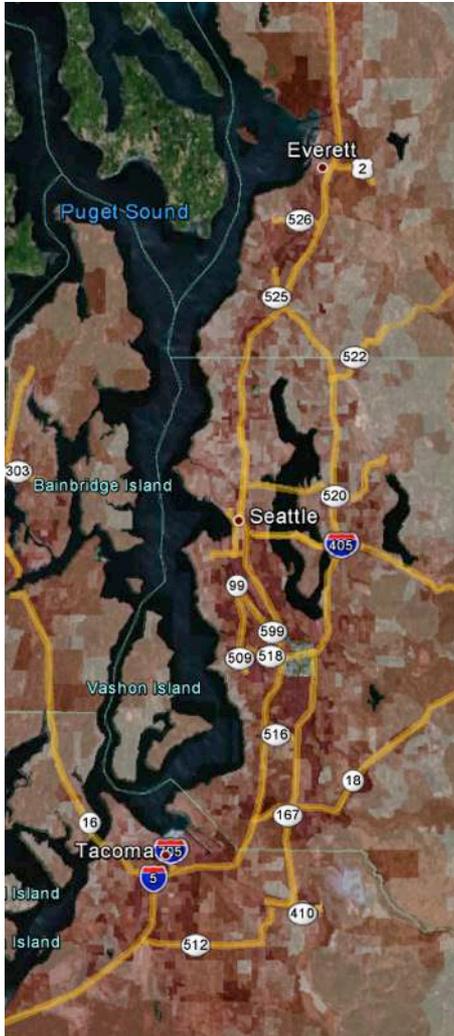


# Air Quality Environmental Justice Visualization

Erik Saganic  
2013 NW-AIRQUEST Annual Meeting



# Overview

- **Our big picture objectives**
- **What we developed**
- **Name of the tool**
- **Uses – relation to AIRPACT?**

# Big Picture Objectives

- **We want to understand air quality inequities in Puget Sound**
  
- **We want this tool that drives air quality decisions**

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## Big Picture Objectives

- **Geography-based**
- **Includes air quality metrics**
- **Includes demographic metrics**
- **Aggregate the information**
- **Keep it simple – “it’s never going to be perfect”**
- **Keep data up-to-date**
- **Gets used!**

# What We Developed

- **Aggregated scoring**

- Compared census block groups within our 4 counties (King, Kitsap, Pierce, Snohomish)
- Quartiles – Highest measure of inequity = 3, Lowest = 0

