

Environmental Protection Agency

EJSCREEN User Guide

2016

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A. EPA EJSCREEN Web Application

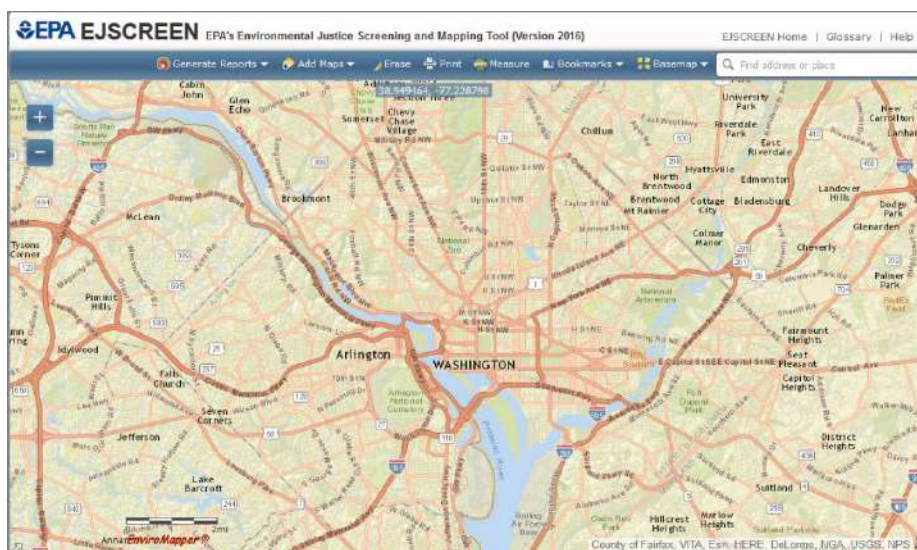
This document provides an introduction to EJSCREEN and walks through how to start using the tool. The EJSCREEN website and *EJSCREEN Technical Documentation* provide many more details on the data and methods behind the tool.

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 tools also allow users to explore locations at a detailed geographic level, across broad areas or across the entire nation.

The screening tool includes 11 environmental factors, 7 demographic factors, and a variety of 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. Due to data availability, Puerto Rico was processed separately, and comparisons are available only at the state level.

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.

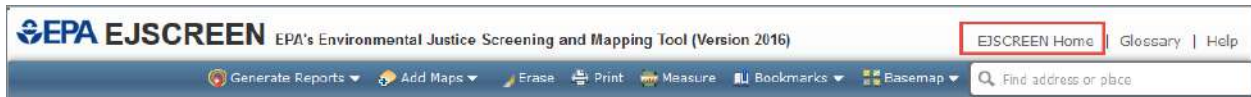
To access the application, navigate to <http://www.epa.gov/ejscreen>



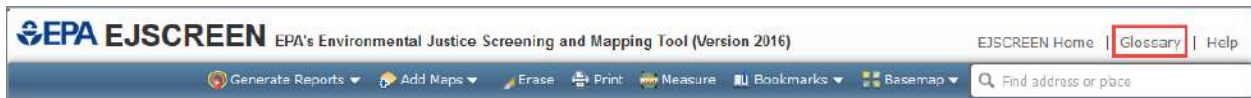
B. EJSCREEN Web Application Home Screen

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

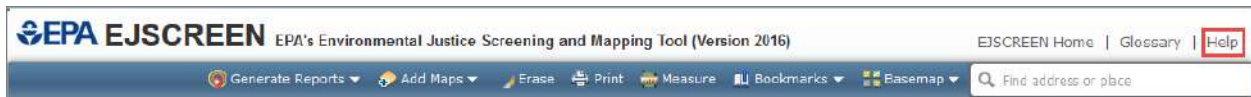
To learn more about EJSCREEN, click the **EJSCREEN Home** link in the top right corner of the application.



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



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



Along the top bar of the application, a variety of widgets are available for use:



- **Generate Reports:** Pick location and see report on a user-defined place or block group
- **Add Maps:** See EJSCREEN and other supplementary map data
- **Erase:** Remove any drawings from the map
- **Print:** Print map
- **Measure:** Measure distance, find the area of a polygon, get lat/long
- **Bookmarks:** Save locations for review
- **Basemap:** Change map background to show roads, satellite view, etc.
- **Find address or place:** Locate a specific address or area

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

C. Exploring and Navigating Maps

Several data display, basemap and navigation tools are available.

1. Basemaps

Click the down arrow in the Basemap widget to change the basemap for the map display.

Click any of the basemap options to change the display of the basemap. Streets is the default display.



2. Navigation

The Navigation widget is visible in the upper left hand corner of the application. This widget allows manual navigation of the map display with a click interface.

2.1 Zoom In/Out

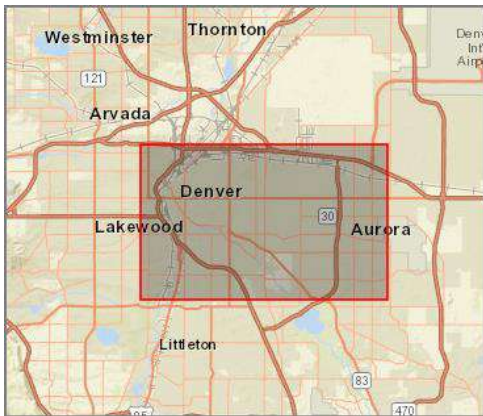
The map display can be zoomed by using the mouse wheel to zoom in/out, using the Zoom In/Out tool or by bounding box

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.

2.2 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.

3. Overview Map and Scale Bar

The Overview Map tool displays a small overview map in the lower left-hand corner of the map display that shows a zoomed-out view of the map data along with a gray rectangle that defines the map display's current view extent.

1. Click the arrow button to expand the overview map.

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2. Click the arrow again to minimize the overview map back to its original position.



The Scale Bar in the lower left corner of the map display adjusts length according to the zoom level. It is drawn in miles.



Note: The scale bar can be hidden when widgets are open in the EJSCREEN application. You may need to close widgets to view the scale bar.

D. Using EJSCREEN Widgets for Analysis

1. Bookmarks Widget

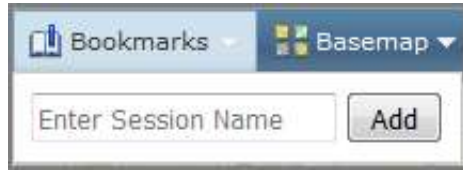
1.1 Bookmarks List

The **Bookmarks** widget stores a collection of map view extents or spatial bookmarks. Users can add their own bookmarks and then use these to return to a previous view or switch between views.

1. Locate the Widget toolbar at the top of the application.
2. Click the Bookmarks icon.



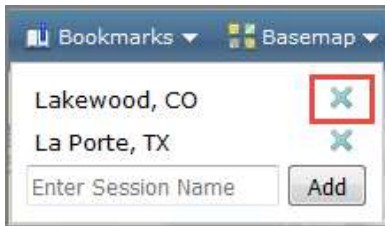
The Bookmarks window will be displayed.



1.2 Adding and Deleting Bookmarks

Use the **Bookmarks** widget to add a new bookmark based on the current map extent. A name can be provided for this bookmark at the prompt.

1. Zoom to a location of interest.
2. Click **Bookmarks widget** in the toolbar.
3. An Enter Session Name text box will display.
4. Enter the name of the location of interest in the text box.
5. Click outside of the Bookmarks widget when complete to save the bookmark or click the **blue X** to remove the bookmark.
6. To remove a bookmark, click the **Bookmarks** button.
7. Next to the bookmark created, click the **blue X**.



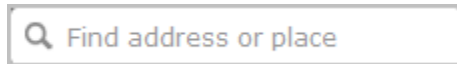
The bookmark will be removed.

2. 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.

2.1 Find an Address

In the **Find an 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.

A rectangular text input box with a light gray border. Inside, on the left, is a magnifying glass icon followed by the placeholder text "Find address or place".

The application will list possible matches for the input. Click the **search icon**, use the enter key on the keyboard, 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 **Enter the address** text box.

A screenshot of a search dropdown menu. At the top is a search bar containing the text "4600 colorado bl" and a magnifying glass icon on the left and a close icon on the right. Below the search bar is a list of five suggestions, each starting with "4600 colorado" followed by a location name: "4600 colorado blvd, Old Bridge...", "4600 colorado blvd, Thomasvill...", "4600 colorado blvd, Grayling, ...", "4600 colorado blue Ct, Greenb...", and "4600 colorado blvd, Corinth, T...".

2. Click **the search icon**.

The map display will zoom to that location if found.

2.2 Coordinates

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

1. Enter values for **Longitude (X)** and **Latitude (Y)** in the **Find an address or place** text box in the longitude, latitude format (e.g. -77.4, 38.8).

A rectangular text input box with a light gray border. Inside, on the left, is a magnifying glass icon followed by the text "-77.4, 38.8". On the right side of the box is a close icon (an 'x' inside a circle).

2. Click **the search icon**.

The map display will zoom to that location if found.

Note: Currently, EJSCREEN indexes for the US Territories have not been developed. In addition, PM 2.5 and Ozone data currently are not available in EJSCREEN for Alaska, Hawaii, and Puerto Rico.

3. Generate Reports Widget

The **Generate 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, regional and national scores), users can generate a tabular view for downloading or a graphic standard report in PDF format.

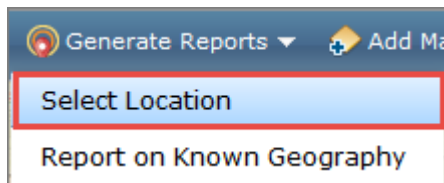


2010 - 2014 American Community Survey (ACS), 2010 Census, and Center for Disease Control (CDC) reports are also available.

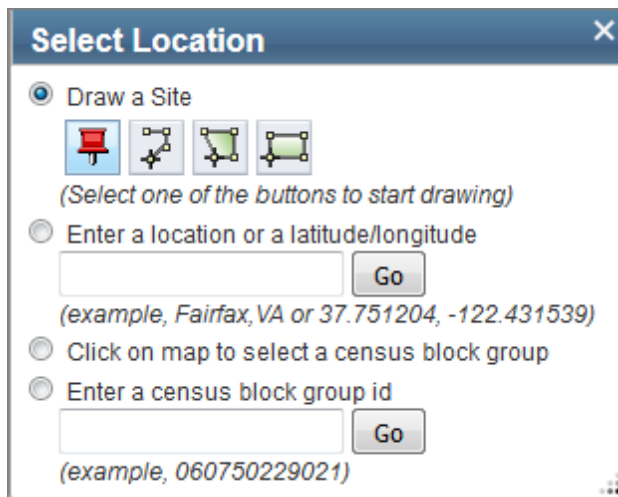
3.1 Select Location

The **Select Location** option is intended for examining EJ Indexes, Environmental variables, and Demographic variables across block group-level data for the United States.

1. Locate the Widget toolbar at the top of the application.
2. Click the **Generate Reports** icon and then the **Select Location** link.



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



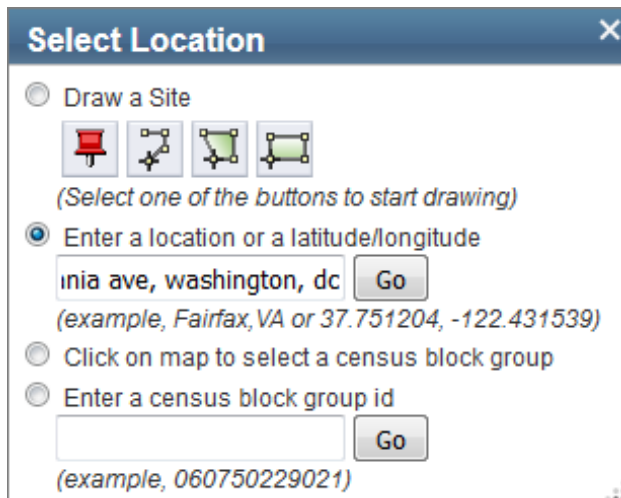
3.1.1 Locate an Address

The **Select Location** widget provides options to draw a site, enter a location, or latitude/longitude coordinate pair, click on the map to select a census block group, or enter a census block group id.

If a point, address, geographic coordinates or a location is selected the map will focus on a point and provide a 1 mile buffer as the default.

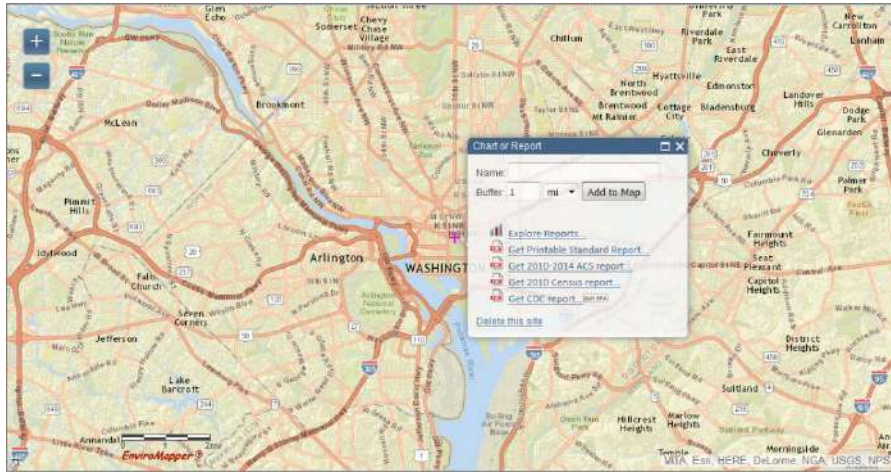
Whenever a block group is selected, by either clicking on it in the map display or entering it in the widget, the map zooms to that block group to allow the user to examine neighboring groups for variation.

1. Type in a location in the **Enter a location or a latitude/longitude** text box in the **Select Location** widget.



2. Click **Go**.

The map display zooms to the location.



