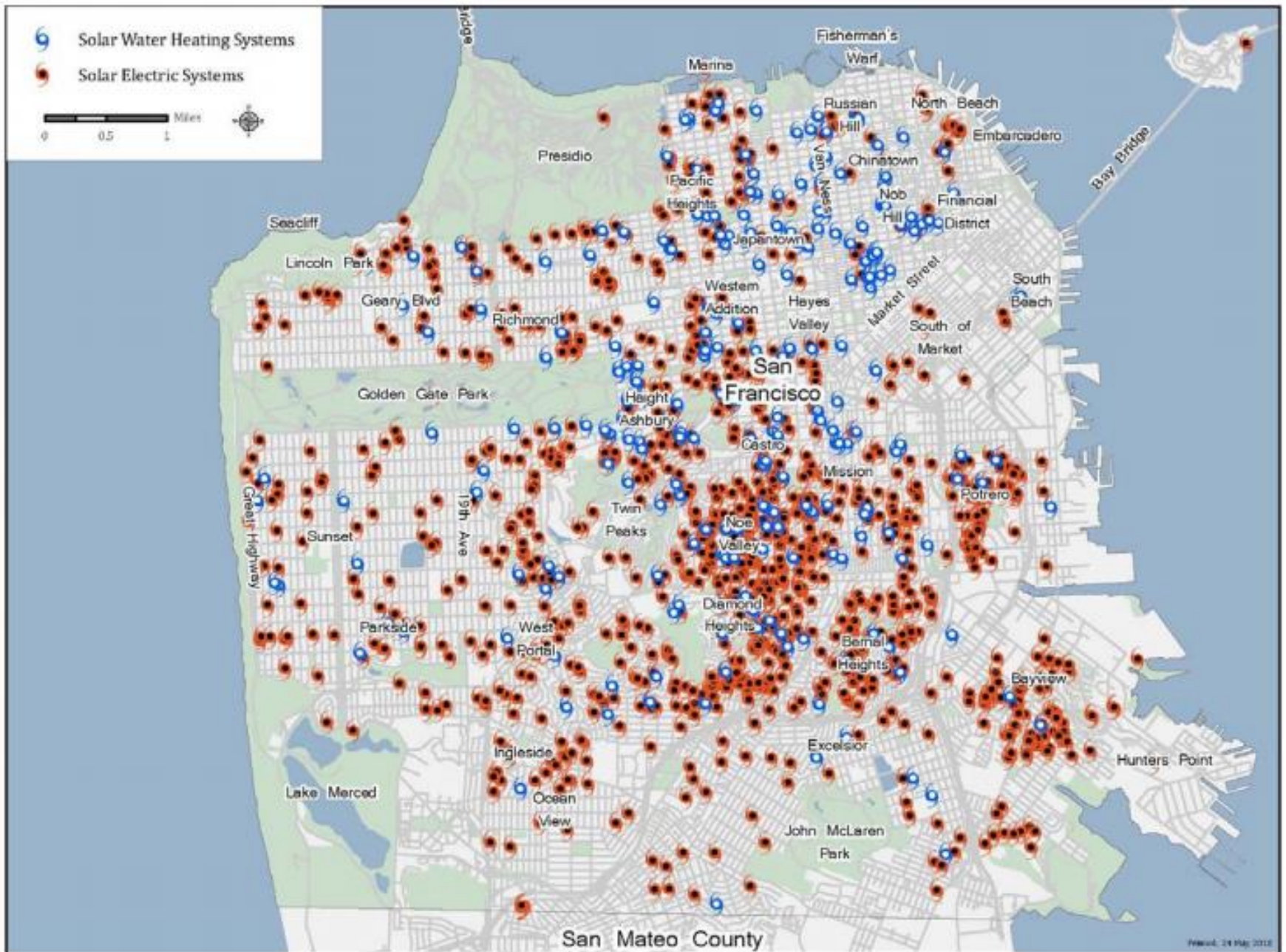
FINAL
AUGUST 2015



San Francisco Department of the Environment
San Francisco Department of Public Health
San Francisco Planning Department

San Francisco
Planning





Source: San Francisco Planning Department. May 2010.