- **Measures fall in 3 Buckets**

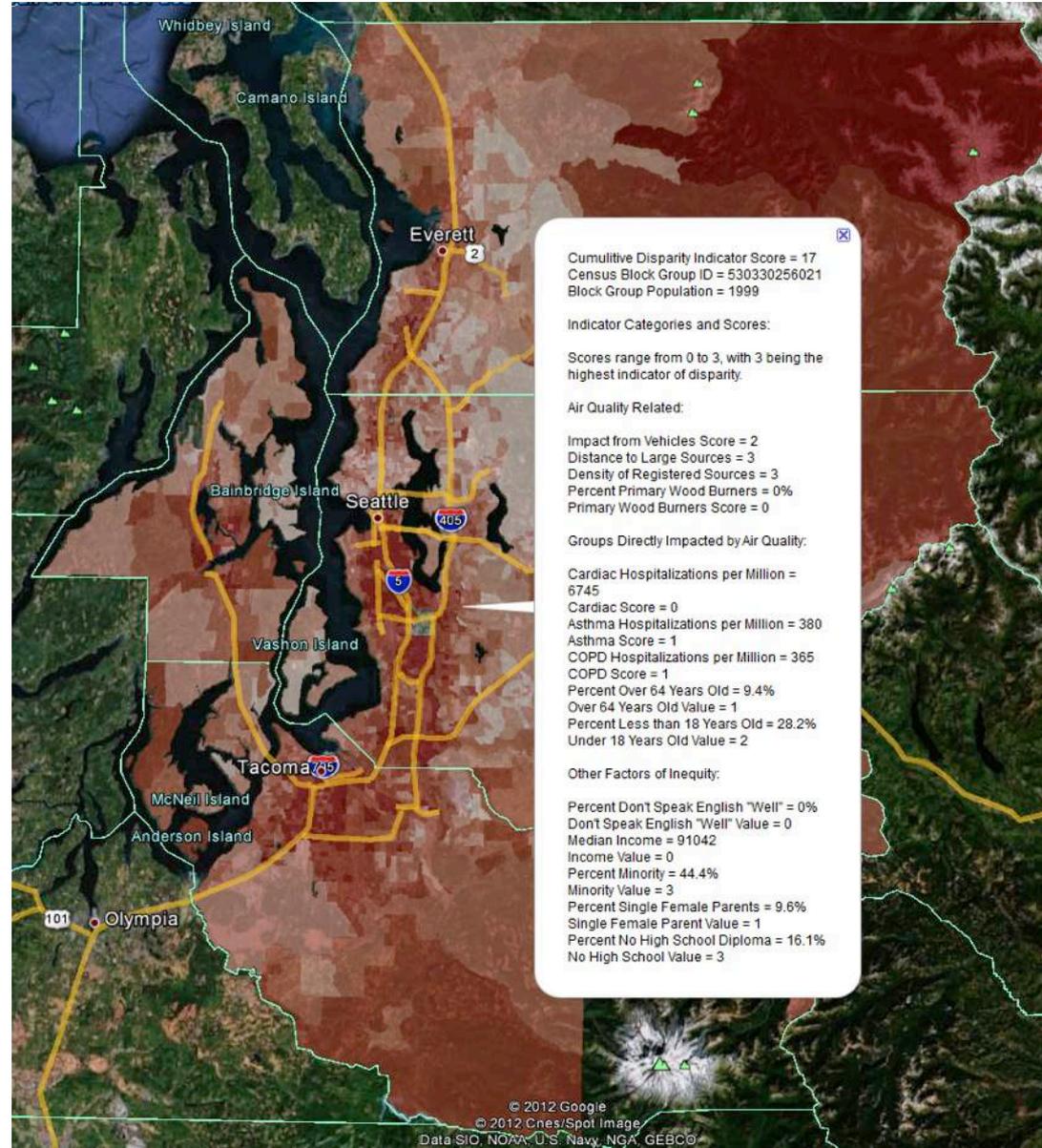
Air Quality Related	Those Affected by Air Quality	Other Measures of Inequity
<ul style="list-style-type: none"> <li>- Distance to Traffic</li> <li>- Distance to Major Industrial Source</li> <li>- Number of Industrial Sources</li> <li>- Percent that use wood for heat</li> </ul>	<ul style="list-style-type: none"> <li>- &lt; 18 y.o.</li> <li>- &gt; 64 y.o.</li> </ul> <p>Hospitalization Rates:</p> <ul style="list-style-type: none"> <li>- Cardiac</li> <li>- Asthma</li> <li>- COPD</li> </ul>	<ul style="list-style-type: none"> <li>- Language Proficiency</li> <li>- Income</li> <li>- Percent Minority</li> <li>- Single Female HoH</li> <li>- Education</li> </ul>

## Sources

- **Census – ACS 2006-2011 5-year average**
- **WA DOH (2001-2010 Hospitalizations)**
- **WS DOT 2011 Traffic Volume**
- **Our air quality permit database**

# What We Developed

- Google Earth Access



## **Link to the Google Earth Map:**

[http://www.pscleanair.org/downloads/Community Air Tool 10-1-12.kmz](http://www.pscleanair.org/downloads/Community%20Air%20Tool%2010-1-12.kmz)

**Here is a technical document describing the sources and the calculations that go into it:**

[http://www.pscleanair.org/downloads/Community Air Tool Metadata.pdf](http://www.pscleanair.org/downloads/Community%20Air%20Tool%20Metadata.pdf)

# Names



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## Names

- Air Community Map
- Air Priority Map
- **Air Care Map**
- Community Air Awareness Map
- Community Air Tool (CAT)
- Multifactor Community Opportunity Evaluation  
Topographical Depiction Tool (MCOETDT)



