

# Developing Air Quality Guidance Criteria For Urban Planners: How Model Cities Can Make a Difference



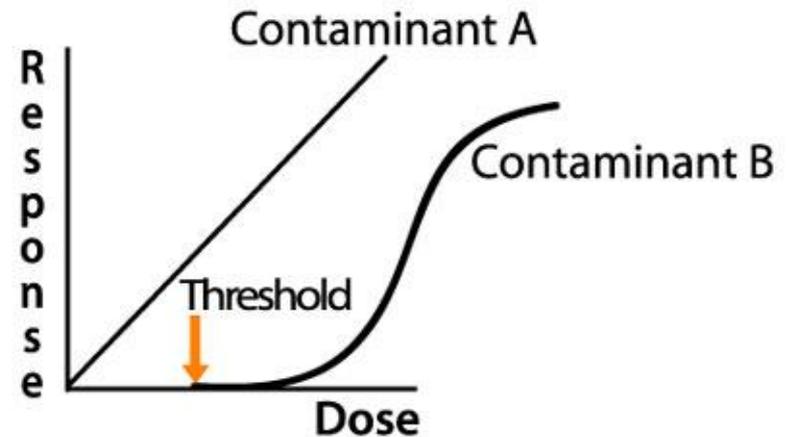
Regional Summit on Asthma in Our Community  
Norman Anderson, MSPH  
May 5, 2016

# Purpose

- Provide general context for incorporating public health and air quality considerations into Pittsburgh's urban planning decisions
- Highlight specific examples from various cities
- Identify next steps

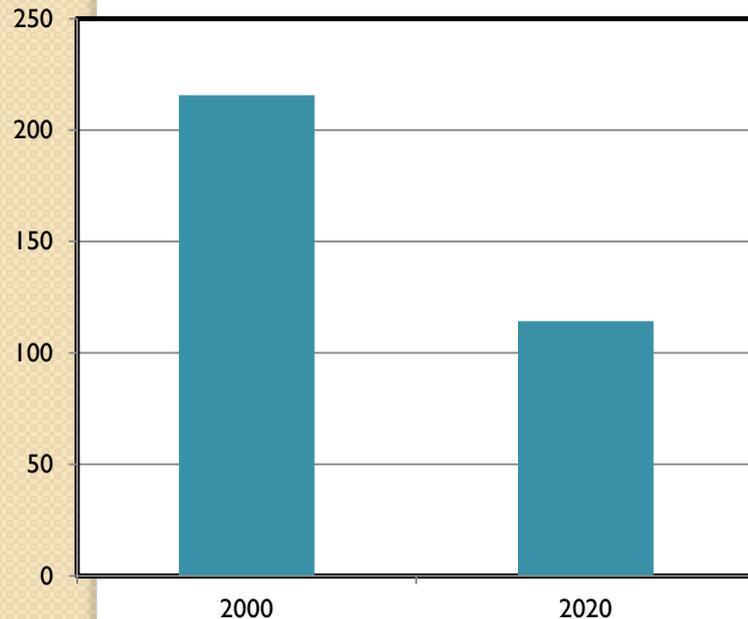
# Air Quality and Health Paradigm

- Non threshold nature of many pollutant impacts
- Low level effects of many critical health impacts still unknown
- Need to focus on risk reduction and precautionary principle

