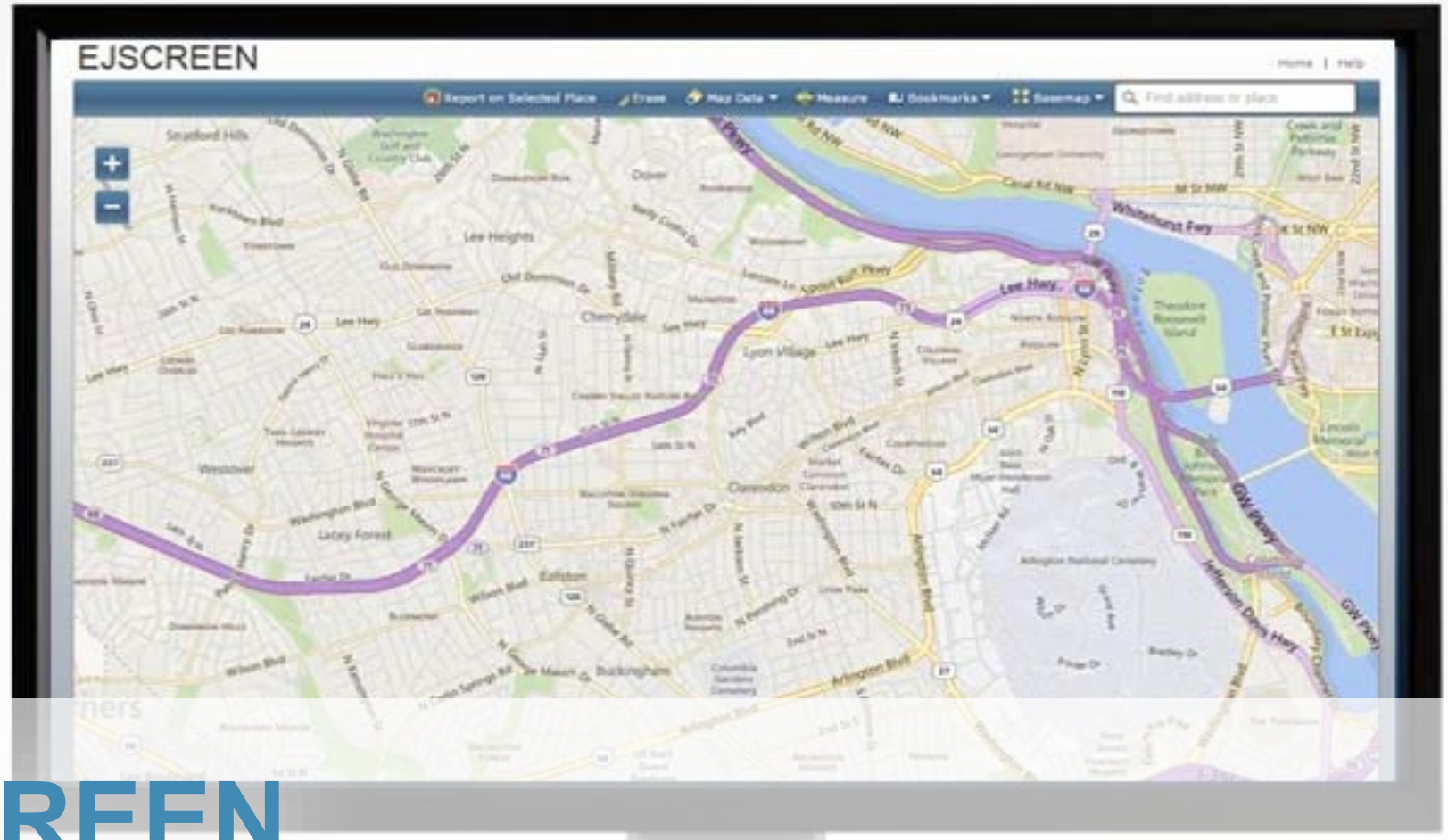
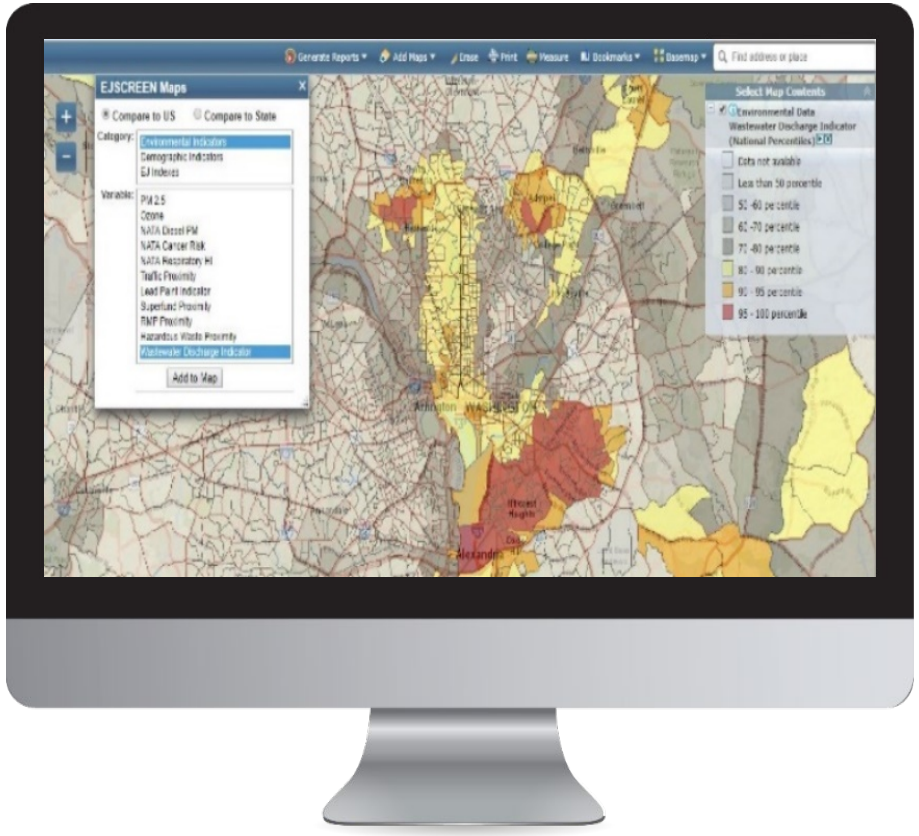