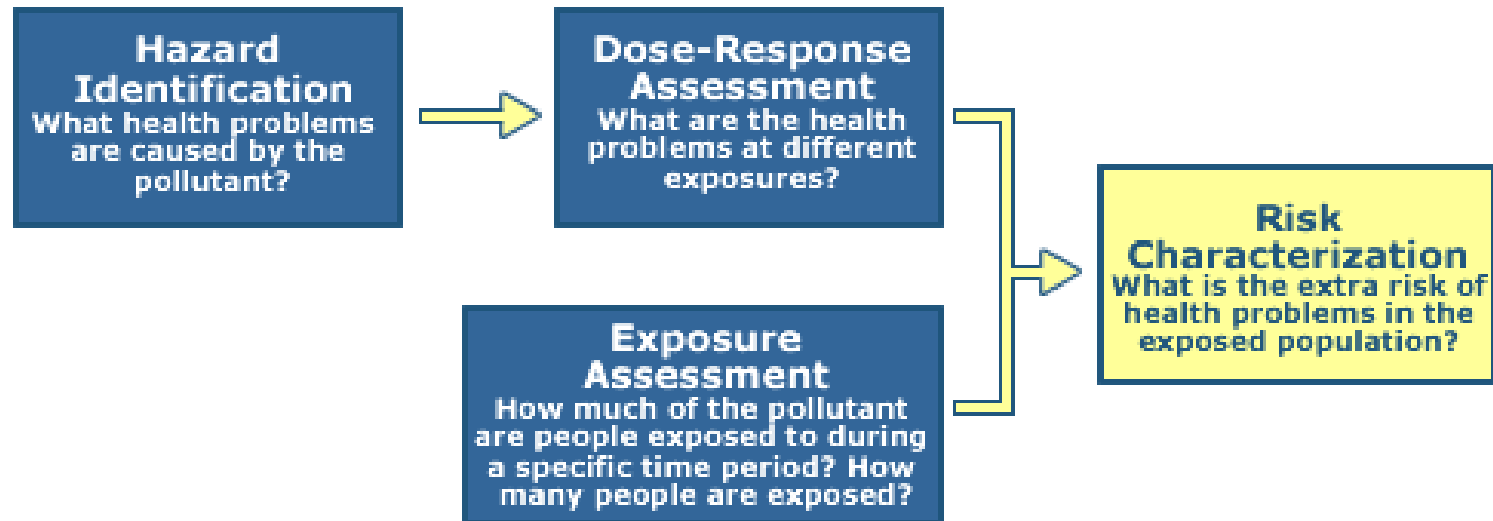
Modeling Overview



- Modeling will update Air Pollutant Exposure Zone map
- What is health risk modeling?
- Included in the modeling:
 - Mobile Source Data
 - Stationary Sources
 - Other sources
- Feedback on what is included in the model

