Environmental Protection Agency

EJScreen User Guide

Version 2.2

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A. EPA EJScreen Web Application

This document provides an introduction to EJScreen and walks through how to start using the tool. The EJScreen website and *EJScreen Technical Documentation* provide many more details on the data and methods behind the tool.

EJScreen is an environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach that combines environmental and demographic indicators in maps and reports. This can help to highlight geographic areas and the extent to which they may be candidates for further review, including additional consideration, analysis, or outreach. The tool also allows users to explore locations at a detailed geographic level, across broad areas or across the entire nation.

The screening tool includes various environmental factors, demographic factors, and EJ indexes. Each EJ index combines multiple demographic factors with a single environmental factor (such as proximity to traffic). The screening tool has Census block group resolution, and provides a number of capabilities, including color-coded mapping, the ability to generate a standard report for a selected area, and comparisons showing how a selected area compares to the relevant state, EPA region, or the nation as a whole.

Users should keep in mind that screening tools have substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas, such as Census block groups. Also, in many cases, data on the full range of environmental impacts and demographic factors in any given location will not be available directly through this tool, and its initial results should be supplemented with additional information and local knowledge.

To access the application, navigate to https://www.epa.gov/ejscreen.



В. **EJScreen Web Application Home Screen**

The EJScreen Application contains a number of user interface controls as well as data display and advanced analysis tools.

To learn more about EJScreen, click the EJScreen Website link in the top right corner of the application.

EPA EJScreen EPA's Environmental Justice Screening and Mapping Tool (Version 2.2)

To access the EJScreen Mobile application, click the **Mobile** link in the top right corner of the application.

SEPA EJScreen EPA's Environmental Justice Screening and Mapping Tool (Version 2.2) EJScreen Website Mobile Glossary | Help

To access the EJScreen Glossary, click the Glossary link in the top right corner of the application.

EPA EJScreen EPA's Environmental Justice Screening and Mapping Tool (Version 2.2) EJScreen Website | Mobile Glossary Help

To access help documentation for the EJScreen Application, click the **Help** link in the top right corner of the application.

SEPA EJScreen EPA's Environmental Justice Screening and Mapping Tool (Version 2.2)

EJScreen Website | Mobile | Glossary Help



Along the left side and throughout the application, a variety of widgets are available for use. The application allows the user to perform the following:

- Maps: See EJScreen and other supplementary map data
- Places: See public space identifiers on the map
- Reports: Pick location and see report on a user-defined place or block group
- **Tools:** Access features include:
 - Measure: Measure distance, find the area of a polygon, get latitude/longitude
 - Save Session: Save locations for review
 - Additional map data
- Clear Selected Locations: Located in the Reports widget, remove any drawings from the map
- Print: Located in the Tools widget, print the map displayed on your device
- Basemap: Toggle the map between street and satellite view
- Find address or place: Locate a specific address or area

For a more detailed explanation on each widget, see sections C and D below.

C. Exploring and Navigating Maps

Several data display, basemap, and navigation tools are available.

1. Territories

Available data areas now include the US Territories of American Samoa, Guam, Commonwealth of the Northern Mariana Islands (CNMI), and the US Virgin Islands. American Samoa, CNMI, and Guam use 2021 Census Place boundaries, and the US Virgin Islands use 2021 Census Estate boundaries. The demographic source is Census 2020 Island Areas Demographic Profile data released in October 2022 for each territory.

The four territories have State percentiles data and do not have National percentiles. Therefore, the EJScreen report is not available for four territories. A banner stating this will be displayed at the top of the screen upon initial launching of EJScreen and can be closed by clicking the X.

FISCREEN EPA's Environmental Justice Screening and Mapping Tool (Version 2.2)

Flease note. Territory data (except Puerto Ricc) is not available as comparable to the US. It is only comparable to the territory itself by using the 'Compare to State' functionality. Likewise, some of the indicators may not be available for territories.

Table 1 shows availability of data for environmental variables for the territories. "Yes" indicates data is available and "No" indicates data is not available.

Table 1. Environmental Variables Availability for Territories

	American Samoa	CNMI	Guam	US Virgin Islands
Particulate Matter 2.5	No	No	No	No
Ozone	No	No	No	No
Diesel Particulate Matter	No	No	No	No
Air Toxics Cancer Risk	No	No	No	No
Air Toxics Respiratory HI	No	No	No	No
Toxic Releases to Air	Yes	Yes	Yes	Yes
Traffic Proximity	No	No	No	No
Lead Paint	Yes	Yes	Yes	Yes
Superfund	No	No	Yes	Yes
RMP Facility	No	No	Yes	Yes
Hazardous Waste	No	Yes	Yes	Yes
Underground Storage Tanks	Yes	Yes	Yes	Yes
Wastewater Discharge	No	No	No	No

Table 2 shows availability of the health and ACS information for the territories. "Yes" indicates data is available and "No" indicates data is not available.

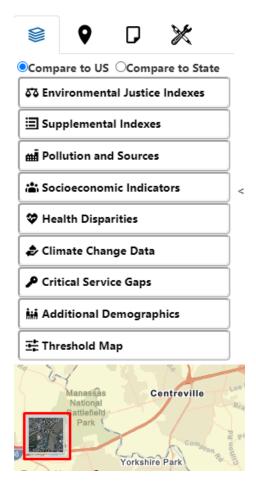
Table 2. Health and ACS Availability for Territories

	American Samoa	CNMI	Guam	US Virgin Islands
CDC Life Expectancy	No	No	No	No
CDC Heart Disease	No	No	No	No
CDC Asthma	No	No	No	No
ACS 2017-2021	No	No	No	No

Note: Puerto Rico is handled like the 50 states and DC.

2. Basemaps

Click either the street or satellite basemap option to change the display of the basemap. Streets is the default display.



3. Navigation

The Navigation zoom is visible in the bottom right corner of the application. This allows manual navigation of the map display.

3.1 Zoom In/Out

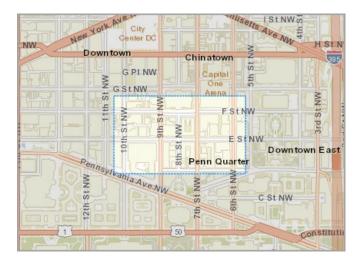
The map display can be zoomed by using the mouse wheel to zoom in/out, using the Zoom In/Out tool, or using a bounding box.

To use the **Zoom In/Out** tool to zoom in and out of the map display:



- 1. Click the plus sign to zoom in to the map display.
- 2. Click the minus sign to zoom out of the map display.

To use a bounding box to zoom in on the map display:



- 1. Hold the Shift key with one hand.
- 2. Hold the left mouse button and drag a rectangle to the area of interest.
- 3. Release the mouse button to zoom to selected area.

3.2 Pan

The pan tool is used to scroll the map in the direction and by the amount you choose.

- 1. Click and hold on any location in the map display.
- 2. Drag the mouse, and the map will move in the corresponding direction.

D. Using EJScreen Common Functions and Widgets for Analysis

1. Find an Address or Place Widget

The **Find an Address** widget allows the user to find a location of interest via an address or by coordinates.

1.1 Find an Address

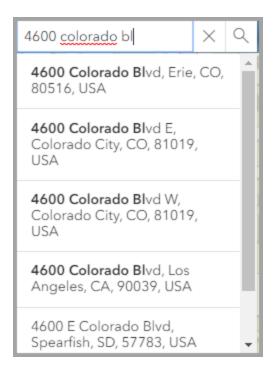
In the **Find address or place** text box, enter an address or location to search for that location. This can be a street address, a town, a ZIP Code, or other location.



The application will list possible matches for the input. Click the **search icon**, press the Enter key on the keyboard to go to the first location in the list, or click an entry from the list.

If no matches are found for the input location, the map will remain unchanged.

1. Enter a location (for example: street address, town, ZIP Code, or other location) in the **Find address or place** text box.



2. Click the **search icon**.

The map display will zoom to that location if found.

1.2 Coordinates

Searching by **Coordinates** allows the user to input longitude and latitude coordinates and zoom to that point.

1. Enter values for **Latitude** and **Longitude** (in that order) in the **Find address or place** text box.



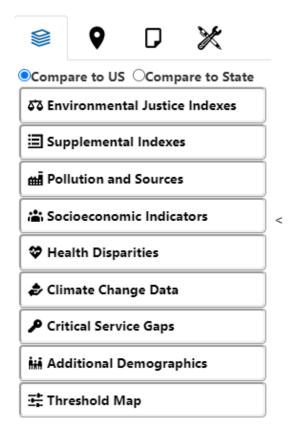
- 2. Click the **search icon**.
- 3. The map display will zoom to that location if found.