EJSCREEN
EPA's Environmental Justice Screening Tool

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

EJSCREEN does not cover all environmental or EJ issues

Environmental indicators are mostly screening-level proxies for actual exposure or risk

Indicators vary in vintage

Census data has limitations and can obscure small communities

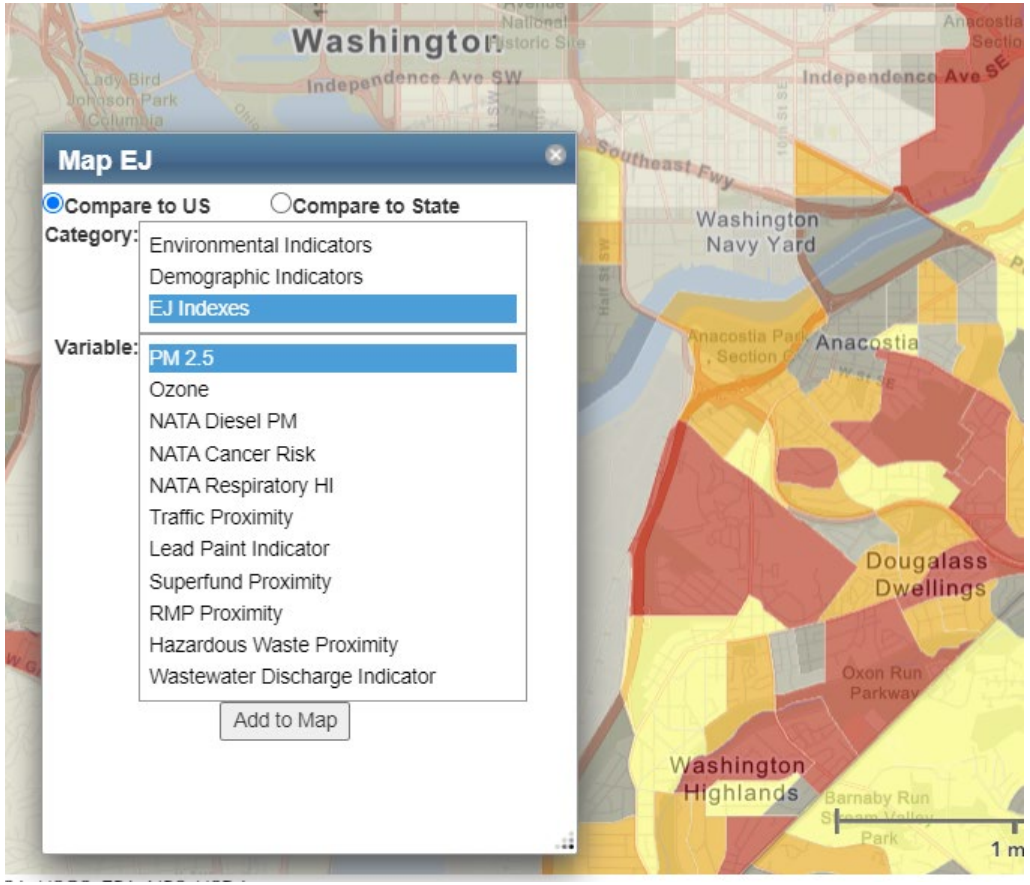
Results should be verified on the ground when possible