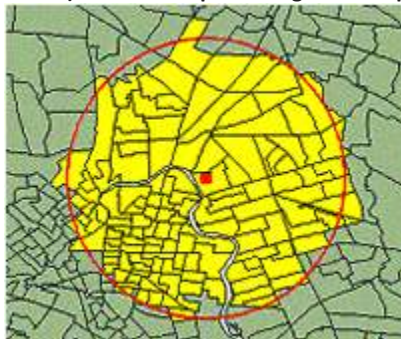
3.1.2 Buffer

When user input is a geographic point 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

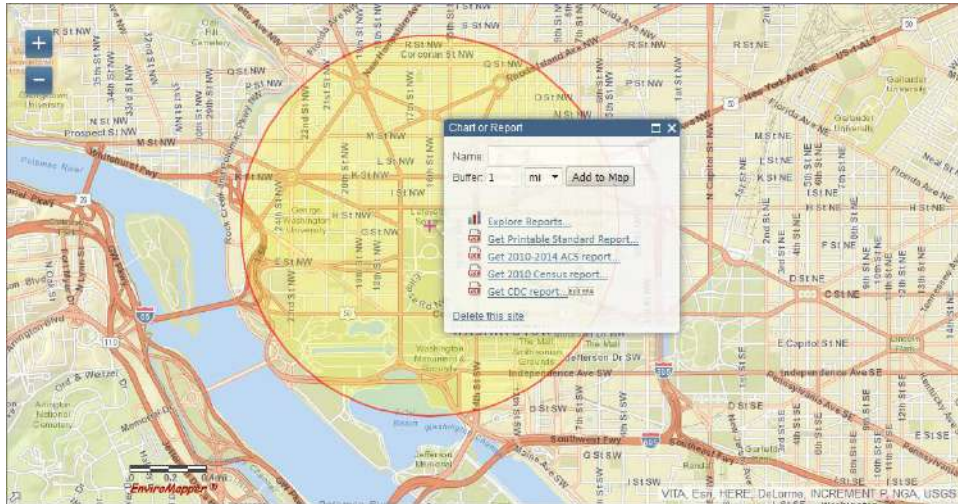
¹ For buffered areas, values are calculated following these steps:

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.

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



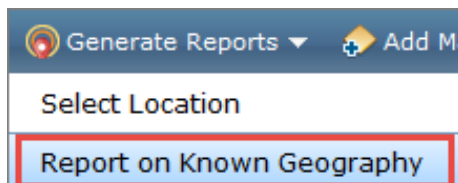
The map display will locate the point location and provide the option to add the buffer to the map (for example, 1-mile buffer around 1600 Pennsylvania Ave NW, Washington, DC 20004).



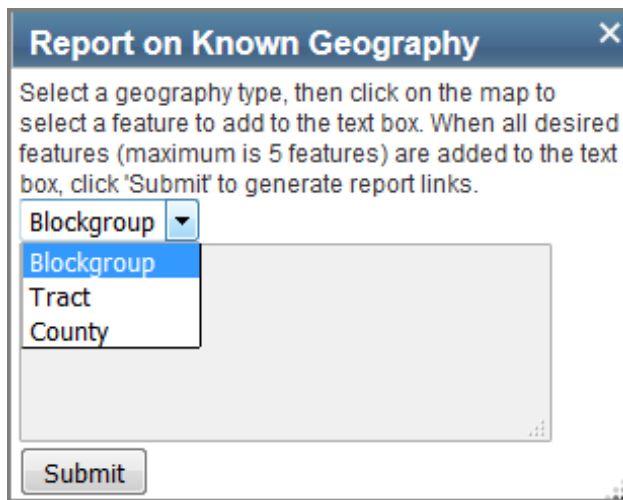
3.2 Report on Known Geography

The **Report on Known Geography** option allows reporting for single or multiple Counties, Tracts or Blockgroups.

1. Locate the Widget toolbar at the top of the application.
2. Click the **Generate Reports** icon and then the **Report on Known Geography** link.



The **Report on Known Geography** window will be displayed.



3. Select Blockgroup, Tract, or County from the Geography Type dropdown menu.
4. Then click on the map to add features. Up to five features can be selected.
5. Then click 'Submit' to generate reports.
6. All counties, blockgroups or tracts selected will be displayed at the top of the Standard report.

3.3 Explore Reports

The **Select Location** widget Explore Reports option is driven by 31 data variables, displayed below:

Environmental Indicators	Demographic Indicators	EJ Indexes
[Unselect All]		
<input checked="" type="checkbox"/> PM 2.5	<input checked="" type="checkbox"/> Ozone	<input checked="" type="checkbox"/> NATA Diesel PM
<input checked="" type="checkbox"/> NATA Cancer Risk	<input checked="" type="checkbox"/> NATA Respiratory HI	<input checked="" type="checkbox"/> Traffic Proximity
<input checked="" type="checkbox"/> Lead Paint Indicator	<input checked="" type="checkbox"/> NPL Proximity	<input checked="" type="checkbox"/> RMP Proximity
<input checked="" type="checkbox"/> TSD Proximity	<input checked="" type="checkbox"/> Water Discharger Proximity	

Environmental Indicators	Demographic Indicators	EJ Indexes
[Unselect All]		
<input checked="" type="checkbox"/> Demographic Index	<input checked="" type="checkbox"/> Minority Population	<input checked="" type="checkbox"/> Low Income (<2x poverty level)
<input checked="" type="checkbox"/> Linguistically Isolated	<input checked="" type="checkbox"/> Less Than HS Education	<input checked="" type="checkbox"/> Under Age 5
<input checked="" type="checkbox"/> Over Age 64		

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Environmental Indicators	Demographic Indicators	EJ Indexes
[Unselect All]		
<input checked="" type="checkbox"/> PM 2.5	<input checked="" type="checkbox"/> Ozone	<input checked="" type="checkbox"/> NATA Diesel PM
<input checked="" type="checkbox"/> NATA Cancer Risk	<input checked="" type="checkbox"/> NATA Respiratory HI	<input checked="" type="checkbox"/> Traffic Proximity
<input checked="" type="checkbox"/> Lead Paint Indicator	<input checked="" type="checkbox"/> NPL Proximity	<input checked="" type="checkbox"/> RMP Proximity
<input checked="" type="checkbox"/> TSD Proximity	<input checked="" type="checkbox"/> Water Discharger Proximity	

These data variables represent the data that is 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 Indicators, Demographic Indicators, and Environmental Justice Indexes, see the glossary at <https://www.epa.gov/ejscreen/glossary-ejscreen-terms>.

3.4 Chart of Data Comparisons

Above the main chart in the **Select Location** widget 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: 0)

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: 46706)

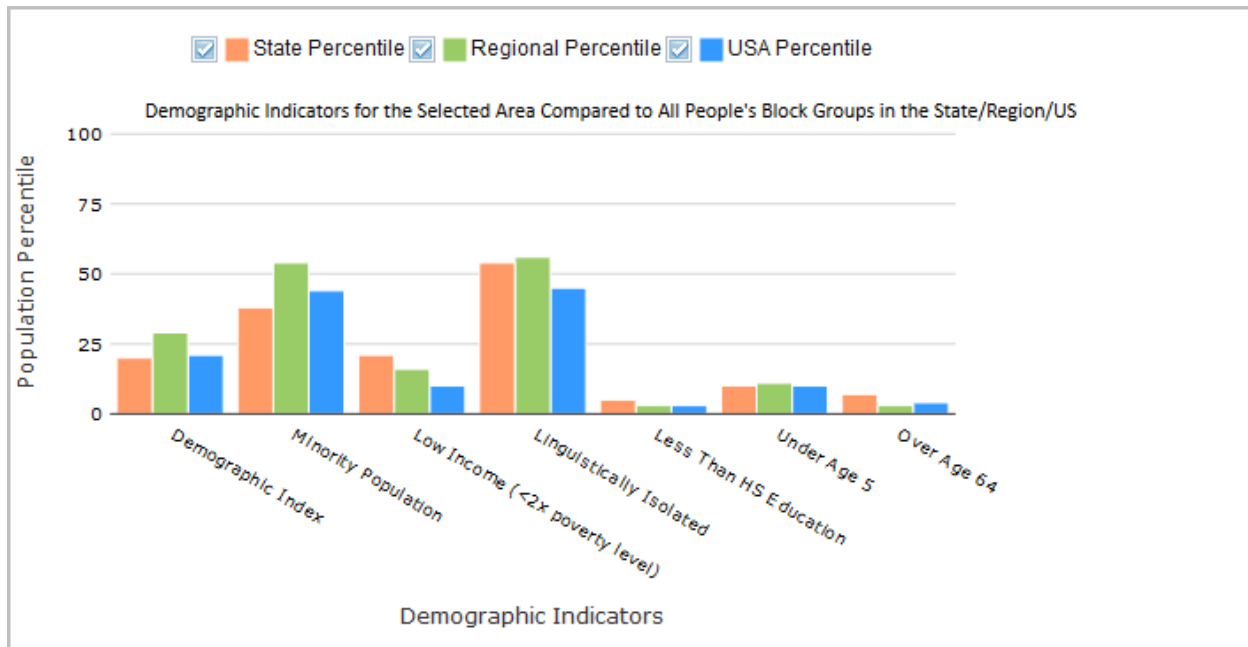
Below the identifying text, there is a series of selection check boxes that allow the user to control which comparative geographies are visible on the chart. The chart is built to handle one geography (State, Region, or USA) or all three at the same time, so the user may feel free to select whichever comparison is most relevant.

<input type="checkbox"/> <input checked="" type="checkbox"/> State Percentile	<input type="checkbox"/> <input checked="" type="checkbox"/> Regional Percentile	<input type="checkbox"/> <input checked="" type="checkbox"/> USA Percentile
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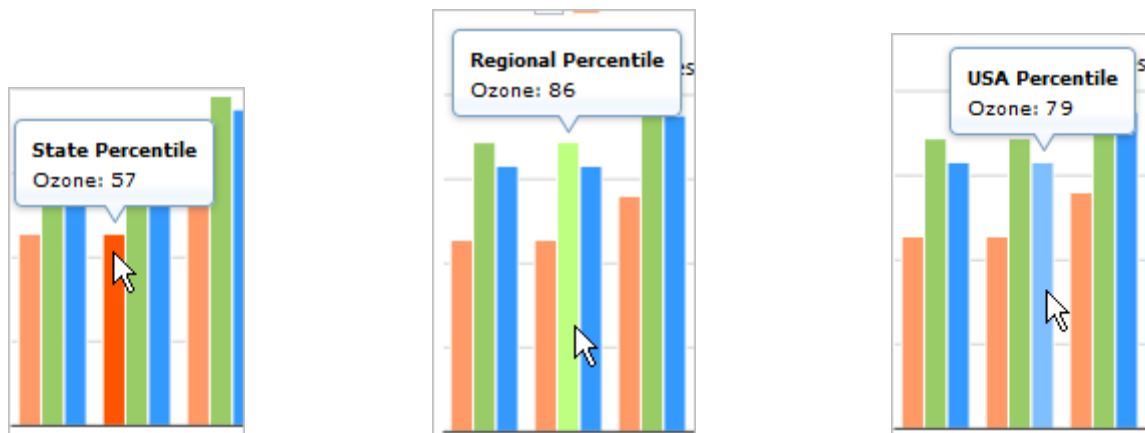
The chart itself displays a series of bar graphs, comparing the currently selected area (either block group or buffered ring) to the state, regional and national statistics for each variable.

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.

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Pointing 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 57th Percentile in the state, this means the average person there has a block group score greater than (or equal to) that of 57% of the state population.



57th Percentile in State

86th Percentile in Region

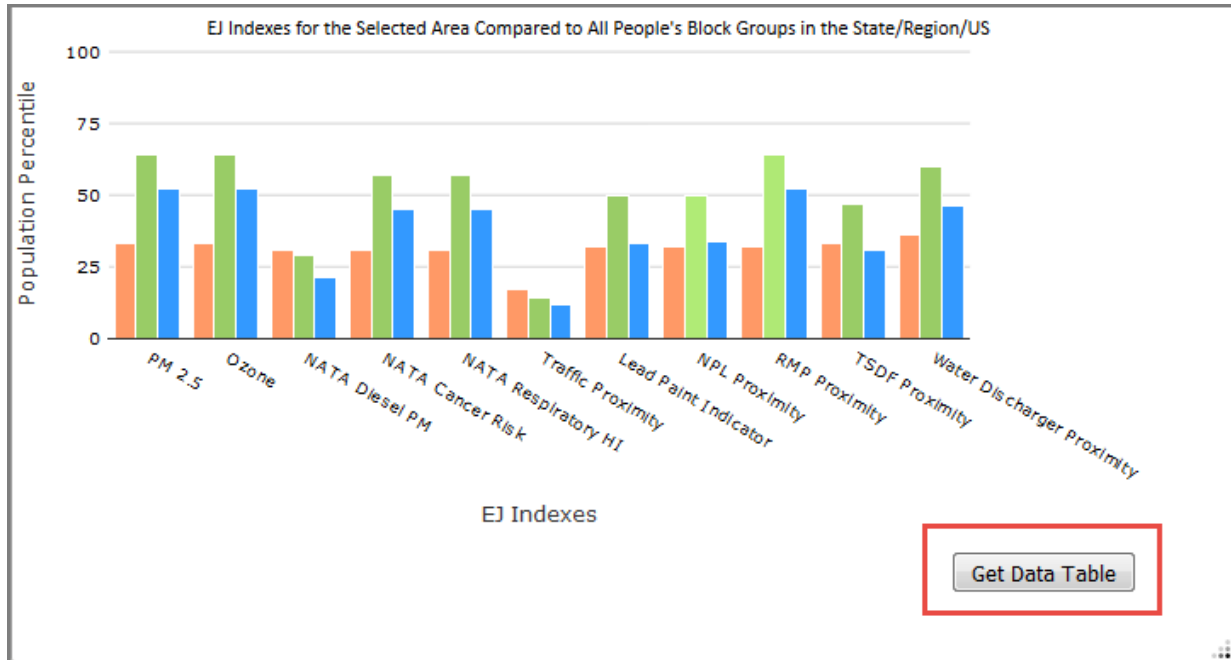
79th Percentile Nationally

3.5 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.

