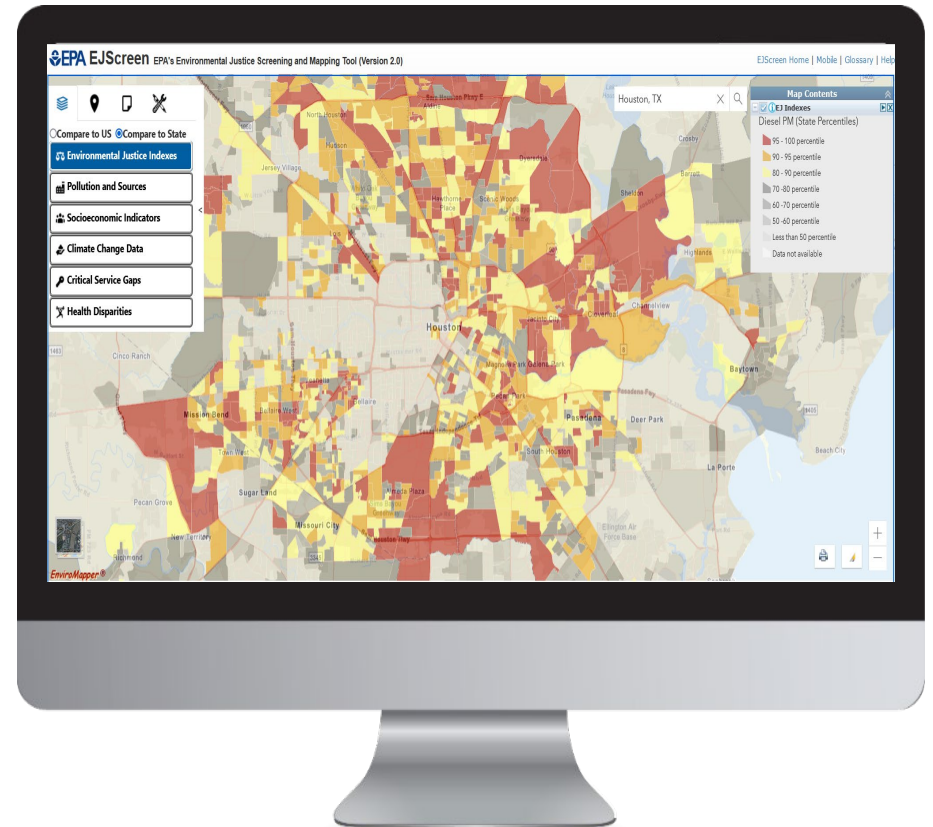


EJScreen EPA's Environmental Justice Screening Tool



What is EJScreen?

- EPA's web-based GIS tool for nationally consistent EJ screening and mapping
- Combines environmental and socioeconomic data to highlight areas where vulnerable populations may be disproportionately impacted by pollution
- Starting point for agency considerations of environmental justice



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

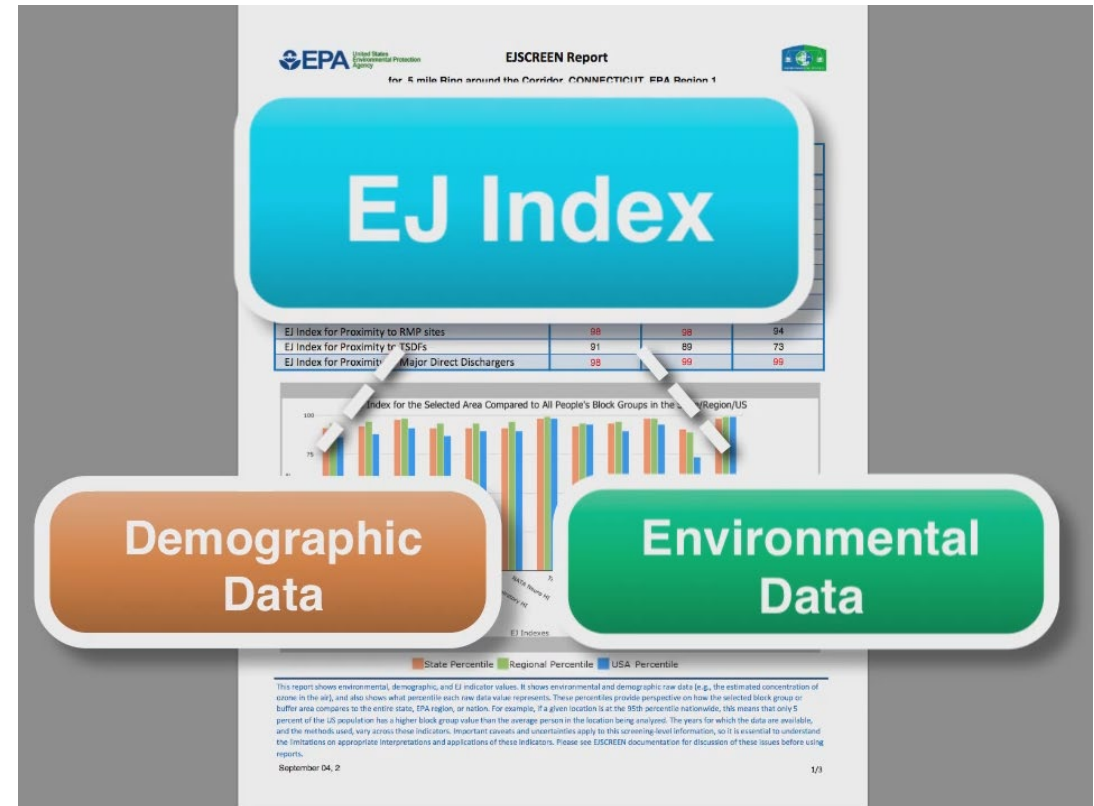
Census data has limitations and can obscure small communities