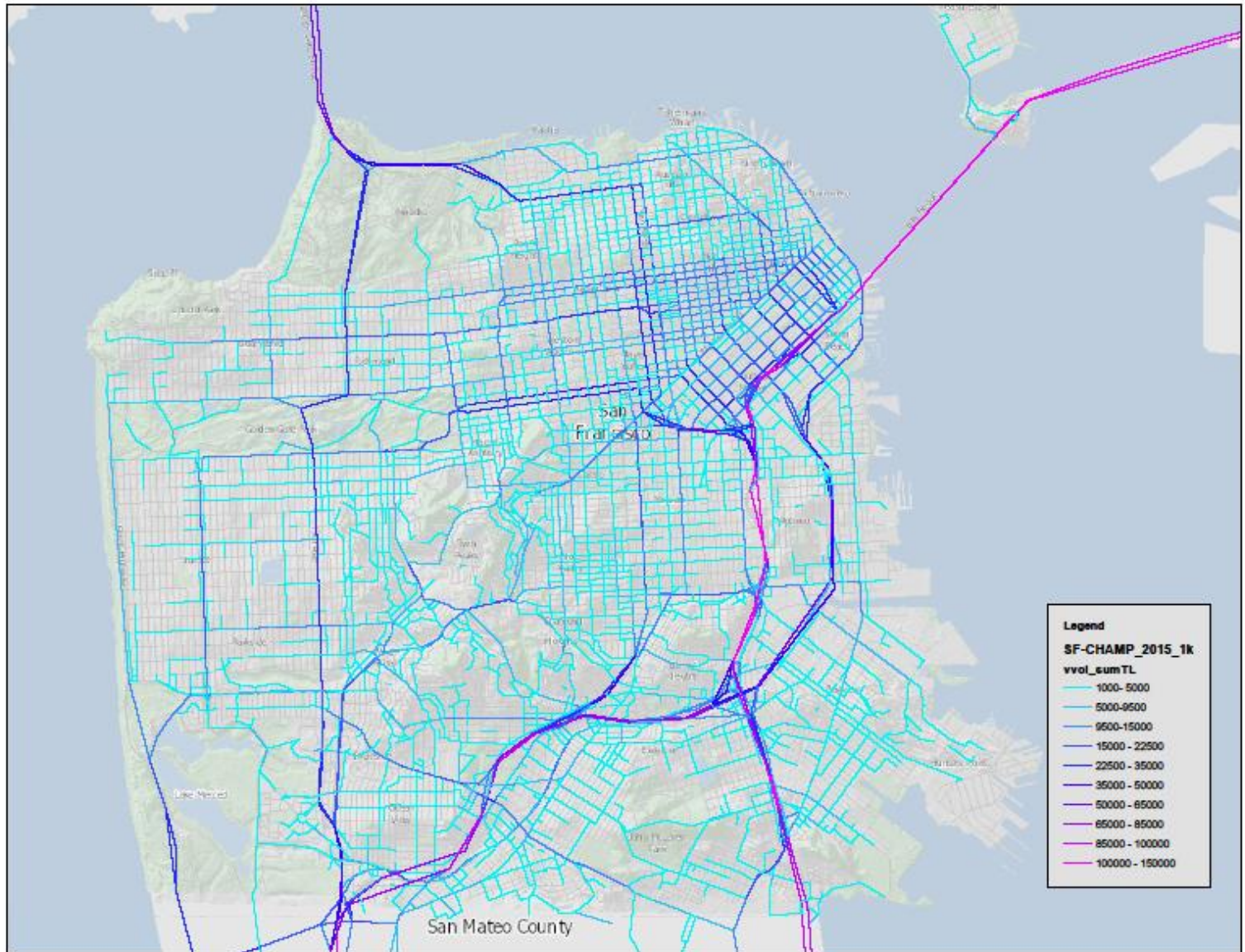
Health Risk Assessment

The 4 Step Risk Assessment Process



- Fine Particulate Matter (PM_{2.5})
- Toxic Air Contaminants (TACs)