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




Block group 510131020032, VIRGINIA, EPA Region 3 (Population: 1606)

#	Category	Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
1	EJ Index	EJ Index for Particulate Matter (PM 2.5)			89		88		81
2	EJ Index	EJ Index for Ozone			89		88		82
3	EJ Index	EJ Index for NATA Diesel PM			98		95		92
4	EJ Index	EJ Index for NATA Air Toxics Cancer Risk			92		92		86
5	EJ Index	EJ Index for NATA Respiratory Hazard Index			92		92		86
6	EJ Index	EJ Index for Traffic Proximity and Volume			96		97		94
7	EJ Index	EJ Index for Lead Paint Indicator			96		92		90
8	EJ Index	EJ Index for NPL Proximity			88		86		83
9	EJ Index	EJ Index for RMP Proximity			80		78		68
10	EJ Index	EJ Index for TSDF Proximity			93		88		87
11	EJ Index	EJ Index for Water Discharger Proximity			87		86		81
12	Environmental	Particulate Matter (PM 2.5 in ug/m3)	10	8.91	95	9.84	51	9.32	63
13	Environmental	Ozone (ppb)	52.7	48.6	96	49.8	91	47.4	79
14	Environmental	NATA Diesel PM (ug/m3)	2.59	0.767	99	0.918	95-100th	0.937	95-100th

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

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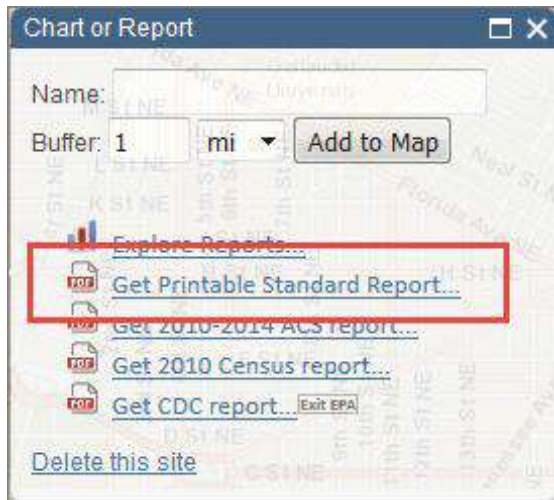
Processing Standards (FIPS) code, the state, EPA region and population. This table is functional for both the block group selection method and the buffer ring selection method.

In the top right-hand corner of the **Tabular View** window, there is an icon  which will allow the user to download data as text file. This functionality will save the tabular data to a comma separated value 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.

Tabular View									
Block group 510131020032, VIRGINIA, EPA Region 3 (Population: 1606)									
#	Category	Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
1	EJ Index	EJ Index for Particulate Matter (PM 2.5)			89		88		81
2	EJ Index	EJ Index for Ozone			89		88		82
3	EJ Index	EJ Index for NATA Diesel PM			98		95		92
4	EJ Index	EJ Index for NATA Air Toxics Cancer Risk			92		92		86
5	EJ Index	EJ Index for NATA Respiratory Hazard Index			92		92		86
6	EJ Index	EJ Index for Traffic Proximity and Volume			96		97		94
7	EJ Index	EJ Index for Lead Paint Indicator			96		92		90
8	EJ Index	EJ Index for NPL Proximity			88		86		83
9	EJ Index	EJ Index for RMP Proximity			80		78		68
10	EJ Index	EJ Index for TSDF Proximity			93		88		87
11	EJ Index	EJ Index for Water Discharger Proximity			87		86		81
12	Environmental	Particulate Matter (PM 2.5 in ug/m3)	10	8.91	95	9.84	51	9.32	63
13	Environmental	Ozone (ppb)	52.7	48.6	96	49.8	91	47.4	79
14	Environmental	NATA Diesel PM (ug/m3)	2.59	0.767	99	0.918	95-100th	0.937	95-100th

3.6 Get Printable Standard Report

A user who would like a more concrete representation of the data available in EJSCREEN can choose to export a PDF using the **Get Printable Standard Report** link on the **Chart or Report** widget.



NOTE: It is important to wait for the report to finish creating, which may take 10 seconds or more. Do not click the **Get Printable Standard 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 PDF.

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EJSCREEN Report (Version 2016)



Blockgroup: 060372077101, CALIFORNIA, EPA Region 9

Approximate Population: 2,933

Input Area (sq. miles): 0.43

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	57	61	79
EJ Index for Ozone	52	55	75
EJ Index for NATA [*] Diesel PM	78	79	89
EJ Index for NATA [*] Air Toxics Cancer Risk	72	74	87
EJ Index for NATA [*] Respiratory Hazard Index	78	81	91
EJ Index for Traffic Proximity and Volume	85	86	95
EJ Index for Lead Paint Indicator	71	76	86
EJ Index for Proximity to NPL sites	63	68	83
EJ Index for Proximity to RMP sites	74	77	88
EJ Index for Proximity to TSDFs	87	88	95
EJ Index for Proximity to Major Direct Dischargers	51	54	70



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

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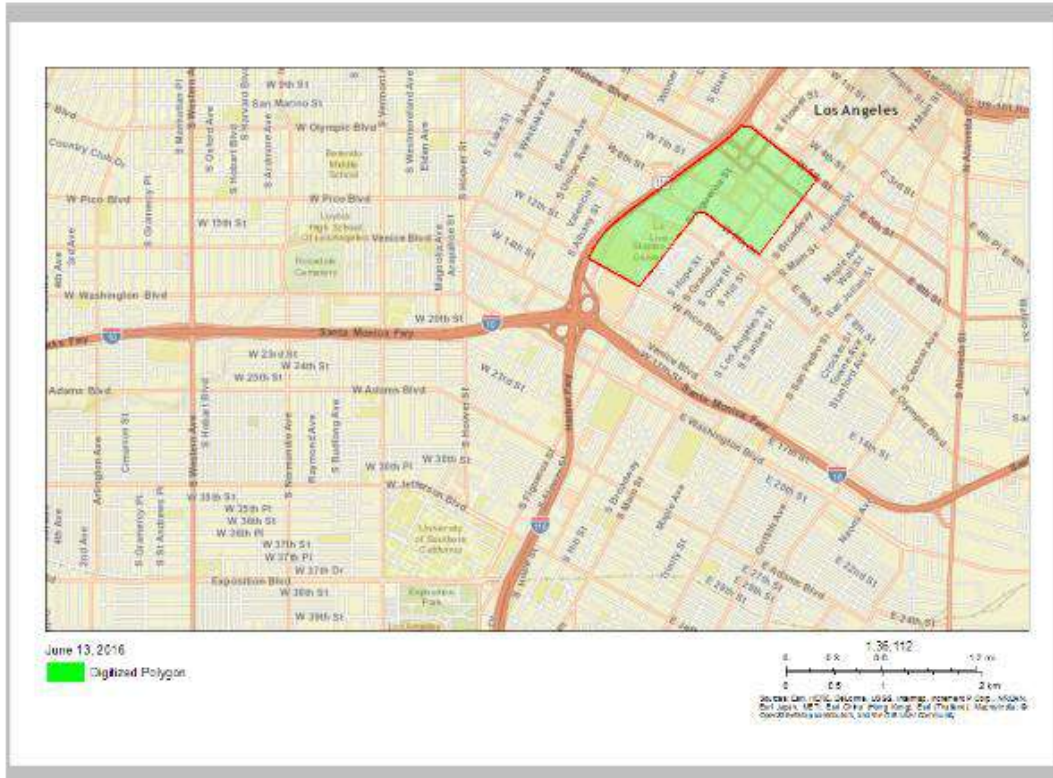
EJSCREEN Report (Version 2016)



Blockgroup: 060372077101, CALIFORNIA, EPA Region 9

Approximate Population: 2,933

Input Area (sq. miles): 0.43



Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0
National Pollutant Discharge Elimination System (NPDES)	0

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EJSCREEN Report (Version 2016)

Blockgroup: 060372077101, CALIFORNIA, EPA Region 9

Approximate Population: 2,933

Input Area (sq. miles): 0.43



Selected Variables	Value	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 $\mu\text{g}/\text{m}^3$)	12.8	9.83	94	9.37	95	9.32	99
Ozone (ppb)	47.5	49.8	46	51	37	47.4	45
NATA* Diesel PM ($\mu\text{g}/\text{m}^3$)	2.92	0.973	98	0.978	95-100th	0.937	95-100th
NATA* Cancer Risk (lifetime risk per million)	100	44	99	43	95-100th	40	95-100th
NATA* Respiratory Hazard Index	6.1	2.1	99	2	95-100th	1.8	95-100th
Traffic Proximity and Volume (daily traffic count/distance to road)	3500	1200	90	1100	91	590	96
Lead Paint Indicator (% Pre-1960 Housing)	0.53	0.3	75	0.24	80	0.3	77
NPL Proximity (site count/km distance)	0.14	0.17	70	0.15	75	0.13	76
RMP Proximity (facility count/km distance)	1	0.64	82	0.57	84	0.43	88
TSDF Proximity (facility count/km distance)	0.47	0.12	95	0.11	96	0.072	98
Water Discharger Proximity (facility count/km distance)	0.095	0.2	36	0.2	38	0.31	28
Demographic Indicators							
Demographic Index	44%	49%	45	47%	47	38%	68
Minority Population	52%	61%	38	58%	42	37%	69
Low Income Population	37%	36%	55	36%	55	35%	58
Linguistically Isolated Population	15%	10%	75	9%	78	5%	89
Population With Less Than High School Education	14%	19%	48	17%	51	14%	60
Population Under 5 years of age	3%	7%	19	7%	20	6%	21
Population over 64 years of age	15%	12%	72	13%	71	14%	63

* 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: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.



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The **Printable Standard Report** report will include the following:

- The current date
 - The block group that the data represents (Block group selection)
 - The latitude and longitude of the center of the buffered ring (Buffer ring selection)
 - The state and EPA region that the data is encompassed by
 - Input area (in square miles)
 - A table of the number of sites reporting to EPA
 - 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)
 - State percentile
 - Regional average (except EJ Indexes)
 - Regional percentile
 - National average (except EJ Indexes)
 - National percentile
 - A link to metadata about the report and the tool
- Zero is a known and valid value for a data element. NA (not available or “null”) means that no value was calculated for that data element. For example, Ozone and PM 2.5 concentrations were not available for Alaska, so all associated data elements are set to “null”.

<div><div>EJSCREEN Report (Version 2016) Blockgroup: 110010104002 DISTRICT OF COLUMBIA, EPA Region 3 Approximate Population: 2,366 Input Area (sq. miles): 0.83</div></div>			
Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	90	98	95
EJ Index for Ozone	91	98	96
EJ Index for NATA* Diesel PM	83	98	96
EJ Index for NATA* Air Toxics Cancer Risk	89	98	96
EJ Index for NATA* Respiratory Hazard Index	91	99	98
EJ Index for Traffic Proximity and Volume	94	95	91
EJ Index for Lead Paint Indicator	91	98	97
EJ Index for NPL Proximity	93	98	97
EJ Index for RMP Proximity	79	88	79
EJ Index for TSD Proximity	94	99	98
EJ Index for Water Discharger Proximity	88	97	95

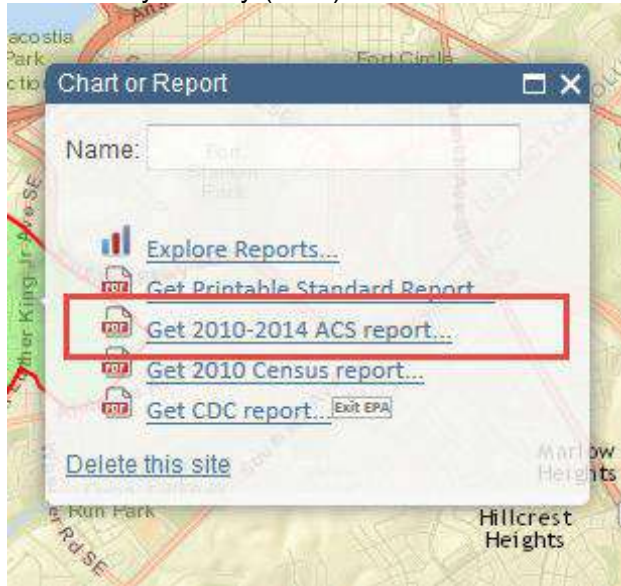
Multiple reports can be created per session.

3.7 Get 2010-2014 ACS Report or 2010 Census Report

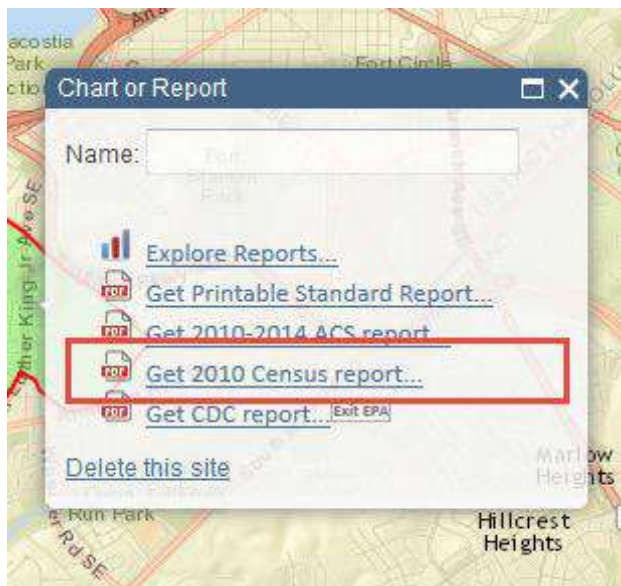
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Two demographic report options are available under the **Select Location** widget **Chart or Report** option.