EJSCREEN does not identify EJ communities

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

EJSCREEN Key Features

- 11 EJ Indexes – one for each environmental indicator
- Annually updated environmental data
- Annually updated demographics – from most recent U.S. Census Bureau American Community Survey (ACS)
- Highest resolution data available
- Ability to download data
- Accessibility / ease of use



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

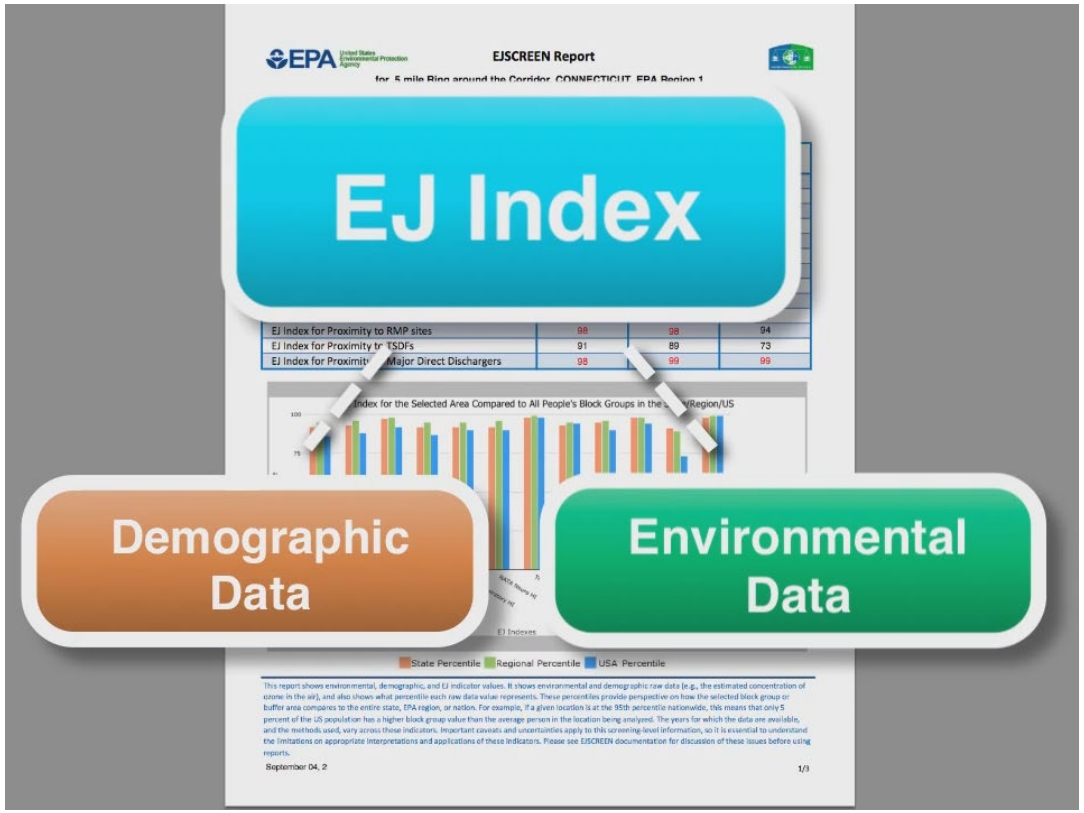
Collection of residential blocks, mostly, between 600 and 3,000 people.

Block

Residential block, bounded on all sides by streets.

