

# The scalar politics of environmental injustice: obscured constructions of air pollution in Seattle Washington



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Photo Credit: Annie Crawley, <http://www.scubadiving.com/drive-and-dive-seattle-puget-sound>

Draft EJ 2020 Action Agenda – May 2016



DRAFT  
**EJ 2020  
ACTION AGENDA**

Environmental Justice Strategic Plan  
2016-2020



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**GOAL III: DEMONSTRATE PROGRESS ON SIGNIFICANT NATIONAL ENVIRONMENTAL JUSTICE CHALLENGES.**

This goal will focus on four areas: (1) Lead Disparities, (2) Drinking Water, (3) Air Quality, and (4) Hazardous Waste Sites.

- Work to eliminate disparities in childhood blood lead levels. EPA will convene partners to identify geographic areas with the greatest lead exposures, reduce sources of lead contamination, and take national action to reduce lead in drinking water.
- Work to ensure all people served by community water systems have drinking water that meets applicable health based standards. We will place special emphasis on addressing drinking water challenges in underserved communities.
- **Achieve air quality that meets the fine particle pollution national ambient air quality standards for all low-income populations as soon as practicable and no later than the statutory attainment date.**
- Reduce human exposure to contamination at hazardous waste sites, with emphasis on understanding the impact in minority, low-income and vulnerable communities.

EPA will: (1) deploy a suite of programs, actions and measures in these areas; and (2) evaluate progress, enhance measures as appropriate, and explore the development of a few additional national environmental justice measures and associated strategies.

**WHAT'S IN EPA'S EJ 2020 ACTION AGENDA**

EJ 2020 is EPA's EJ plan of action that will involve every EPA office and region. EJ 2020 consists of eight

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**NATIONAL MEASURES  
TECHNICAL APPENDIX**

**Significant National Environmental  
Justice Challenges:  
Measures Technical Information**





## NATIONAL MEASURES TECHNICAL APPENDIX

### Significant National Environmental Justice Challenges: Measures Technical Information

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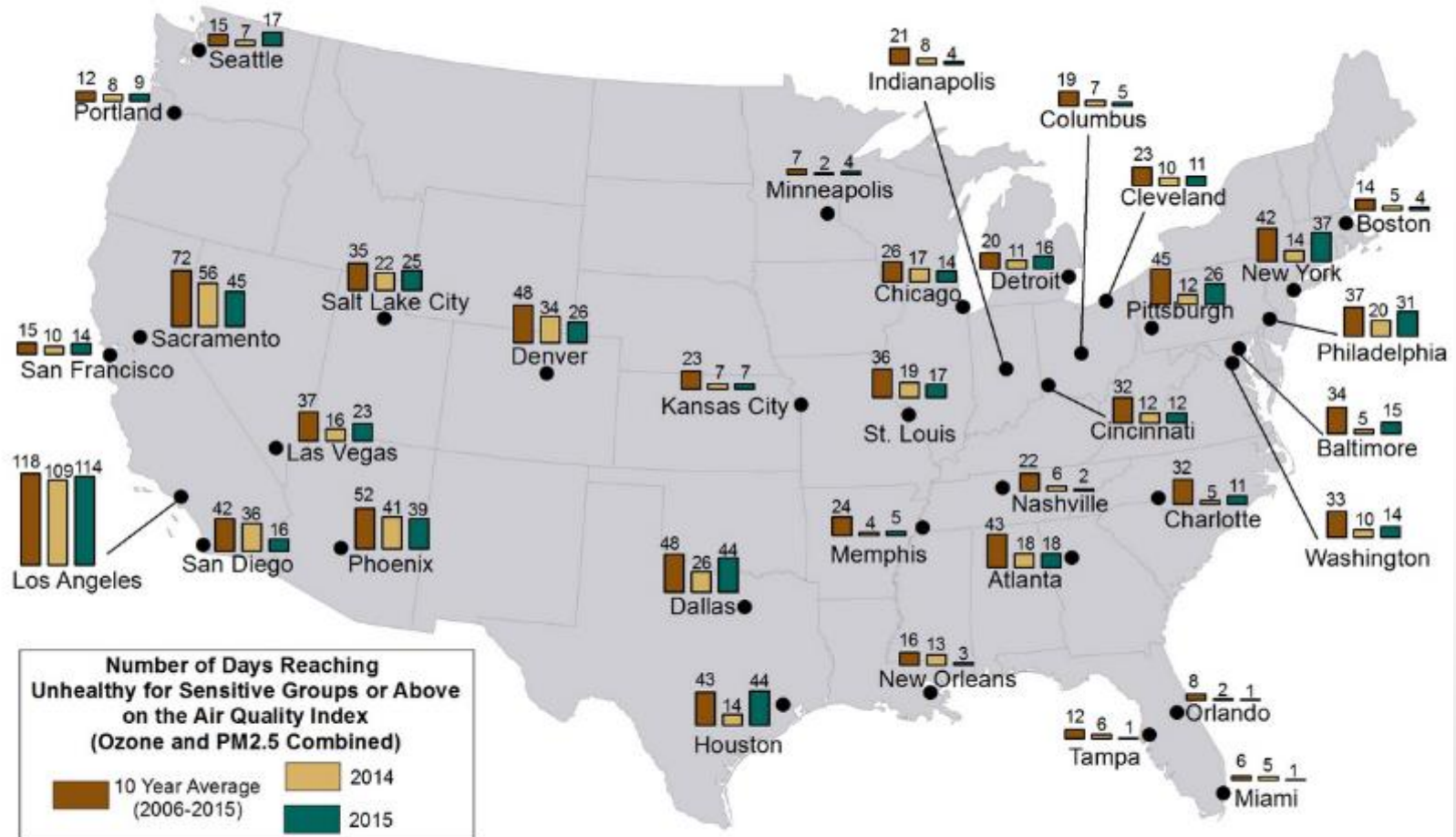
## FINE PARTICLE AIR POLLUTION Office of Air and Radiation (OAR)