The **Get 2010-2014 ACS Report** link provides a report with US Census Bureau American Community Survey (ACS) data in PDF format.

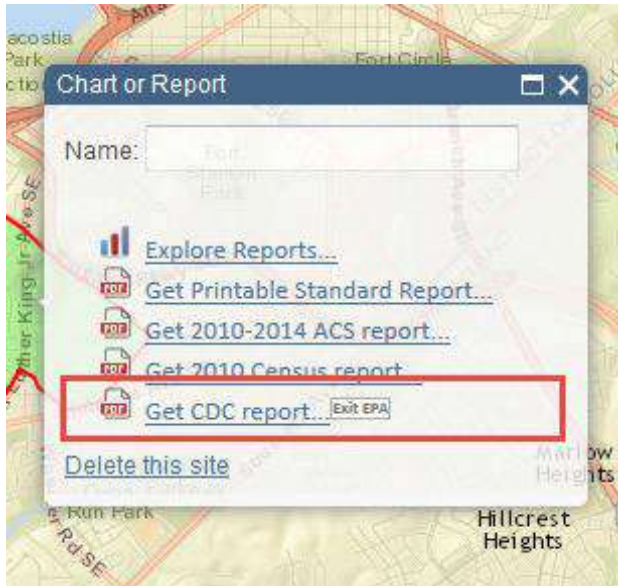


The **Get 2010 Census report** link provides a report with data from the US Census Bureau, Census 2010 Summary File 1 in PDF format.



3.8 Get CDC Report

The **Get CDC report** link links to a Center for Disease Control and Prevention (CDC) report with environmental health issues for the county.



4. Add Maps Widget

The **Add 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.

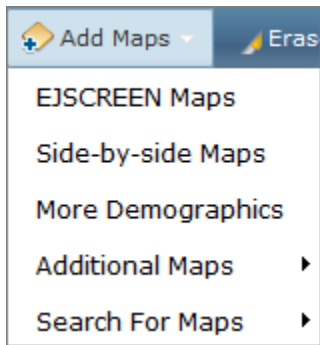
Web map layers are displayed on top of the existing map data and can be toggled on and off and controlled just like any other layer.

1. Locate the Widget toolbar at the top of the application.
2. Click the **Add Maps** icon.

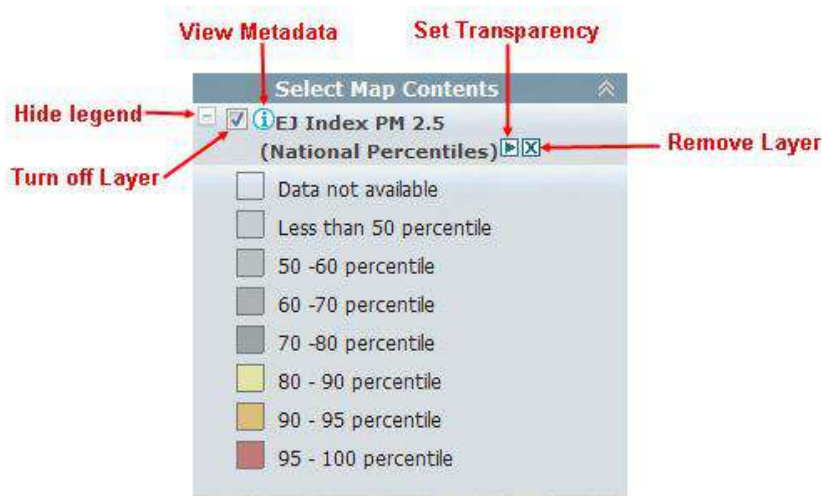


The **Add Maps** options will be displayed.

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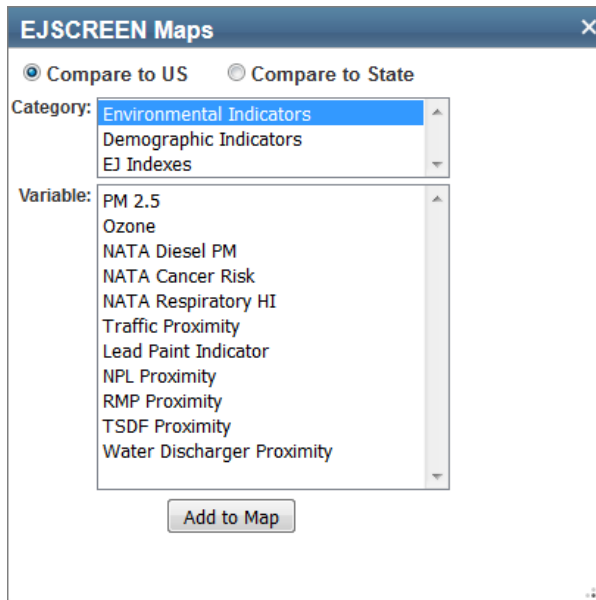
3. When map layers are added to the map, the layer legend will be added under the **Select Map Contents** menu on the right hand side of the map. Layer options are available in the **Select Map Contents** window.



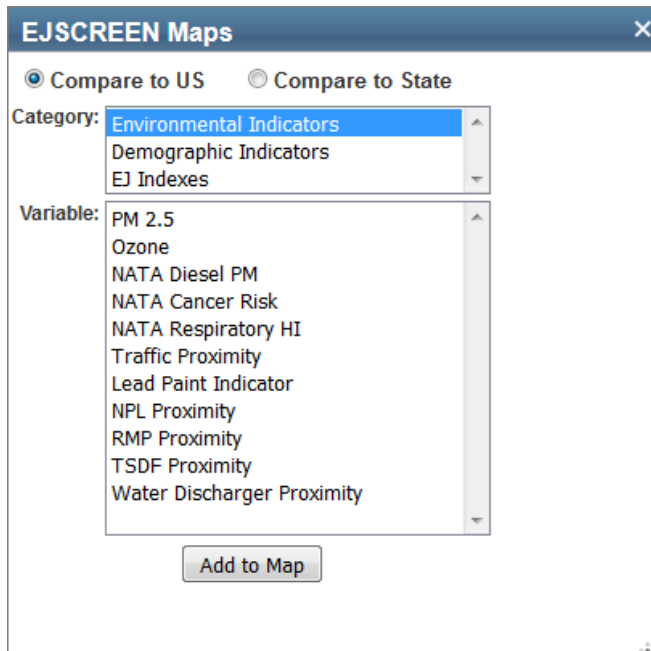
4.1 EJSCREEN Maps

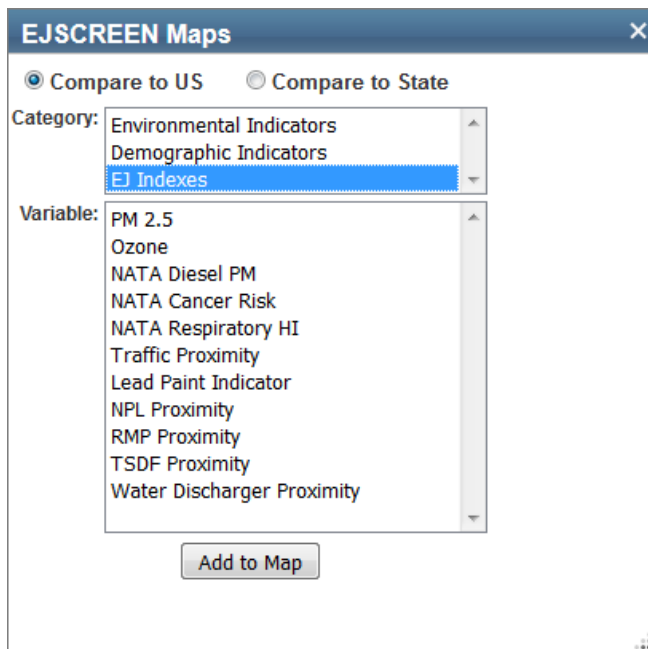
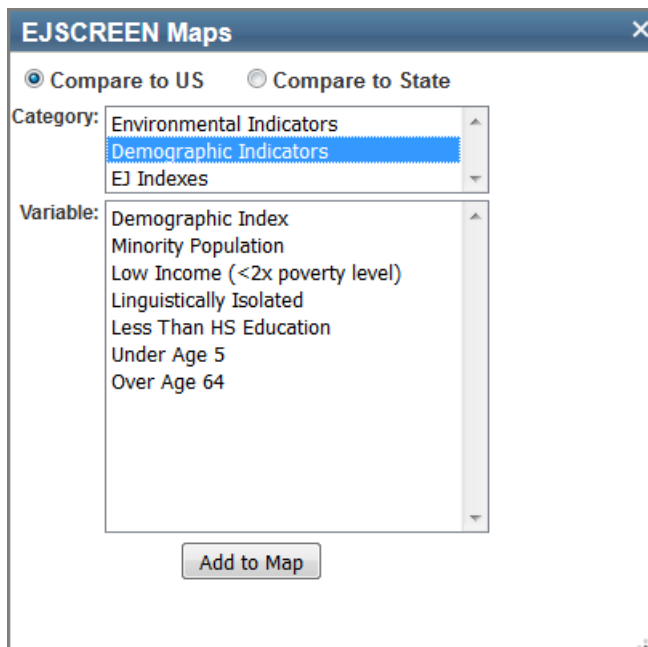
The **EJSCREEN Maps** option allows users to display the EJ Indexes, as well as the environmental indicators, and demographic indicators which comprise the EJ Indexes as color-coded (thematic) maps.

EJSCREEN User Guide



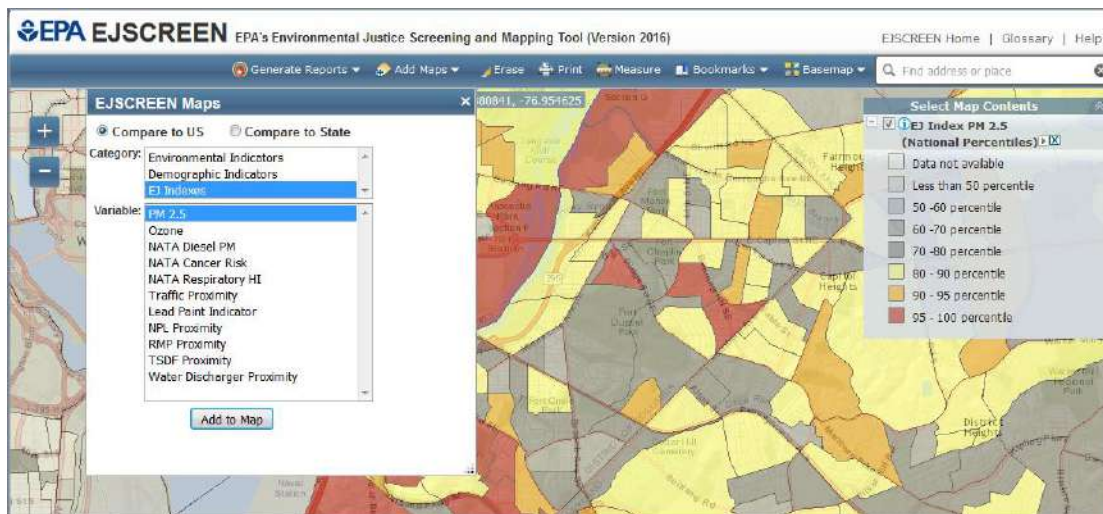
The data available for each of the layer groups are shown below:



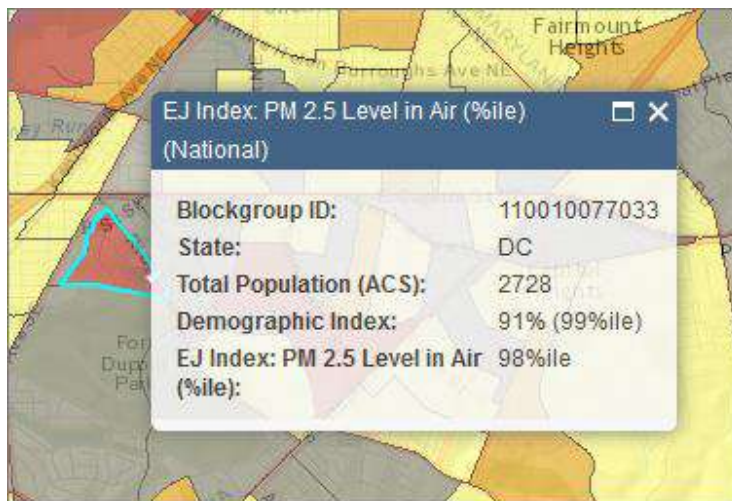


1. When the **EJSCREEN Maps** tool is opened, Compare to US and Environmental Indicators are selected as the default. To change the selections, click the Compare to State radio button if desired, select a Category, then select a Variable from the menu and then click the Add to Map button.
2. This will 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.