Mobile Sources: Roadways from SF-CHAMP



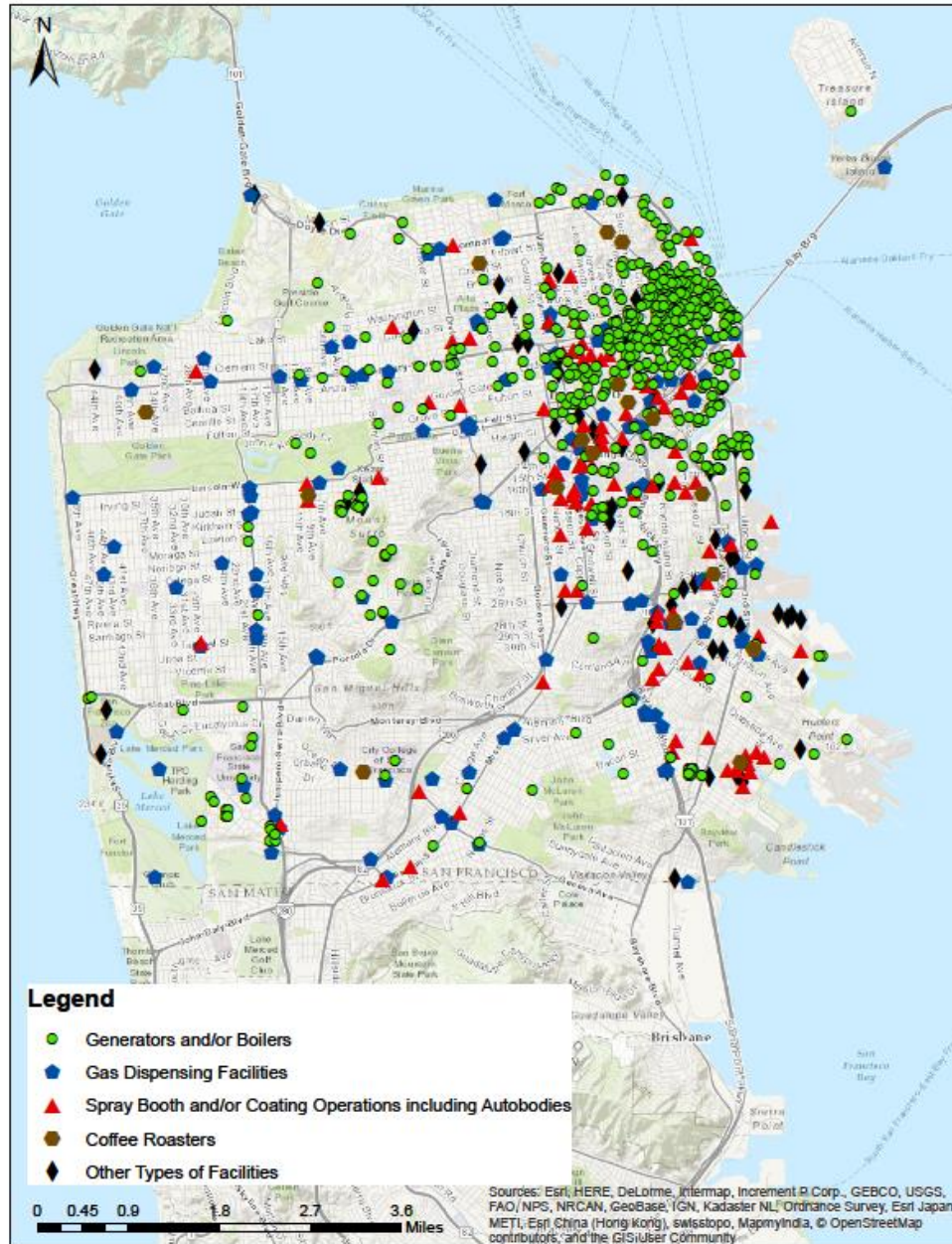
Maritime & Caltrain Emissions



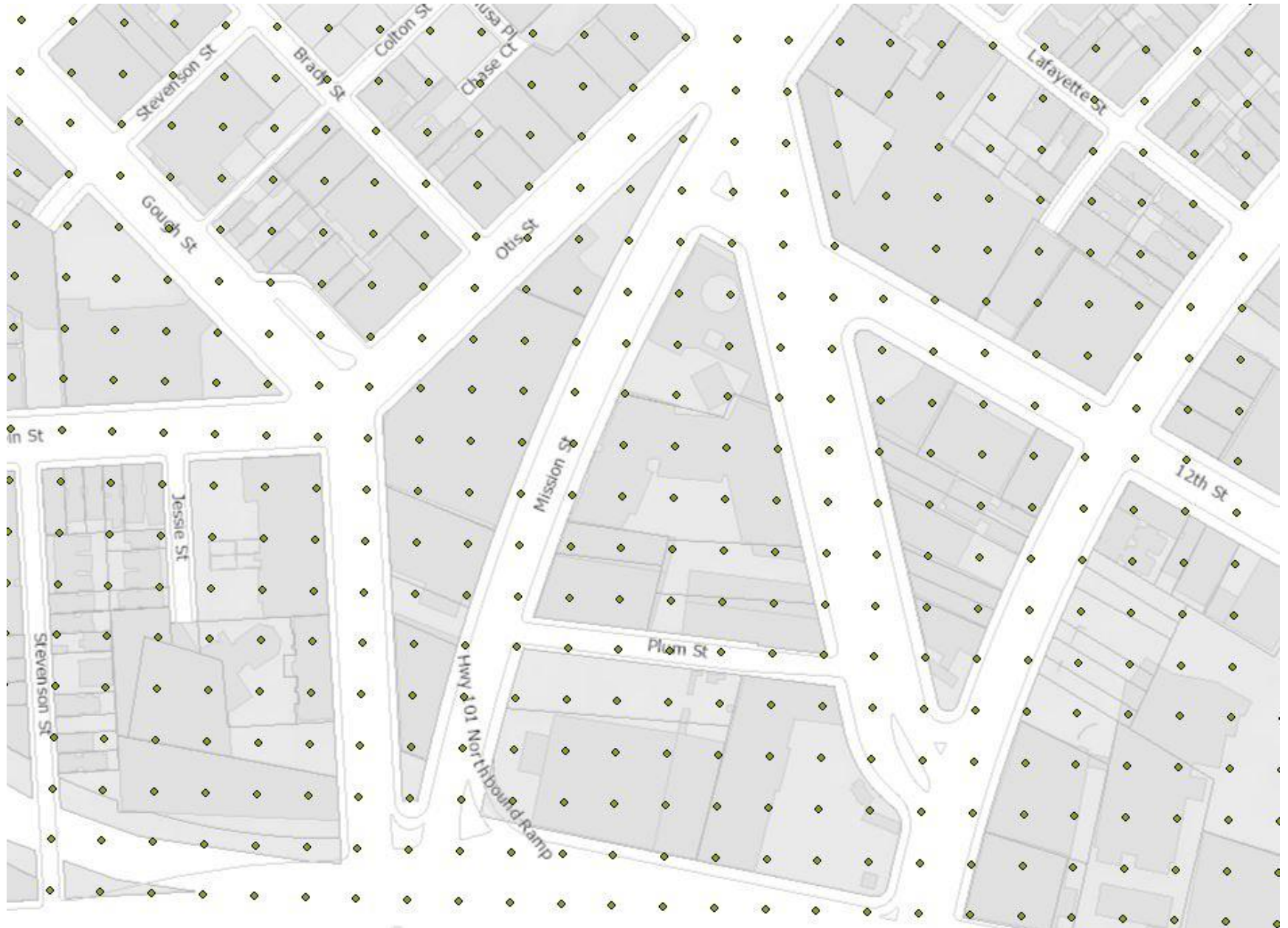
CALTRAIN ELECTRIFICATION PROJECT

STATUS UPDATE | July 2017

Permitted Stationary Sources



Modeling Air Pollution Exposure



Exposure → Parcel Map



CRRP Goals and Actions

San Francisco Community Risk Reduction Plan – Early Outreach Meeting

DRAFT COMMUNITY RISK REDUCTION PLAN GOALS & ACTIONS

GOAL: IMPROVE AIR QUALITY

Actions

- Support Transportation Sustainability Program goal, and goal of 80% of trips by sustainable modes (transit, walking, biking) by 2030 (2017: achieved over 50%)
- Improve vehicular parking utilization and manage vehicular parking demand
- Support the use of clean vehicles and fuels within the City
- Require construction projects within the Air Pollutant Exposure Zone to utilize construction equipment with best available pollution control strategies
- Require construction projects that have the potential to create dust to implement dust control best management practices
- Limit idling from engines that emit diesel particulate matter and other toxic air contaminants
- Require new projects with stationary sources to utilize best available pollution control strategies
- Retrofit existing stationary sources at municipal facilities with best available air pollutant control technologies
- Expand shore power access while ships are in port to minimize ship diesel emissions
- Support California electrification project
- Increase the canopy of the urban forest by 50,000 trees by 2035 (Urban Forest Plan)

GOAL: REDUCE EXPOSURE OF SENSITIVE USES TO AIR POLLUTION

Actions

- Consider the siting and location of sensitive uses and new sources of air pollution in planning processes