**1. Goal:** Achieve air quality that meets the fine particle pollution national ambient air quality standards (NAAQS) for all low-income populations as early as practicable and no later than their statutory attainment date (which for most areas will be 2021 or sooner). Low-income populations are among those most at-risk to adverse health effects from exposure to fine particle pollution.

### 2. Measures:

- Percentage of low-income people living in counties with monitors measuring concentrations of  $PM_{2.5}$  that meet the 2012 annual and 2006 24-hour  $PM_{2.5}$  NAAQS.  
This measure evaluates each year the percentage of low-income people living in counties with monitors measuring concentrations of fine particle pollution ( $PM_{2.5}$ ) that meet the 2006 24-hour and the 2012 annual  $PM_{2.5}$  NAAQS. The baseline period for the measure will be 2006-2008 (i.e., the 3-year period used for designations for the 2006 24-hour  $PM_{2.5}$  NAAQS). Changes since that time will reflect the effectiveness of strategies designed to reduce particle pollution. The goal is to increase this percentage over time and to reach 100 percent by 2025. Such a trend would demonstrate that state efforts to attain and maintain these standards are working and that low-income populations are benefitting.
- The average county-level design value for counties with monitors measuring  $PM_{2.5}$  concentrations not meeting the  $PM_{2.5}$  NAAQS.  
This second measure provides information on the improvement in air quality in counties not meeting the