2. Maps Widget

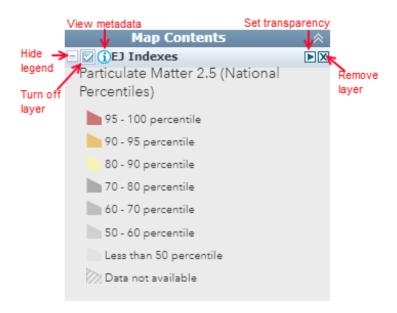
The **Maps** widget is intended to allow users to add EJScreen and other supplementary map data along with web maps from ArcGIS Online or EPA GeoPlatform Online.

Web map layers are displayed on top of the existing map data and can be toggled on and off and controlled just like any other layer.

- 1. Locate the **Maps** icon at the top left of the application.
- 2. Click the Maps icon to display the map options.

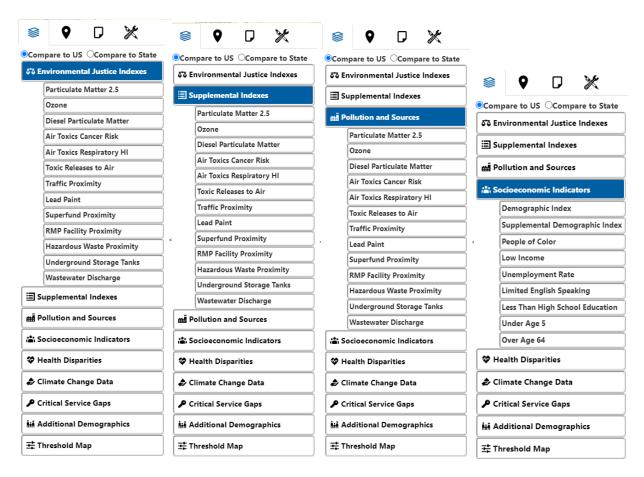


 When map layers are added to the map, the layer legend will be added under the Map Contents menu on the right-hand side of the map. Layer options are available in the Map Contents window.

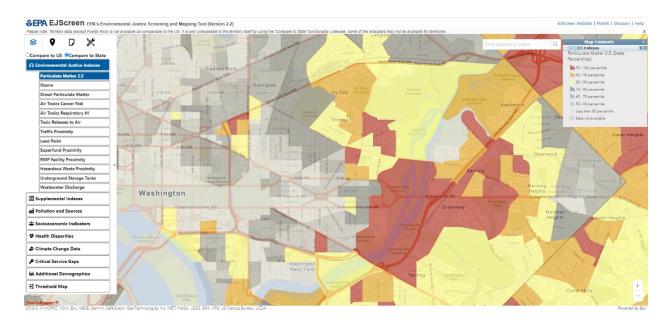


2.1 EJScreen Maps

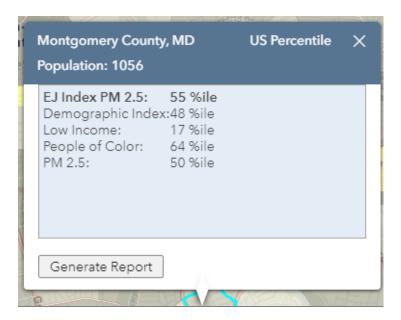
The **Maps** option allows users to display the EJ Indexes, as well as the environmental indicators, and demographic indicators which comprise the EJ Indexes as color-coded (thematic) maps. The data available for each of the layer groups are shown below:



- 1. When the **Maps** tool is opened, Compare to US is selected as the default. To change the selections, click the Compare to State radio button if desired, select a Category, then select a Variable from the menu.
- 2. This will add a map layer that will display the selected variable based on national or state percentile groups as indicated in the **legend** added under Map Contents to the right hand side of the map.



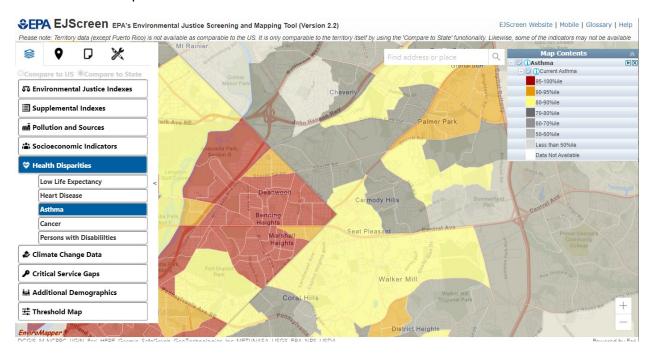
3. Clicking on a block group when any of the **Map EJ Indexes** layers are activated will show a pop-up window that includes the location's county, state, population count, indicator values, demographic index, low income, people of color, and national or state percentile. Clicking the Generate Report button will open the Chart or Report pop-up.



2.2 Health Disparities

This map service contains locational data for the following Health Disparities: Low Life Expectancy, Heart Disease, Asthma, Cancer, and Persons with Disabilities.

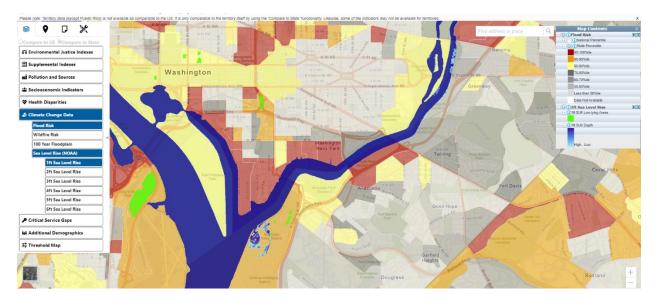
- 1. Click the Maps icon in the Widget toolbar.
- 2. Click the **Health Disparities** icon to display a dropdown list.
- 3. Click one of the following: Low Life Expectancy, Heart Disease, Asthma, Cancer, and Persons with Disabilities.
- 4. Selected Health Disparity will be added to the Map Contents menu and as a layer to the map.



2.3 Climate Change Data

This map service contains locational data for Climate Change Data: Flood Risk, Wildfire Risk, 100 Year Floodplain, and Sea Level Rise (NOAA).

- 1. Click the **Maps** icon in the Widget toolbar.
- 2. Click the Climate Change Data icon to display a dropdown list.
- 3. Click one or more of the following: Flood Risk, Wildfire Risk, 100 Year Floodplain, and Sea Level Rise (NOAA).
- 4. Selected Climate Change Data will be added to the Map Contents menu.
- 5. Checked boxes are added as layers to the map.



2.4 Critical Service Gaps

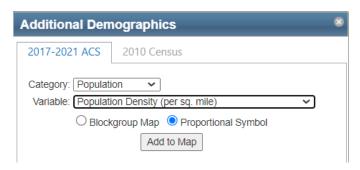
This map service contains locational data for Critical Service Gaps: Broadband Gaps, Lack of Health Insurance, Housing Burden, Transportation Access, and Food Desert.

- 1. Click the **Maps** icon in the Widget toolbar.
- 2. Click the Critical Services Gaps icon to display a dropdown list.
- 3. Click one or more of the following: **Broadband Gaps, Lack of Health Insurance, Housing Burden, Transportation Access, and Food Desert.**
- 4. Selected Critical Service Gaps will be added to the Map Contents menu.
- 5. Checked boxes are added as layers to the map.



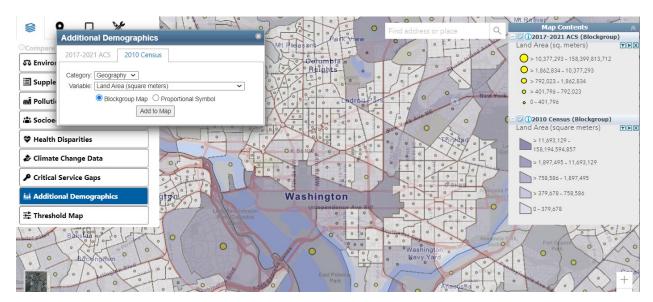
2.5 Additional Demographics

Located in the **Maps** widget, the **Additional Demographics** option allows users to display supplementary demographic information from the Census Bureau in the map.



Demographic data is available for 2017-2021 ACS and 2010 Census. Categories and variables depend on the data set.

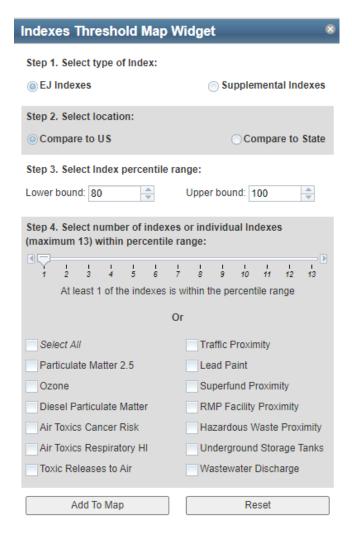
- 1. Click the **Maps** icon in the Widget toolbar.
- 2. Click the Additional Demographics icon.
- 3. In the Additional Demographics pop-up, click the tab for the dataset.
- 4. Choose Category from the dropdown menu.
- 5. Select Variable from the dropdown menu.
- 6. Choose either Blockgroup Map or Proportional Symbol.
- 7. Click the Add to Map button to add the layer to the map and to the Map Contents menu and legend.