Results should be verified on the ground when possible

EJScreen is not a labeling tool; does not label “EJ communities”

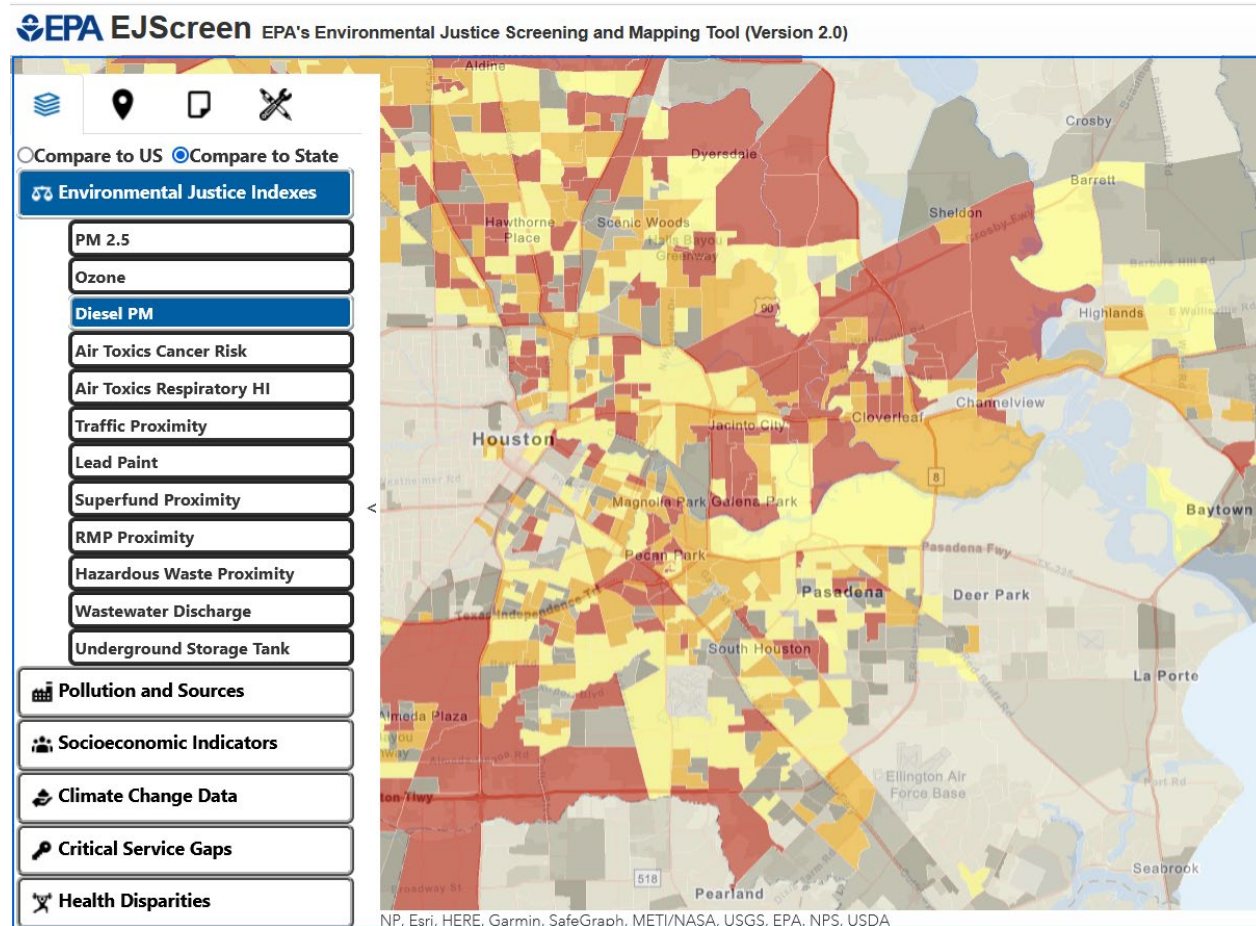
Primary EJScreen Datasets

- **EJ Indexes (12)**
- **Supplemental Indexes (12)**
- **Environmental (12 indicators)**
- **Socioeconomic (7 indicators)**
- **Health (3 indicators)**
- **Climate (6 indicators)**
- **Critical Service Gaps (3 indicators)**



EJScreen Key Features

- 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.



Environmental Indicators

Indicator	Description	Year
Particulate matter 2.5	Annual average of PM 2.5 levels in the air	2018
Ozone	Ozone summer seasonal avg. of daily maximum	2018
Diesel particulate matter	Diesel particulate matter level in air	2017
Air toxics cancer risk	Lifetime cancer risk from inhalation of air toxics	2017
Air toxics respiratory hazard index	Air toxics respiratory hazard index (ratio of exposure concentration to health-based reference concentration)	2017
Traffic proximity and volume	Count of vehicles on major roads, divided by distance in meters	2019

Environmental Indicators (cont'd)

Indicator	Description	Year
Lead paint	Percent of housing units built pre-1960, as indicator of potential lead paint exposure	2016 - 2020
Superfund proximity	Count of proposed or listed NPL - also known as Superfund - sites within 5 km, each divided by distance in kilometers	2022
Risk management plan facility proximity	Count of RMP (potential chemical accident management plan) facilities within 5 km, each divided by distance in kilometers	2022
Hazardous waste proximity	Count of hazardous waste facilities (TSDFs and LOGs) within 5 km, each divided by distance in kilometers	2022
Underground storage tanks (UST) and leaking UST (LUST)	Count of LUSTs (multiplied by a factor of 7.7) and the number of USTs within a 1,500-foot buffered block group	2021
Wastewater Discharge Indicator	RSEI modeled Toxic Concentrations at stream segments within 500 meters, divided by distance in kilometers	2019

Socioeconomic Indicators

Indicator	Definition
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
Low-Income	Households income is less than or equal to twice the federal "poverty level"
Unemployment	All those who did not have a job at all during the reporting period, made at least one specific active effort to find a job during the prior 4 weeks, and were available for work (unless temporarily ill).
Limited English Speaking	Households in which all members age 14 years speak English less than "very well" (have difficulty with English)
Less than high school education	People age 25 or older whose education is short of a high school diploma
Under age 5	People in a block group under the age of 5
Over age 64	People in a block group over the age of 64