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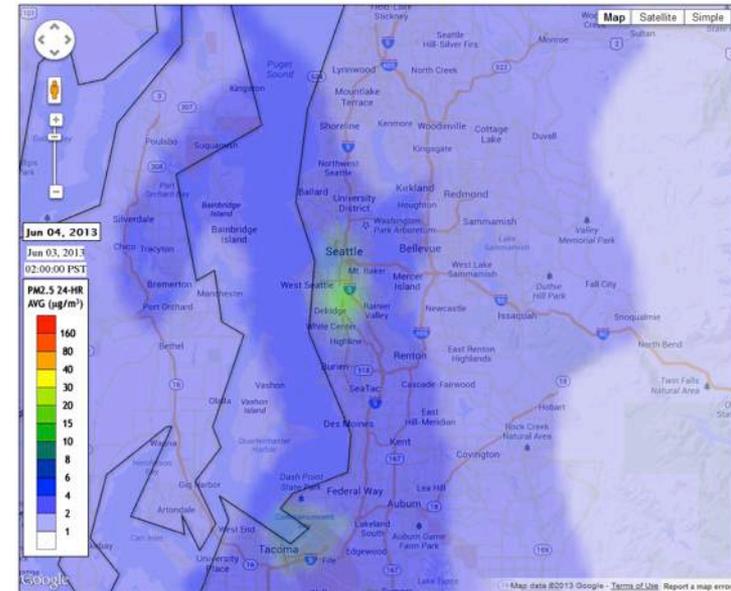
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## Internal Applications (adopting our pet)

- **We brainstormed ideas**
  - Recently accumulated for management and staff to review
  
- **Examples of how already used:**
  - Air monitor siting
  - Anti-idle efforts with schools
  - Enhanced public comment process for permits
  
- **Future: Policy use**

## NW-AIRQUEST applications?

- A map that weights sensitive populations to predicted pollution levels from AIRPACT?
- Use Ranil's design value maps for each pollutant?
- BenMAP!
- Pollution levels have no meaning without the possible health impact



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## Your Ideas/Feedback/Questions?

- Your experience?
- Do you have an interest in doing the same?
- Concerns?
- Erik Saganic, 206-689-4003, [eriks@pscleanair.org](mailto:eriks@pscleanair.org)