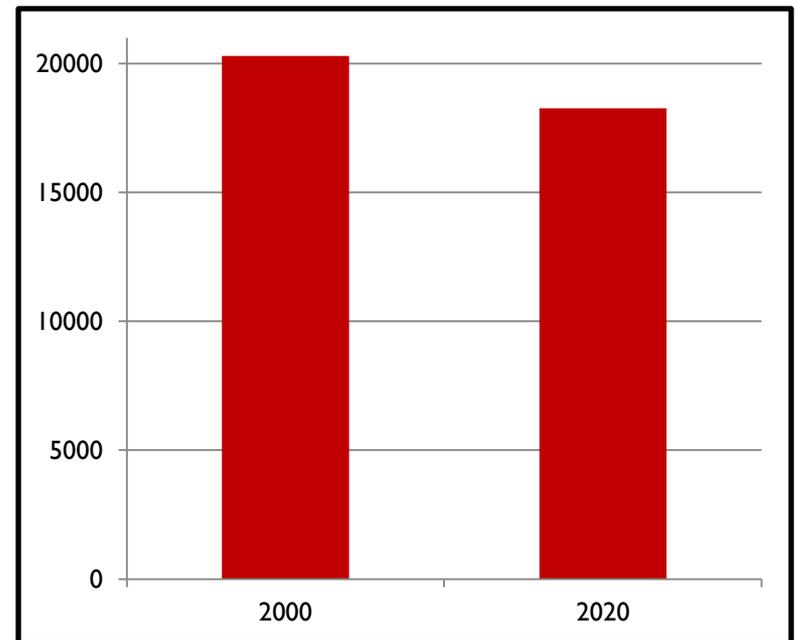


# Thematic Strategy on Air Pollution – European Union

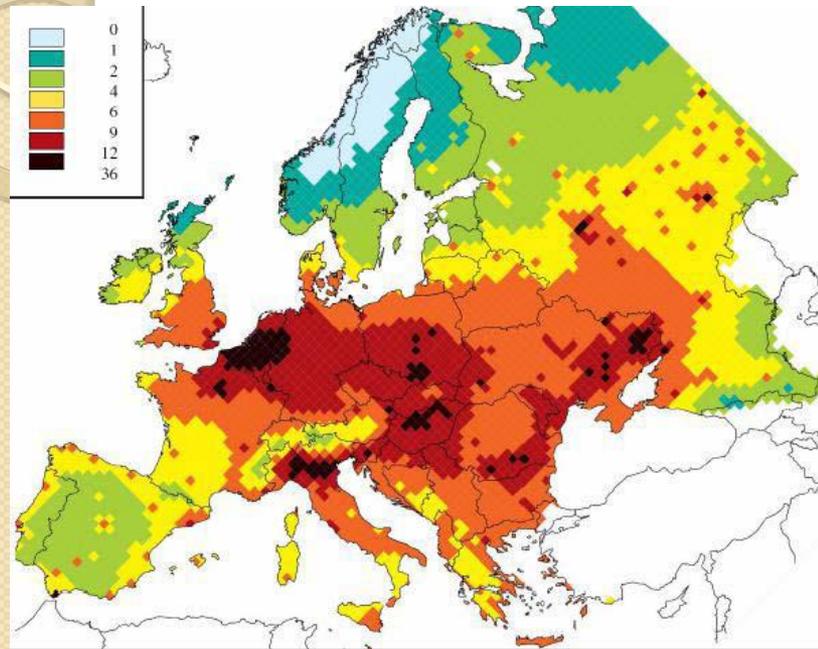
47% reduction in loss of life expectancy as a result of exposure to particulate matter (2000-2020)



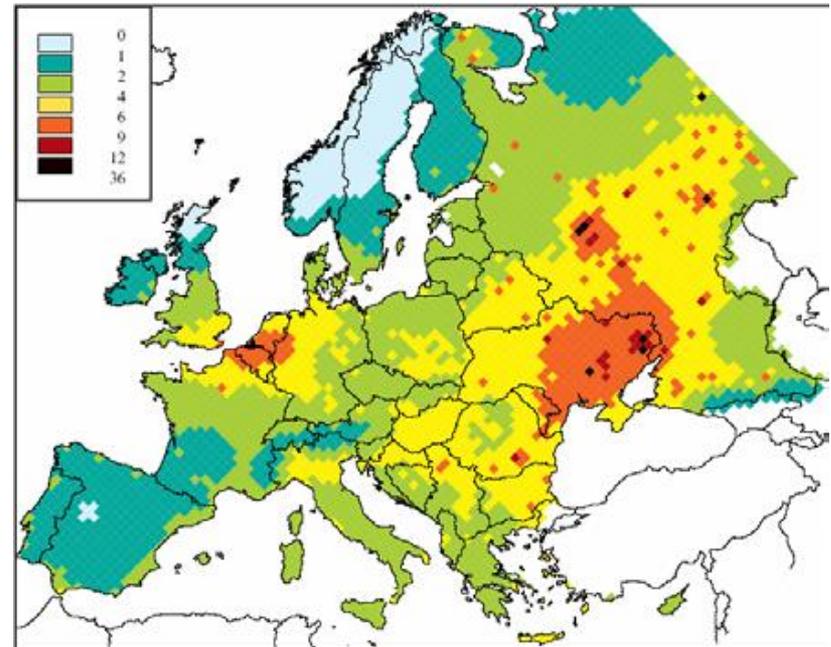
10% reduction in acute mortalities from ozone exposure (2000-2020)



# Thematic Strategy on Air Pollution



2000



Strategy in 2020

Changes in loss of life expectancy in the EU in 2000 and in the interim objective in 2020