# A Look Back: Ozone and PM2.5 Combined in 2015

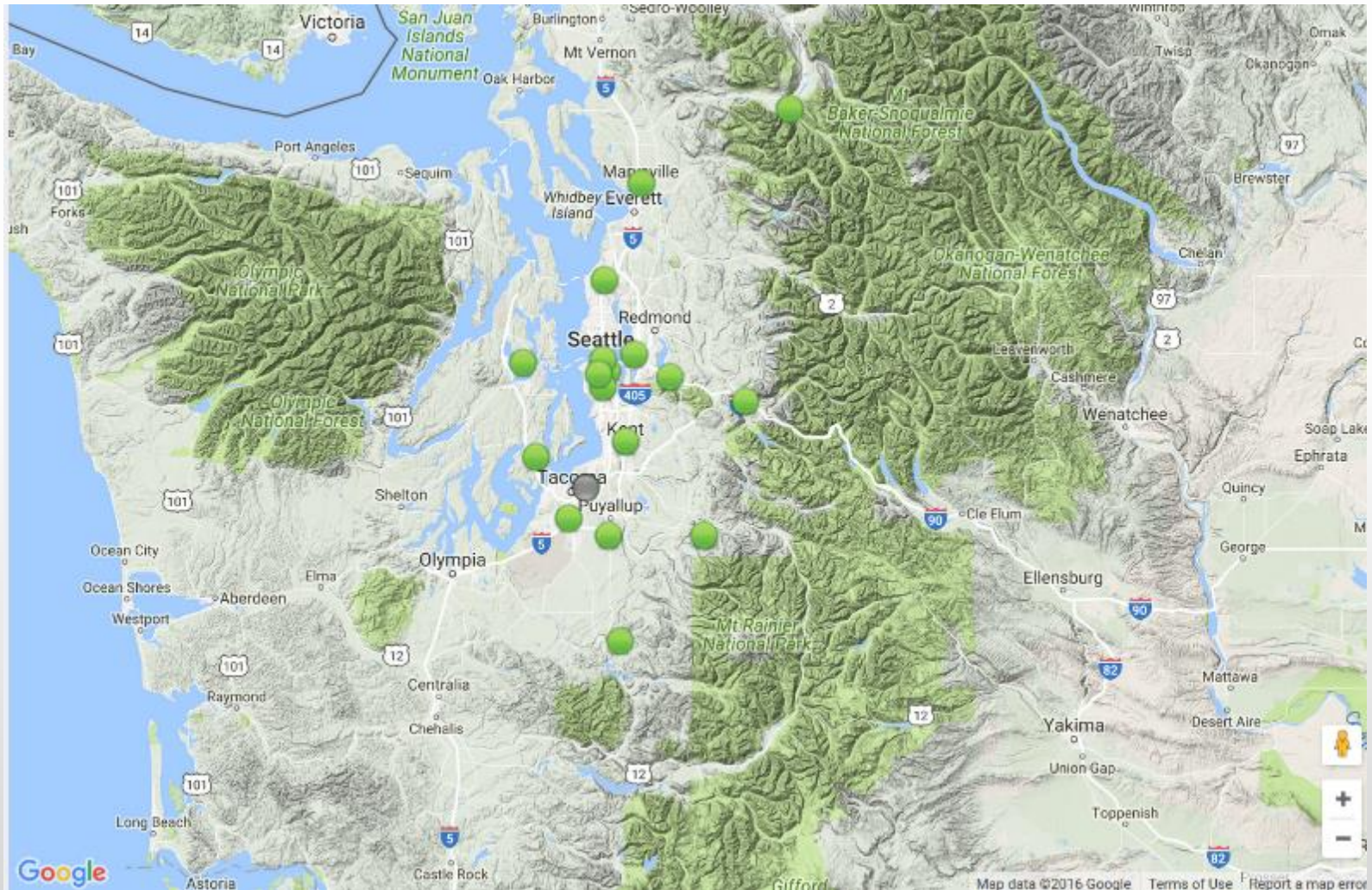


Source: U.S. Environmental Protection Agency

Note: This map shows preliminary air quality data as reported to EPA's Air Quality System and AirNow.gov



Puget Sound Clean Air Agency operates 17 air monitors to determine compliance with NAAQs



Green glasses | Obscured Risksapes | Reframing | Conclusion



# Sustainable Seattle: The Emerald City

- “Seattle recognized as the nation’s most sustainable city” – STAR Communities, 2014
- Seattle Ranked 2nd in Top 61 Global Cities  
*Martin Propensity Institute, August 16, 2013*
- Seattle in Top Ten Cities Where The 'American Dream' is Still Alive  
*Entrepreneur, August 2, 2013*
- Port of Seattle Lauded as 'Port of the Year'  
*Pacific Maritime Online, September 30, 2013*
- Seattle Ranks Second in 'Super Green' Cities of America.  
*Puget Sound Business Journal, August 4, 2011*



*Seattle is commonly recognized as an urban environmental leader and livable city*



# Community Health and Air Quality Are “Good”

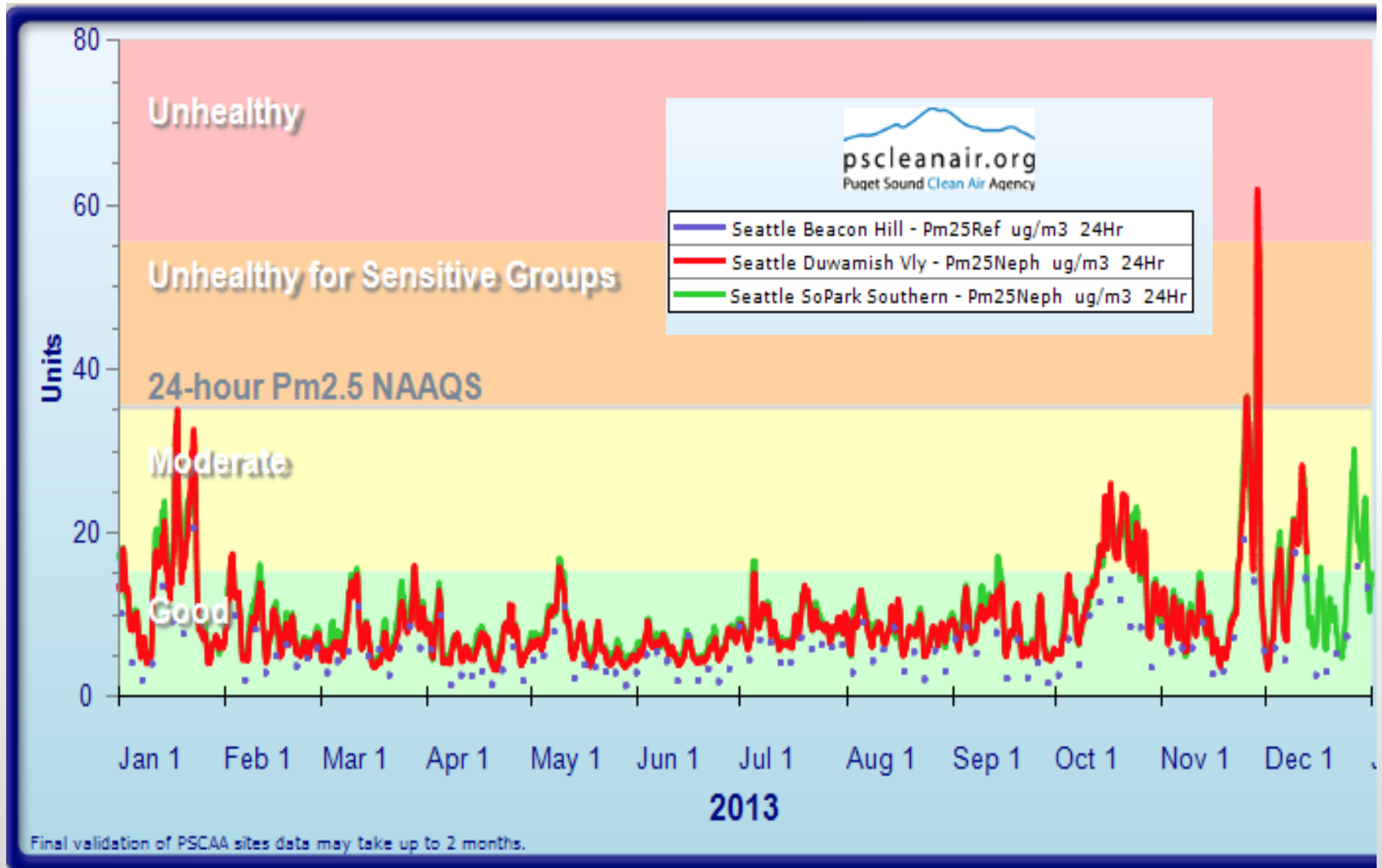
**Monitored Air Quality (AirNow.gov)**  
**Green = Good, Yellow = Moderate**