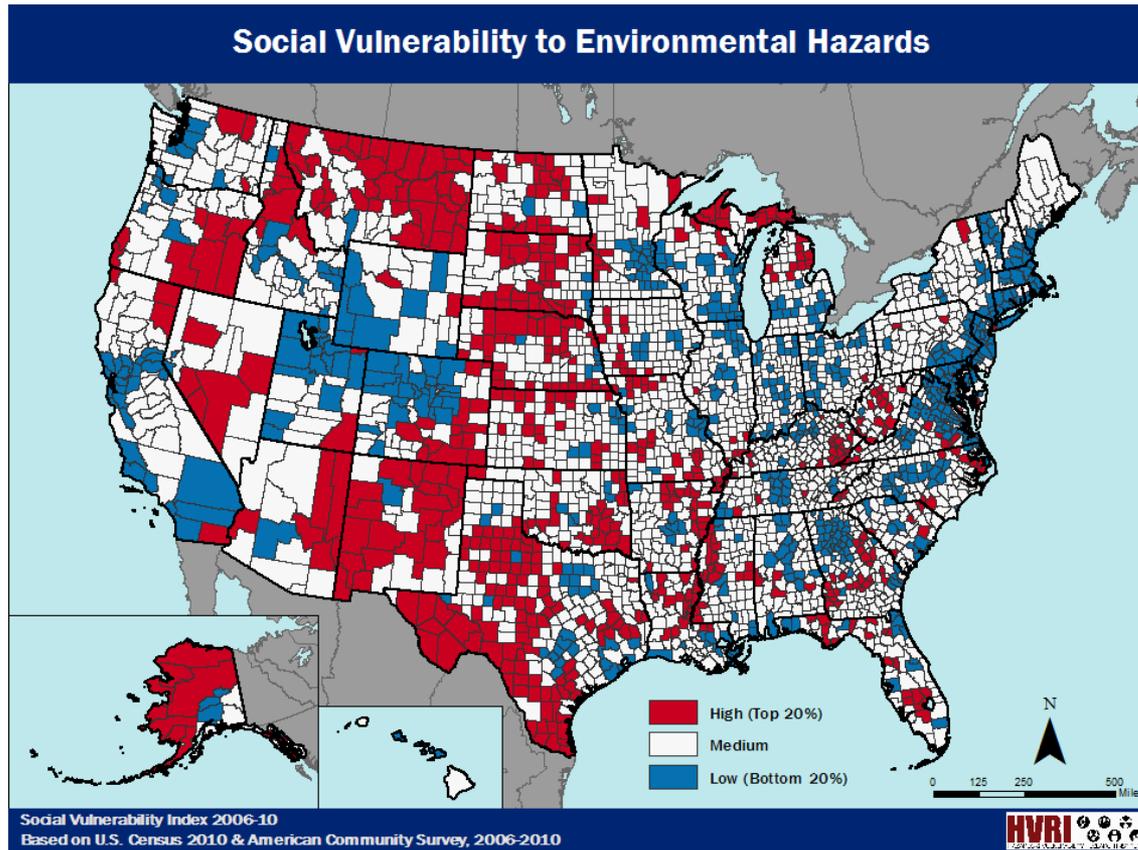
# Extra Slides

# What others are doing?



## What others are doing?

- A common approach --- compiled demographics into one score. Like the “Social Vulnerability Index”



# What others are doing?

- Connecticut has an EJ law – affects “major sources of air pollution, as defined by the federal Clean Air Act”:
- <http://www.cga.ct.gov/2008/ACT/PA/2008PA-00094-R00HB-05145-PA.htm>

## Environmental Justice Communities

### Data Sources

**Environmentally Distressed Municipalities** - Created by the CT Department of Economic and Community Development for the year 2007 and based on the census.

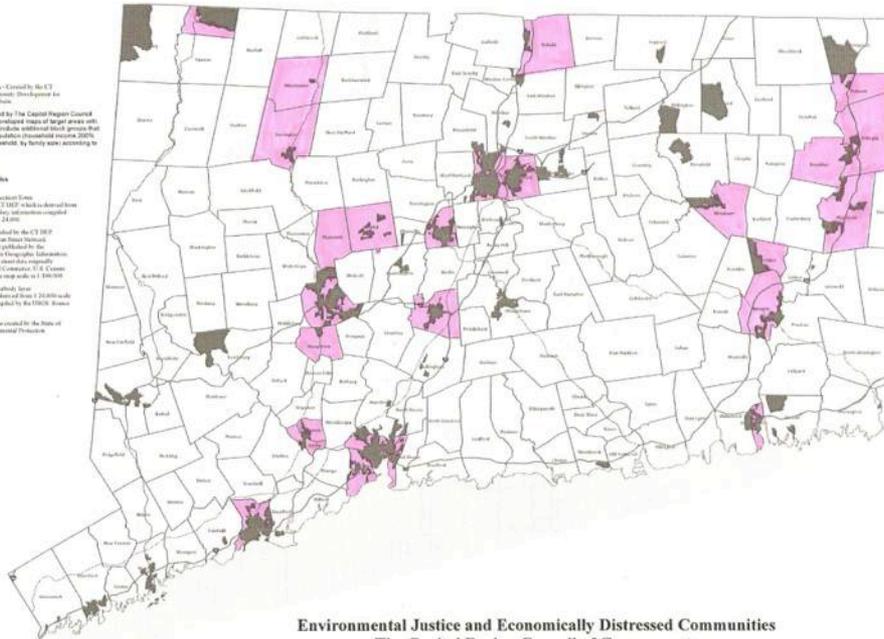
**Environmentally Injust Areas** - Created by The Capitol Region Council of Governments. CREGO has developed maps of target areas with the acronym: Low-income areas include additional black areas that had at least 50% nonwhite population (nonwhite income 200% or below the Census poverty threshold, by family size) according to the 2002 Census.

**Boundaries** - Census 2000 SF 1 P008  
Census 2000 SF 3 P008  
Census 2002 Tiger-Line Files

**Political Boundaries** - From the Connecticut State Board of Elections based on published by the CT DEP which is derived from the Connecticut State District, State Plan, GERRAND 2001 and published by the University of Connecticut Center for Geographic Information and Analysis using the 2002 Census data compiled by the U.S. Department of Commerce, U.S. Census Bureau, Geographic Information Systems, as of 1/18/2002

**Mapography** - From the United Way/Huber, Inc. published for the CT DEP which is derived from the 2002 Census data compiled by the U.S. Department of Commerce, U.S. Census Bureau, Geographic Information Systems, as of 1/18/2002

**Source** - The original map format was created by the State of Connecticut Department of Environmental Protection, 4/1/08.