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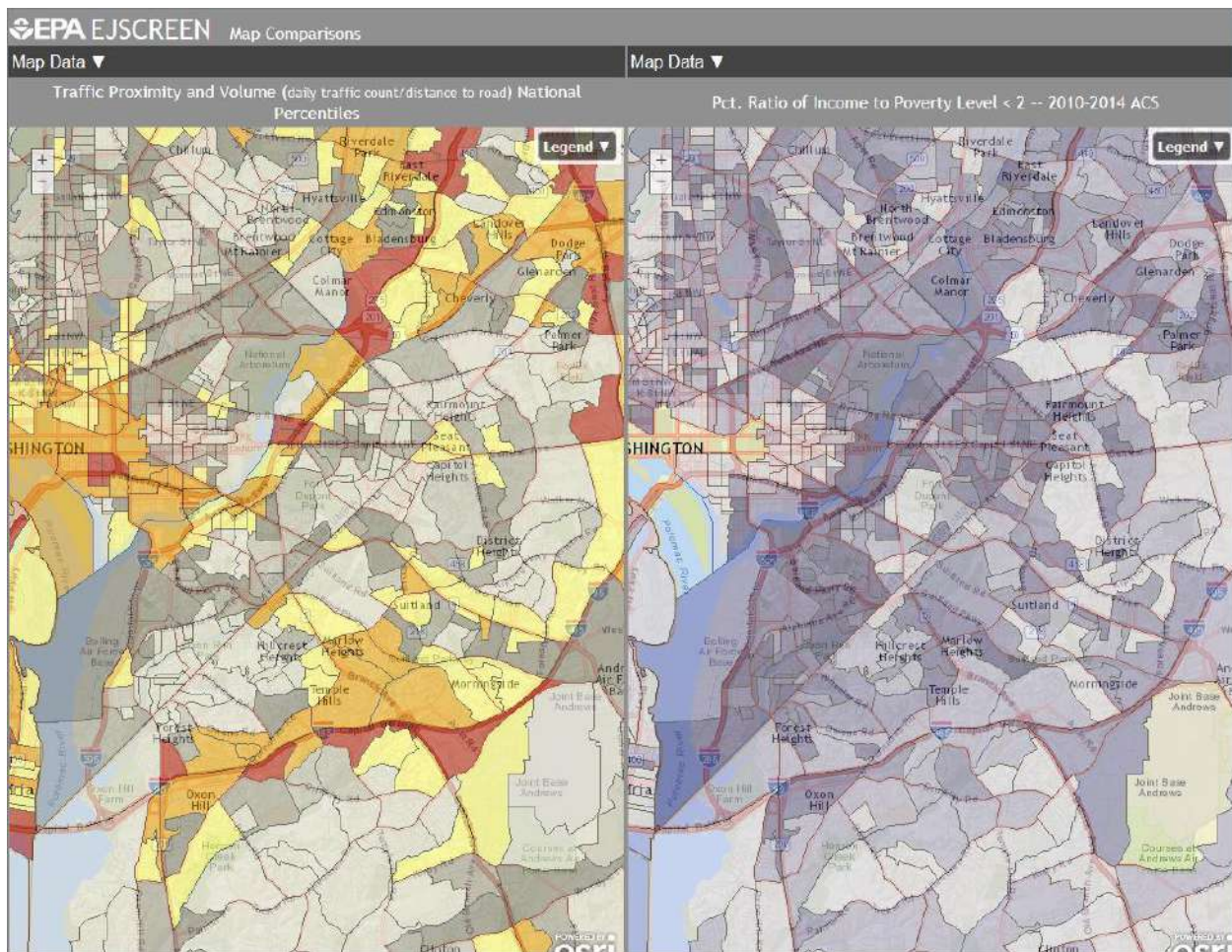
3. Clicking on a block group when any of the **Map EJ Indexes** layers are activated will show a pop-up window that includes the location's blockgroup ID, state, population count, indicator values, and national or state percentile.



4.2 Side-by-Side Maps

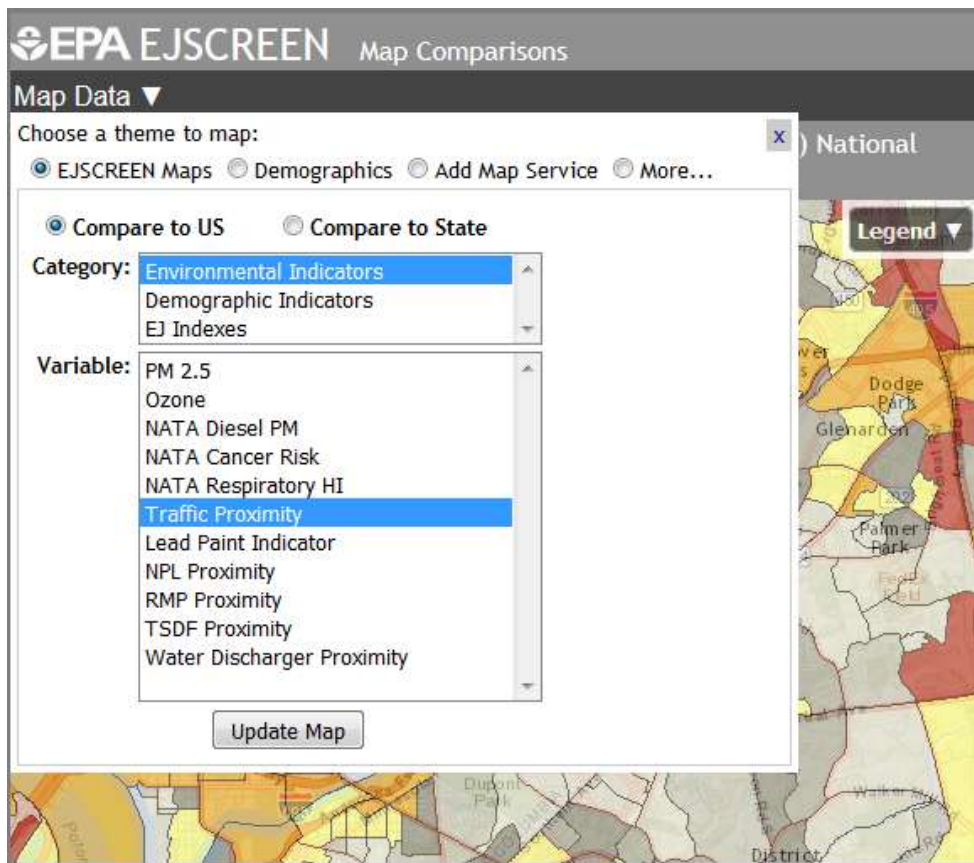
The **Side-by-Side Maps** option allows users to compare different map layers for a location on side by side maps.

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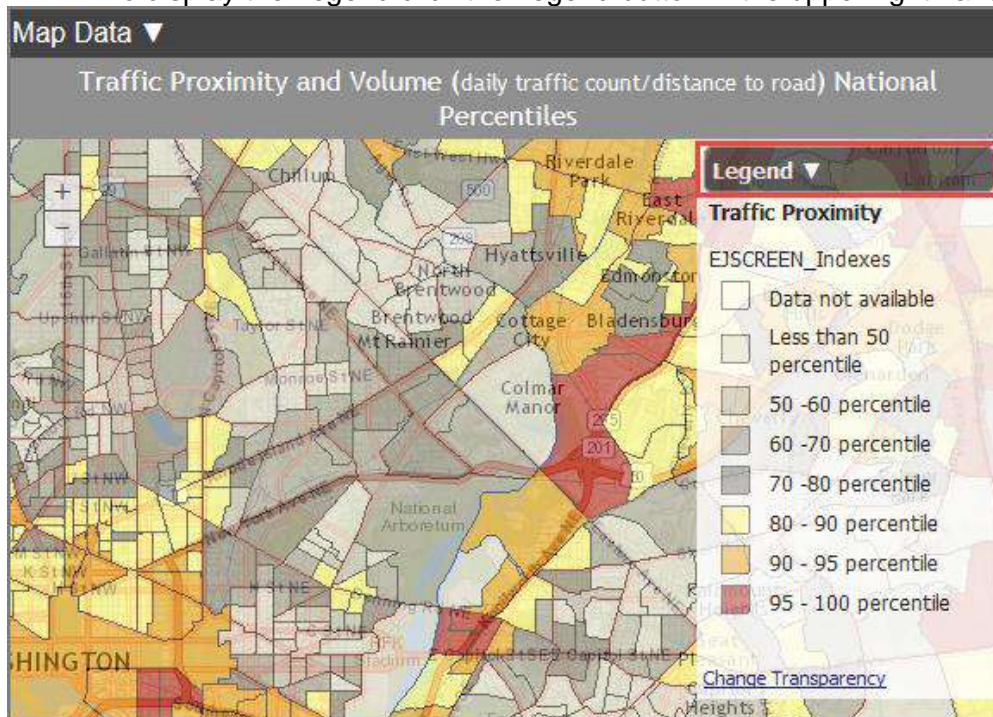


1. When the **Side-by Side Maps** tool is opened, Traffic Proximity and Volume and Pct Ratio of Income to Poverty Level <2 are selected as the default map data. To change the selections, click the Map Data button, then select a layer from the menu and then click the Update Map button. This will update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

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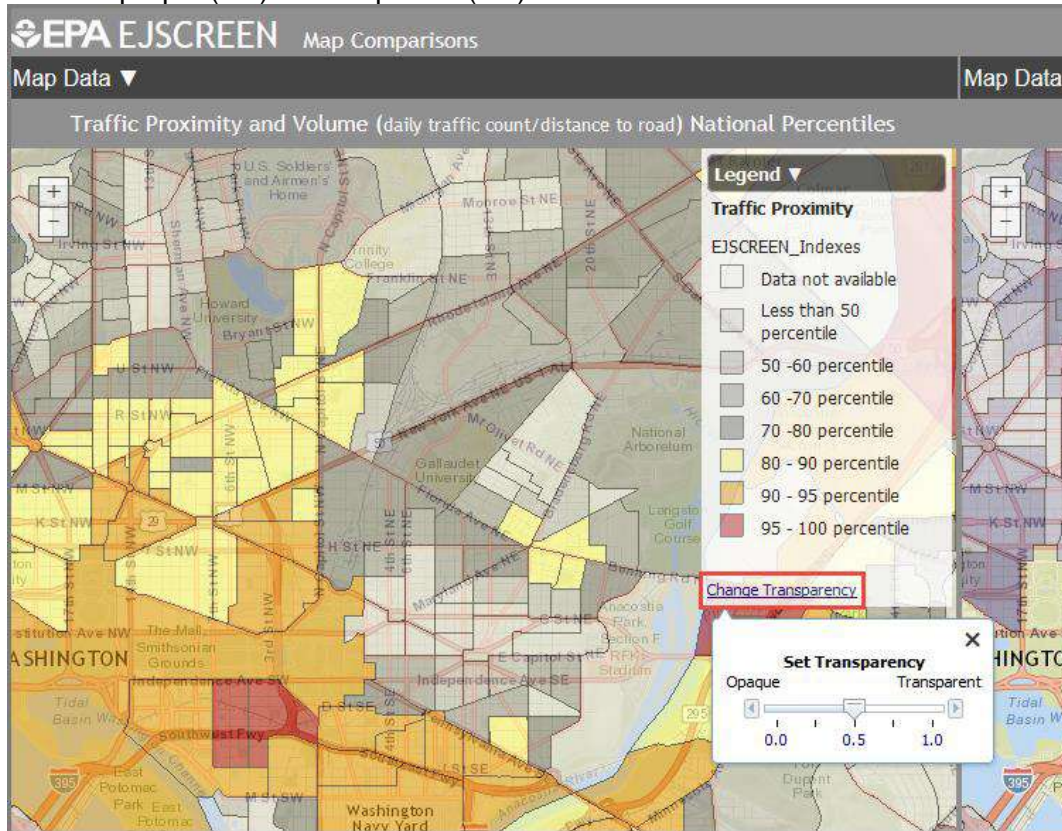


2. To display the Legend click the Legend button in the upper right hand corner of the map.



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- To change transparency click the Change Transparency link at the bottom of the legend. The default setting is 50% transparency (0.5). Transparency can be adjusted from opaque (0.0) to transparent (1.0).



4.3 More Demographics

The **More Demographics** option allows users to display supplementary demographic information from the Census Bureau in the map.

The screenshot shows a window titled "Demographics" with a close button (X) in the top right corner. Inside the window, there are three tabs: "2010-2014 ACS" (selected), "2010 Census", and "2000 Census". Below the tabs, the following settings are visible:

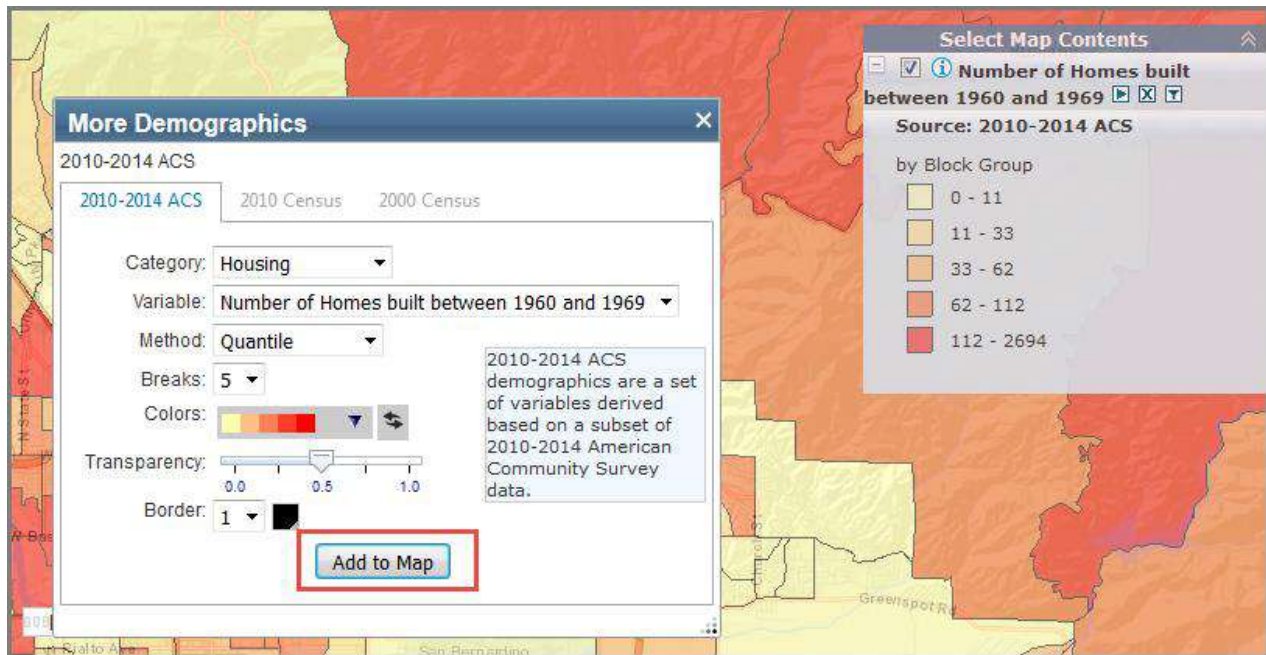
- Category: Population
- Variable: Population Density (per sq. mile)
- Method: Quantile
- Breaks: 5
- Colors: A color bar with a gradient from yellow to red, and a legend icon.
- Transparency: A slider bar ranging from 1.0 to 0.0, with a current value of 0.5.
- Border: 1

An "Add to Map" button is located at the bottom right of the configuration area. A text box on the right side of the window contains the following text:

2010-2014 ACS demographics are a set of variables derived based on a subset of 2010-2014 American Community Survey data.