**STAR Communities Ratings**  
**Community Health = 20/20**  
**Air Quality = 15/15**



# Regional Variability in Air Quality Index

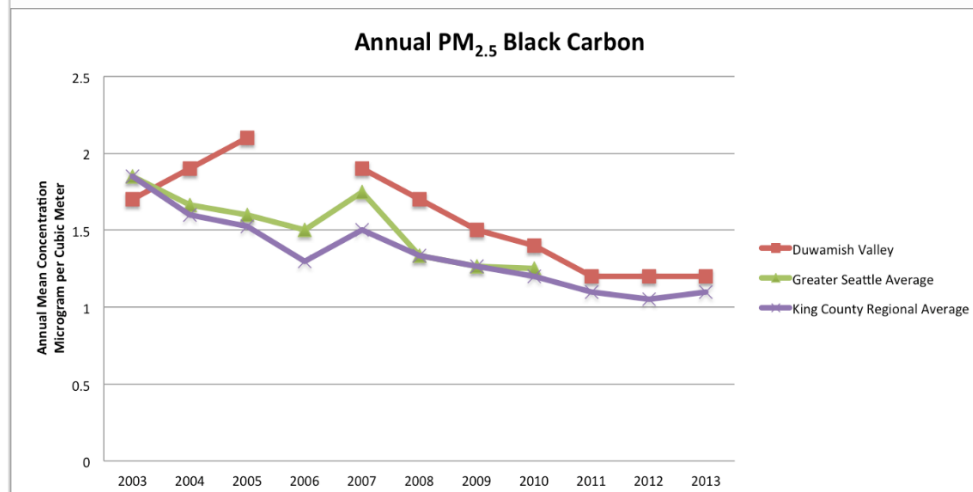
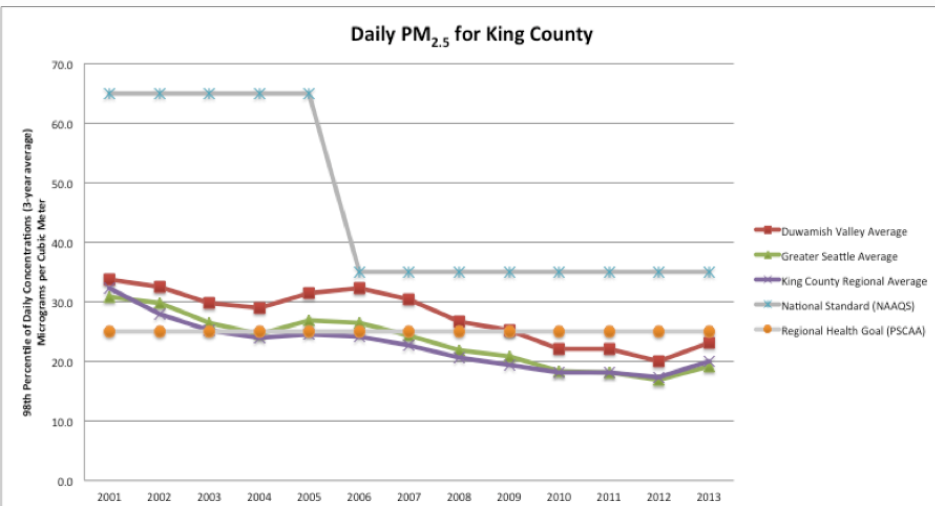