Types of Data in EJSCREEN

- Primary EJSCREEN Datasets
  - Demographic (6 indicators)
  - Environmental (11 indicators)
  - EJ Indexes (11 indicators)
- Additional Environmental Data
- Additional Demographic Data
- Other Data Sources



Demographic Indicators

Indicator	Definition
Low-Income	Household's 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

*Note: All demographic datasets are from the 2013 – 2017 Census ACS

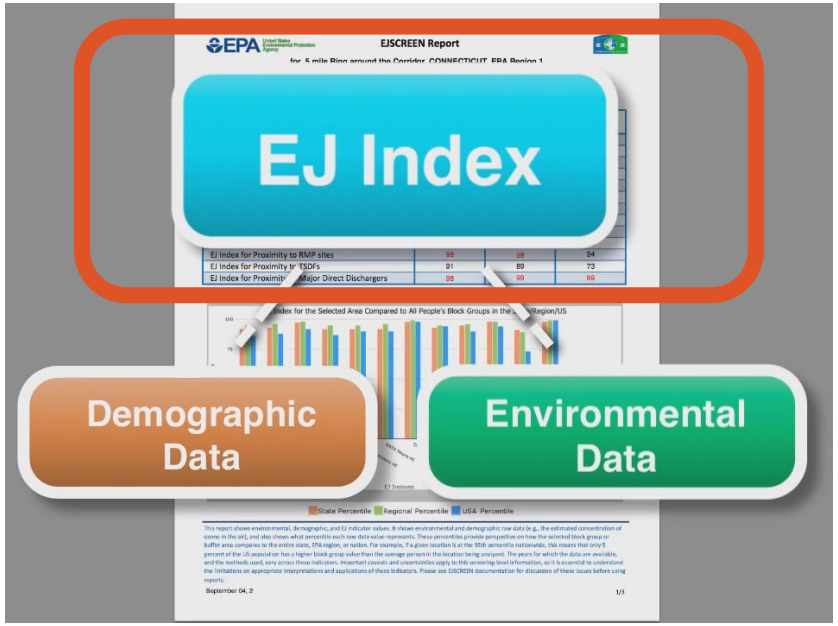
Environmental Indicators

Indicator	Description	Year
NATA 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 (cont'd)

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

What does the EJ Index mean?



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

EJ Index Calculation:

One Environmental Indicator

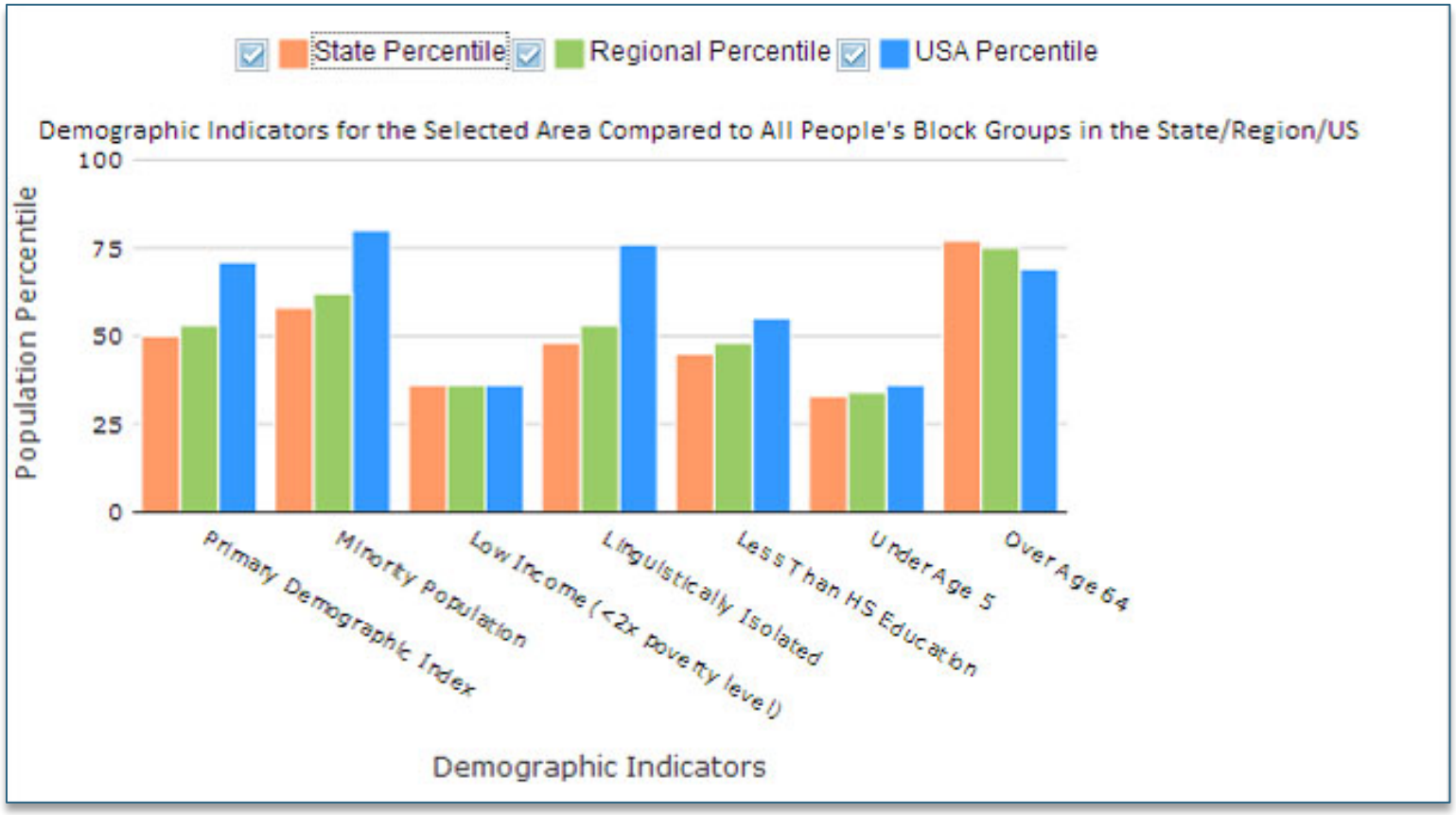
X (Demographic Index – US Average Demographic Index)

