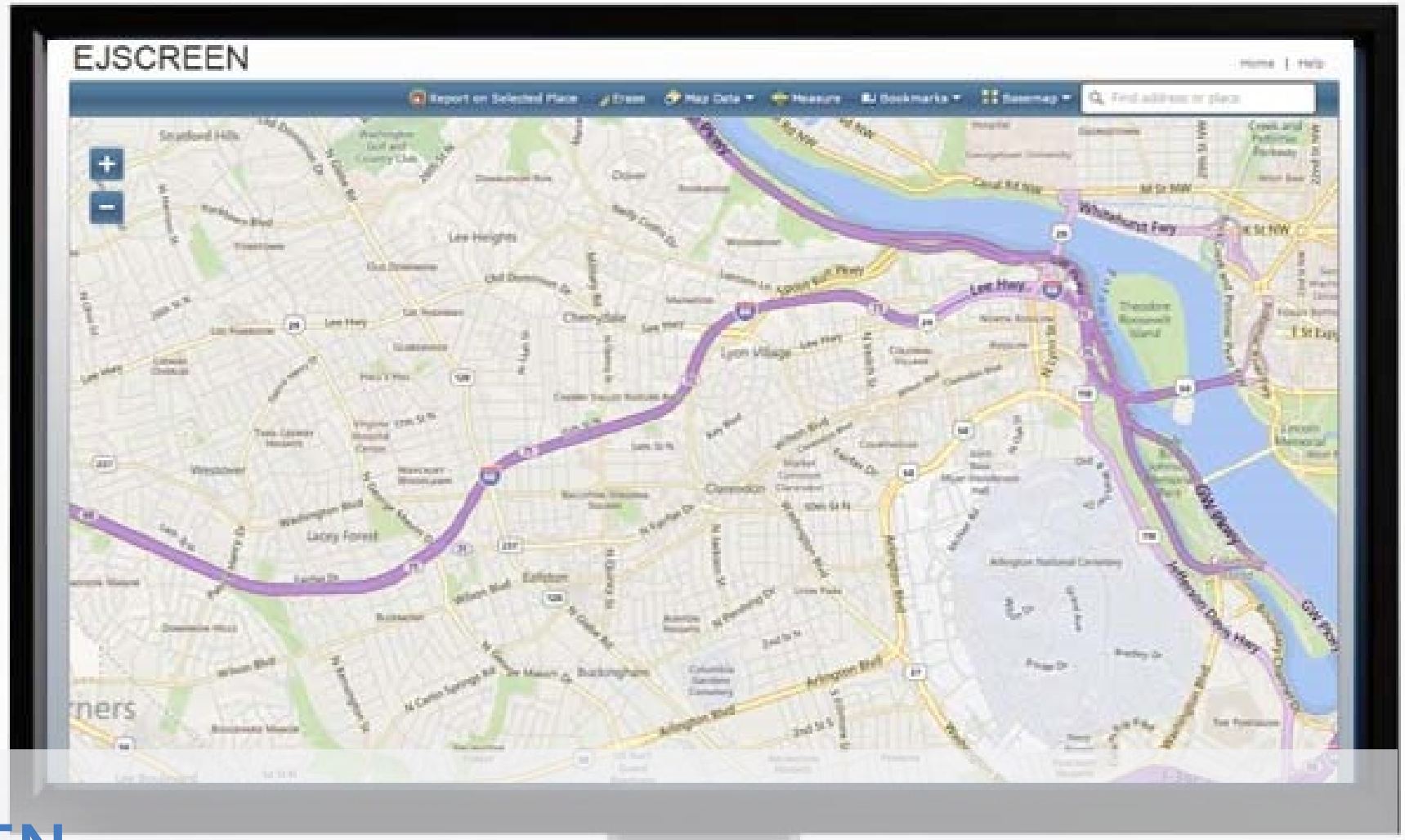


EJSCREEN
EPA's Environmental Justice Screening Tool & EPA Region 1 EJ Mapping Resources

United States Environmental Protection Agency

EPA Environmental Justice Mapping - EJSCREEN

The Region 1 Environmental Justice (EJ) team has provided the following screening tools to help inform EJ concerns throughout the region. **These tools should be considered a first step in evaluating areas that warrant further review** by identifying areas with a higher number of environmental justice concerns; **these tools should not be used to determine what is an EJ community.** You will need to evaluate additional information on a case-by-case basis to determine whether there are in fact environmental justice concerns for a particular location.

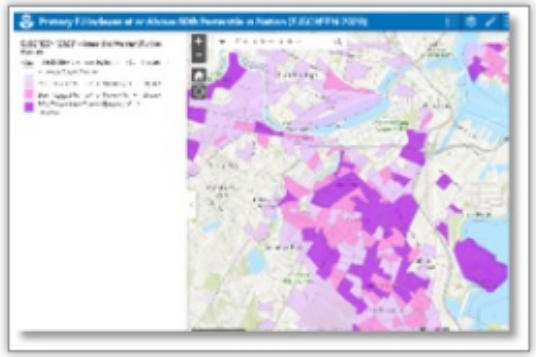
EJ Screening: Step 1

The areas that warrant further review map (using EJSCREEN 2020 data) highlights U.S. Census block groups that have at least one of the 11 EJ Indexes at or above the 80th percentile in the nation. Each EJ index is a combination of environmental and demographic information. EJ indexes highlight where the combination of three factors are elevated:

- high environmental indicator
- large number of people potentially exposed
- high % low-income and/or minority

This map shows the number of EJSCREEN EJ Indexes at or above the 80th percentile threshold. The darker purple block groups indicate areas of higher potential exposure to environmental risks.