All Socioeconomic Data comes from the **2016-2020 ACS**

Demographic Indexes

- EJScreen now features two different indexes based on socioeconomic data

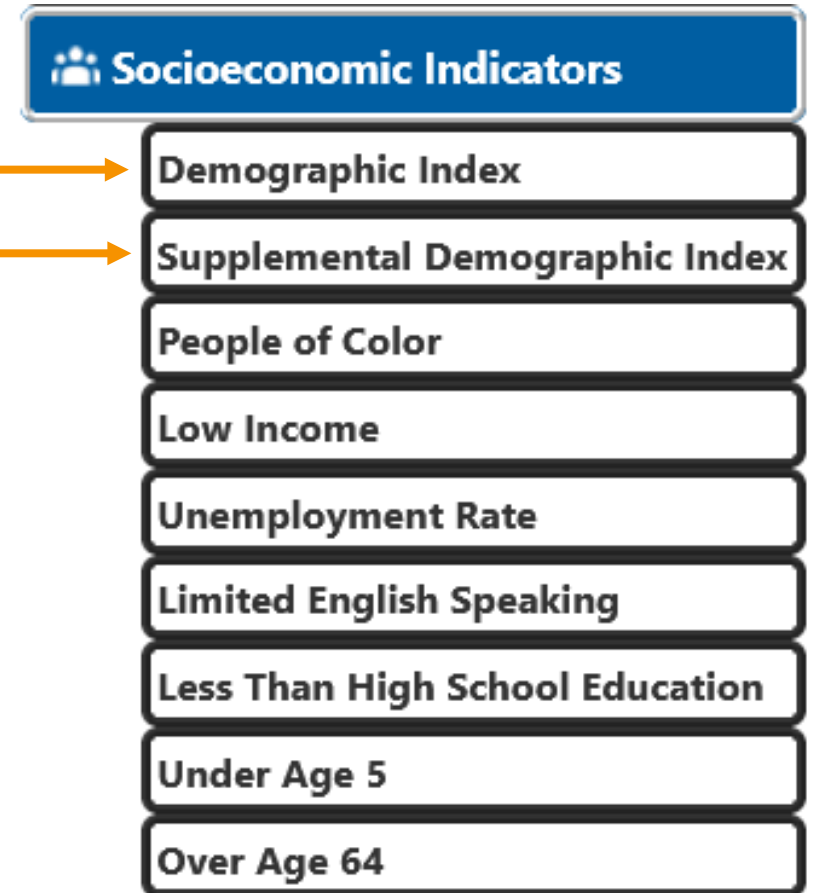
- **Demographic Index**

- % Low Income
- % People of Color

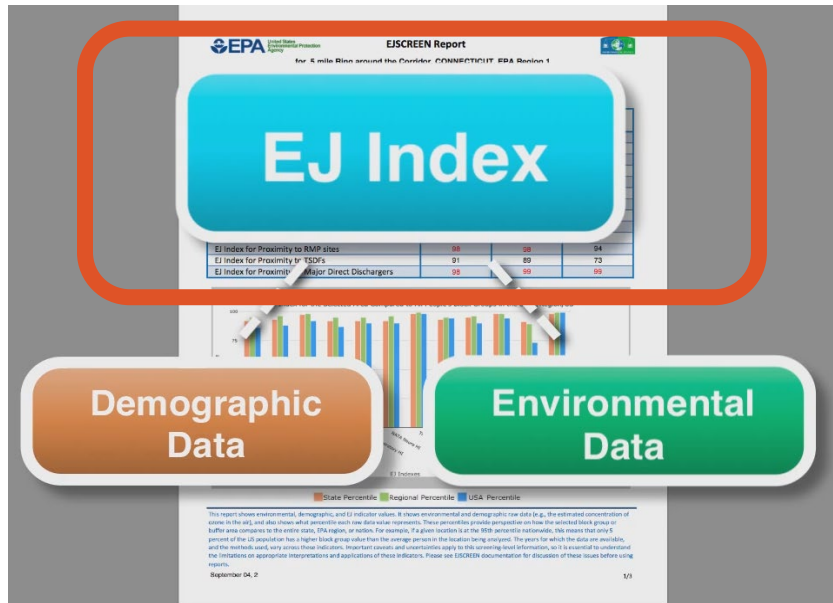
- **Supplemental Demographic Index**

- % Low Income
- % Unemployed
- % Limited English Proficiency
- % Less than High School Education
- Low Life Expectancy

- Indexes offer different perspectives on vulnerable communities



What do the indexes help identify?