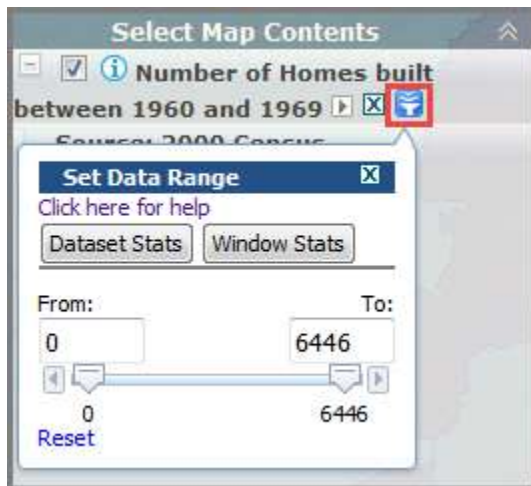
Demographic Data is available for 2010-2014 ACS, 2010 Census, and 2000 Census. Categories and variables depend on the data set. All Demographic options allow selection of method, breaks, colors, transparency and border.

1. Click the tab for the dataset.
2. Choose Category from the dropdown menu.
3. Select variable from dropdown menu.
4. Adjust Method, Breaks, Color, Transparency and Border if desired.
5. Click the **Add to Map** button to add layer to map and to the Select Map Contents Menu and legend.



4.3.1 Filtering Demographics Layers

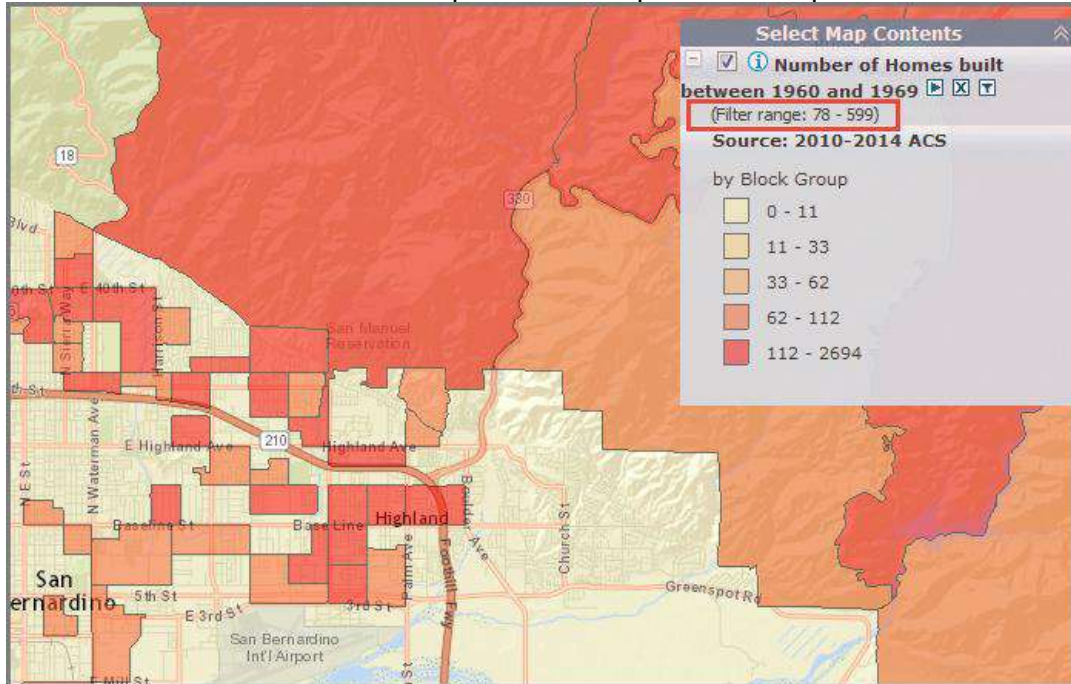
All demographics layers can be filtered.



1. Click the the filter button.
2. Two sets of the statistics are available to assist with specifying cutoffs. Click on **Dataset Stats** to obtain the statistics; including minimum, maximum, mean, and standard deviation, for the entire layer. Click on **Window Stats** to obtain the statistics for the current map window.
3. Specify a date range by moving the slider or entering a vlaue in the “From” or “To” box.

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4. The map will refresh immediately after a new value is set, and the updated data range is shown in the legend.
5. To clear the data range, click on **Reset**.
6. Click the “Click here for help” link for complete filter help.



4.4 Additional Maps

Options available under “Additional Maps” are shown below:

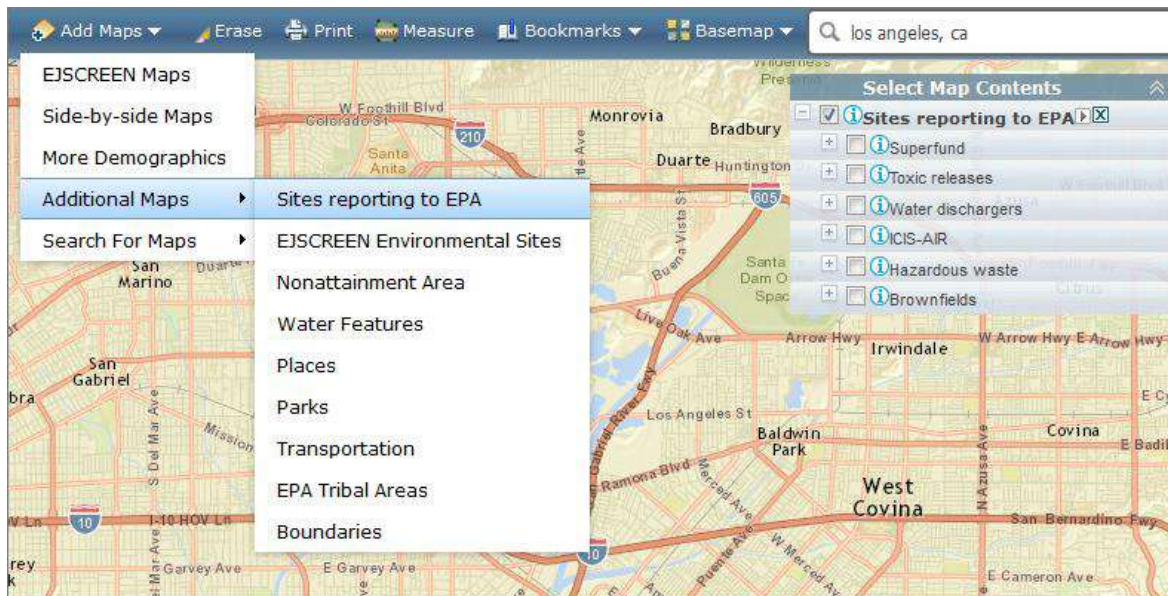
Sites reporting to EPA
EJSCREEN Environmental Sites
Nonattainment Area
Water Features
Places
Parks
Transportation
EPA Tribal Areas
Boundaries

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4.4.1 Sites Reporting to EPA

This map service contains the locations for the following program systems: Superfund, Toxic Releases, Water Dischargers, ICIS-AIR, Hazardous waste and Brownfields.

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Sites reporting to EPA.
4. Sites reporting to EPA will be added to the Select Map Contents menu.
5. Check boxes to add layers to the map.

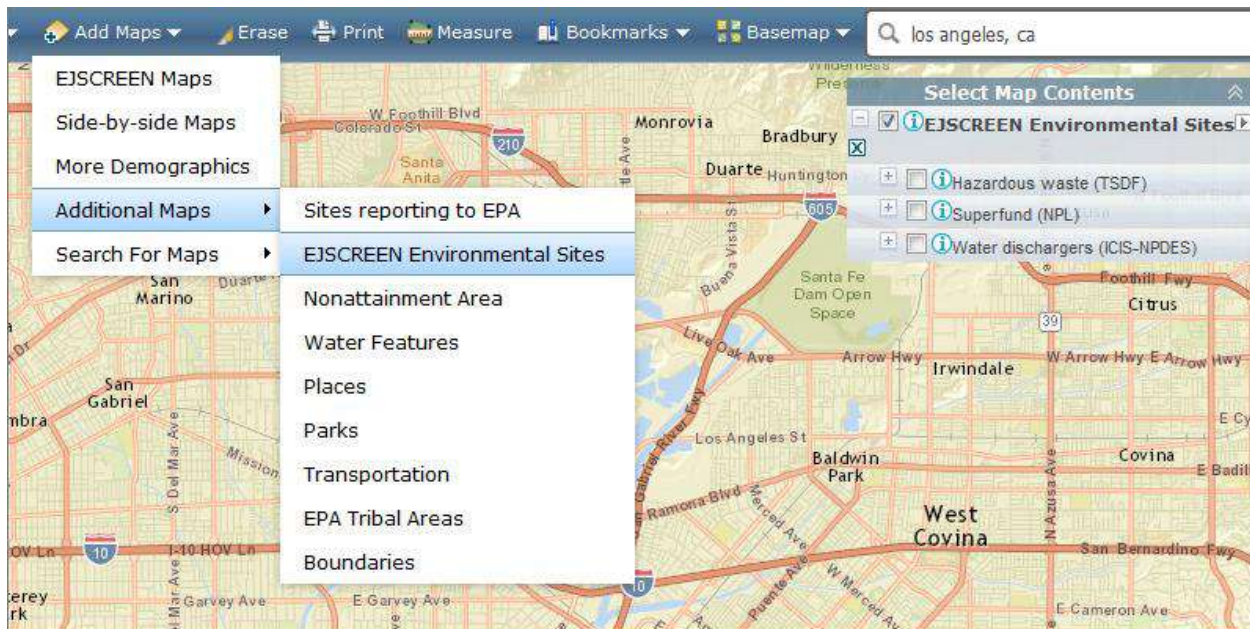


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4.4.2 EJSCREEN Environmental Sites

This map service contains the locations for the following program systems: RCRA (TSDF), Superfund (NPL), and Water Dischargers (NPDES).

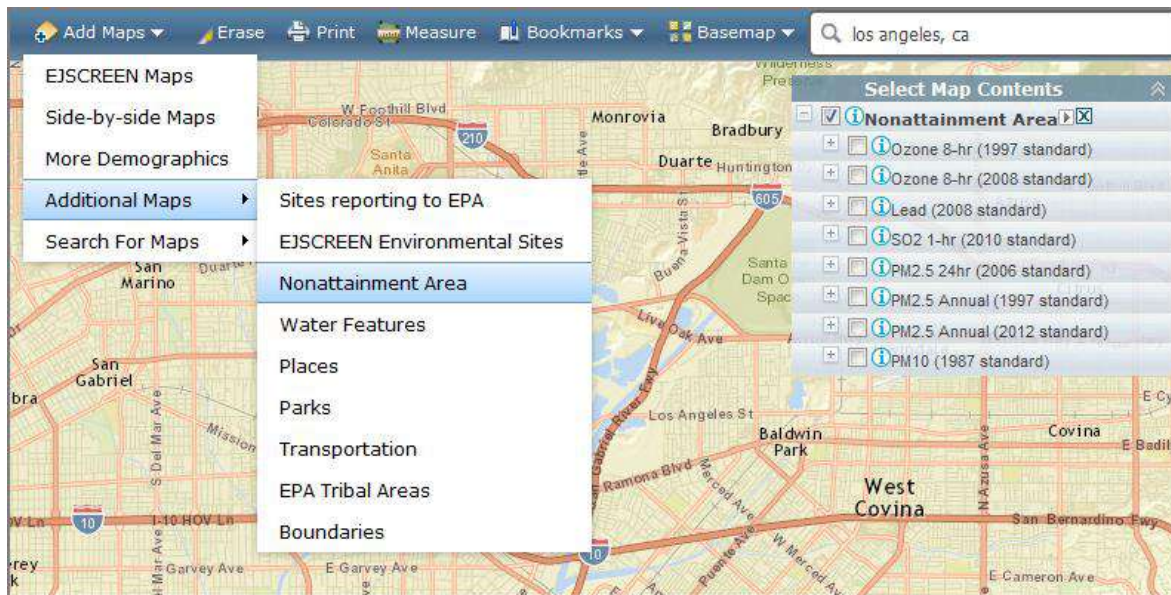
1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click EJSCREEN Environmental Sites.
4. EJSCREEN Environmental Sites will be added to the Select Map Contents menu.
5. Check boxes to add layers to the map



4.4.3 Nonattainment Area

This map service contains publically available nonattainment areas data published by EPA. Further information on EPA nonattainment areas can be found at <https://www3.epa.gov/airquality/greenbook/>.

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Nonattainment Area.
4. Nonattainment Area will be added to the Select Map Contents menu.
5. Check boxes in the Select Map Contents to add layers to the map.