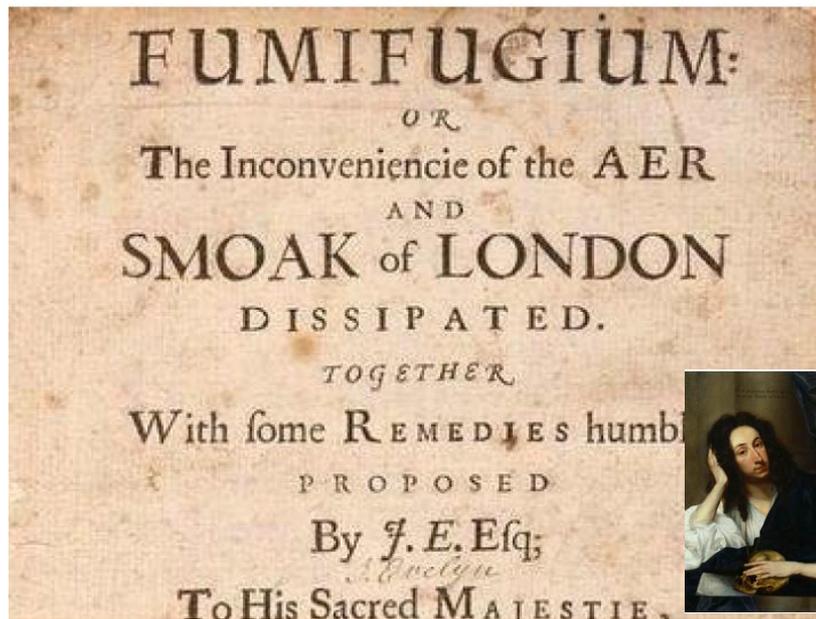
# London



# Fumifugium (Fleeing Fumes)

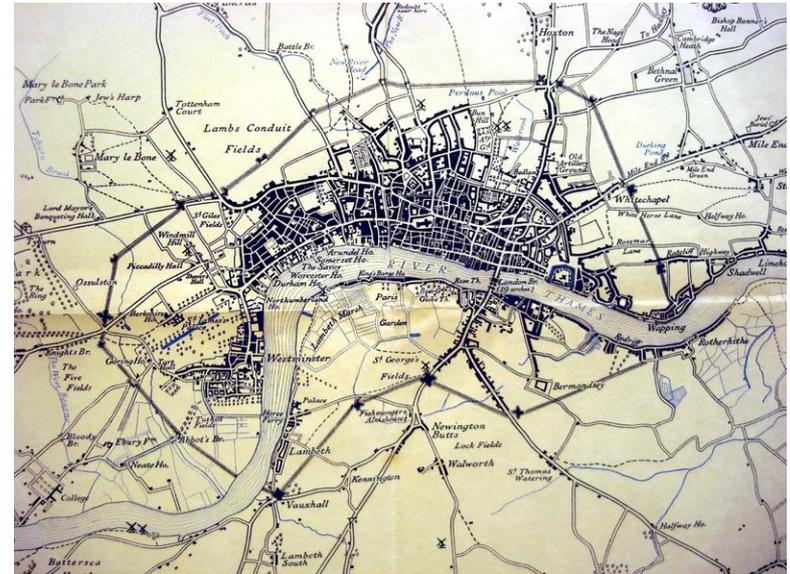
## John Evelyn 1661

- The people of London are haunted in their daily business by a dreadful smoke that causes many health problems. And yet they do nothing.



# Evelyn's Recommendations

- Use cleaner burning fuels than sea coal
- Separate polluting industry from the people whose health it affects
- Surround London with a 150 foot wide band of fragrant shrubs and flowers



# London – April, 2016



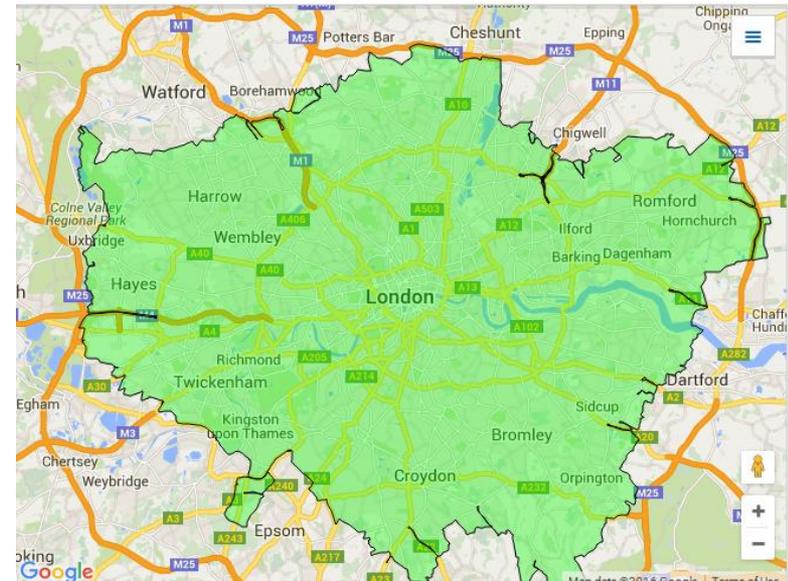
Two Greenpeace campaigners scaled the 52-metre (171-foot) high Nelson's Column in the early hours to put a mask on the famous naval commander in central London (AFP Photo/Leon Neal)

- Approximately 10,000 Londoners die prematurely from air pollution each year (over twice the number that died during the notorious 1952 London smog episode)
- London has enacted a Low Emission Zone (LEZ) law.
- A proposal is currently be considered for an Ultra Low Emission Zone for its central city.

# Low Emission Zone



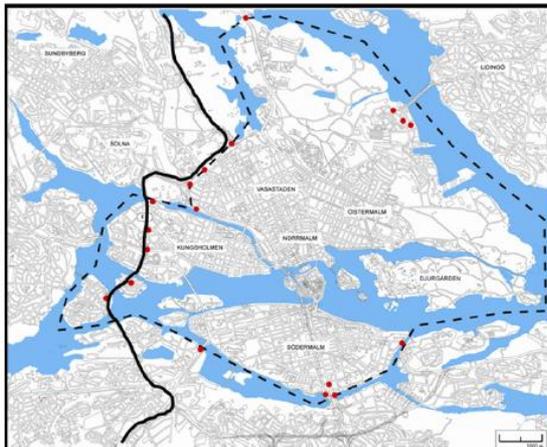
- Designed to reduce tailpipe emissions from diesel powered commercial vehicles
- Applies to most of greater London
- In effect since 2008