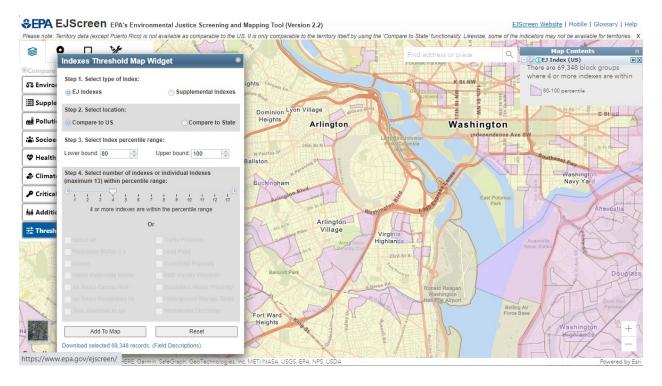
2.6 Threshold Map

The Threshold Map allows users to display EJ or Supplemental indexes compared to US or state within a percentile range.

- 1. Click the **Maps** icon in the Widget toolbar.
- 2. Click the Threshold Map icon.
- 3. In the Indexes Threshold Map Widget, select type, location, percentile range, and number of indexes or individual indexes within the percentile range.

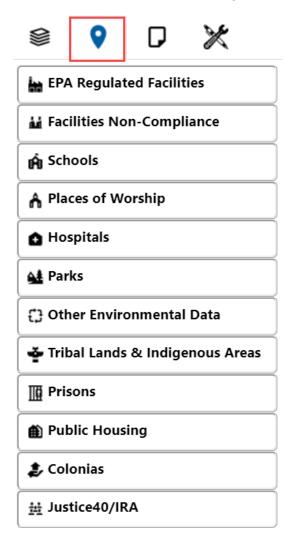


4. Click the Add To Map button to add the layer to the map and to the Map Contents menu and legend.



3. Places Widget

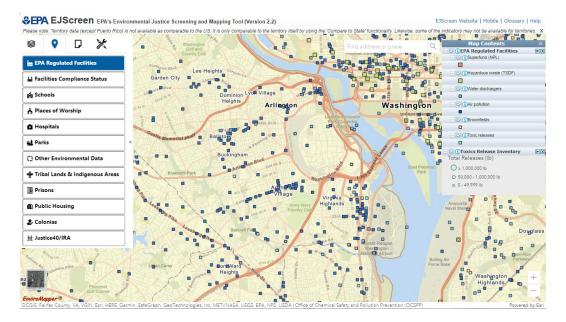
Layer markers are available under the **Maps** and **Places** widgets, which are shown below:



3.1 EPA Regulated Facilities

This map service contains locational data for EPA Regulated Facilities and Toxics Release Inventory: Superfund (NPL), Hazardous waste (TSDF), Water dischargers, Air pollution, Brownfields, Toxic releases, and Toxics Release Inventory Total Releases (lb).

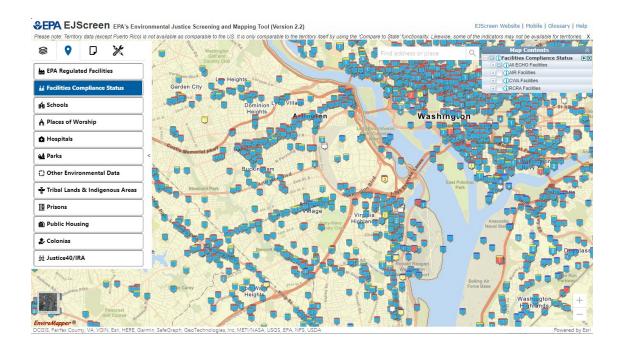
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the EPA Regulated Facilities icon.
- 3. EPA Regulated Facilities and Toxics Release Inventory will be added to the Map Contents menu.
- 4. Click one or more of the following in the Map Contents menu: **Superfund (NPL)**, **Hazardous waste (TSDF)**, **Water dischargers**, **Air pollution**, **Brownfields**, and **Toxic releases**.
- 5. Checked boxes are added as layers to the map.



3.2 Facilities Compliance Status

This map service includes data about EPA-regulated facilities from the Enforcement and Compliance History Online (ECHO) <u>All Media Programs facility search</u> and the <u>ECHO Exporter</u>. The map layer uses ECHO's standard facility symbology, illustrating the programs each facility is regulated under, whether they are in noncompliance, how long it has been since their last inspection, and whether they are a major facility. Users can choose to view all facilities or tailor the view to facilities regulated under the Clean Air Act, Clean Water Act, or Resource Conservation and Recovery Act.

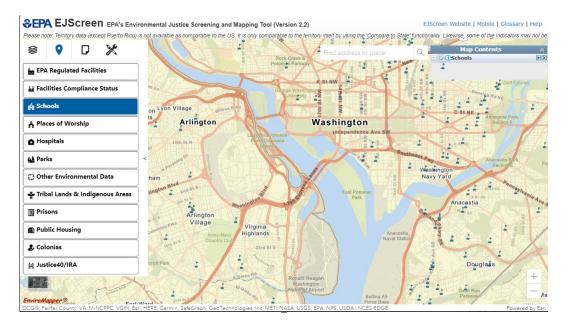
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Facilities Compliance Status icon.
- 3. Facilities Compliance Status will be added to the Map Contents menu.
- 4. Click one or more of the following in the Map Contents menu: All ECHO Facilities, AIR Facilities, CWA Facilities, and RCRA Facilities.
- 5. Checked boxes are added as layers to the map.



3.3 Schools

This map service contains locational data for public Schools via the National Center for Education Statistics (NCES) map service.

- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Schools** icon.
- 3. Schools will be added to the Map Contents menu.
- 4. Checked box is added as a layer to the map.



3.4 Places of Worship

This map service contains locational data for Places of Worship via the United States Geological Survey (USGS) Geographic Names Information System (GNIS) service.

- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Places of Worship** icon.
- 3. Places of Worship will be added to the Map Contents menu.
- 4. Checked box is added as a layer to the map.



3.5 Hospitals

This map service contains locational data for Hospitals via the United States Geological Survey (USGS) Geographic Names Information System (GNIS) service.

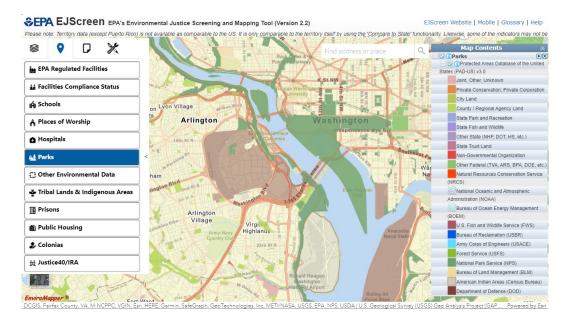
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Hospitals** icon.
- 3. Hospitals will be added to the Map Contents menu.
- 4. Checked box is added as a layer to the map.



3.6 Parks

This map service illustrates and describes public land ownership represented in the Protected Areas Database of the United States (PAD-US). The database is published by the United States Geologic Survey (USGS), Core Science Systems, Core Science Analytics and Synthesis, and the National GAP Analysis Program.

- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Parks icon.
- 3. Parks will be added to the Map Contents menu.
- 4. Checked box is added as a layer to the map.



3.7 RSEI

EPA's Risk-Screening Environmental Indicators (RSEI) model helps policy makers, researchers, and communities explore data on releases of toxic substances from industrial and federal facilities. RSEI incorporates information from the Toxics Release Inventory (TRI) on the amount of toxic chemicals released, together with factors such as the chemical's fate and transport through the environment, each chemical's relative toxicity, and potential human exposure. RSEI model results can be used to help establish priorities for further investigation and to look at changes in potential human health impacts over time. Further information is available at the RSEI website.

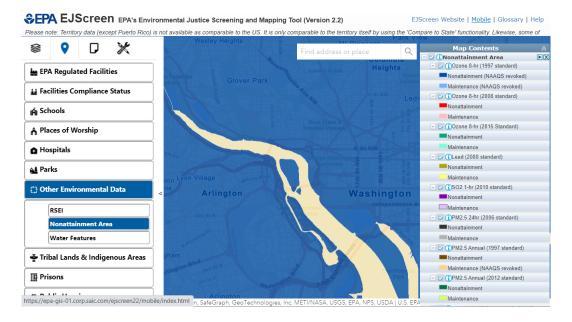
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Other Environmental Data icon to display a list.
- 3. Click **RSEI**.
- 4. RSEI will be added to the Map Contents menu.
- 5. Checked box is added as a layer to the map.