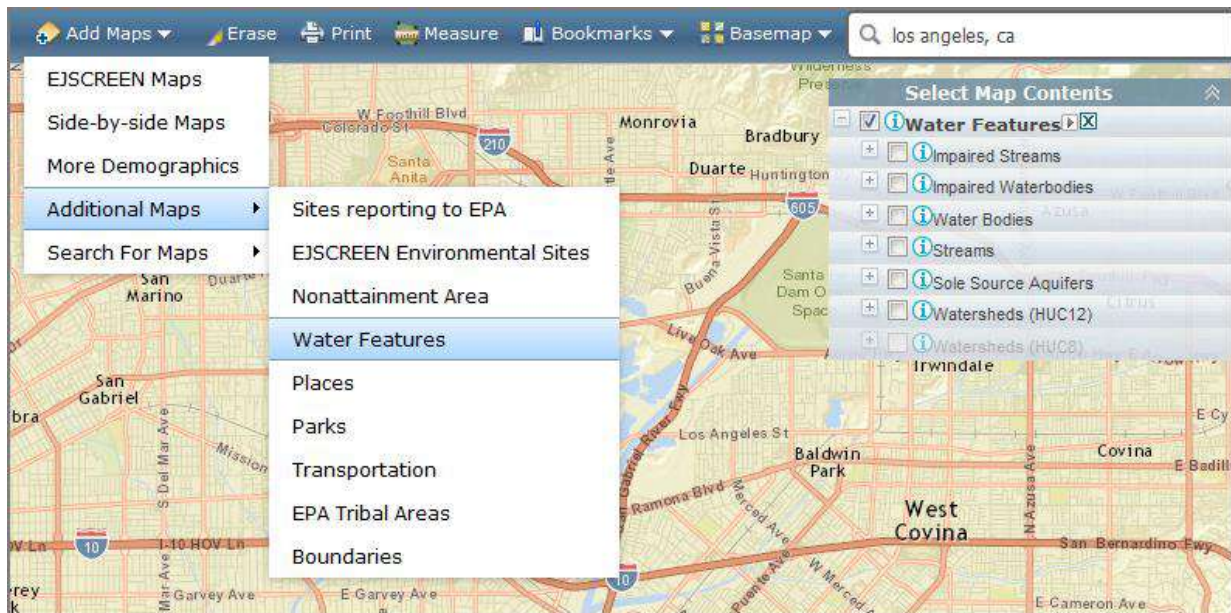


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4.4.4 Water Features

This map service contains Water and Hydrological layers for Impaired Streams, Impaired Waterbodies, Streams, Water Bodies, Sole Source Aquifers, Watersheds (HUC12), and Watersheds (HUC8).

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Water Features.
4. Water Features will be added to the Select Map Contents menu.
5. Check boxes in the Select Map Contents to add layers to the map.

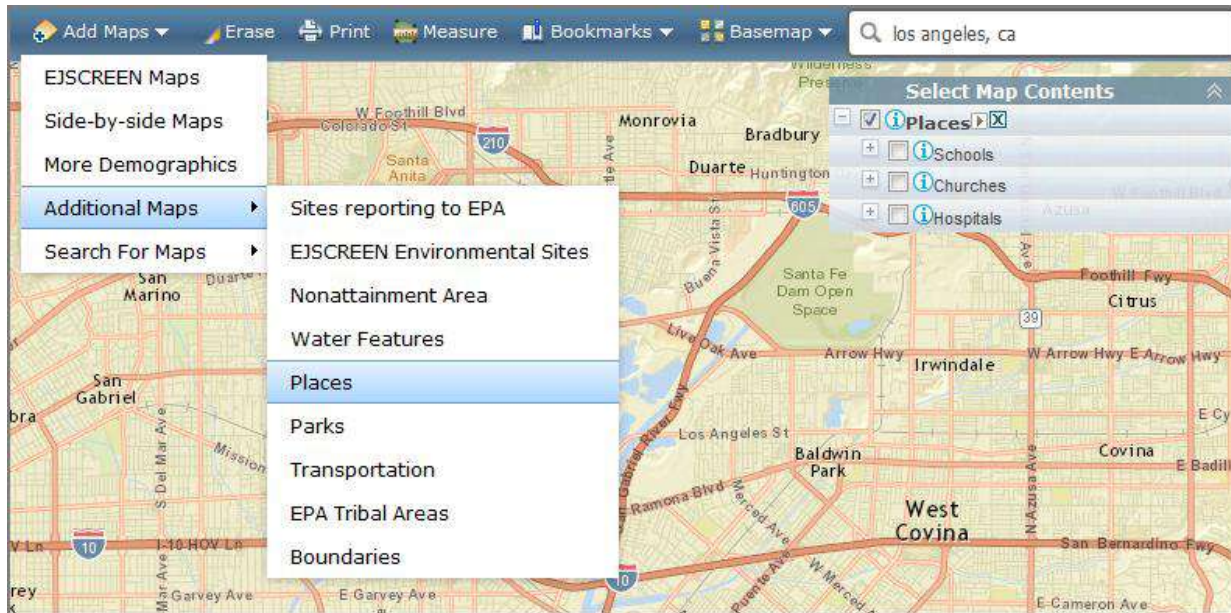


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4.4.5 Places

This map service contains locational data for Schools, Churches, and Hospitals from the United States Geological Survey (USGS) Geographic Names Information System (GNIS) service.

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Places.
4. Places will be added to the Select Map Contents menu.
5. Check boxes in the Select Map Contents to add layers to the map.

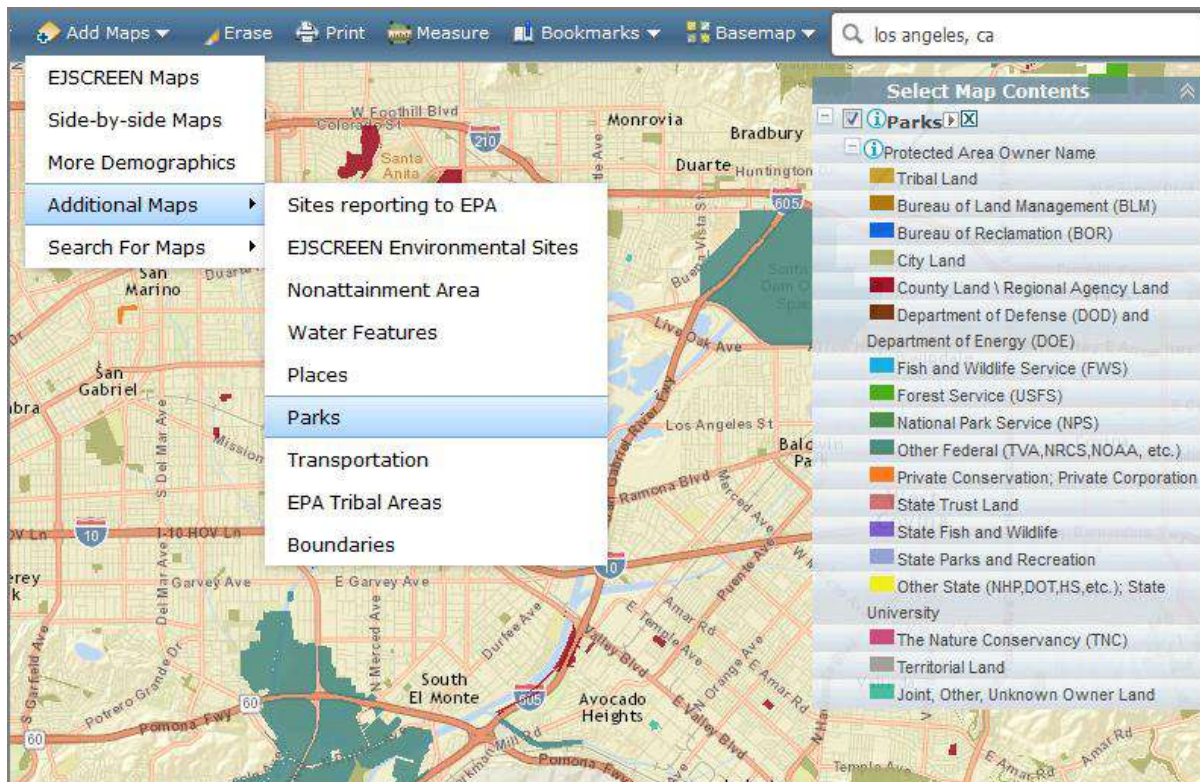


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4.4.6 Parks

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, National GAP Analysis Program.

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Parks.
4. Parks will be added to the Select Map Contents menu and to the map.

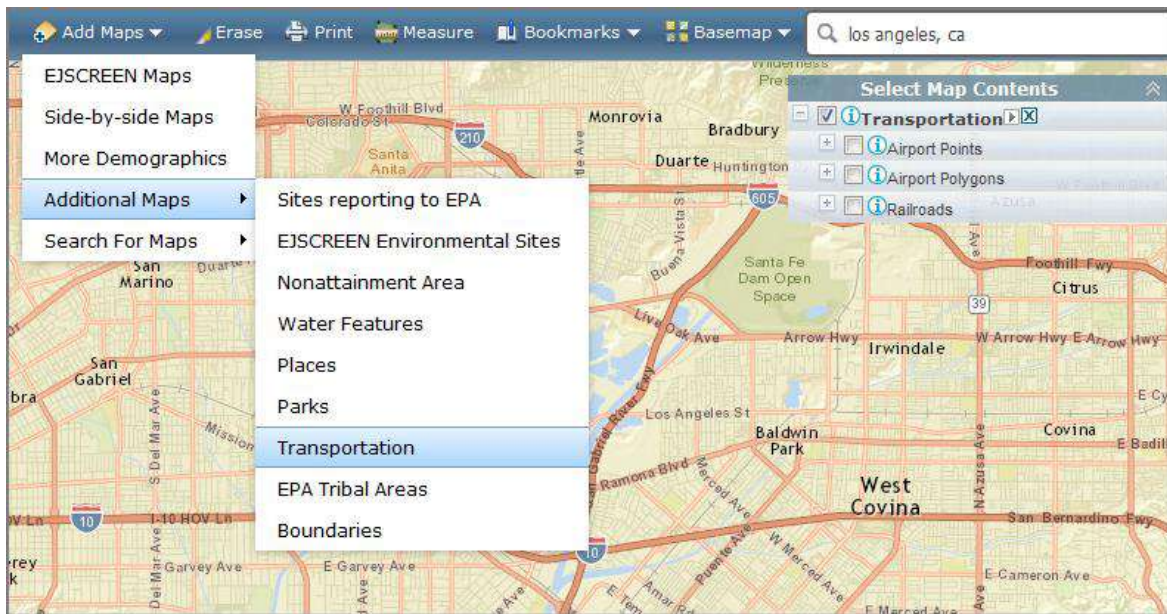


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4.4.7 Transportation

This map service contains transportation layers for Airport Points, Airport Polygons and Railroads.

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Transportation.
4. Transportation will be added to the Select Map Contents menu.
5. Check boxes in the Select Map Contents to add layers to the map.

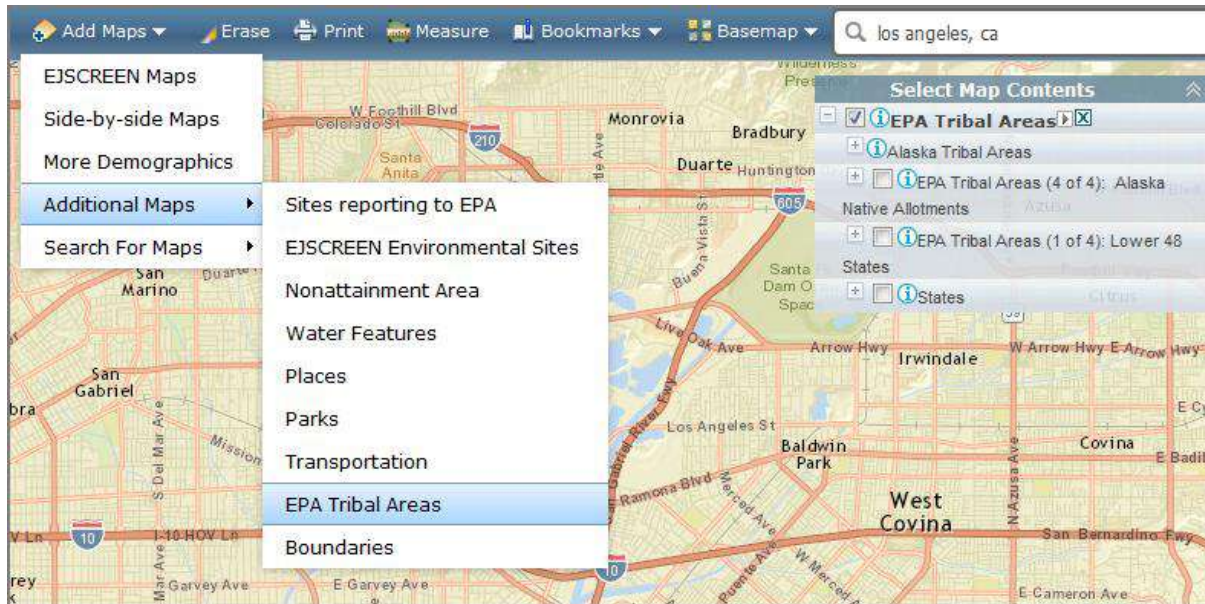


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4.4.8 EPA Tribal Areas

This map service contains tribal areas for lower 48 states and Alaska Native Villages, Alaska Native Allotments and Alaska Reservations in Alaska.

1. Click “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click EPA Tribal Areas.
4. EPA Tribal Areas will be added to the Select Map Contents menu.
5. Check boxes in the Select Map Contents to add layers to the map.