# Regional Variability in Air Quality Monitoring

Exposure – Significant interurban variability in air quality

## Higher Particulate Matter in Duwamish

## Higher Black Carbon in Duwamish



But, region still is in conformance with national standards

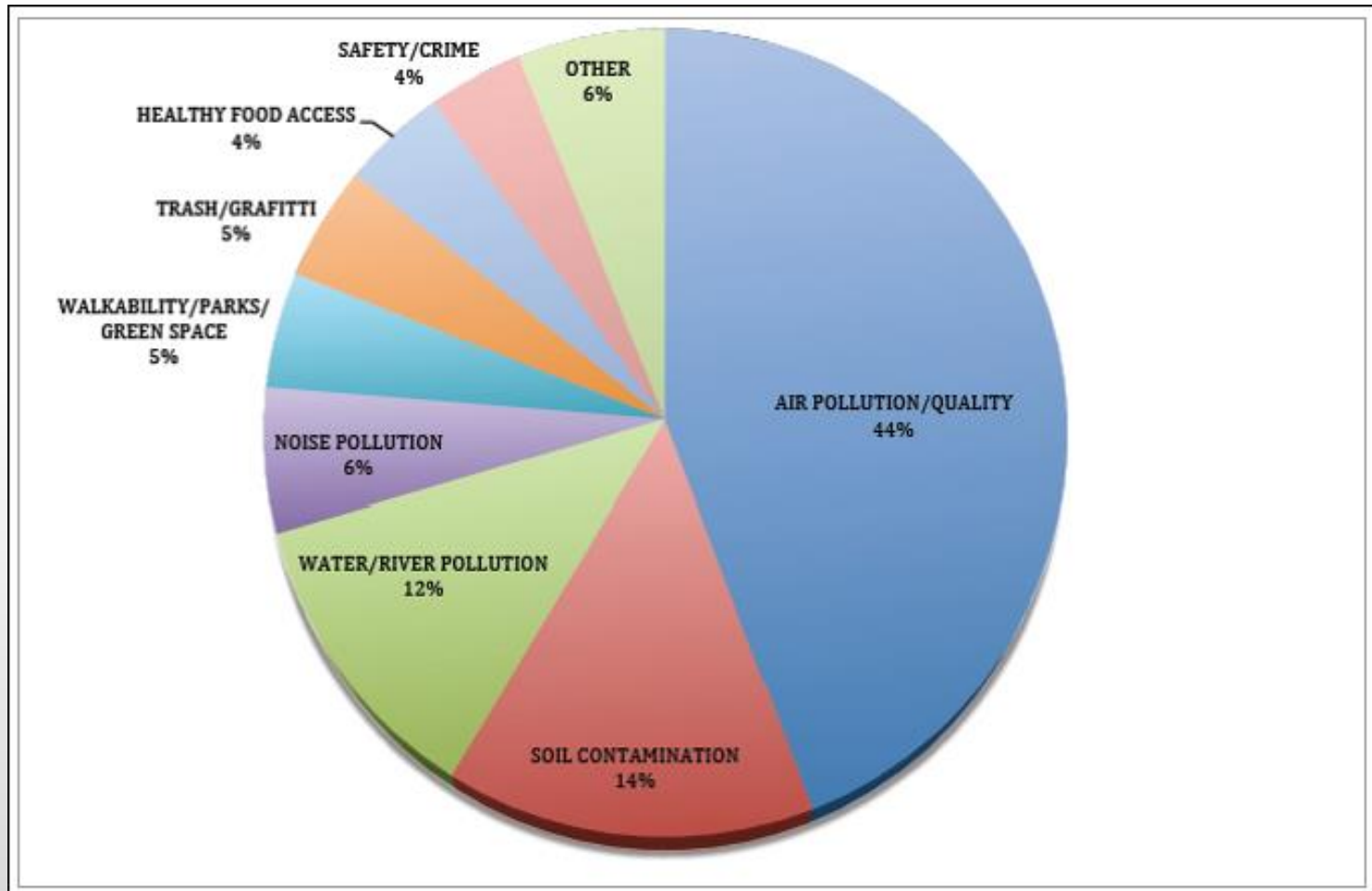


# Duwamish Community Action for Clean Air. A community-based emphasis on cumulative exposures and solutions.



- Georgetown and South Park Neighborhood located at a nexus of region's manufacturing, warehousing and transportation facilities
- Industrial zoning and heavy industrial uses directly adjacent to residential in a valley prone to microinversions
- Exposure risk from multiple sources
  - Contaminated sites and Superfund Site
  - On-going manufacturing sites with toxic releases
  - Truck routes
  - Warehousing and vehicle storage and repair
  - Major, congested roadways
  - Rail lines
  - Port facility
  - Regional airport

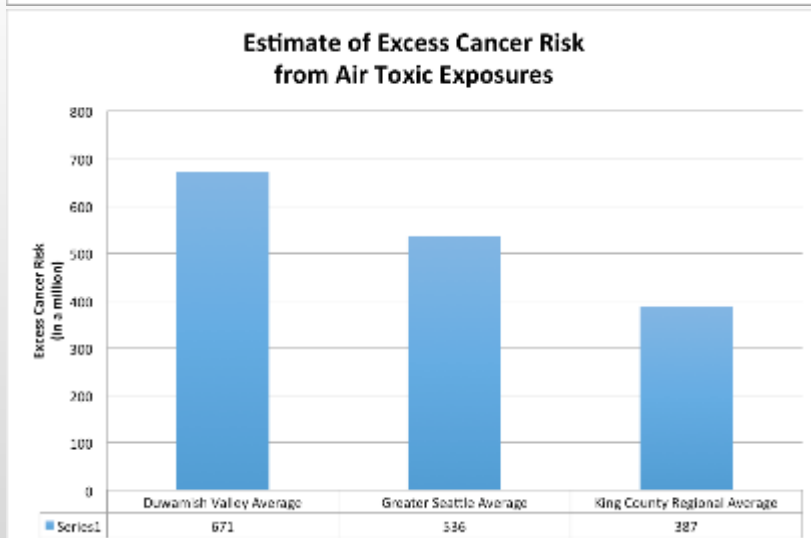
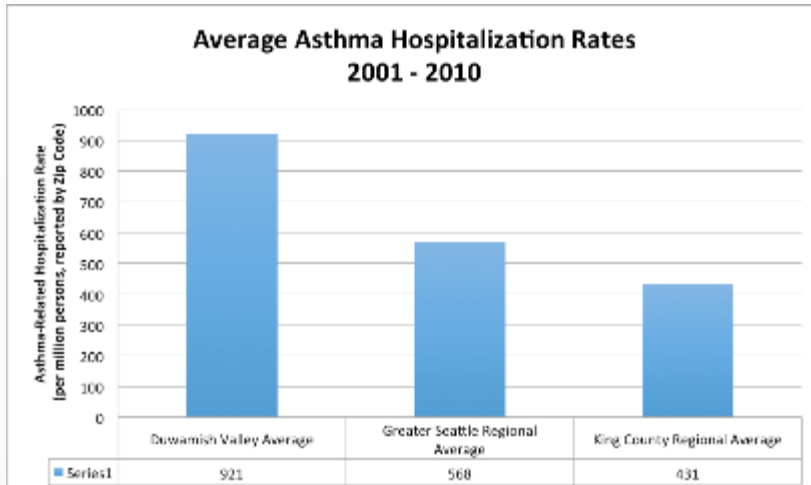
Results for community members responses to a multilingual survey: What are the things you are most worried about in your community? n=185