Environmental Justice and Economically Distressed Communities  
The Capitol Region Council of Governments  
- 2008 -



Legend  
30 Percent Low Income  
Environmentally Distressed Municipalities

## What others are doing?

- **Portland finished a study with a large EJ component**
- <http://www.deq.state.or.us/aq/planning/report/8environmentalJustice.pdf>

Disproportionate impact from all sources:  
Higher  Lower

Disproportionate impact by source category:

Higher  Lower

	Hispanic/Latino	Asian	African American/Black	Below Poverty
Higher	Residential Wood Combustion	On-Road Mobile	Area	On-Road Mobile
	Non-Road Mobile	Non-Road Mobile	Non-Road Mobile	Area
	On-Road Mobile	Residential Wood Combustion		Point Sources
Lower	Area	Area		

# California OEHHA

## Proposed Relationship



- <http://www.oehha.ca.gov/ej/pdf/CalEnviroScreenWorkshop100912.pdf>



Environmental Justice Home

EJView Entry

EJView Help

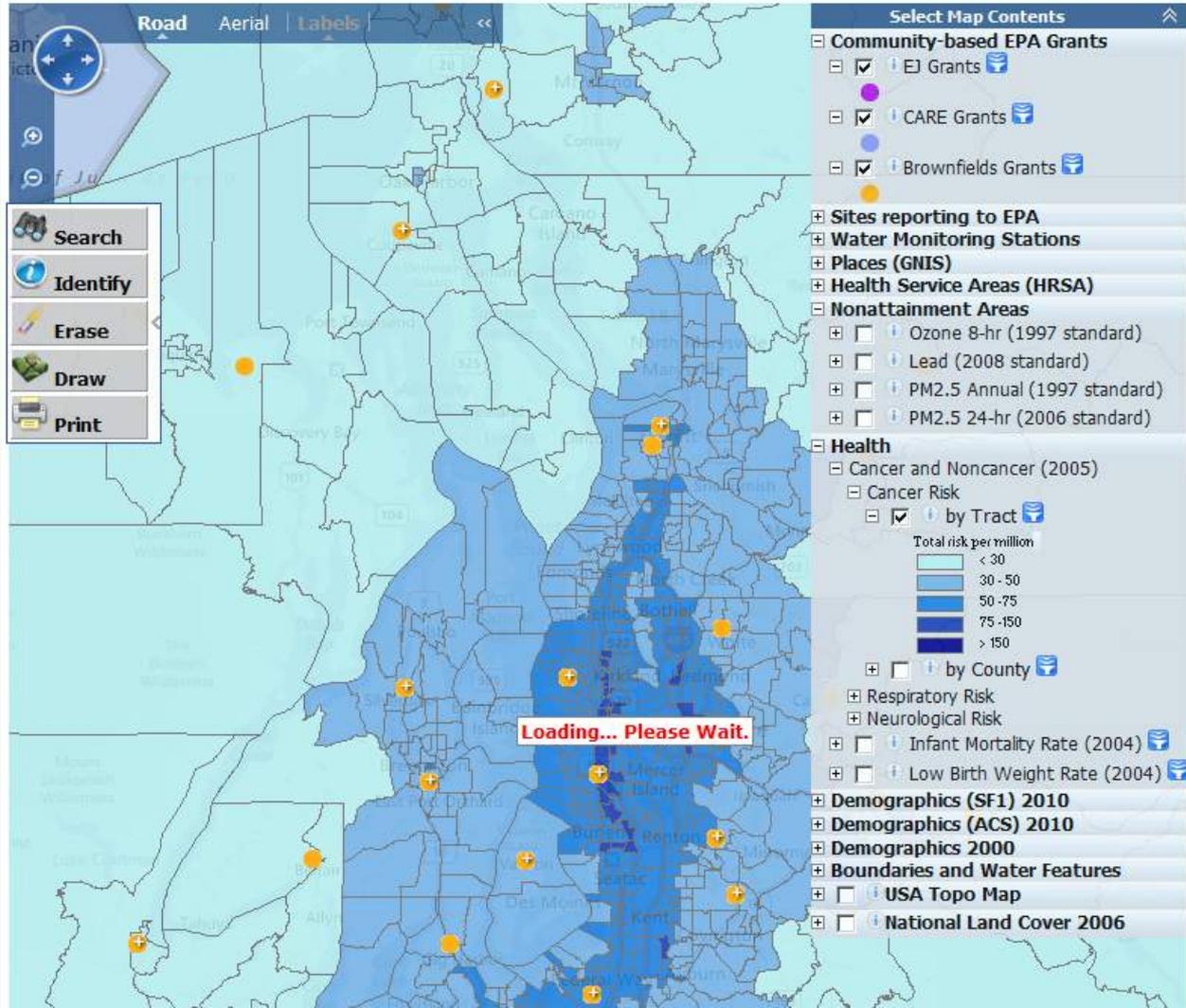
- Filtering Map Features
- Running Reports
- Viewing Map Features
- Description of Features
- Define Report Area Using the Identify Tool
- Using the Search Tool
- Printing
- About EJView