Important caveat: Block groups that are at or above the 80th percentile threshold for the demographic index but not for any of the 11 environmental indexes, may not be flagged in this step. Therefore, we recommend a more holistic approach by proceeding to step 2, below (using EJSCREEN).



Click here to access the map
Areas that warrant further review map

Internal EPA Region 1 EJ Mapping Resources

EJ Screening: Step 2

Consult EPA's public EJSCREEN mapping tool to further explore your location of interest to gain a better understanding of potential environmental and demographic information. EJSCREEN includes:

- Interactive charts and maps for environmental indicators, demographic indicators, and EJ indexes
- Standard reports
- Additional layers & tools

Click here to access the map
EJSCREEN mapping tool

EJ Screening: Step 3

Mapping tools are helpful with preliminary screenings; but they do not always identify EJ concerns. To further investigate potential EJ concerns, or for help with accessing more local information, please contact Marcus Holmes, the Region 1 EJ Coordinator..

Additional training & documentation

Helpful EJSCREEN videos
EJSCREEN Technical Documentation

Recommended workflow

Coming soon!

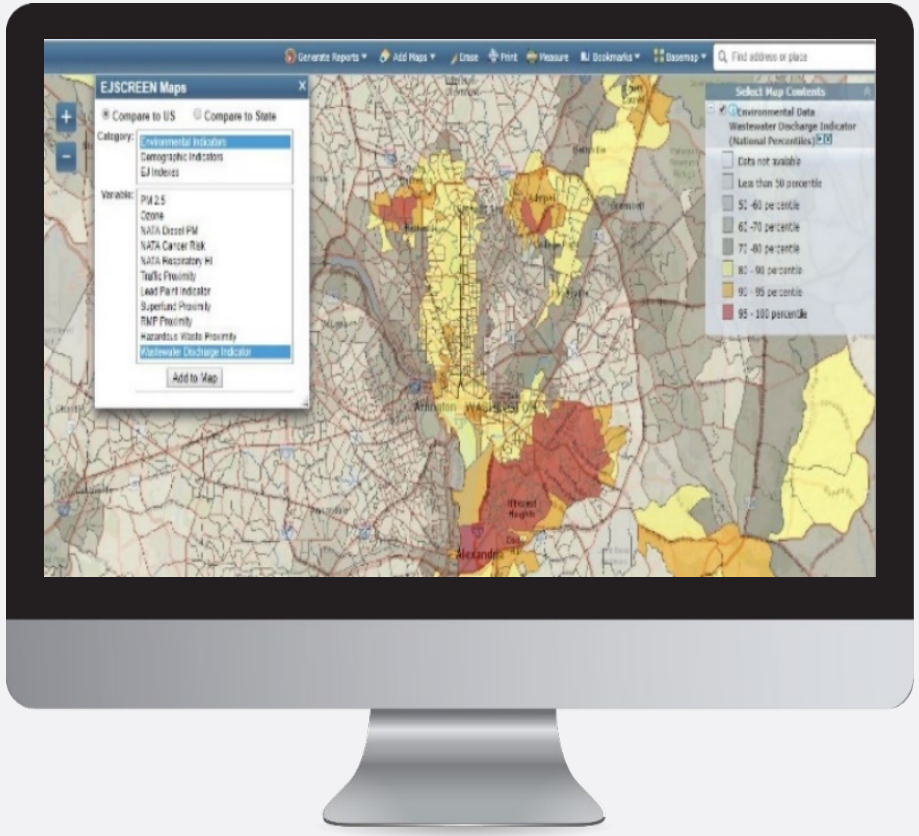
EJ Mapping-Related Questions?

Deb Cohen, ECAD EJ Team Member
Alex Dichter, MSD EJ Team Member
Marcus Holmes, EJ Coordinator
Evan Lewis, WD EJ Team Member
Adam Reilly, WD EJ Team Member

iew Presentation

What is EJSCREEN?

- EPA's web-based GIS tool for nationally consistent EJ **screening** and mapping
- Combines environmental and demographic data to highlight areas where vulnerable populations may be disproportionately impacted by pollution



Caveats & Limitations

- Environmental indicators are mostly screening-level proxies for actual exposure or risk
- Indicators vary in vintage
- EJSCREEN does not cover all environmental or EJ issues
- Census data has limitations and can obscure small communities
- Results should be verified on the ground when possible
- EJSCREEN does not identify EJ communities

UNITS OF ANALYSIS

United States

State

primary governmental divisions of the United States.

County

Largest divisions within states.

Census Tract

Collection of Census block groups, mostly between 1,200 and 8,000 people.