# Skewed Health Outcomes



## Cumulative Health Assessment findings:

- Duwamish Valley residents are more likely to live in poverty, be foreign born, have no health insurance or leisure time, and are more likely to be sick.
- Life expectancy 8 years less than Seattle average
- Childhood asthma rates among highest in Seattle
- Highest air concentration of diesel particulates and benzene
- Most contaminated waste sites and numerous TRI sites

# A Skewed Riskscape

Table 1: King County's 10 Highest Toxic Release Inventory (TRI) Air Pollution Risk Scores from 2006-2011

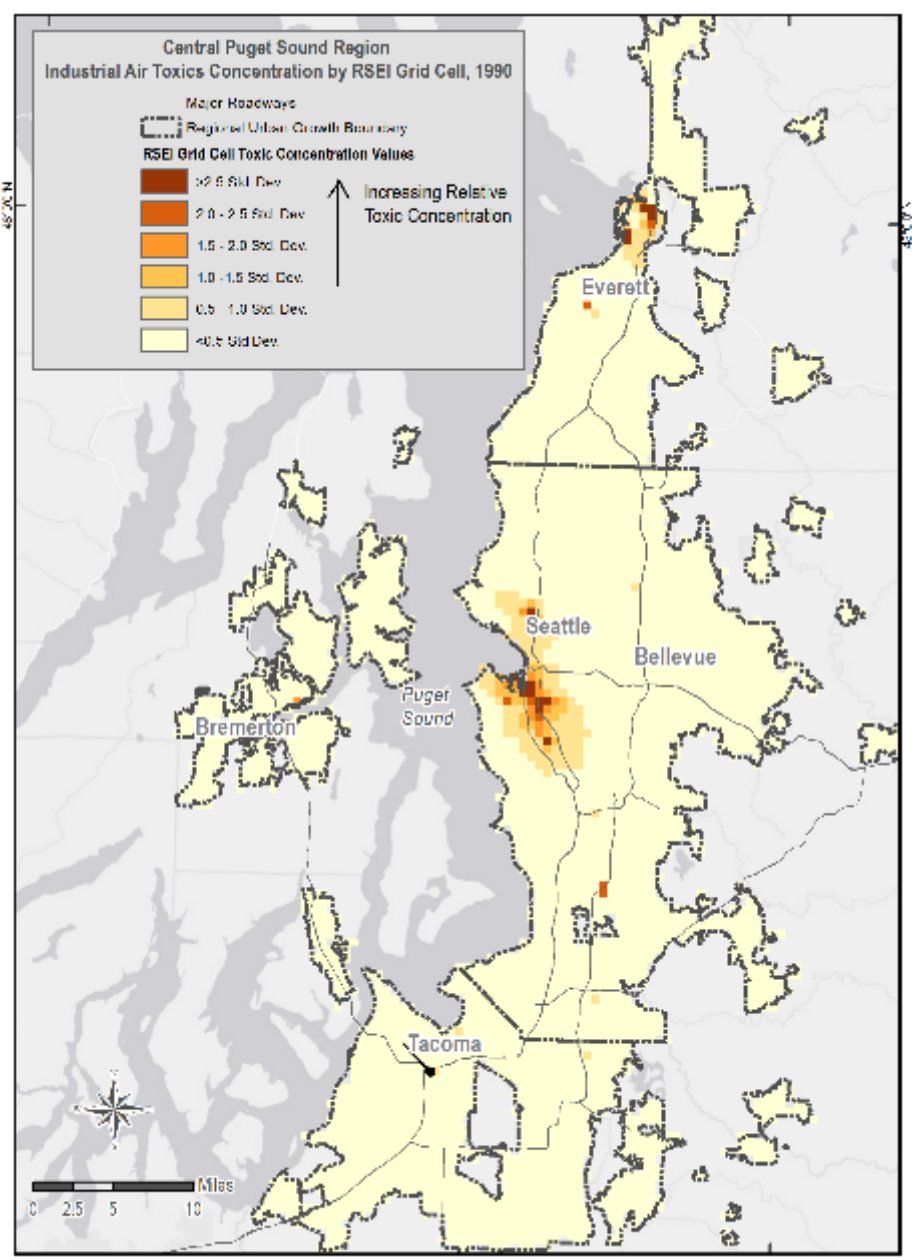
Facility	Relative Risk Score	Year
Saint-Gobain Containers Inc	3,389,378	2011
Alaska Copper Works	1,650,321	2011
Alaska Copper Works	1,626,519	2009
Alaska Copper Works	1,614,865	2008
Alaska Copper Works	1,603,089	2007
Jorgenson Forge Corp	1,334,729	2007
Sound Propeller Services	1,137,649	2007
Jorgenson Forge Corp	1,009,598	2011
Jorgenson Forge Corp	628,666	2010