X Block Group Population

EJ Index for Given Environmental Indicator

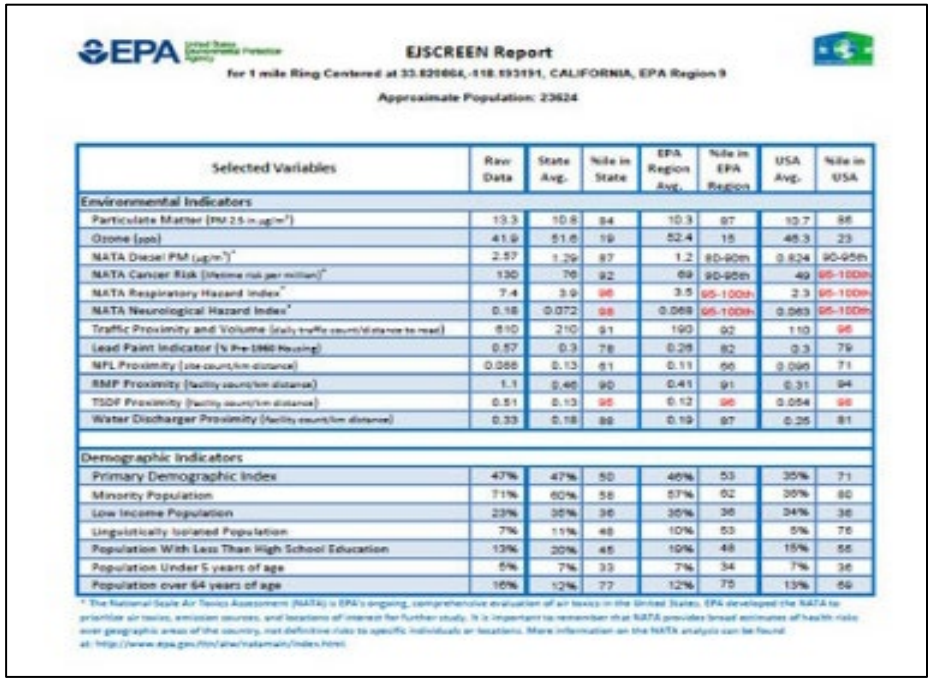
Results are Ranked as Percentiles

- 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.



Viewing EJSCREEN Data

You can view all of the indicators in EJSCREEN within reports or on maps.