Block Group

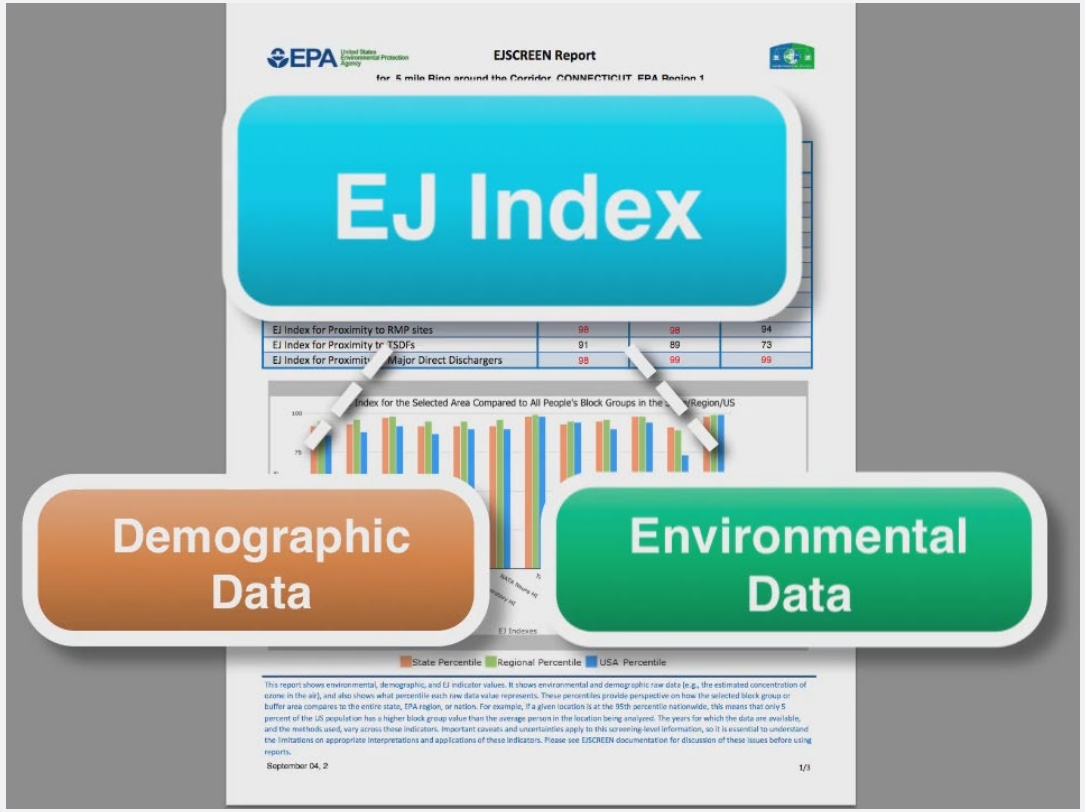
Collection of residential blocks, mostly, between 600 and 3,000 people.

Block

Residential block, bounded on all sides by streets.

Type of Data in EJSCREEN

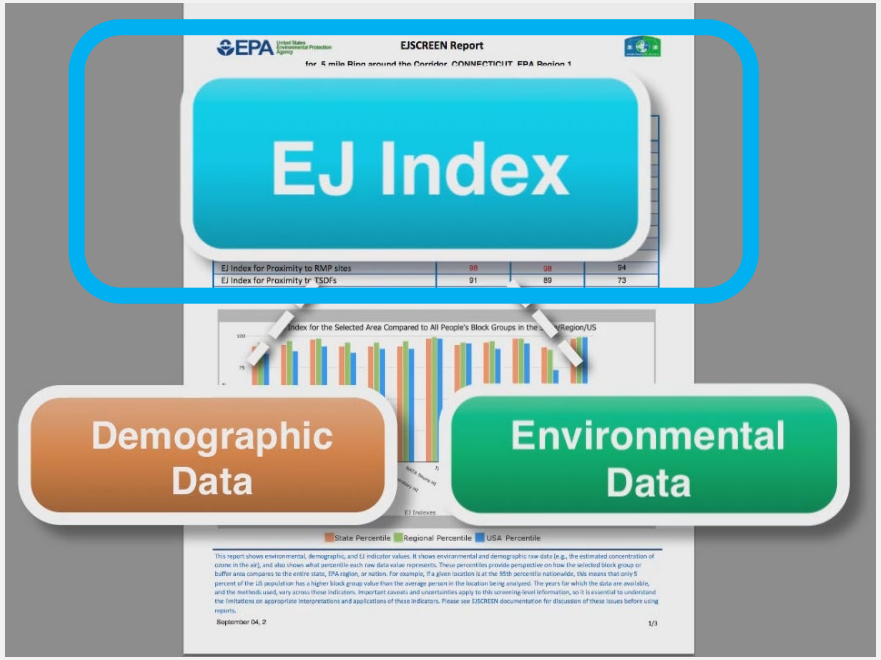
- Primary EJSCREEN Datasets
  - Demographic (7 indicators)
  - Environmental (11 indicators)
  - EJ Indexes (11 indicators)
- Additional Environmental Data
- Additional Demographic Data
- Other Data Sources



What does the EJ Index mean?