## Utilizing EPA's Risk Screening Environmental Indicators:

- Seattle has less industrial polluters but they are concentrated in the Duwamish River Valley.
- None of the worst polluters are left in the Ballard and Interbay Industrial zone.



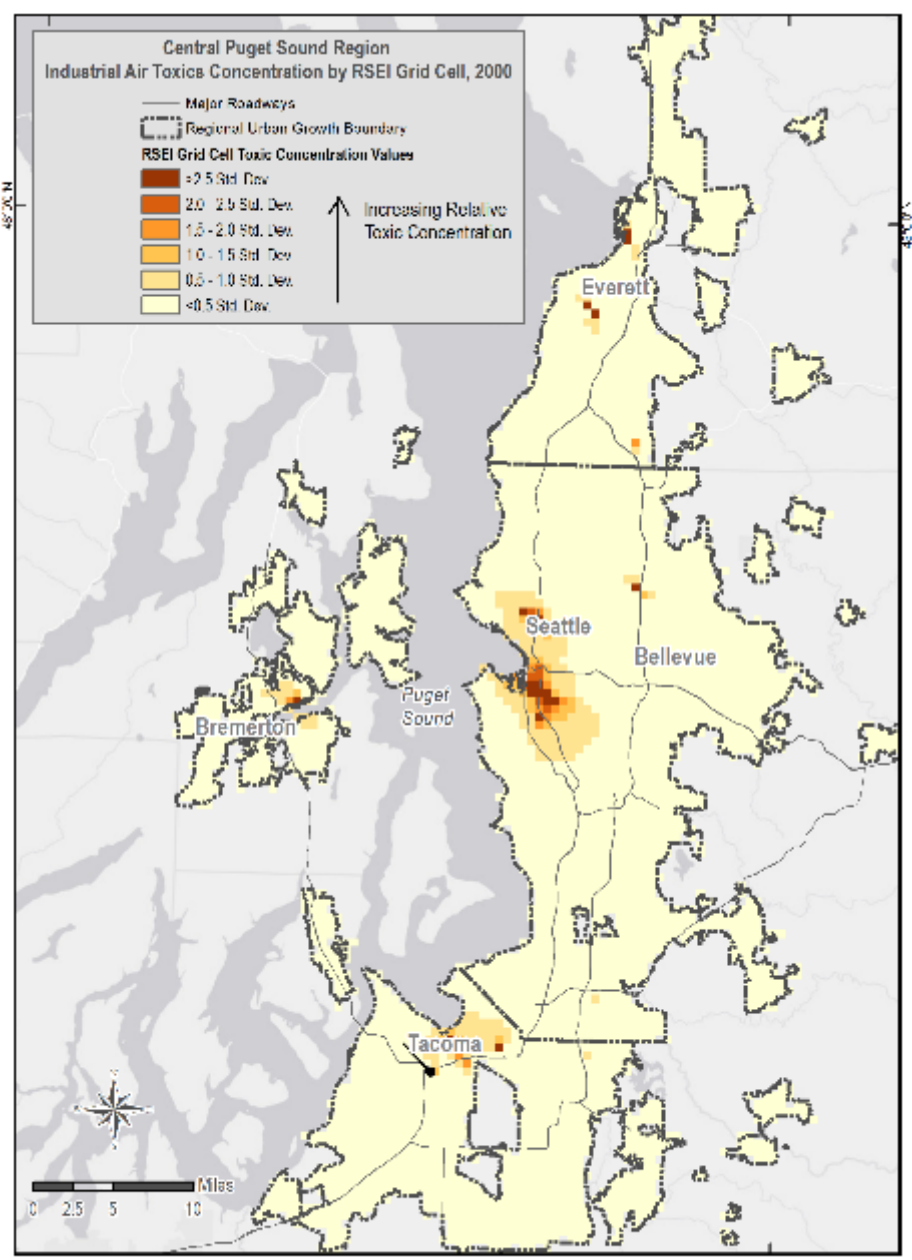




## A Skewing Riskscape

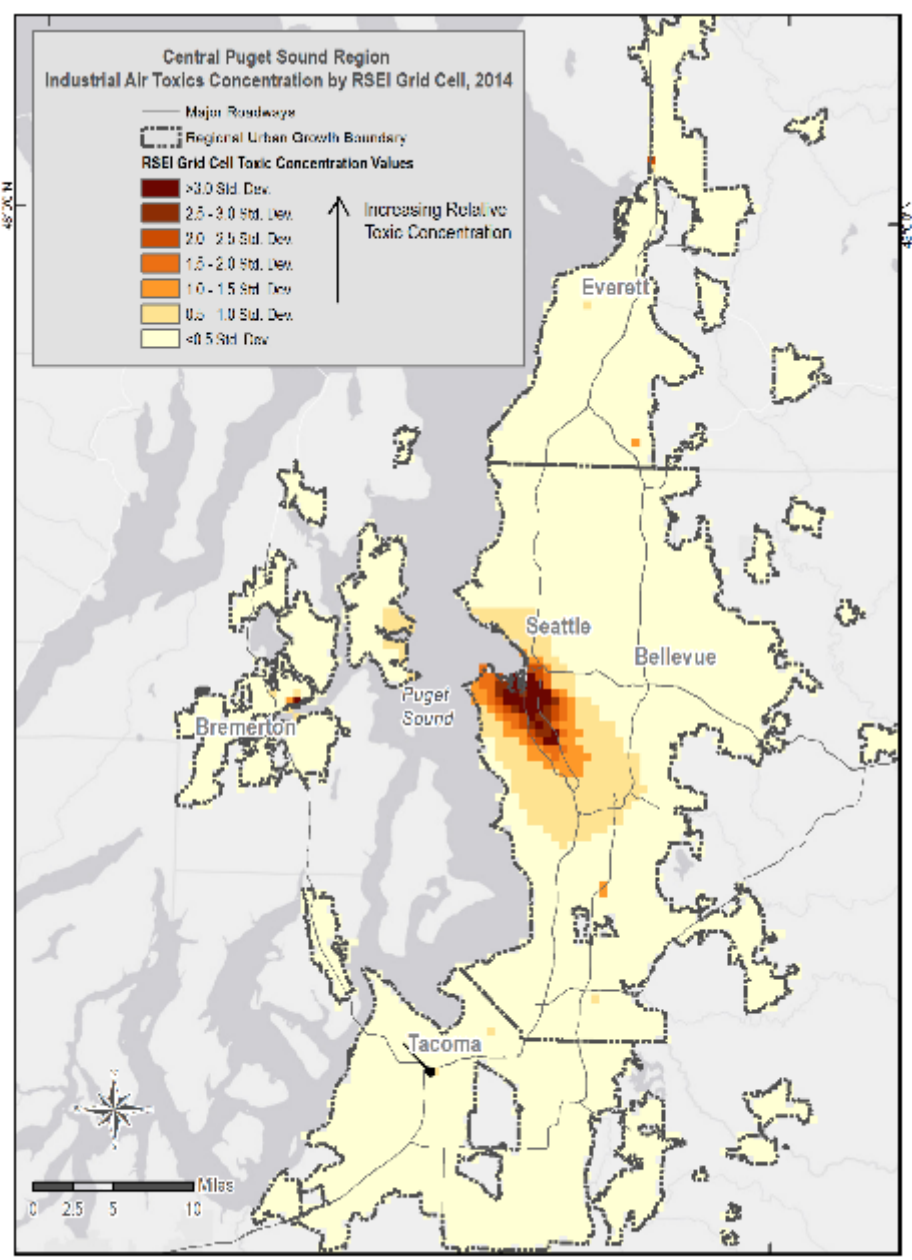
- 182 TRI facilities in 1990, 13 million pounds of toxic air releases, and a relative hazard score over 250 B.
- 117 TRIs in 2000, nearly 6 million pounds of toxic air releases, and a 100 fold decrease in the relative hazard score (below 25 B).
- 104 TRIs in 2014, just over 1 million pounds of toxic air releases, and a rising relative hazard score (above 35 B).

Projection: NAD 1983 StatePlane Washington North FIPS 4601 Feet  
 Data Sources: Risk-Screening Environmental Indicators ver. 2.3.4, ESRI  
 Prepared by: Stacy Clauson  
 Date: May 16, 2016



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We are the fourth subregional air toxics study to identify an air toxics hotspot in the Duwamish River Valley.

- Six years ago, a study sampling over 100 different air toxics across four sites in both Seattle and Tacoma found that the potential cancer risks from diesel emissions were the highest at the monitoring site just north of the Georgetown and South Park neighborhoods (PSCAA 2010).
- Another longitudinal air toxics monitoring program in Seattle found higher inhalation cancer risks from data collected at two South Seattle sites compared with four other locations across the city (Wu et al. 2011).
- A combined monitoring and modeling study of particulate matter pollution predicted two diesel exhaust exposure hotspots in both Georgetown and South Park (Schulte et al. 2013, 2015).



# The regional approach in the US air pollution monitoring system is obscuring environmental injustices.

- A growing body of research on pollution microgeographies has found significant variation in air pollution and exposures in numerous cities (Kaur, Nieuwenhuijsen, Colvile 2005; Knibbs, Cole-Hunter, Morawska 2011; Pattinson, Longley, Kingham 2014).
- One review noted that the sparse network of stationary air pollution measurement stations are expensive and not readily adaptable to capture interurban heterogeneity and identify pollution hotspots (Kumar et al. 2015).

# Reflections

## **Praxis for Environmental Justice**

- Active
- Imaginative
- Insistent, and
- Resource intensive.

## **Caution**

- We've only scratched the surface of environmental injustice's scalar politics and how to respond to obscured and skewed air pollution riskscales.