EPA EJSCREEN Report

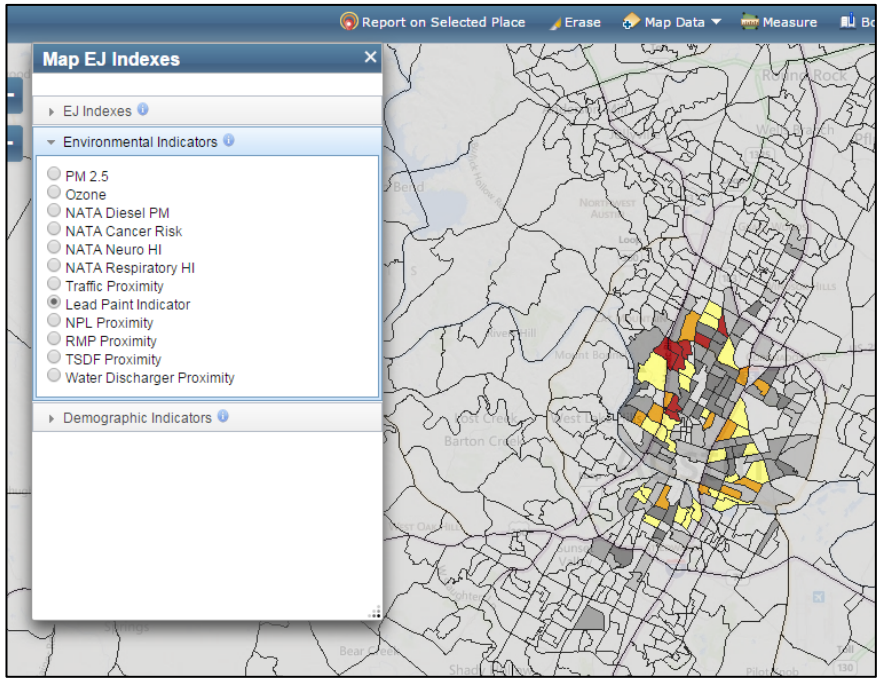
for 1 mile Ring Centered at 33.820864,-118.193191, CALIFORNIA, EPA Region 9

Approximate Population: 23624

Selected Variables	Raw Data	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	13.3	10.8	84	10.3	97	10.7	86
Ozone (ppb)	41.9	51.6	19	52.4	15	46.3	23
NATA Diesel PM (µg/m³)*	2.57	1.29	97	1.2	80-90th	0.824	90-95th
NATA Cancer Risk (lifetime risk per million)*	130	76	92	69	90-95th	49	95-100th
NATA Respiratory Hazard Index*	7.4	3.9	96	3.5	95-100th	2.3	95-100th
NATA Neurological Hazard Index*	0.18	0.072	98	0.069	95-100th	0.063	95-100th
Traffic Proximity and Volume (daily traffic count/distance to road)	610	210	91	190	92	110	96
Lead Paint Indicator (% Pre-1960 Housing)	0.57	0.3	78	0.29	82	0.3	79
NPL Proximity (site count/km distance)	0.088	0.13	61	0.11	66	0.096	71
RMP Proximity (facility count/km distance)	1.1	0.46	90	0.41	91	0.31	94
TSDF Proximity (facility count/km distance)	0.51	0.13	95	0.12	96	0.054	96
Water Discharger Proximity (facility count/km distance)	0.33	0.18	89	0.19	87	0.25	81
Demographic Indicators							
Primary Demographic Index	47%	47%	50	46%	53	35%	71
Minority Population	71%	60%	58	57%	62	38%	80
Low Income Population	23%	35%	36	35%	36	34%	36
Linguistically Isolated Population	7%	11%	48	10%	53	5%	76
Population With Less Than High School Education	13%	20%	45	19%	48	15%	55
Population Under 5 years of age	6%	7%	33	7%	34	7%	36
Population over 64 years of age	16%	12%	77	12%	75	13%	69

* The National Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http://www.epa.gov/ttn/atw/natamain/index.html.

A standard report gives you all the indicators at once for a single specified location



A map gives you one indicator at a time, for each of the block groups within a wider area (e.g. across several miles)