EJSCREEN calculates the EJ Index by multiplying together three items:

(The Environmental Indicator) X (Demographic Index for Block Group – Demographic Index for US) X (Population count for Block Group)



It helps identify areas that may have **higher pollution burdens** and **vulnerable populations** present

Demographic Indicators

Indicator	Definition
Low-Income	Households income is less than or equal to twice the federal "poverty level"
Minority (People of color)	Individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino
Less than high school education	People age 25 or older whose education is short of a high school diploma
Linguistic isolation	Households in which all members age 14 years speak English less than "very well" (have difficulty with English)
Individuals under age 5	People in a block group under the age of 5
Individuals over age 64	People in a block group over the age of 64
Demographic index	(Low income + minority) / 2

All demographic datasets are from the 2013 – 2017 Census ACS

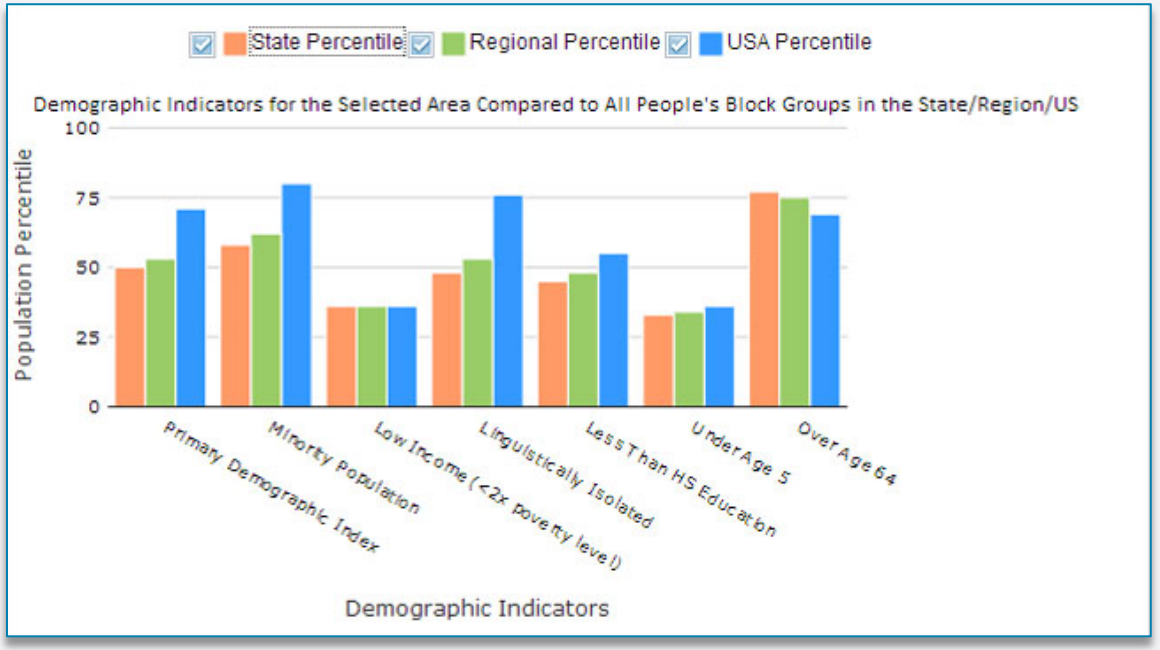
Environmental Indicators

Indicator	Description	Year
NATA air toxics cancer risk	Lifetime cancer risk from inhalation of air toxics	2014
NATA respiratory hazard index	Air toxics respiratory hazard index (ratio of exposure concentration to health-based reference concentration)	2014
NATA diesel particulate matter	Diesel particulate matter level in air	2014
Particulate matter 2.5	Annual average of PM 2.5 levels in the air	2016
Ozone	Ozone summer seasonal avg. of daily maximum	2016
Traffic proximity and volume	Count of vehicles on major roads, divided by distance in meters	2017

Environmental Indicators (continued)

Indicator	Description	Year
Lead paint indicator	Percent of housing units built pre-1960, as indicator of potential lead paint exposure	2013 - 2017
Proximity to Risk Management Plan sites	Count of RMP (potential chemical accident management plan) facilities within 5 km, each divided by distance in kilometers	2019
Proximity to Hazardous Waste Facilities	Count of hazardous waste facilities (TSDFs and LQGs) within 5 km, each divided by distance in kilometers	2019
Proximity to National Priorities List sites	Count of proposed or listed NPL - also known as Superfund - sites within 5 km, each divided by distance in kilometers	2019
Wastewater Discharge Indicator	RSEI modeled Toxic Concentrations at stream segments within 500 meters, divided by distance in kilometers	2019