3.8 Nonattainment Area

This map service contains publicly available nonattainment areas data published by EPA. Further information on EPA nonattainment areas can be found at https://www.epa.gov/green-book.

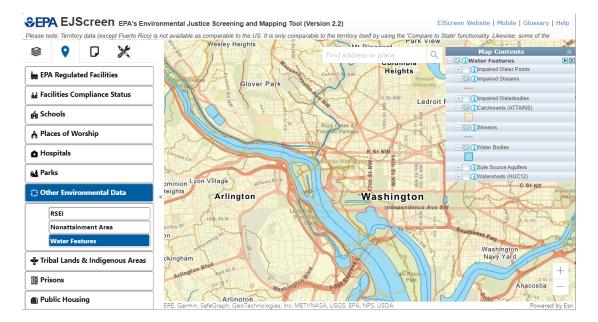
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Other Environmental Data** icon to display a list.
- 3. Click Nonattainment Area.
- 4. Nonattainment Area will be added to the Map Contents menu.
- Click one or more of the following in the Map Contents menu: Ozone 8-hr (1997 standard), Ozone 8-hr (2008 standard), Ozone 8-hr (2015 Standard), Lead (2008 standard), SO2 1-hr (2010 standard), PM2.5 24hr (2006 standard), PM2.5 Annual (1997 standard), PM2.5 Annual (2012 standard), PM10 (1987 standard), CO (1971 Standard), Ozone 1-hr (1979 standard-revoked), and NO2 (1971 Standard).
- 6. Checked boxes are added as layers to the map.



3.9 Water Features

This map service contains Water and Hydrological layers for Impaired Water Points, Impaired Streams, Impaired Waterbodies, Catchments (ATTAINS), Streams, Water Bodies, Sole Source Aquifers, and Watersheds (HUC12).

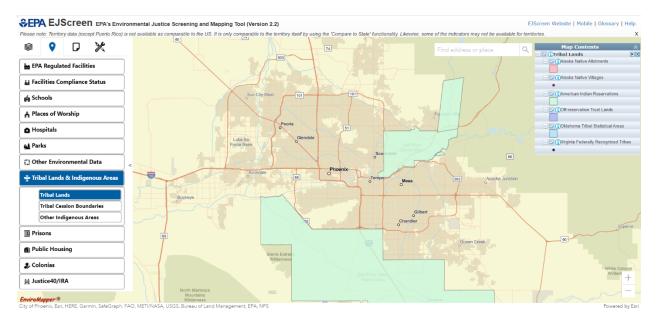
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Other Environmental Data** icon to display a list.
- 3. Click Water Features.
- 4. Water Features will be added to the Map Contents menu.
- Click one or more of the following in the Map Contents menu: Impaired Water Points, Impaired Streams, Impaired Waterbodies, Catchments (ATTAINS), Streams, Water Bodies, Sole Source Aquifers, and Watersheds (HUC12).
- 6. Checked boxes are added as layers to the map.



3.10 Tribal Lands

This map service contains EPA tribal areas, including Alaska Native Allotments, Alaska Native Villages, American Indian Reservations, Off-reservation Trust Lands, Oklahoma Tribal Statistical Areas, and Virginia Federally Recognized Tribes.

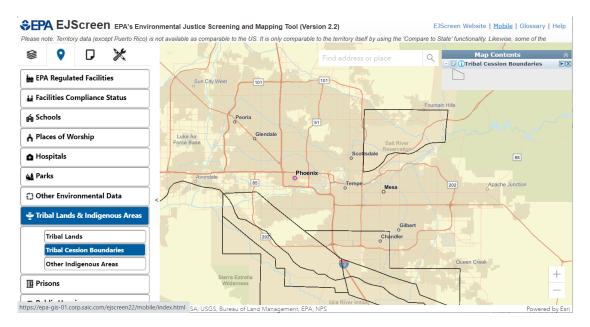
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Tribal Lands & Indigenous Areas icon.
- 3. Click the Tribal Lands icon.
- 4. Tribal Lands will be added to the Map Contents menu.
- Click one or more of the following in the Map Contents menu: Alaska Native Allotments, Alaska Native Villages, American Indian Reservations, Offreservation Trust Lands, Oklahoma Tribal Statistical Areas, and Virginia Federally Recognized Tribes.
- 6. Checked boxes are added as layers to the map.



3.11 Tribal Cession Boundaries

This map service provides Tribal Land Cessions boundaries for the United States.

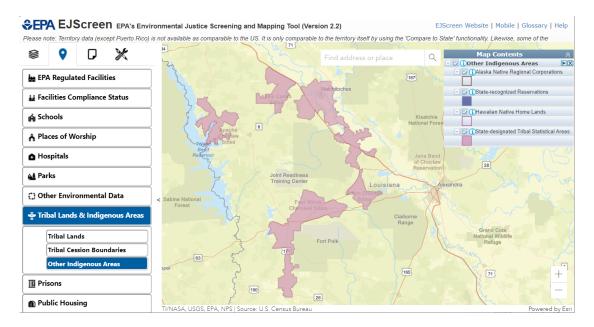
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Tribal Lands & Indigenous Areas icon.
- 3. Click the Tribal Cession Boundaries icon.
- 4. Tribal Cession Boundaries will be added to the Map Contents menu.
- 5. Checked box is added as a layer to the map.



3.12 Other Indigenous Areas

This map service contains Other Indigenous Areas, including Alaska Native Regional Corporations, State-recognized Reservations, Hawaiian Native Homelands, and State-designated Tribal Statistical Areas.

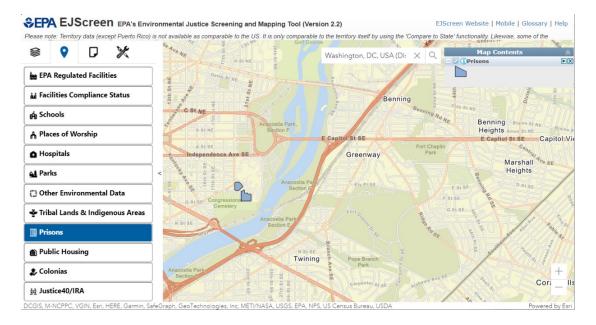
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Tribal Lands & Indigenous Areas icon.
- 3. Click the Other Indigenous Areas icon.
- 4. Other Indigenous Areas will be added to the Map Contents menu.
- 5. Click one or more of the following in the Map Contents menu: Alaska Native Regional Corporations, State-recognized Reservations, Hawaiian Native Home Lands, and State-designated Tribal Statistical Areas.
- 6. Checked boxes are added as layers to the map.



3.13 Prisons

The prison boundary feature class contains secure detention facilities. These facilities range in jurisdiction from federal (excluding military) to local governments. Polygon geometry is used to describe the extent of where the incarcerated population is located (fence lines or building footprints). Further information is available at the Department of Homeland Security.

- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Prisons icon.
- 3. Prisons will be added to the Map Contents menu.
- 4. Checked box is added as a layer to the map.



3.14 Public Housing

This map service contains Public Housing data from the United States Department of Housing and Urban Development.

- 1. Click the Places icon in the Widget toolbar.
- 2. Click the **Public Housing** icon to display a list.
- 3. Click Public Housing.
- 4. Public Housing will be added to the Map Contents menu.
- 5. Checked box is added as a layer to the map.



3.15 Subsidized Housing

This map service contains Multifamily Properties Assisted data from the United States Department of Housing and Urban Development. HUD Multifamily Housing property portfolio consists primarily of rental housing properties with five or more dwelling units such as apartments or town houses, but can also be nursing homes, hospitals, elderly housing, mobile home parks, retirement service centers, and occasionally vacant land.

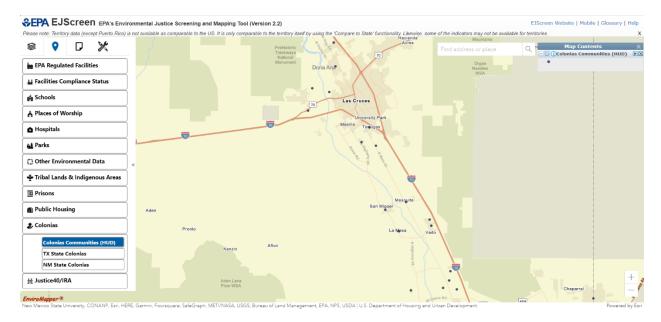
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Public Housing** icon to display a list.
- 3. Click Subsidized Housing.
- 4. Subsidized Housing will be added to the Map Contents menu.
- 5. Checked box is added as a layer to the map.



3.16 Colonias

Colonias are rural communities in close proximity to the US-Mexico border that lack access to basic services such as water, sewer, or housing. This map service contains Colonias Communities (HUD), Texas (TX) State Colonias, and New Mexico (NM) State Colonias.