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

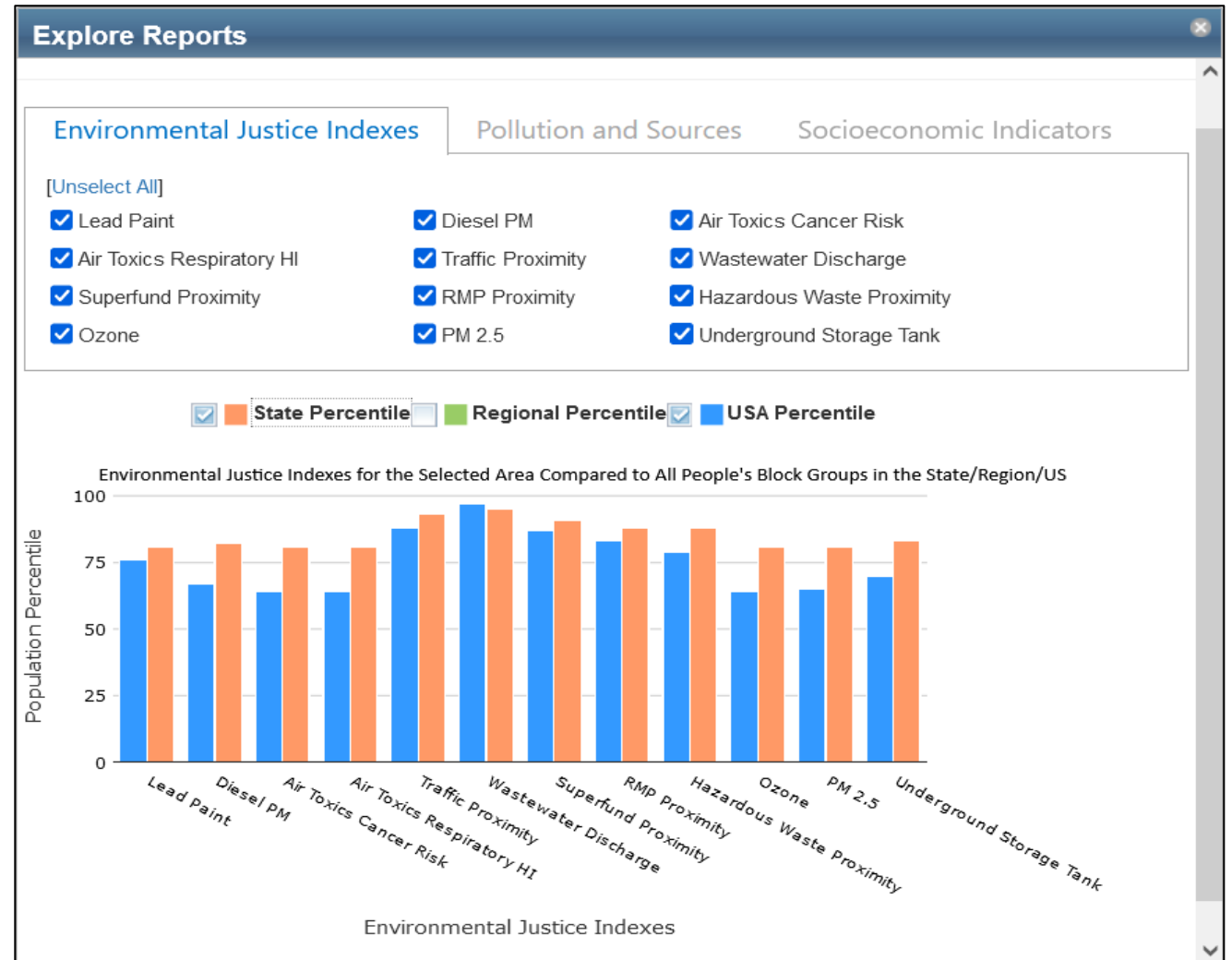
New Calculation:

$$\text{EJ Index} = \text{Environmental Indicator Percentile} \times \text{Demographic Index}$$