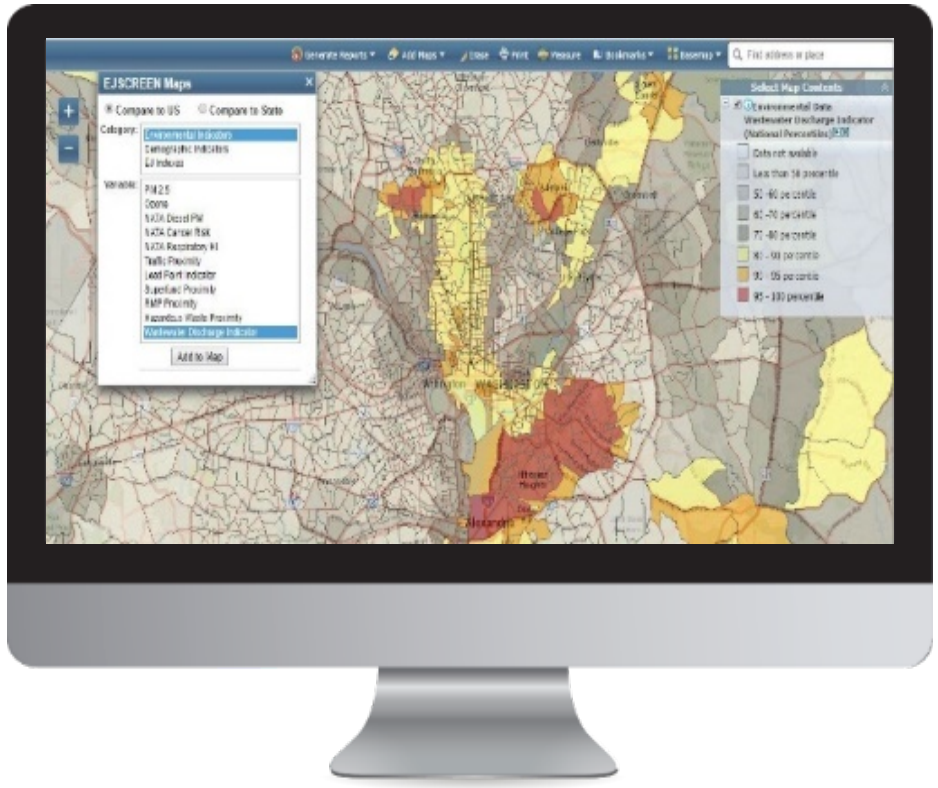
New EJSCREEN Features

- Improved data dictionary for EJSCREEN downloads
- Ability to bring in shape files
- Downloadable data at the tract level
- Improved source data on locations such as Superfund sites
- RSEI data as an available map layer
- Climate related indicators