## EJView

You are here: EPA Home » Environmental Justice » EJView entry » EJView Mapper [How to use this page?](#)

U.S. ENVIRONMENTAL PROTECTION AGENCY

Share

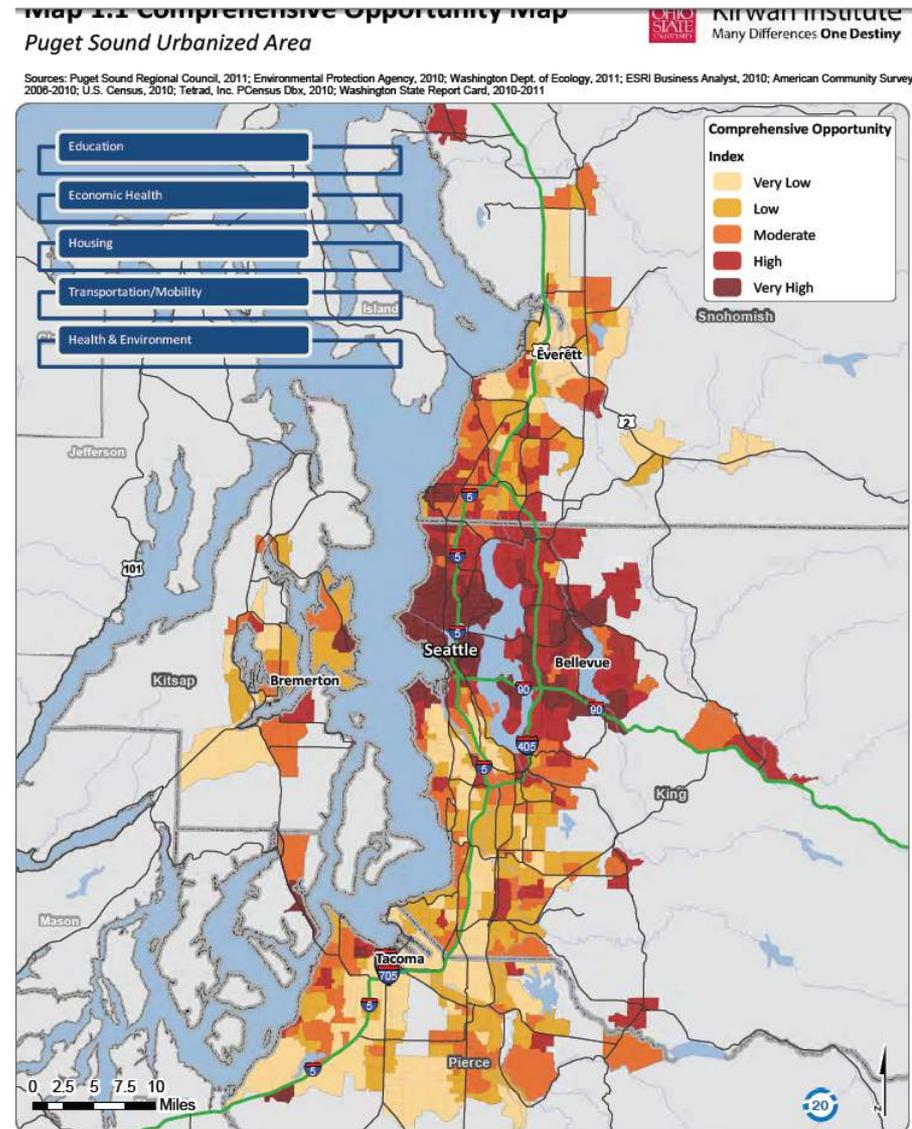


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# Puget Sound Regional Council

## ● “Opportunity Maps”

<http://www.psrc.org/assets/7831/EquOppSusReport2.pdf>



## What is the CAT?



- A way to simplify lots of demographic information into just one metric
- The CAT captures multiple potential burdens a community faces
- The CAT can be mapped to identify the communities geographically

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## Why the CAT?