- Require new projects with sensitive uses located within the Air Pollutant Exposure Zone to incorporate engineering strategies to reduce exposure to harmful pollutants
- Reduce exposure of harmful pollutant for sensitive receptors in existing buildings
- Support innovative technologies that reduce indoor and outdoor air pollution, including funding as available

GOAL: INCREASE PUBLIC UNDERSTANDING OF AIR QUALITY

Actions

- Increase awareness among residents, public agencies, community groups, and the private sector in contributing to and protecting themselves from poor air quality
- Support innovative technologies to actively engage and educate the public about air quality

GOAL: COLLABORATE AMONG PUBLIC AGENCIES REGARDING AIR QUALITY

Actions

- Coordinate with local and regional agencies to educate youth about air quality
- Increase awareness among city agencies about air quality

GOAL: MONITOR AIR QUALITY

Actions

- Increase the number of air pollutant monitors in the City
- Monitor additional air pollutants known to cause adverse health effects
- Monitor and enforce air quality measures applicable to development and infrastructure projects

■ 5 Goals:

- Improve air quality citywide, especially in vulnerable areas
- Reduce exposure to air pollution
- Increase public understanding of air quality
- Collaborate among public agencies regarding air quality
- Monitor air quality

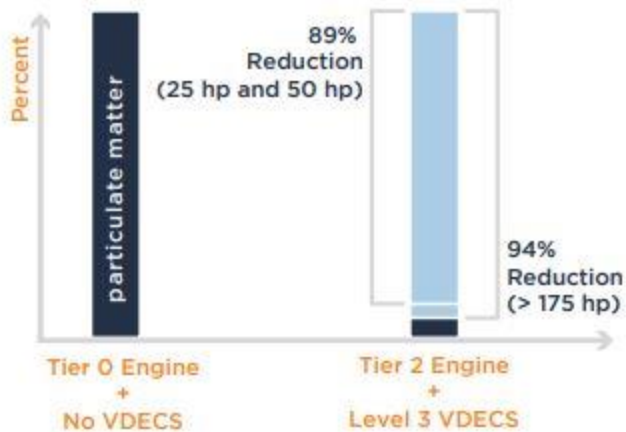
Improving Air Quality: Transportation

Transportation Sustainability Program



- Transportation Sustainability Program
- Goal: 80% trips by sustainable modes by 2030 (currently: over 50%)
- Transportation Impact Analysis Guidelines for Environmental Review