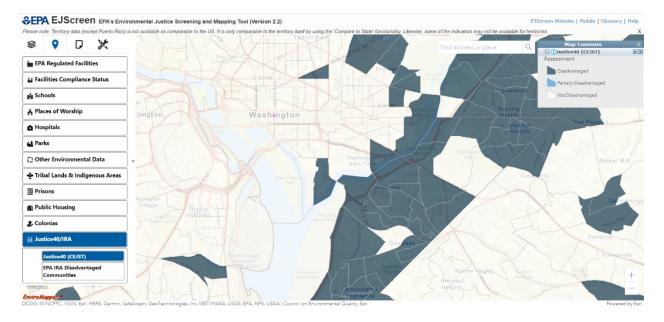
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the **Colonias** icon to display a list.
- 3. Click one or more of the following: Colonias Communities (HUD), TX State Colonias, and NM State Colonias.
- 4. Selected Colonias will be added to the Map Contents menu.
- 5. Checked boxes are added as layers to the map.



3.17 Justice40 (CEJST)

This map service contains communities identified as disadvantaged by The White House Council on Environmental Quality (CEQ) for purposes of Justice40. Further information on the Justice40 Initiative and the Climate and Economic Justice Screening Tool (CEJST) is available at https://www.whitehouse.gov/environmentaljustice/justice40/.

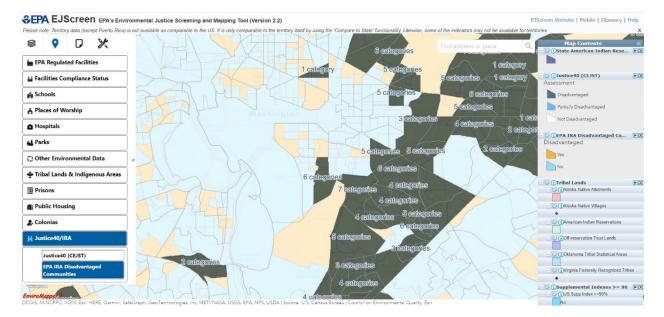
- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Justice40/IRA icon.
- 3. Click Justice40 (CEJST).
- 4. Justice40 (CEJST) will be added to the Map Contents menu.
- 5. Checked box is added as a layer to the map.



3.18 EPA IRA Disadvantaged Communities

This map service contains EPA IRA Disadvantaged Communities. Further information on the EPA IRA Disadvantaged Communities is available at https://www.epa.gov/inflation-reduction-act/advancing-environmental-justice.

- 1. Click the **Places** icon in the Widget toolbar.
- 2. Click the Justice40/IRA icon.
- 3. Click EPA IRA Disadvantaged Communities.
- 4. EPA IRA Disadvantaged Communities will be added to the Map Contents menu.
- 5. Checked box is added as a layer to the map.



4. Reports Widget

The **Reports** widget is used to identify a location of interest or known geography and then provide EJ Indexes and Environmental and Demographic reports for that area. In addition to a bar chart (where scores for the location can be compared to state and national scores), users can generate a tabular view for downloading or a graphic standard report in PDF format.



Note: Particulate Matter (PM) 2.5 and Ozone data currently are not available in EJScreen for Alaska, Hawaii, and Puerto Rico.

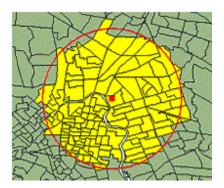
4.1 Location Selection and Buffer Options

The following location selection options are intended for examining EJ Indexes, Environmental variables, and Demographic variables across block group-level data for the United States.

- 1. Locate the **Reports** icon in the Widget toolbar.
- 2. Select one of the various options to view additional data:
 - a. Drop a Pin click this to use a pushpin to select your area for review
 - b. Draw an Area click this to manually draw an enclosed area for review
 - c. Add a Path click this to manually draw a path area for review
 - d. Select Block Group click this to select a population's defined area for review
 - e. Select Tract click this to select a geographic defined area for review
 - f. Select City click this to select a city's limit defined area for review
 - g. Select County click this to select a county's defined area for review



When user input is a geographic point (i.e., Drop a Pin, Draw an Area, and Add a Path options), a buffer is applied around the point. The ring will aggregate appropriate portions of the intersecting block groups, weighted by population, to create a representative set of data for the entire ring area, honoring variation and dispersion of the population in the block groups within it. For each indicator, the result is a population-weighted average, which equals the block group indicator values averaged over all residents who are estimated to be inside the buffer.¹



¹ For buffered areas, values are calculated following these steps:

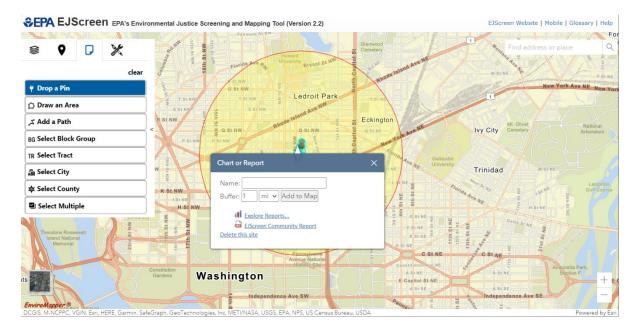
These calculated EJScreen indices are returned to the web application for display in the viewer (as population and raw values) and for comparison against the percentile tables.

^{1.} The selected point is buffered using the native Geometry Service published through ArcGIS Server.

^{2.} To spatially aggregate the EJScreen data for the buffered ring area for the analysis, the tool takes into account the block points that exist within the block groups to account for the block groups that are partially intersected with the ring area. A weight factor for each block group is determined by summing each block point population percentage for that block group. If the ring touches part of a neighboring block group that contains no block points, nothing will be aggregated; if a ring intersects a number of block groups, EJScreen indices will be aggregated within each block group based on the affiliated block points.

^{3.} The aggregation is done by using factor-weighted block points.

The map display will locate the point location and provide the option to add the buffer to the map (for example, 1-mile buffer around a pin center in Washington, DC 20050) by clicking the Add to Map button.



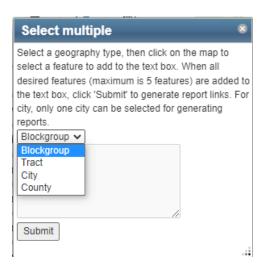
4.2 Select Multiple

The **Select Multiple** option allows reporting for one City, or one or more Counties, Tracts, or Block groups.

- 1. Click the **Reports** icon in the Widget toolbar.
- 2. Click the Select Multiple icon.



The **Select Multiple** window will be displayed.

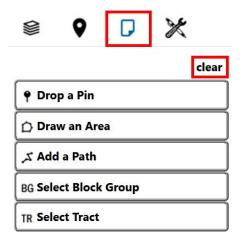


- 3. Select Blockgroup, Tract, City, or County from the geography type dropdown menu.
- 4. Click on the map to add features. Up to five features can be selected for Blockgroup, Tract, or County. Only one City can be selected for generating reports.
- 5. Then click the Submit button to generate reports.

4.3 Clear Selected Locations

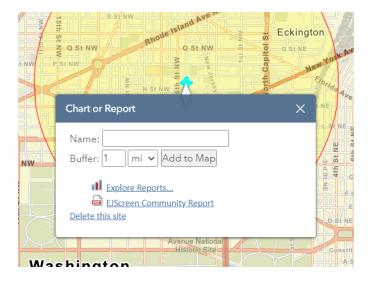
Use Clear Selected Locations to remove any drawings or selections from the map.

- 1. Click the **Reports** icon in the Widget toolbar.
- 2. Click the **clear** label at the top of the dropdown list.
- 3. All added drawings and measurement markers will be removed from the map.

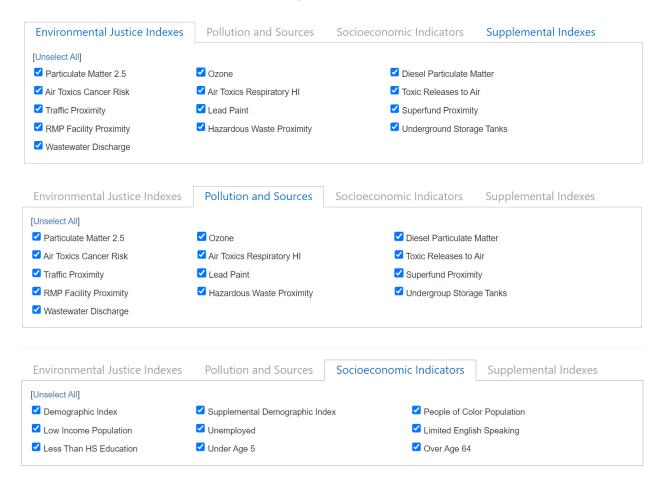


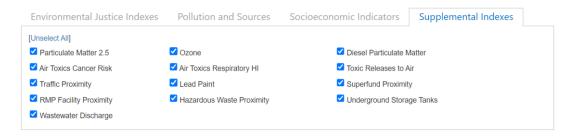
4.4 Explore Reports

After you select a location selection option to view data in the area, a **Chart or Report** pop-up displays.