# Stockholm



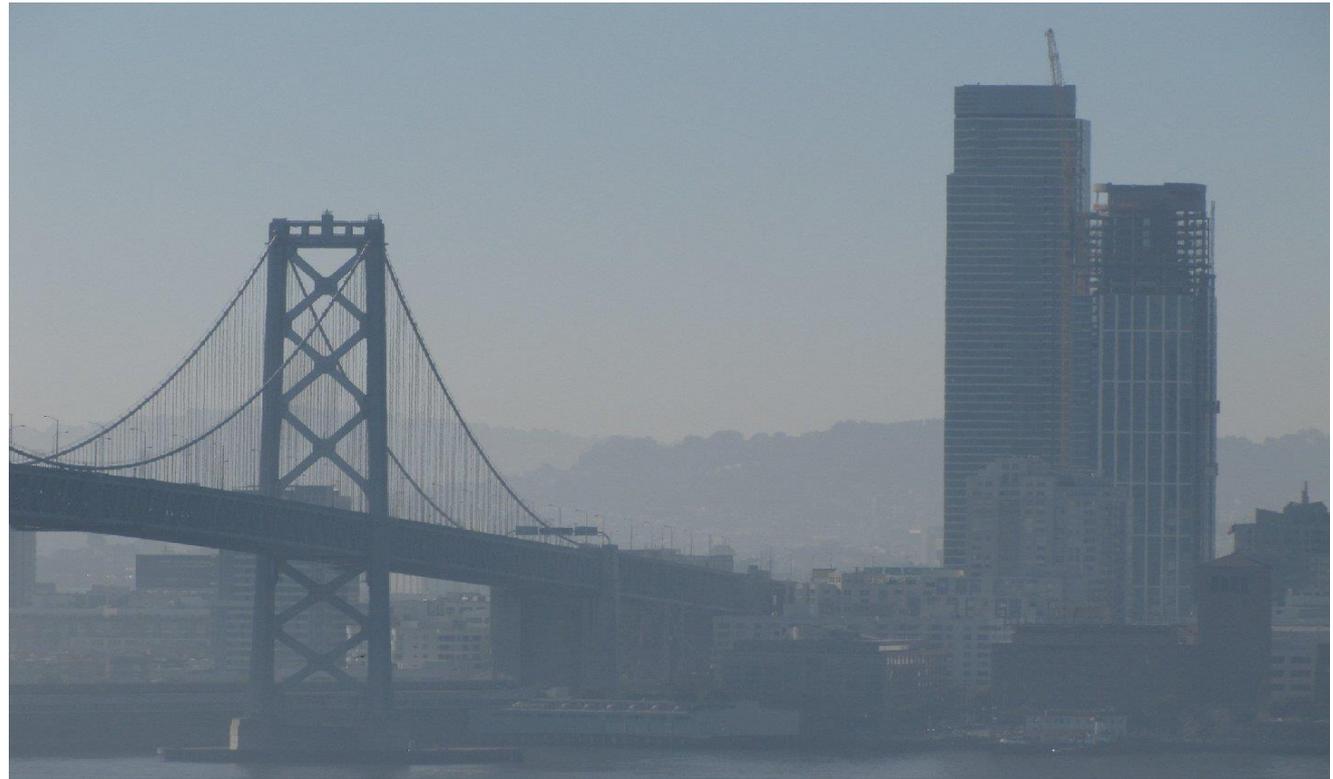
# Congestion Taxes



6:30-7:00	10 SEK
7:00-7:30	15 SEK
7:30-8:30	20 SEK
8:30-9:00	15 SEK
9:00-15:30	10 SEK
15:30-16:00	15 SEK
16:00-17:30	20 SEK
17:30-18:00	15 SEK
18:00-18:30	10 SEK

- 18 charging points located at the main bottlenecks on the arterials leading into and out from the inner city.
- Vehicles are registered automatically by cameras that photograph the number plates
- The owner of the car is sent a monthly invoice

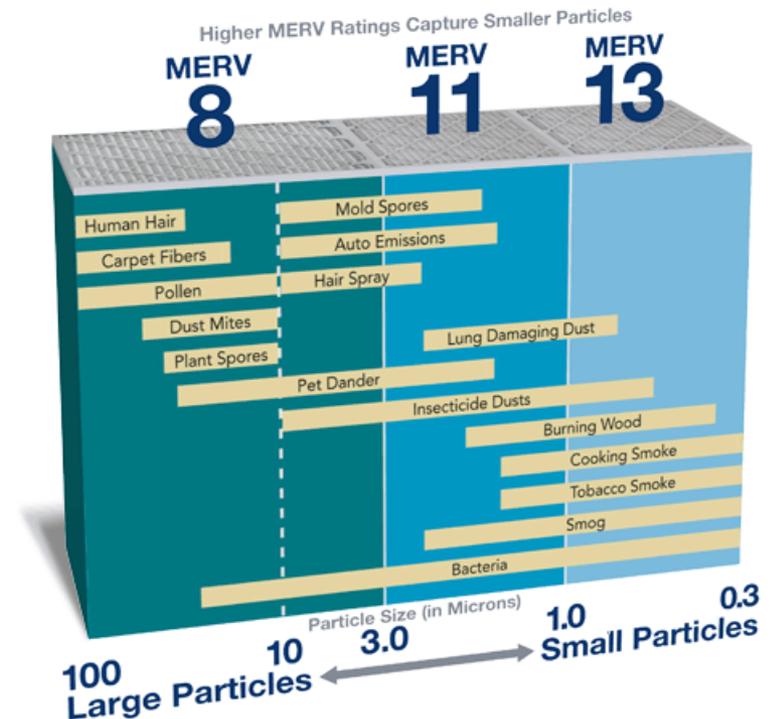
# San Francisco



The San Francisco area has been ranked the 6<sup>th</sup> most polluted city in the United States for year round particle air pollution, the 8<sup>th</sup> most for short term particle pollution, and the 16<sup>th</sup> most for ozone air pollution. – ALA 2016 State of the Air Report

# Enhanced Ventilation System

- Minimum Efficiency Reporting Value (MERV) 13 filtration required for any new or major modified sensitive use building within the Air Pollutant Exposure Zone