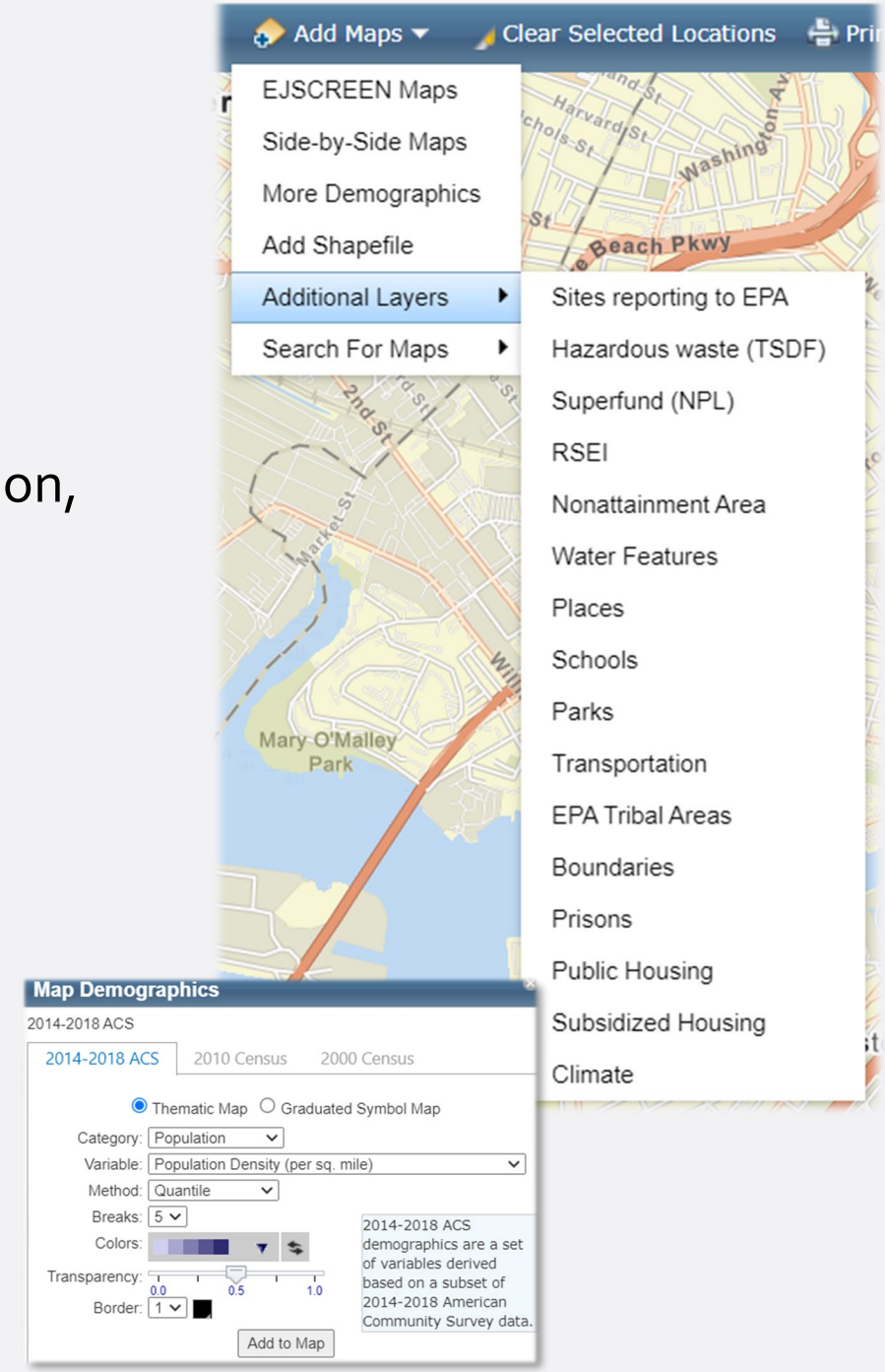
Results are Ranked as Percentiles

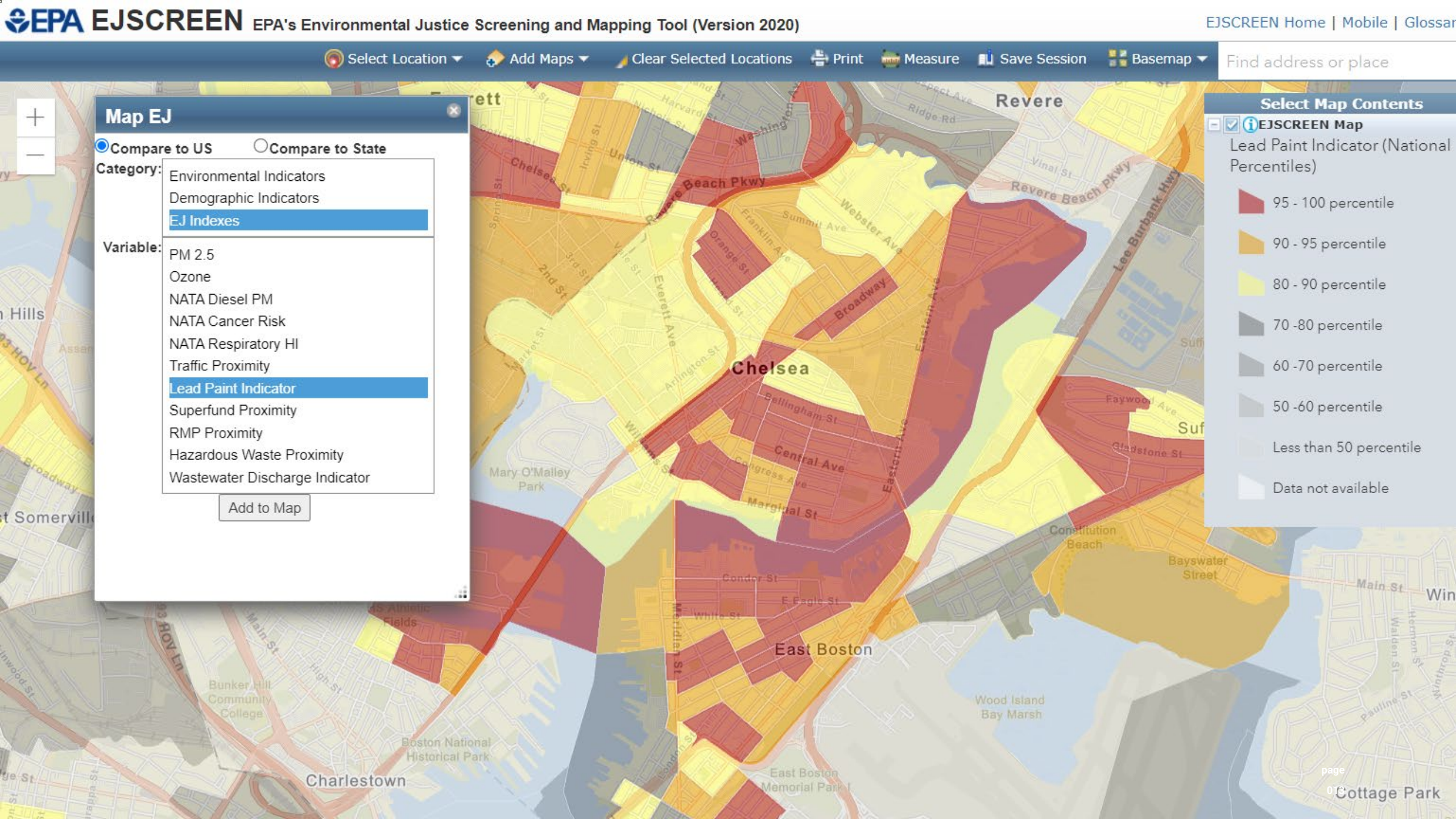


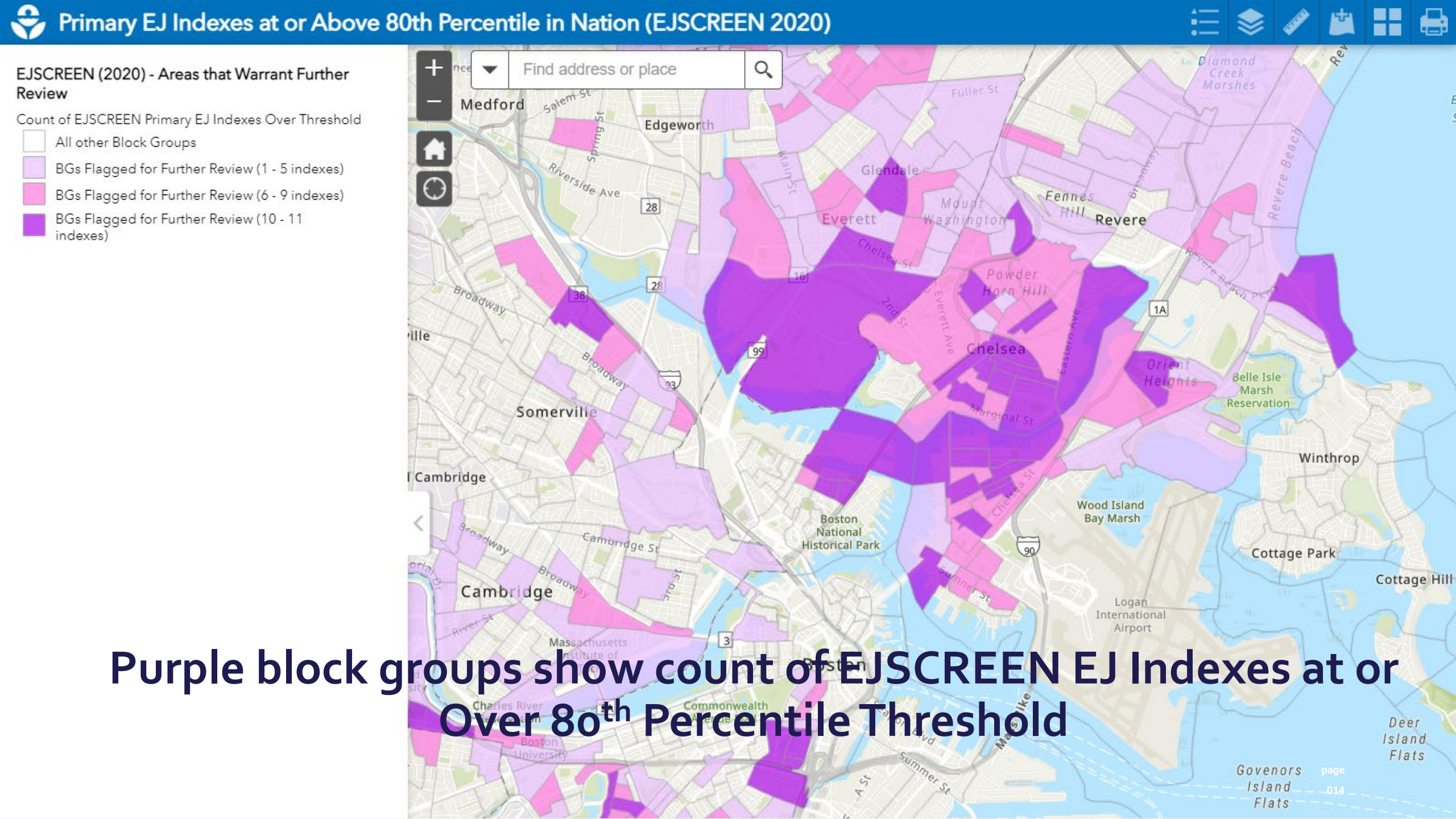
- Percentiles put indicators into common units of 0 – 100.
- A place at the 80th percentile nationwide means 20% of the US population has a higher value.
- Ranking values as percentiles allows comparison of indicators measured with different units. <u>It does not mean the risks are equal or comparable</u>.