Click the **Explore Reports** option to display the data variables.





These data variables represent the data that can be displayed in the bar chart on the bottom half of the widget. As the default, all data layers in the chosen group are selected. Once a data layer is visible, it is displayed in the **Chart of Data Comparisons** as well as in the **Tabular Data** table (if currently visible).

For detailed descriptions of the Environmental Justice Indexes, Pollution and Sources, Socioeconomic Indicators, and Supplemental Indexes see the glossary at https://www.epa.gov/ejscreen/glossary-ejscreen-terms.

4.5 Chart of Data Comparisons

Above the main chart in the **Explore Reports** option, there is a listing of which block group is currently selected for data display along with its State, EPA Region, and total population:

Block group 110010062021, DISTRICT OF COLUMBIA, EPA Region 3 (Population: 60)

This graphic is slightly different for a buffer ring-based analysis, which displays the x,y coordinates of the center of the circle along with radius and aggregate population (estimated):

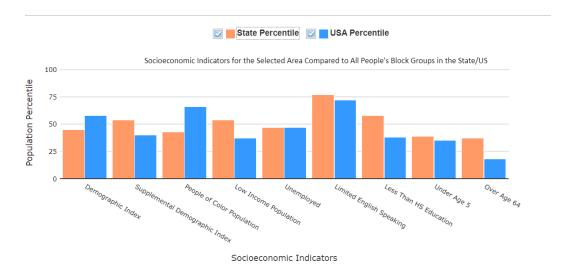
1 mile Ring Centered at 38.898723,-77.036531, DISTRICT OF COLUMBIA, EPA Region 3 (Population: 48,859)

Below the identifying text are two checkboxes that allow the user to control which comparative geographies are visible on the chart. The chart is built to handle one geography (State or USA) or both at the same time, so the user may select whichever comparison is most relevant.

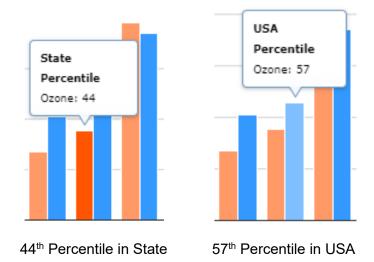


The chart itself displays a series of bar graphs, comparing the currently selected area (either block group or buffered ring) to the state and national statistics for each variable.

The y-axis of the chart runs from 0 to 100 showing percentiles. The x-axis displays different data variables, as selected by the user.



Pointing the mouse to a bar will show a pop-up window including the bar's geography, the variable displayed, and the percentile that the selected block group or ring represents when compared to a larger group. For example, if your area is at the 44th Percentile in the state, this means that for the average person the block group score is greater than (or equal to) 44% of the state population.



4.6 Tabular View

Below the chart data, the Get Data Table button takes the displayed data and creates a table in a pop-up window within the application. Whichever variables are selected ("checked") in the data tables are displayed in this table.

EJ indexes do not display raw data, but the rest of the data types include a raw score, state average and percentile, and national average and percentile.



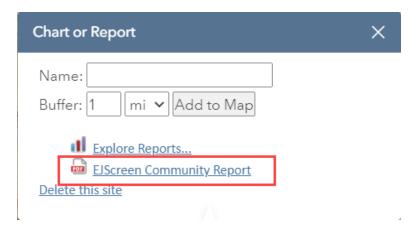


The user can adjust column widths, scroll through the table, and sort the table by clicking on the column heading. The tabular view also includes the block group Federal Information Processing Standards (FIPS) code, the state, and population. This table is functional for both the block group selection method and the buffer ring selection method.

In the top right corner of the **Tabular View** window, there is a download icon that will allow the user to download data as a text file. This functionality will save the tabular data to a comma separated value (CSV) file at a location of the user's choice. The data can be imported to a spreadsheet program or opened as a text file for archiving or future analysis.

4.7 EJScreen Community Report

Any user who would like a more concrete representation of the data available in EJScreen can choose to export a PDF using the **EJScreen Community Report** link on the **Chart or Report** widget.



Note: It is important to wait for the report to finish creating, which may take 10 or more seconds. Do not click the **EJScreen Community Report** link again until a report has been returned.

Once the report is created, the user will then have the option of saving the report as a PDF by clicking the Print icon in the top right corner.

6/15/23, 10:12 AM

\$EPA

EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Washington, DC



Blockgroup: 110010037022 Population: 2,450 Area in square miles: 0.03

COMMUNITY INFORMATION



LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT		
English	93%		
Spanish	3%		
French, Haitian, or Cajun	1%		
Korean	1%		
Other and Unspecified	2%		
Total Non-English	7%		

BREAKDOWN BY RACE



BREAKDOWN BY AGE

1 200	From Ages 1 to 4	18%
	From Ages 1 to 18	34%
	From Ages 18 and up	66%
	From Ages 65 and up	4%

LIMITED ENGLISH SPEAKING BREAKDOWN



Notes: Numbers may not sum to totals due to rounding. Hispanic popultion can be of any race. Source: U.S. Census Burgus, American Community Survey (ACS) 2017–2021. Life expectancy data comes from the Centers for Disease Control.

www.epa.gov/ejscreen

1/4

6/15/23, 10:12 AM

Environmental Justice & Supplemental Indexes

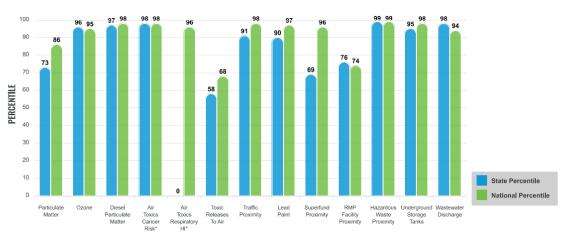
The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the <u>EJScreen website</u>.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.



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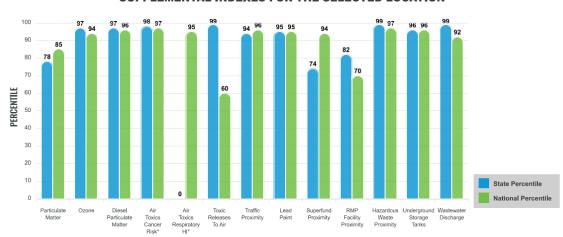


SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION





These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for Blockgroup: 110010037022

www.epa.gov/ejscreen

6/15/23, 10:12 AM

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA		
POLLUTION AND SOURCES							
Particulate Matter (µg/m³)	8.25	8.26	37	8.08	51		
Ozone (ppb)	65	64.8	72	61.6	75		
Diesel Particulate Matter (µg/m³)	0.496	0.478	62	0.261	91		
Air Toxics Cancer Risk* (lifetime risk per million)	40	36	36	28	84		
Air Toxics Respiratory HI*	0.4	0.44	0	0.31	70		
Toxic Releases to Air	130	180	30	4,600	26		
Traffic Proximity (daily traffic count/distance to road)	480	630	61	210	90		
Lead Paint (% Pre-1960 Housing)	0.66	0.55	54	0.3	83		
Superfund Proximity (site count/km distance)	0.15	0.25	36	0.13	78		
RMP Facility Proximity (facility count/km distance)		0.16	45	0.43	35		
Hazardous Waste Proximity (facility count/km distance)		16	81	1.9	99		
Underground Storage Tanks (count/km²)		12	70	3.9	93		
Wastewater Discharge (toxicity-weighted concentration/m distance)		0.057	82	22	68		
SOCIOECONOMIC INDICATORS							
Demographic Index	79%	42%	92	35%	95		
Supplemental Demographic Index		12%	94	14%	91		
People of Color		59%	65	39%	84		
Low Income	76%	24%	98	31%	96		
Unemployment Rate	22%	7%	92	6%	96		
Limited English Speaking Households		3%	65	5%	62		
Less Than High School Education		7%	77	12%	64		
Under Age 5	18%	6%	96	6%	98		
Over Age 64	4%	13%	17	17%	6		
Low Life Expectancy	21%	21%	45	20%	63		

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPKs Air Toxics Data Undate, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritive air toxics, ensisted some of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://dox.new.eng.gov/hazard/indic-toxic-data-undate.