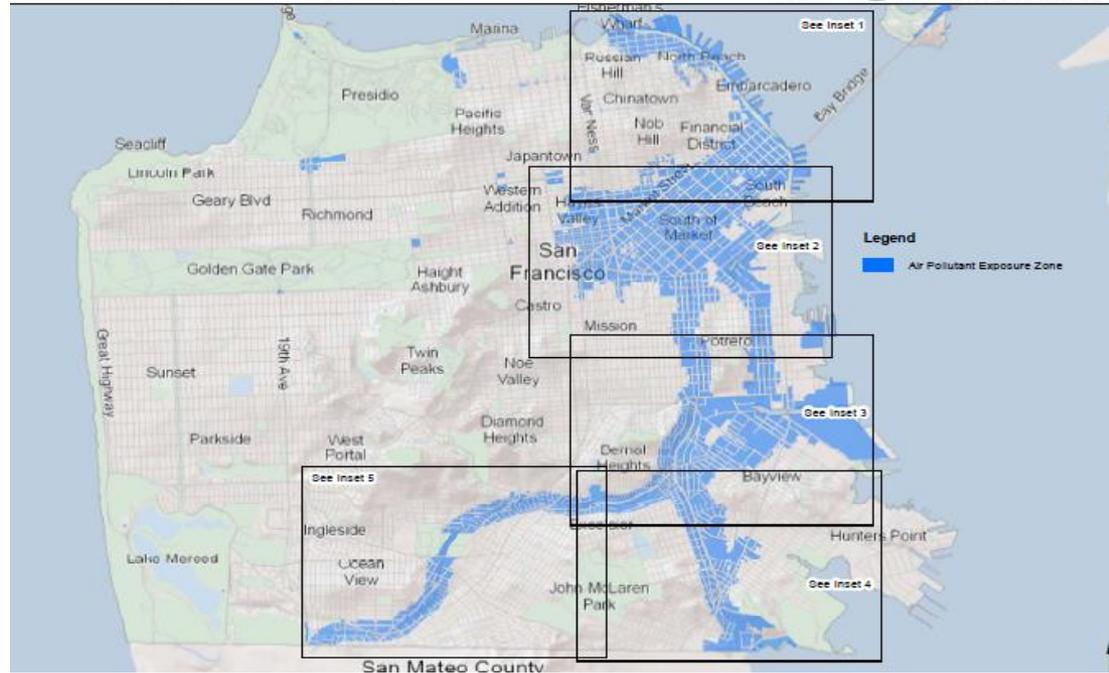


# Sensitive Use Buildings



# Air Pollution Exposure Map

Air Pollutant Exposure Zone Map - Citywide



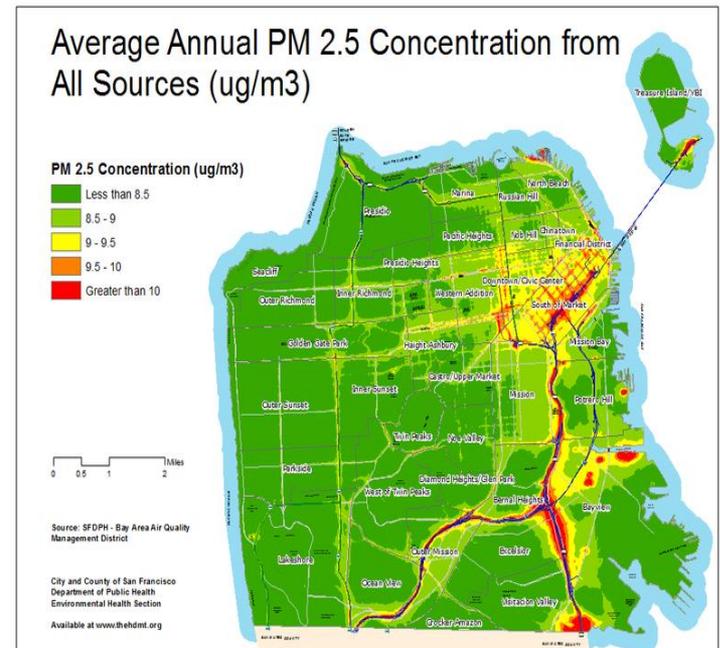
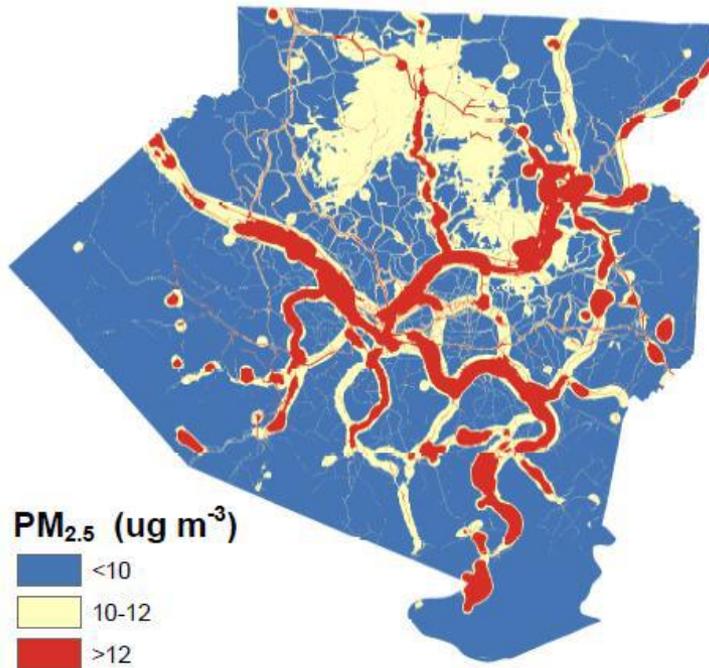
Location	Annual PM2.5 Levels	Cancer Risk	Proximity to Highway
All Locations	> 10 ug/m <sup>3</sup>	> 100 per million	within 500 feet of any freeway
Health Vulnerable Locations	> 9 ug/m <sup>3</sup>	> 90 per million	within 500 feet of any freeway