- **The CAT helps us “find important problems”**
- **The Agency can use the information to look at their efforts through an EJ lens when working with communities**
  - **Examples:**
    - ▲ **Understanding the demographics and disparities in an area with a lot of odor or wood smoke complaints**
    - ▲ **Find ways to reach neighborhoods with many registered sources**
    - ▲ **Explore where to target nonattainment outreach efforts to be equitable**
    - ▲ **Could be used in developing strategies (like handling complaints)**
- **Helps answer the “who” and the “where”**

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## What data is captured by the CAT? Part I

- **From Census Data:**
  - **Percent Minority Population**
  - **Median Income**
  - **Percent of People without a High School Diploma**
  - **English Proficiency**
  - **Percent Single Female Parent**

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## What data is captured by the CAT? Part II

### The Air Quality Twist:

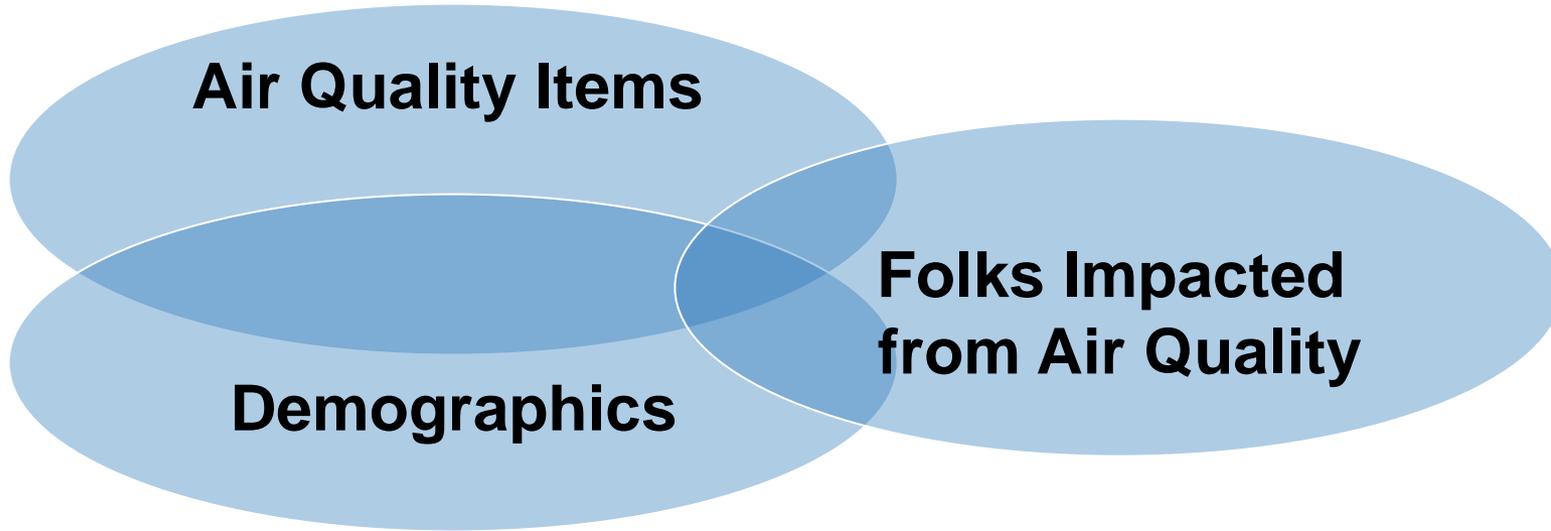
- Percent of People Under 18 Years Old
- Percent of People Over 64 Years Old
- Percent of Homes that Use Wood as their Primary Source of Heat
- Impact from Vehicles
- Number of Nearby Registered Sources
- Proximity to AOP Sources
- Health Data (asthma, cardiac, COPD)

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## How is it accumulated?

- All the census block groups are compared to others in Puget Sound
- Lumped into 4 quartiles:
  - Top quartile: 3
  - Top 25-50%ile: 2
  - 50-75%ile: 1
  - Bottom quartile: 0
- The score from each category is added up to the final CAT.
- (A high score is not a good thing)

# Big Picture Objectives



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## Desired Outcome?

- **The agency has access to this data**
- **That they use it as another tool in their strategic decision making and in pilot projects**
- **Use other specific demographic data that they may find useful**
- **Integrate into procedures?**