Sites reporting to EPA within defined area:

Superfund
Hazardous Waste, Treatment, Storage, and Disposal Facilities
Water Dischargers
Air Pollution
Brownfields 0
Toxic Release Inventory

Other community features within defined area:

 Schools
 0

 Hospitals
 0

 Places of Worship
 1

Other environmental data:

Selected location contains American Indian Reservation Lands* . No
Selected location contains "Justice40 defined" disadvantaged community . Yes
Selected location contains an EPA IRA disadvantaged community . Yes

Report for Blockgroup: 110010037022

www.epa.gov/ejscreen

2//

1/11/24, 9:27 AM

EJScreen Community Report

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS						
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE	
Low Life Expectancy	21%	21%	45	20%	63	
Heart Disease	2.3	4	13	6.1	1	
Asthma	10.7	10.6	61	10	73	
Cancer	2.8	5	4	6.1	2	
Persons with Disabilities	10.5%	11%	53	13.4%	35	

CLIMATE INDICATORS							
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE		
Flood Risk	0%	8%	0	12%	0		
Wildfire Risk	0%	0%	0	14%	0		

CRITICAL SERVICE GAPS						
INDICATOR	VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE	
Broadband Internet	7%	12%	46	14%	36	
Lack of Health Insurance	0%	3%	13	9%	2	
Housing Burden	No	N/A	N/A	N/A	N/A	
Transportation Access	No	N/A	N/A	N/A	N/A	
Food Desert	No	N/A	N/A	N/A	N/A	

Footnotes

Report for Blockgroup: 110010037022

www.epa.gov/ejscreen

https://ejscreen.epa.gov/mapper/ejscreen_SOE.aspx

The **EJScreen Community Report** will include the following:

- The latitude and longitude of the center of the buffered ring (Buffer ring selection)
- The block group that the data represents (Block group selection)
- The City or county and state that the data is encompassed by
- Approximate population
- Input area (in square miles)
- Community Information
- Breakdown by Race
- Breakdown by Age
- Limited English Speaking Breakdown
- EJ Indexes for the selected location
- Supplemental EJ Indexes for the selected location
- A table of all the variables available in the widget and for each variable the following:
 - Raw value (except EJ Indexes)
 - State average (except EJ Indexes)
 - o Percentile in State
 - USA average (except EJ Indexes)
 - o Percentile in USA
- A table of the number of sites reporting to EPA within the selected location
- A table of other community features within the selected location
- A table of other environmental data
- A table with Indian Land and Disadvantaged Community information
- Tables with Health Indicators, Climate Indicators, and Critical Service Gaps

Data that displays "0" or "0%" is a known and valid value for a data element. Data that displays "N/A" (not available or "null") means that no value was calculated for that data element. For example, Ozone and Particle Matter (PM) 2.5 concentrations were not available for Alaska, so all associated data elements are set to "null".

Multiple reports can be created per session.

5. Tools Widget

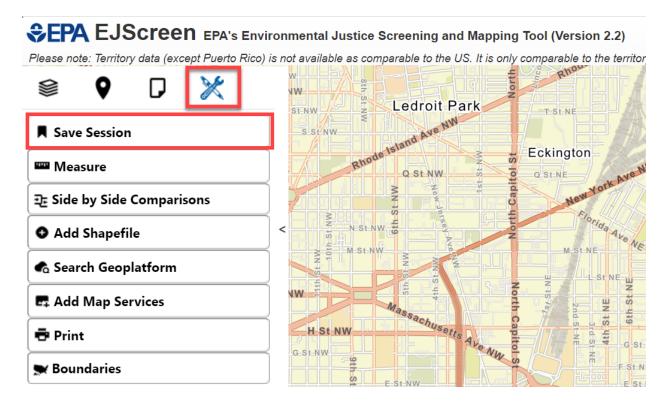
Click the **Tools** icon to print and interactively measure map data. You may also use other available tools to search for maps via the Geoplatform or to add publicly available data from the web.

5.1 Save Session

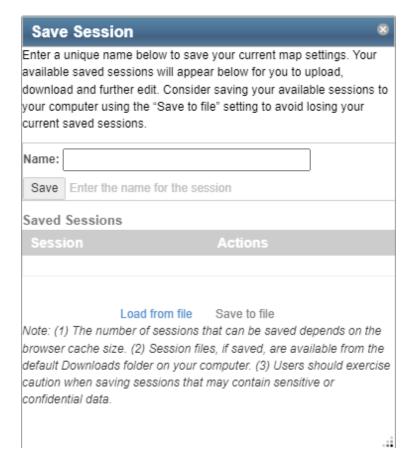
5.1.1 Saved Sessions List

The **Save Session** widget stores a collection of map view extents with added map content. Users can add their own sessions and then use these to return to a previous view or switch between views.

- 1. Locate the Widget tool at the top left of the application.
- 2. Click the Tools icon.
- 3. Click the Save Session option.



The Save Session window will be displayed.

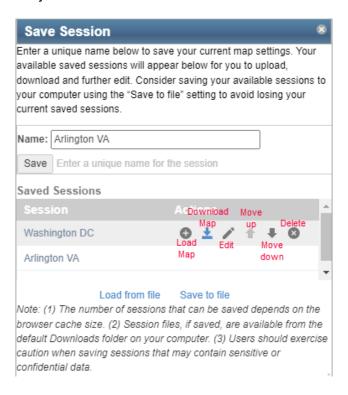


5.1.2 Creating a Saved Session

Use the **Save Session** widget to create a saved session based on the current map extent.

- 1. Zoom to a location of interest.
- 2. Click **Save Session** widget in the Tools dropdown.
- 3. Enter the name of the location of interest in the text box.
- 4. Click the Save button. This will add the session to the list of saved sessions.
- 5. From the Saved Sessions list hover over the session name to see the options:
 - a. Load Map click this to load the saved session.
 - Download Map click this to save the session to your computer as a json file.
 This file can be shared with other users who can load the file using the Save Session widget.
 - c. Edit click this to edit the session name.
 - d. Move up/Move down click these to adjust the order of saved sessions in the list.
 - e. Delete click this to remove the saved session.
- 6. Load from file click this to load sessions that have been saved to your computer or to load sessions from a json file provided from the download map option.

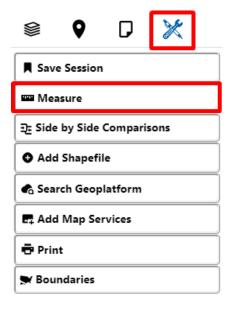
7. Save to file – click this to save all of the saved session(s) in the "Saved Sessions" list to your computer as a json file.



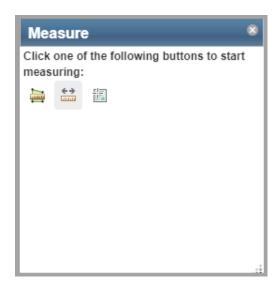
5.2 Measure

The **Measure** feature allows the user to measure geographic distance as well obtain the longitude and latitude for a location on the map.

- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Measure icon.

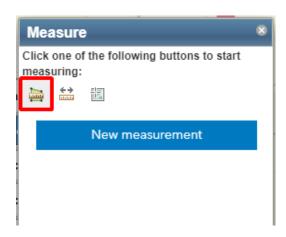


The **Measure** pop-up window displays after clicking the icon.



5.2.1 Measure Area

The **Measure Area** tool allows the user to measure the area of a polygon.



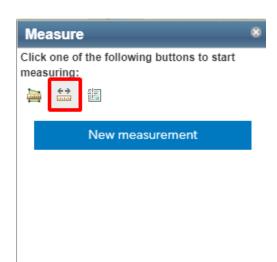
- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Measure icon.
- 3. In the **Measure** pop-up, click the **Measure Area** icon
- 4. Click the New measurement button, then click on the map to add the first point.
- 5. Click on the map to begin drawing the polygon. Continue clicking to add to the polygon and double-click to complete the drawing.
- 6. Area Units of Square Miles is the default unit. A dropdown menu with all unit options will appear in the window when three points have been clicked on the map.



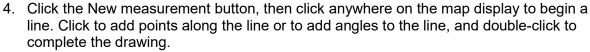
- 7. Select a different unit, if desired.
- 8. The area measurement will appear in the Measure window.
- 9. To remove the drawing, click the New measurement button to begin a new drawing, or close the Measure tool.

5.2.2 Measure Line

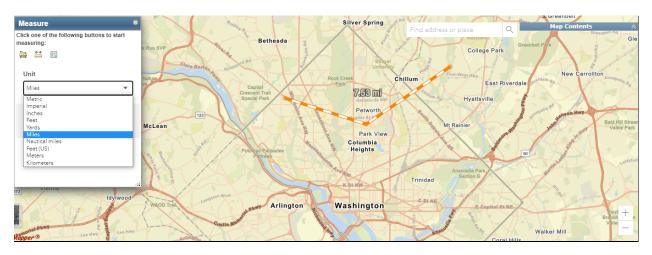
The **Measure Line** tool allows the user to measure distance on the map display.



- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Measure icon.
- 3. In the Measure pop-up, click the Measure Line icon



- 5. Distance Units of Miles is the default unit. A dropdown menu with all unit options will appear in the window.
- 6. Select a different unit, if desired.
- 7. The distance measurement will appear in the Measure window.