Applies to both EJ Indexes and Supplemental Indexes

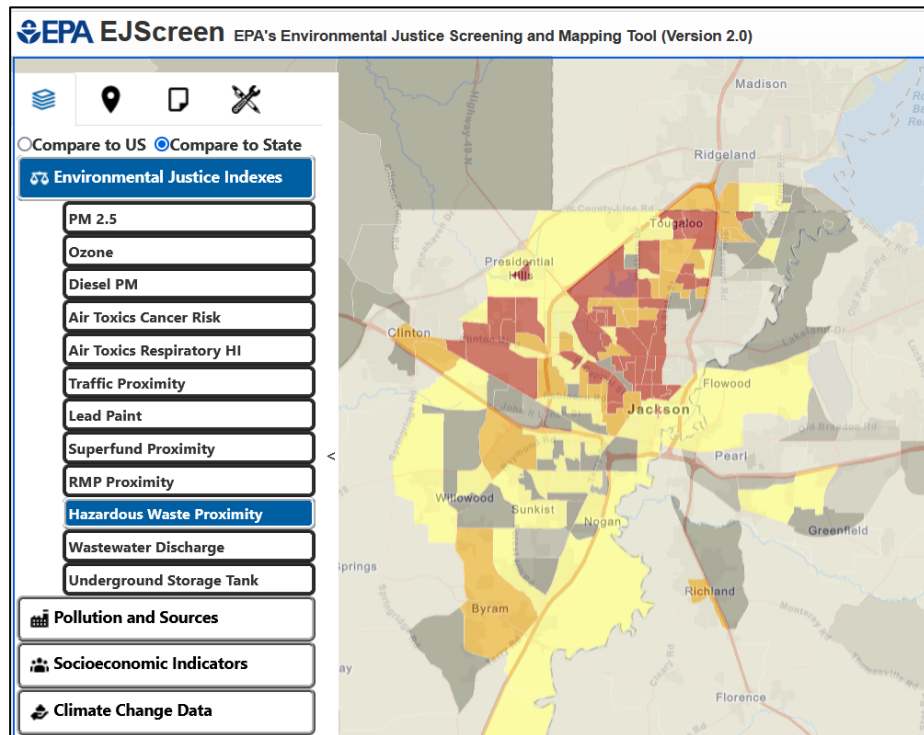
Results are Ranked as Percentiles

- 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. It does not mean the risks are equal or comparable.