# Health Vulnerable Locations

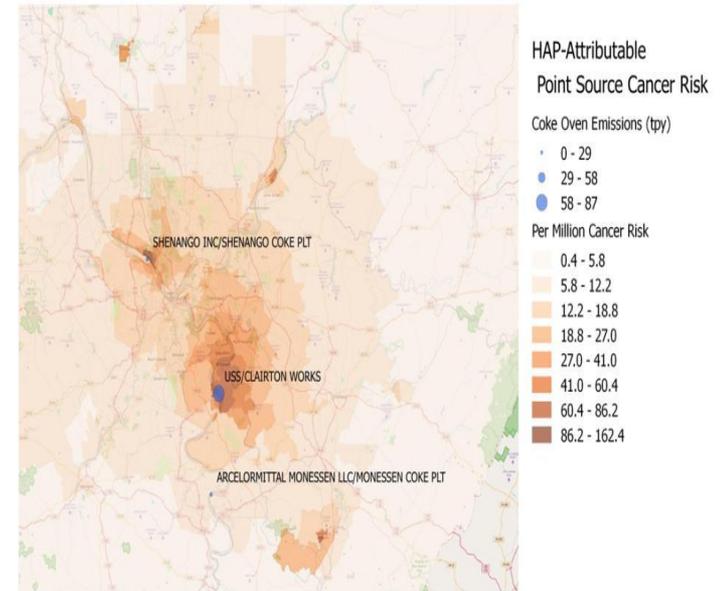
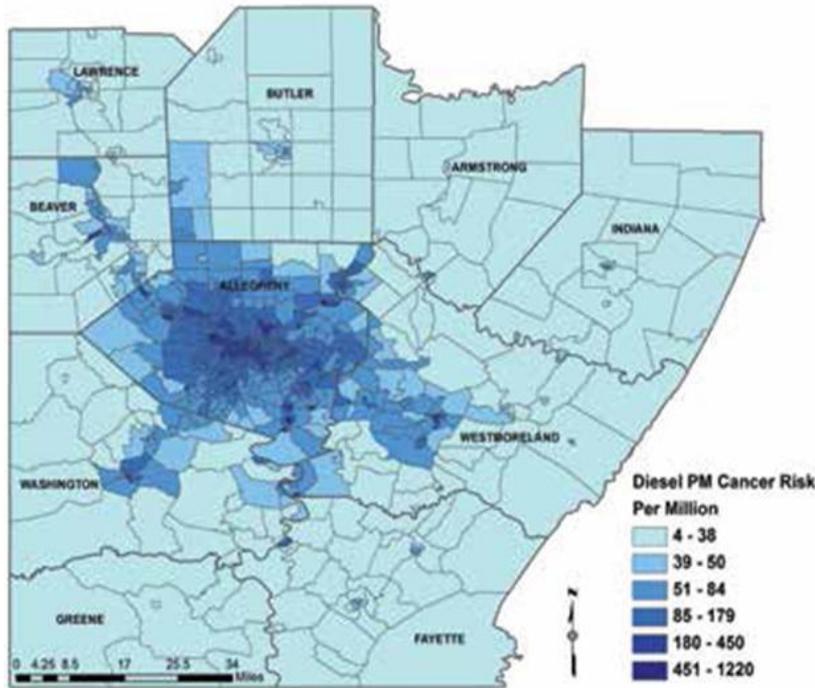
*Those locations having the highest percentage of health vulnerable residents, based on criteria such as State discharge data from respiratory and cardiovascular related hospitalizations, non-accident mortality, or other criteria as determined by the Director.*