Additional EJSCREEN Data

- **Demographics:** Access to a wealth of Census data on education, income, languages spoken, population, housing, etc.
- **EPA Sites:** Superfund, Brownfields, nonattainment areas, etc.
- **Places:** Parks, schools, churches, hospitals, airports, etc.
- **EJ Considerations:** Tribal areas, public housing, prisons, etc.
- **Outside maps:** Ability to bring in outside maps



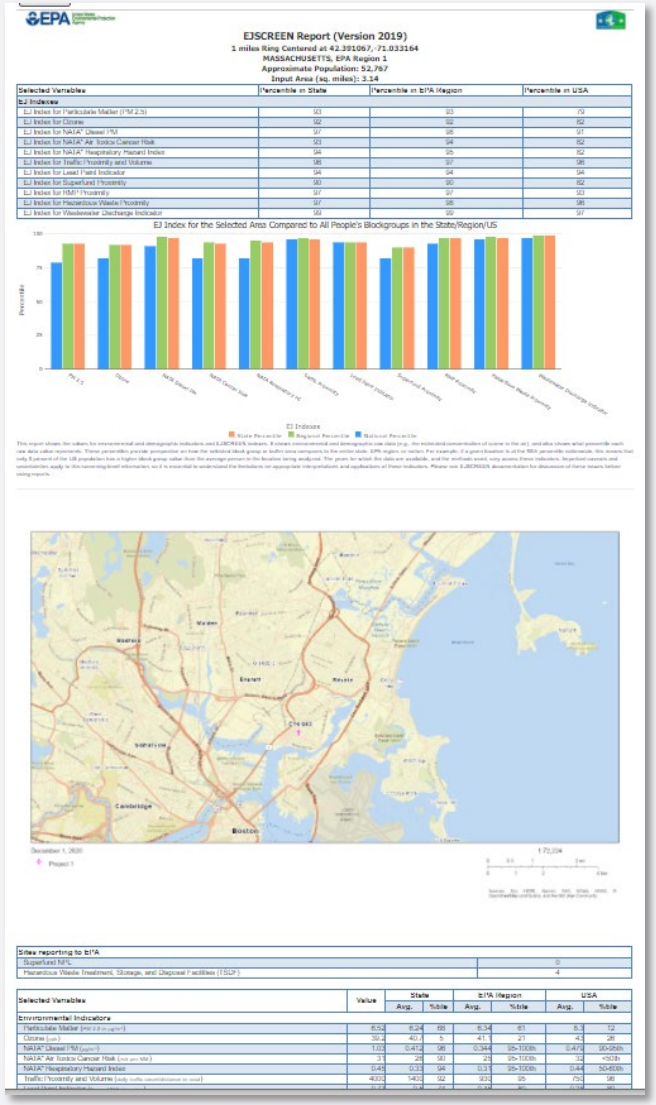

EPA EJSCREEN EPA's Environmental Justice Screening and Mapping Tool (Version 2020)
EJSCREEN Home | Mobile | Glossar
Select Location
Add Maps
Clear Selected Locations
Print
Measure
Save Session
Basemap
Find address or place
Map EJ
Compare to US
Compare to State
Category:
Environmental Indicators
Demographic Indicators
EJ Indexes
Variable:
PM 2.5
Ozone
NATA Diesel PM
NATA Cancer Risk
NATA Respiratory HI
Traffic Proximity
Lead Paint Indicator
Superfund Proximity
RMP Proximity
Hazardous Waste Proximity
Wastewater Discharge Indicator
Add to Map
Select Map Contents
EJSCREEN Map
Lead Paint Indicator (National Percentiles)
95 - 100 percentile
90 - 95 percentile
80 - 90 percentile
70 -80 percentile
60 -70 percentile
50 -60 percentile
Less than 50 percentile
Data not available
Revere
Chelsea
East Boston
Charlestown
Cottage Park
Mary O'Malley Park
Bunker Hill Community College
Boston National Historical Park
Wood Island Bay Marsh
Constitution Beach
Bayswater Street
Revere Beach Pkwy
Broadway
Central Ave
Everett Ave
Eastern Ave
Lee Burbank Hwy
Main St
Bellingham St
Marginal St
Condor St
Meridian St



Purple block groups show count of EJSCREEN EJ Indexes at or Over 80th Percentile Threshold