Viewing EJScreen Data

You can view the data within reports or on maps.



EPA EJSCREEN Report
For 1 mile Ring Centered at 33.828864, -118.83191, CALIFORNIA, EPA Region 9
Approximate Population: 23624

Selected Variables	Raw Data	State Avg.	Site in State	EPA Region Avg.	Site in EPA Region	USA Avg.	Site in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$)	13.3	10.8	84	10.3	87	10.7	86
Ozone (ppb)	41.9	51.8	19	52.4	15	45.3	23
NATA Diesel PM ($\mu\text{g}/\text{m}^3$) [*]	2.87	1.39	87	1.2	80-90th	0.824	90-95th
NATA Cancer Risk (lifetime risk per million) [*]	130	70	92	69	90-95th	49	95-100th
NATA Respiratory Hazard Index [*]	7.4	3.9	98	3.5	95-100th	2.3	95-100th
NATA Neurological Hazard Index [*]	0.18	0.072	98	0.068	95-100th	0.063	95-100th
Traffic Proximity and Volume (daily traffic count/distance to road)	810	210	81	190	92	110	98
Lead Paint Indicator (% the 1980 housing)	0.57	0.3	78	0.28	82	0.3	79
MFL Proximity (site count/mi distance)	0.085	0.13	61	0.11	66	0.099	71
SMP Proximity (facility count/mi distance)	1.1	5.40	90	0.41	91	0.31	94
TSDP Proximity (facility count/mi distance)	0.51	0.13	98	0.12	98	0.054	99
Water Discharger Proximity (facility count/mi distance)	0.33	0.18	88	0.19	87	0.25	81
Demographic Indicators							
Primary Demographic Index	47%	47%	50	40%	53	35%	71
Minority Population	71%	60%	58	57%	62	30%	80
Low Income Population	23%	35%	36	30%	36	34%	36
Legally Isolated Population	7%	11%	48	10%	53	5%	78
Population With Less Than High School Education	13%	20%	45	10%	48	15%	55
Population Under 5 years of age	5%	7%	33	7%	34	7%	36
Population over 64 years of age	16%	12%	77	12%	75	13%	69

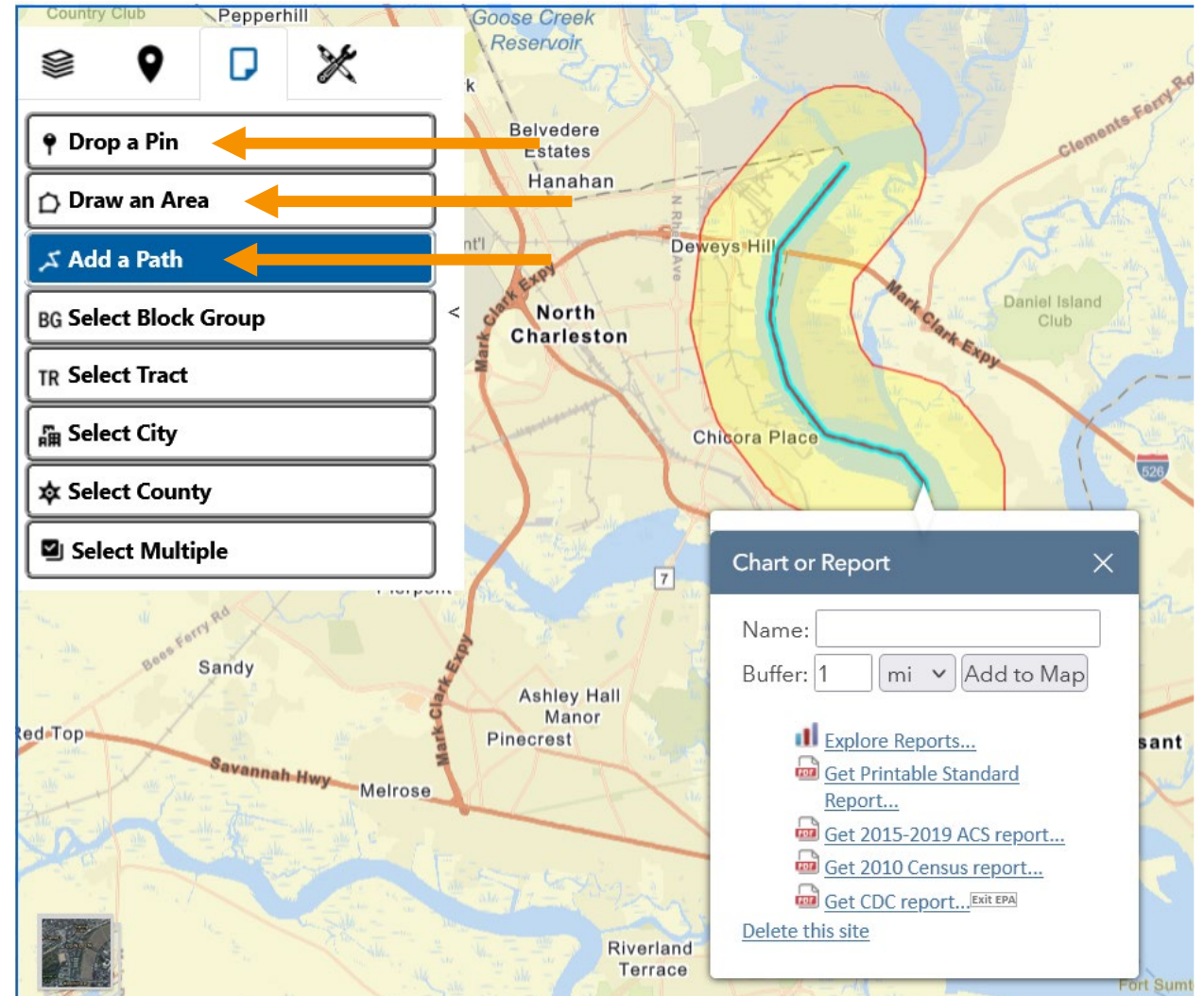
* The National Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates 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/nata/natamain/index.html>