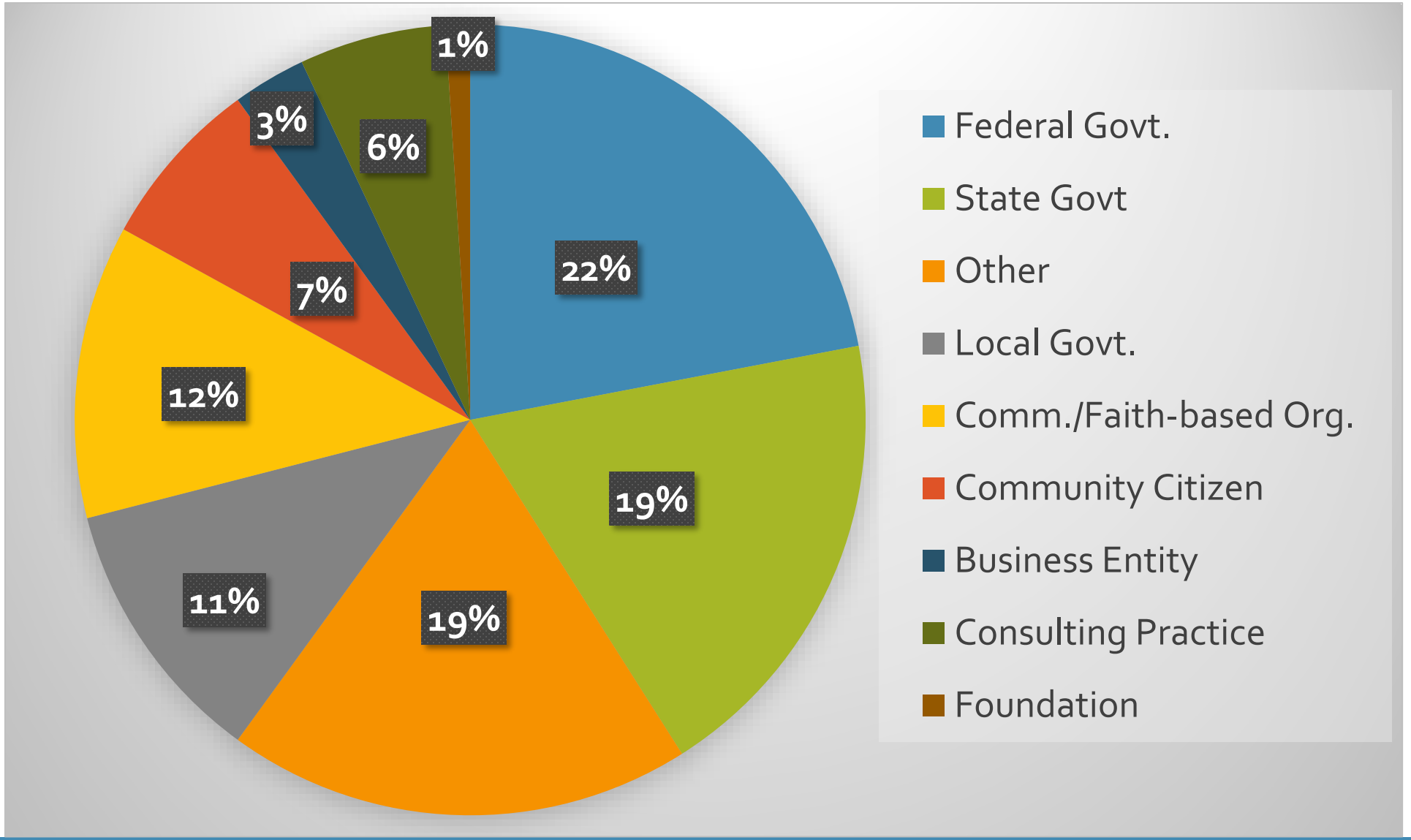
EJSCREEN in Action at EPA

EPA uses EJSCREEN in the following ways:

- for public outreach and engagement
- enforcement targeting
- inclusion in inspection reports
- permitting and NEPA reviews
- reviews of grant projects
- other placed-based initiatives
- inclusion in CCDS/ICIS
- retrospective reporting



Who is using EJSCREEN?



EJSCREEN: External Uses

- **Federal Government:**
  - DOT, ACE, FEMA, and others use in their programs
- **State Governments:**
  - Many states are building their own EJ tools based on EJSCREEN
  - This allows them to incorporate state specific information and other datasets
- **Local and Tribal Governments:**
  - Use to implement environmental programs and regulations
  - Rely on EJSCREEN data as they often don't have the resources to build their own tools

Questions?

Contact Information

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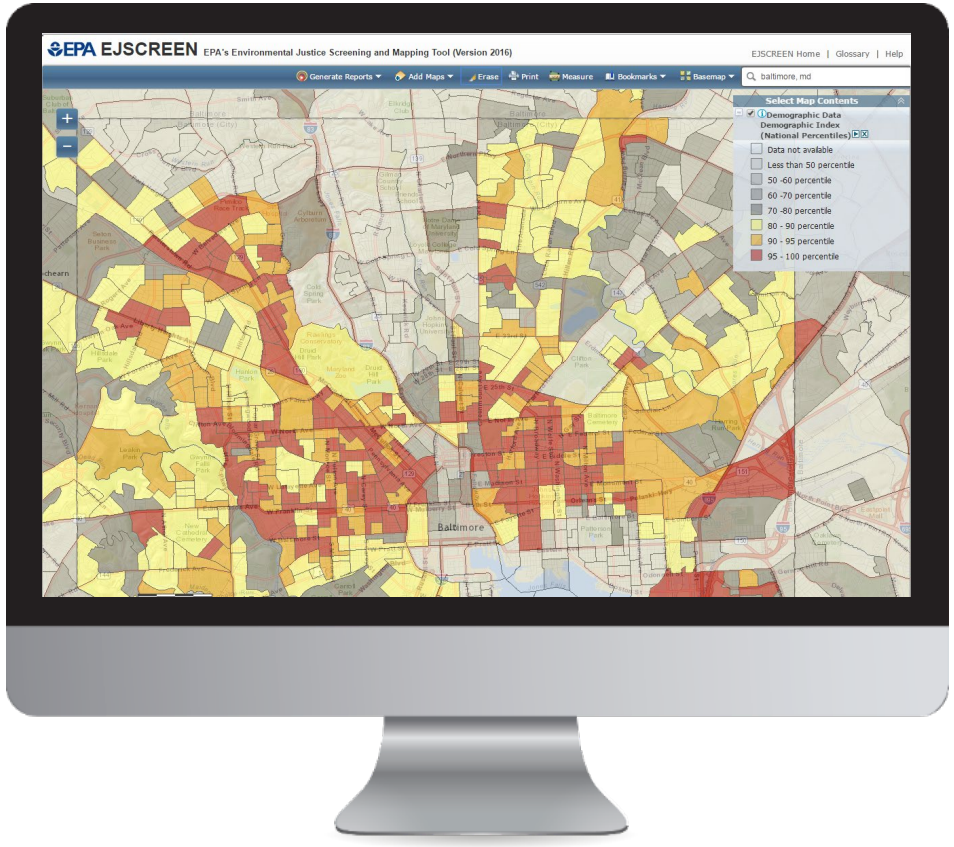
LIVE DEMO



Click to access EJSCREEN Tool