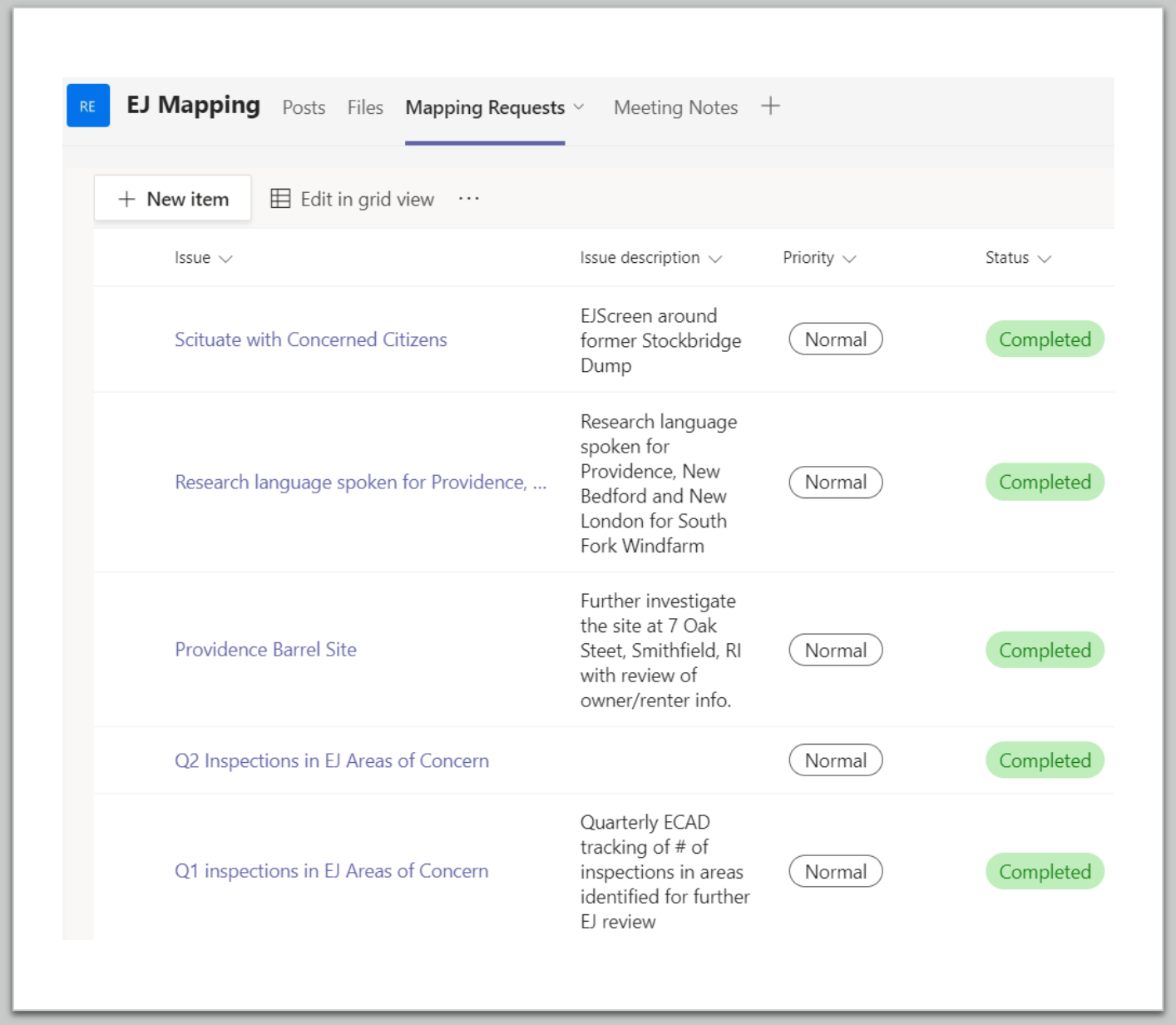
EJSCREEN Reports

- Multiple reports available in EJSCREEN
- Printable Standard Report
  - Sharable analysis of the selected location
  - Complete with maps, graphs, EJ indices, and raw values
  - Specify user-defined areas to generate standard reports
- Census Reports
  - Utilize ACS or decennial census data
  - Demographic analysis of the selected location
- Health Data
  - Available at the county level via CDC reports



EJSCREEN Uses

- Public outreach and engagement
- Enforcement targeting
- Inclusion in inspection reports
- Permitting and NEPA reviews
- Reviews of grant projects
- Placed-based initiatives
- Retrospective reporting



Future of EJSCREEN

- Continued incorporation into EPA programs and activities
- Support of partners using EJSCREEN to consider EJ
- Continued public engagement and evaluation
- Improved training and access to learning materials
- Improved usability and accessibility
- Expansion of map layers relevant to EJ communities

Expanding EJSCREEN Data

- Continuously looking for EJ relevant data to incorporate
- Criteria for inclusion of indicators
- Environmental indicators:
  - Climate change indicators
  - Drinking water, pesticides, etc.
  - Underground storage tanks
- Other indicators:
  - Health data
  - Amenities such as access to grocery stores

EJ Mapping Questions?

Please Contact the R1 EJ Mapping Team:

Deb Cohen, ECAD EJ Team Member

Alex Dichter, MSD EJ Team Member

Marcus Holmes, EJ Coordinator

Evan Lewis, WD EJ Team Member

Adam Reilly, WD EJ Team Member

EJ listserv – subscribe by sending a blank email to join-epa-ej@lists.epa.gov

EJSCREEN Office Hours: https://www.epa.gov/ejscreen/ejscreen-office-hours