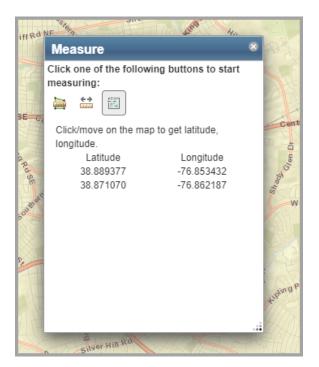
8. To remove the line, click the New measurement button to begin a new drawing, or close the Measure tool.

5.2.3 Latitude and Longitude for a Point

The **Measure Location** tool allows the user to obtain the latitude and longitude measurements for a point.



- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Measure icon.
- 3. In the **Measure** pop-up, click the **Locate a point** icon.
- 4. As the mouse is moved over the map, the current location will display in the Measure window.
- 5. Click on the map to freeze the location in the Measure window.

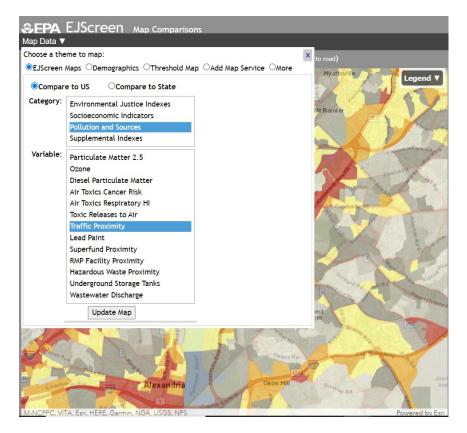


- 6. The location measurement can be copied from the Measure window.
- 7. The top measurement will change as the mouse is moved over the map. The bottom measurement will show the last clicked location.

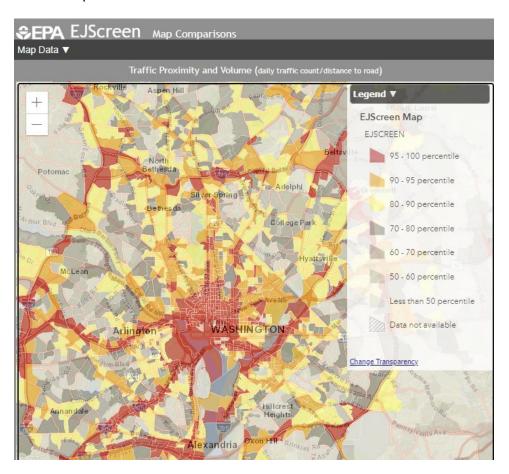
5.3 Side by Side Comparisons

Located in the **Tools** widget, the **Side by Side Comparisons** option allows users to compare different map layers for a location on side-by-side maps in a new window.

- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Side by Side Comparisons icon.
- 3. When the **Side by Side Comparisons** tool is opened, Traffic Proximity and Volume and Pct. Ratio of Income to Poverty Level <2.0 are selected as the default map data. To change the selections, click the Map Data button, then select a layer from the menu, and then click the Update Map button. This will update the map to display the selected layer.



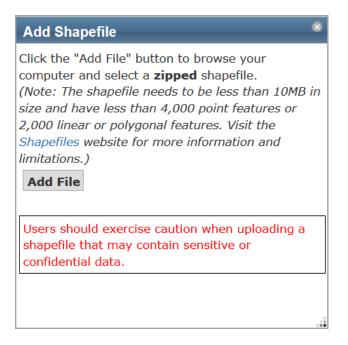
4. To display the Legend, click the Legend button in the upper right-hand corner of the map.



5.4 Add Shapefile

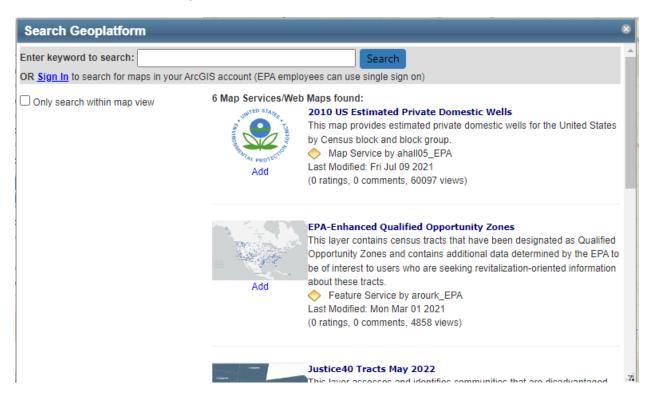
Located in the **Tools** widget, the **Add Shapefile** option can be used to add a saved shapefile from a user's computer. When the file is selected from the computer, the layer will be added in the Map Contents panel. Please note that users should exercise caution when uploading a shapefile that may contain sensitive or confidential data.

- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Add Shapefile icon.
- 3. In the Add Shapefile pop-up, click the Add File button.

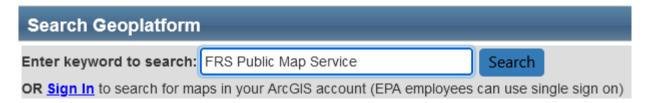


5.5 Search Geoplatform

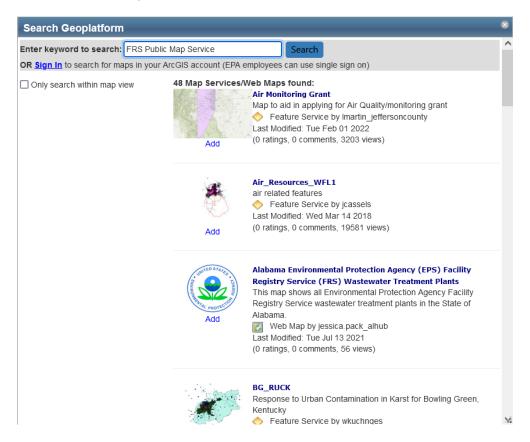
Search Geoplatform allows the user to search content on ArcGIS Online. Users with an account through ArcGIS.com can click "Sign In" on the top left corner to sign in and view additional available information through the platform.



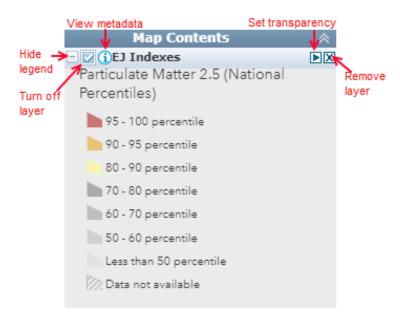
- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the **Search Geoplatform** icon.
- 3. Default layers available for selection include 2010 US Estimated Private Domestic Wells, EPA-Enhanced Qualified Opportunity Zones, Justice40 Tracts May 2022, Map of RSEI Pounds, NEPmap, and UST Environmental Justice Feature Layer.
- 4. To search for additional layers, enter a keyword in the **Enter keyword to search** text box. Press Enter on the keyboard or click Search.



5. Search results display in the window.



- 6. Click Add to add a layer to the Map Contents menu.
- 7. The layers can be controlled or toggled on and off in the Map Contents menu.



5.6 Add Map Services

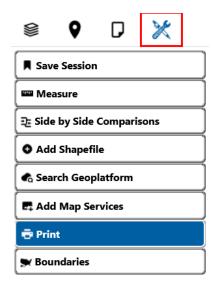
The Add Map Services allows a user to add publicly available data from the web to the map.

- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the Add Map Services icon.
- 3. In the **Add Map Services** pop-up, select from the options by clicking the appropriate radio button.
- 4. Enter a valid, publicly available URL in the URL text box.
- 5. Enter the Service title in the text box if desired.
- 6. Click the Add to Map button.

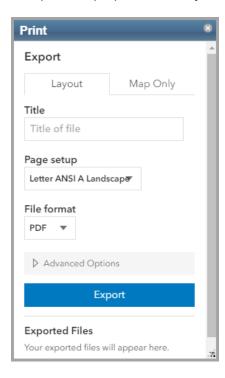


5.7 Print

Use **Print** to print the map shown on your personal device.



- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the **Print** icon.
- 3. The print map option allows you to select various page setups and format.



- 4. For printing a map and its associated legend, choose the Layout option and select the **Include legend** checkbox under Advanced Options.
- 5. Click the Export button.

5.8 Boundaries

This map service contains boundary data for ZIP Codes, Congressional Districts, City Boundary, Urbanized Areas, Federal Lands, Townships Boundary, Counties, States, and EPA Regions.

- 1. Click the **Tools** icon in the Widget toolbar.
- 2. Click the **Boundaries** icon.
- 3. Boundaries will be added to the Map Contents menu.
- 4. Click one or more of the following in the Map Contents menu: **ZIP Codes**, **Congressional Districts**, **City Boundary**, **Urbanized Areas**, **Federal Lands**, **Townships Boundary**, **Counties**, **States**, and **EPA Regions**.
- 5. Checked boxes are added as layers to the map.