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

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

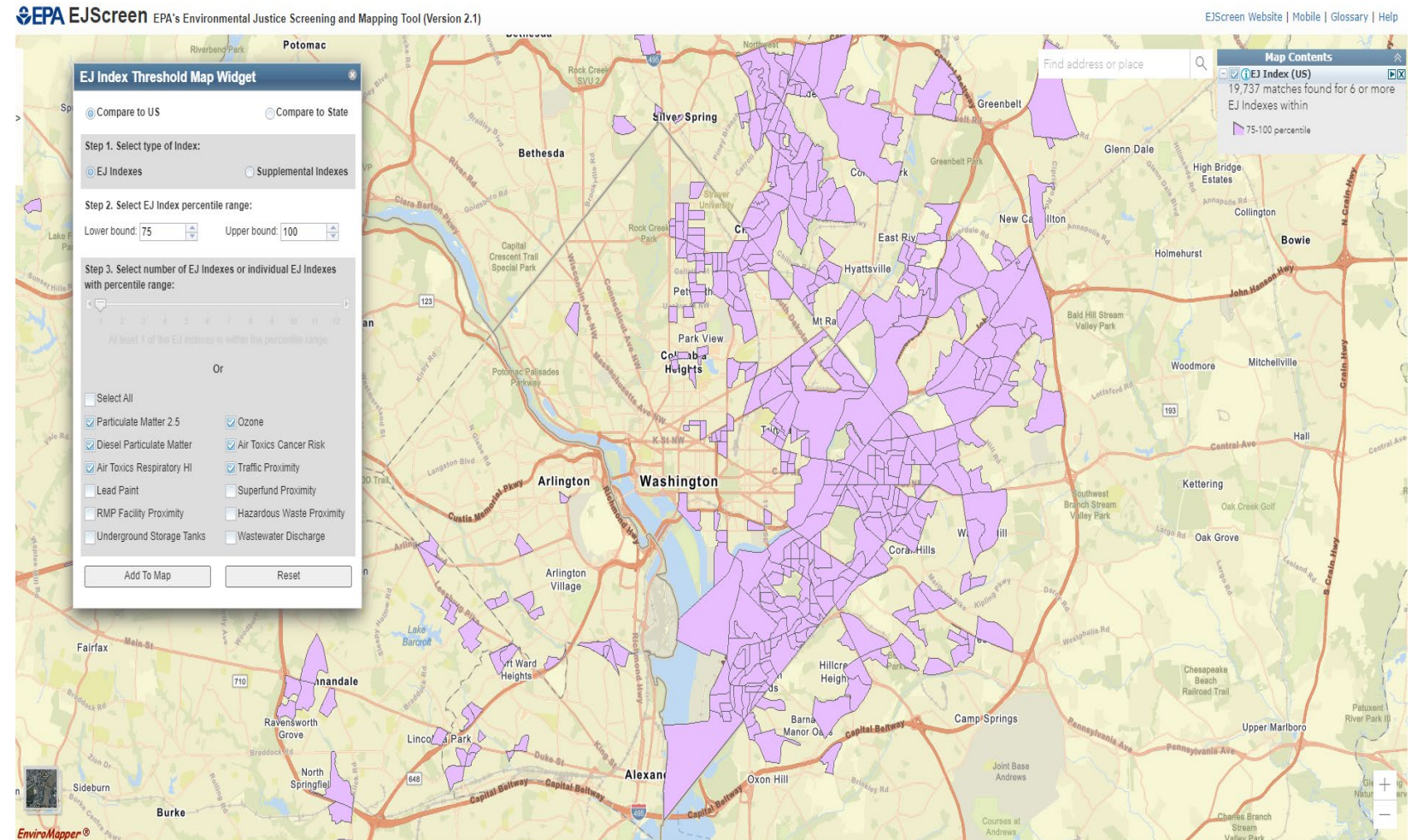
EJScreen Reports (cont'd)