# Comparisons of Pittsburgh (left) and San Francisco (right) Area PM<sub>2.5</sub> Levels



# Southwestern PA Cancer Risks from Diesel Emissions (left) and Point Source Emissions (right)



# West Eugene, Oregon

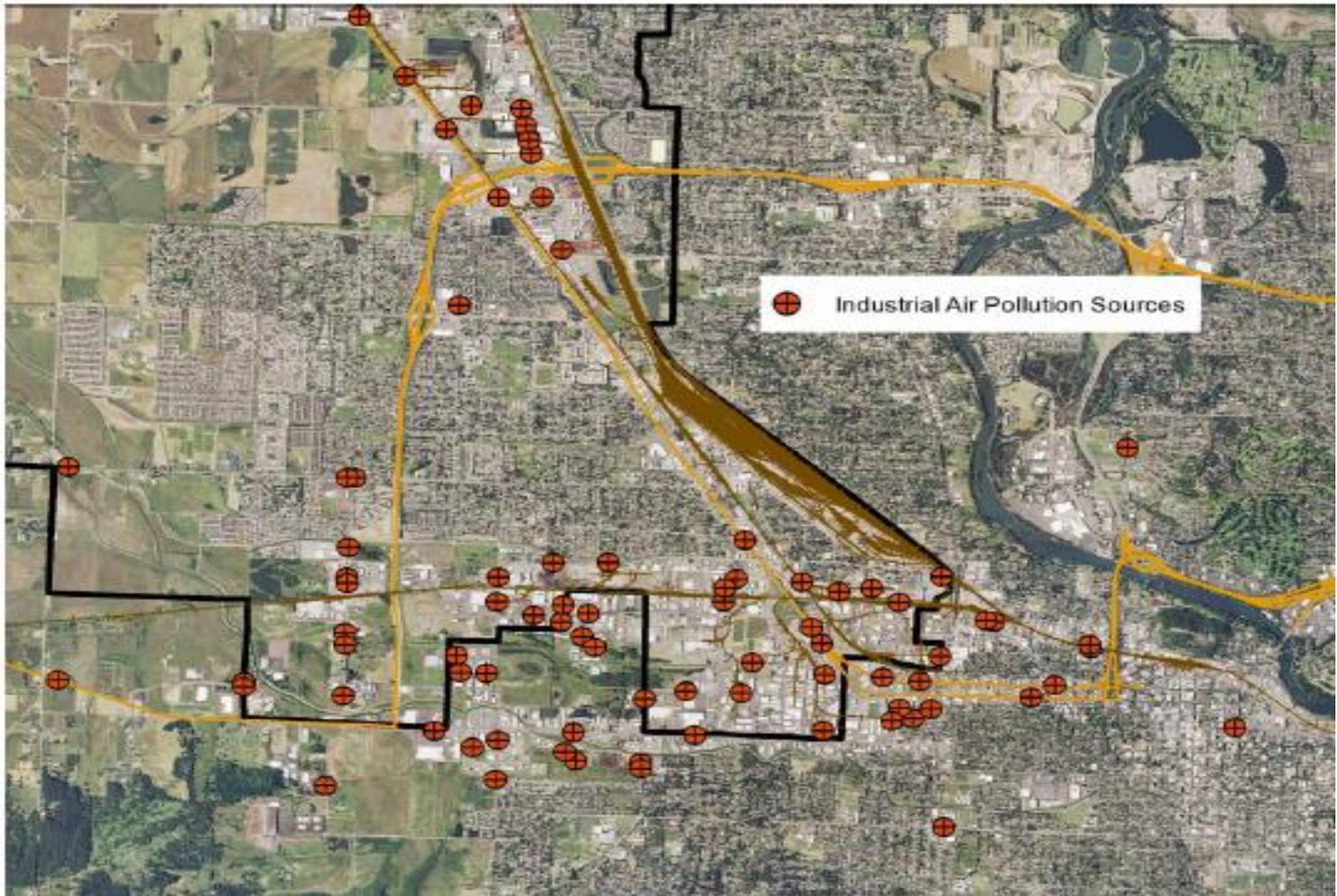
**J.H. Baxter**  
is a chemical and wood  
treatment facility that makes  
creosote-infused telephone  
poles and railroad ties.  
Noxious fumes have prompted  
thousands of neighborhood  
complaints.

Latest EPA Toxics Release  
Inventory (TRI) reports annual  
releases of over 37,000 pounds  
of air toxics, primarily  
ammonia and creosote.

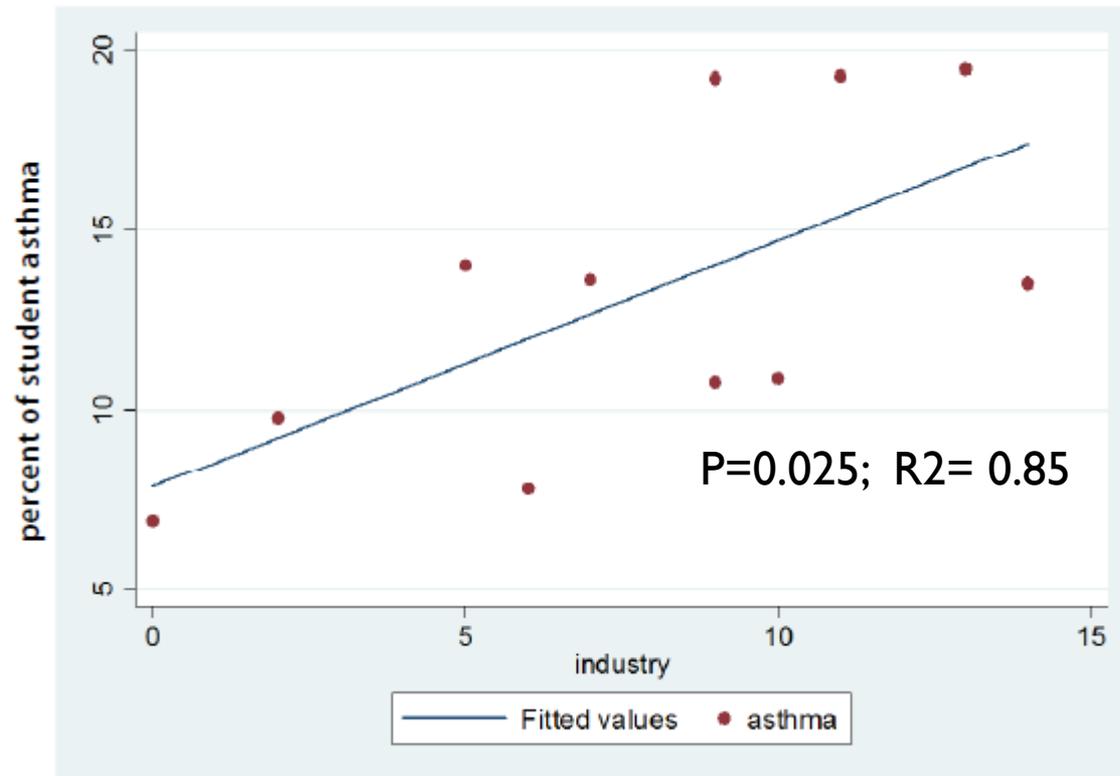
Nearest school:  
Fairfield Elementary  
(.6 miles)