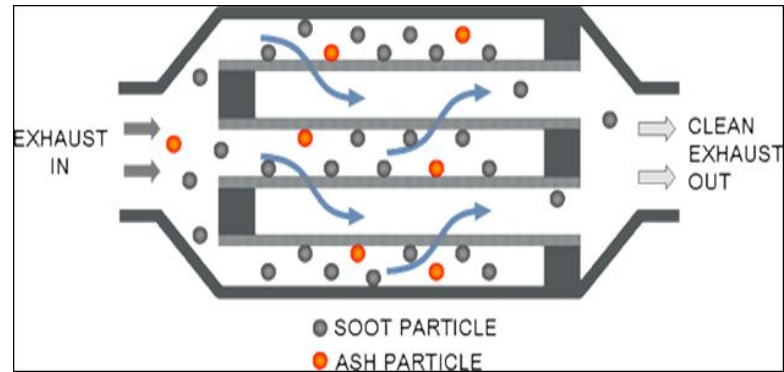
Improving AQ: Clean Construction



- Proposing to extend Clean Construction requirements to all projects within APEZ
 - Clean Construction requirements currently for public projects only
 - Extend Clean Construction requirements to private development projects through standard conditions of approval that require best available emissions controls.

Other Tasks

*Diesel Particulate Filter:
Common VDECS*



- Investigate development of an Air Pollution Offset Mitigation Program, which could fund projects:
 - Rebates for purchasing cleaner construction equipment
 - Rebates for cleaner buses, VDECSs
 - Alternative fueling infrastructure, e.g. EV charging, hydrogen fueling stations.
 - Shorepower projects/replace marine diesel engines

Future Outreach and Next Steps

Home > Plans & Programs > Environmental Planning
> Air Quality Community Risk Reduction Plan

Air Quality Community Risk Reduction Plan



Overview

Air quality in San Francisco varies throughout the city depending on geography, meteorology, and land uses. While most areas of San Francisco experience good air quality, some areas, such as those close to freeways, maritime activities, and industrial activities, experience higher levels of air pollution. Exposure to higher levels of air pollution can lead to often preventable health problems such as increased illness and premature death from asthma, bronchitis, emphysema, pneumonia, coronary heart disease, abnormal heart rhythms, congestive heart failure, and stroke. The San Francisco Planning and Public Health Departments, along with the Bay Area Air Quality Management District, are preparing a draft **San Francisco Community Risk Reduction Plan**, a comprehensive and citywide plan to protect human health from these negative effects of air pollution within San Francisco. The plan will describe existing efforts and define policy and programmatic actions that will be undertaken:

- ▶ Reduce the extent and intensity of areas with higher levels of air pollution and prevent the expansion of these areas to new locations;
- ▶ Reduce exposure to air pollution for existing and future residents;
- ▶ Reduce the health impacts of air pollution citywide, particularly for vulnerable populations.

Timeline

The City and Air District will be conducting early outreach during the fall of 2017, and

ON THIS PAGE

- ▶ OVERVIEW
- ▶ TIMELINE
- ▶ RESOURCES
- ▶ CONTACT

PLANS & PROGRAMS

- Planning for the City
- Citywide Planning
- Environmental Planning
- Environmental Review Process
- EIRs & Negative Declarations
- Exemptions
- Community Plan and Infill Exemptions
- Notices of Determination & Notices of Exemption
- Air Quality Community Risk Reduction Plan**
- Consultant & Sponsor Resources
- Transportation Planning
- Historic Preservation
- Legislative Affairs
- Legacy Business Registry
- Development Agreements
- The City's General Plan
- Complete List of Plans and Projects
- Wireless for the City

Email:

josh.pollak@sfgov.org

- Early outreach meeting
- Website: <http://sf-planning.org/air-quality-community-risk-reduction-plan>
- Email list for plan developments
- Releases through social media
- Draft CRRP release in ~early Spring 2018
- Following release will have further outreach, including stakeholder meetings and community events
- Aiming for Final CRRP release in Spring/Summer 2018