- Ability for user to define area of assessment
 - Buffer around a pin
 - User-drawn areas/polygons
 - Plumes of pollution, routes of exposure
 - User-drawn paths
 - Impaired waters, highway segments



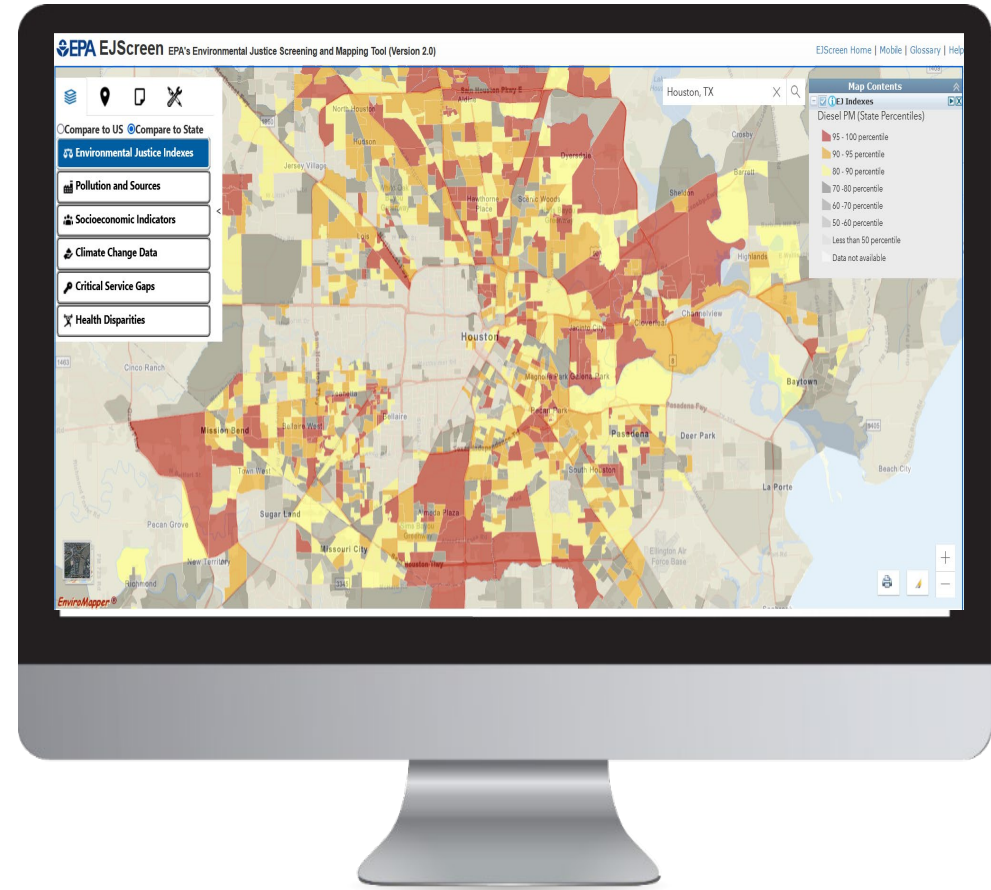
Threshold Maps

- Allows for user defined thresholds to customize how the results are displayed
- Initial step towards providing a cumulative outlook



EJScreen Resources

- [EJScreen website](#)
- [Trainings and Office Hours](#)
 - **Public Office Hours**
 - April 19th at 12 p.m. E.T.



[Click to access EJScreen Tool](#)

Questions?

Contact Information

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Office of Environmental Justice and External Civil Rights