# Locations of Industrial Point Sources of Air Toxics in West Eugene

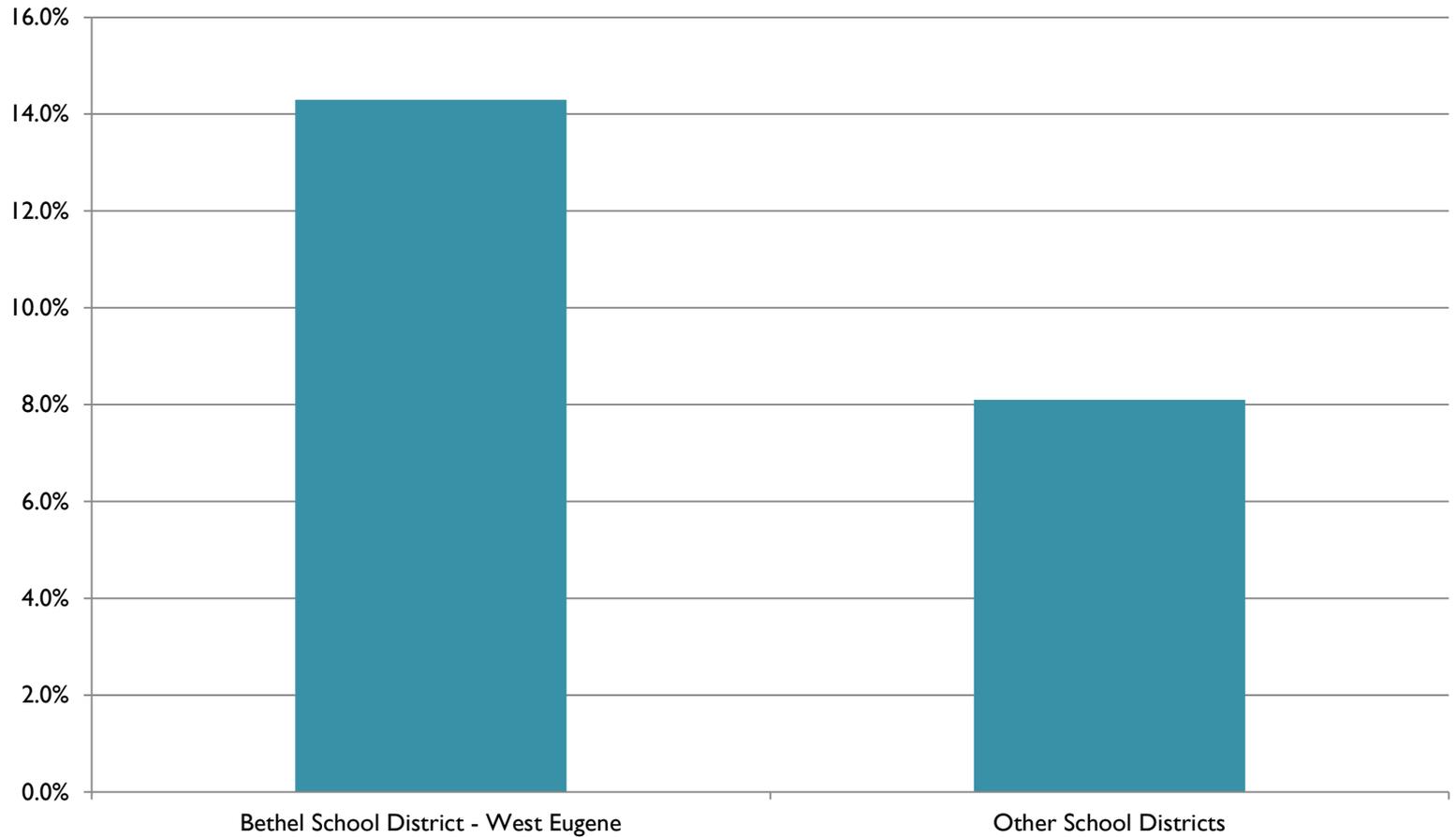


# Linear Regression of Asthma Prevalence with Number of Industrial Sites within 2 miles



# School Age Asthma Prevalence

## School Age Asthma Prevalence



## Recommendations – Addressing Environmental Justice Through Zoning for Industry

- Buffer Zones
- Risk Based Permitting Requirements in Areas of Cumulative Air Pollution Impacts
- Performance Zoning Requiring Safer, Cleaner Practices of New or Expanded Industrial Uses
- Forced Phase Out
- Sustainable Community Development Code
  - Development Exactions

Just the beginning – there are many more parts to this conversation...

Environmental  
Justice/Gentrification

Community  
Engagement

Linking Science to  
Policy

Indoor  
Environmental  
Quality

Green Design-  
Buildings and  
Neighborhood

# Concluding Thought

*Generally, pollution ideas are the product of an ongoing political debate about the ideal society. By extension, therefore, one can argue that in many past times to write about pollution was (as in the case of Fumifugium) simultaneously to write about other social and political issues. Historians interested in all aspects of the environment—from architecture and town planning to science and public health - need therefore to attend to the various layers of meaning which coexist within the representations that they study.*

M. Jenner, 1995