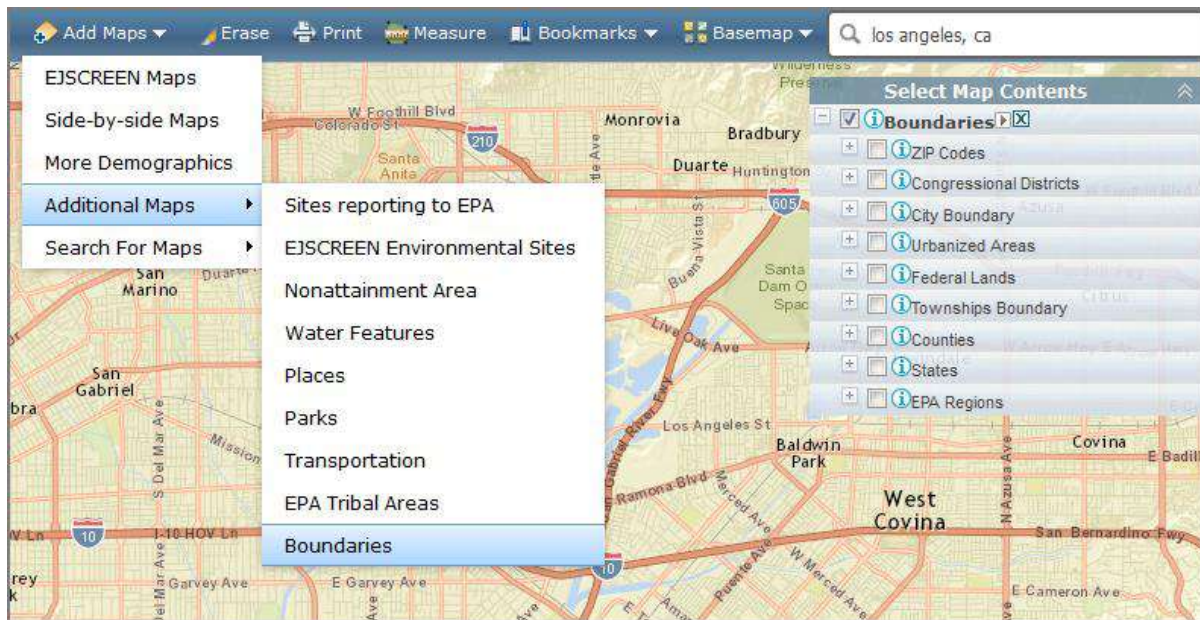


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4.4.9 Boundaries

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 “Add Maps” in the Widget toolbar.
2. Click or mouse over “Additional Maps”.
3. Click Boundaries.
4. Boundaries will be added to the Select Map Contents menu.
5. Check boxes in the Select Map Contents to add layers to the map.

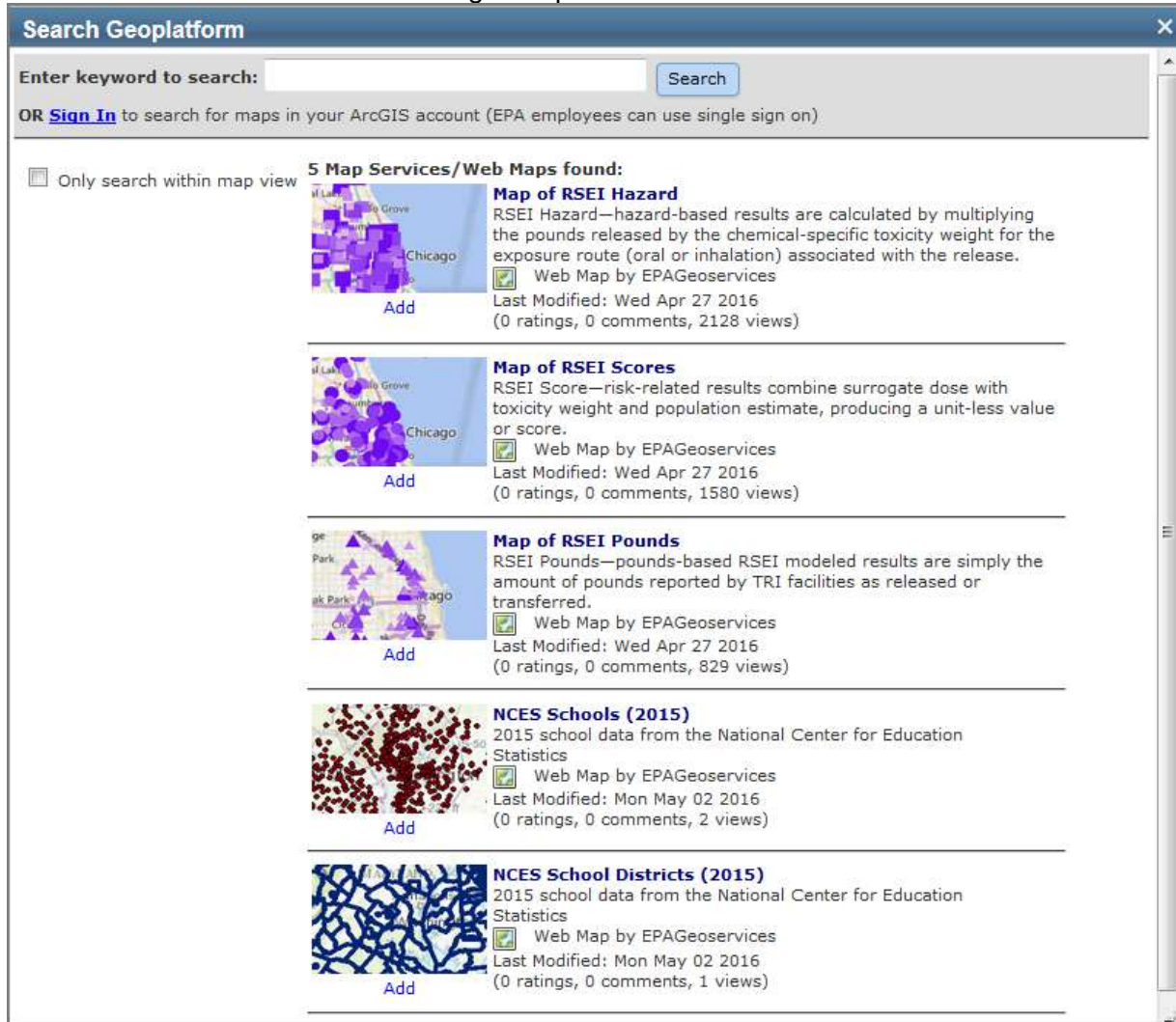


4.5 Search for Maps

The Search for Maps option to search the geoplatform or to add publicly available data from the web.

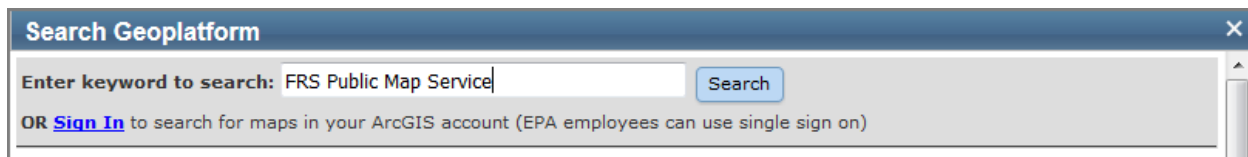
4.5.1 Search Geoplatform

The 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-right corner to sign in and view additional available information through the platform.

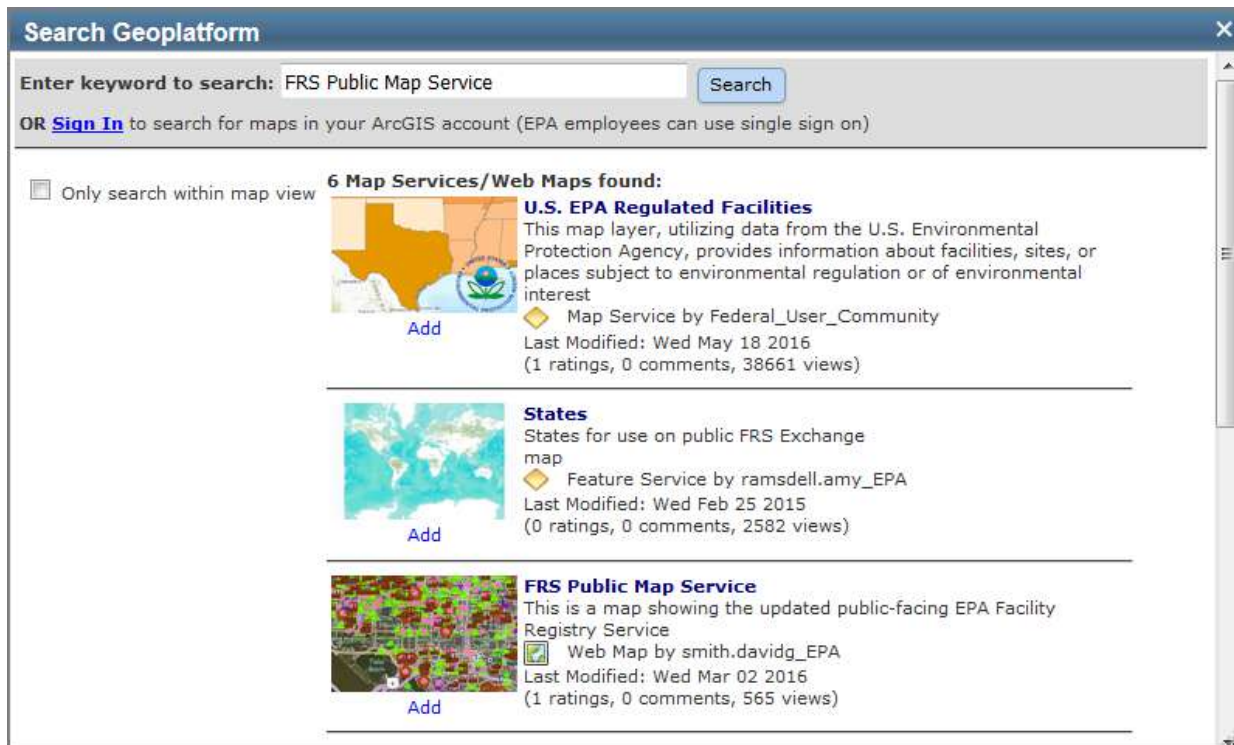


1. Default layers available for selection include Map of RSEI Hazard, Map of RSEI Scores, Map of RSEI pounds, NCES Schools(2015) and NCES Scholl Districts (2015).
2. To search for additional layers, enter a keyword in the **Enter keyword to search** text box. Press Enter on the keyboard or click **Search**.

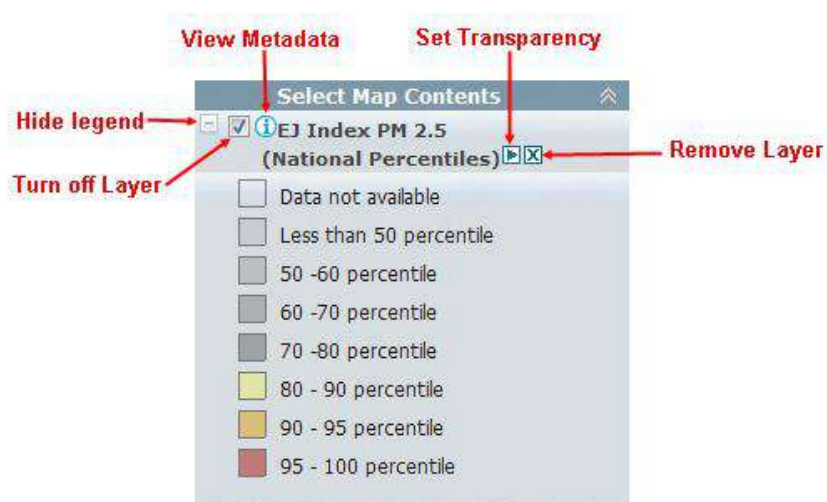
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3. Search results display in the window



4. Click **Add** to add a layer to the **Select Map Contents** menu.
5. The layers can be controlled or toggled on and off in the **Select Map Contents** menu.



4.5.2 Add Map Services

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



Add Map Services

Choose one of the following options and enter a proper URL to add publicly available data from the web to the map.

☒ ArcGIS Server Web Service (Whole service)

☐ OGC Web Service (WMS)

☐ KML/KMZ

☐ GeoRSS

*URL:
(http://<server>/arcgis/rest/services/<service name>/MapServer)

Service title:

Add to Map

Sample URL:
http://sampleserver1.arcgisonline.com/ArcGIS/rest/services/Demographics/ESRI_Census_USA/MapServer/0,1

1. Select from the options by clicking the appropriate radio button.
2. Enter a valid publically available URL in the URL text box.
3. Enter the Service title in the text box if desired.
4. Click the Add to Map button.



Add Map Services

Choose one of the following options and enter a proper URL to add publicly available data from the web to the map.

☐ ArcGIS Server Web Service (Whole service)

☐ OGC Web Service (WMS)

☒ KML/KMZ

☐ GeoRSS

*URL:
Note: The KML/KMZ url must be publicly accessible.

Service title:

Add to Map

Sample URL:
http://www.epa.gov/airnow/today/airnow_today.kml

5. Erase Widget

The **Erase** widget is used to remove any drawings from the map.



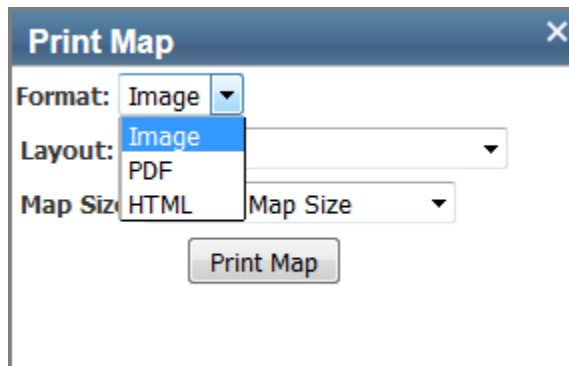
1. Locate the Widget toolbar at the top of the application.
2. Click the **Erase** icon.
3. All added drawings and measurement markers will be removed from the map.

6. Print Widget

The **Print** widget is used to print the map.



1. Locate the Widget toolbar at the top of the application.
2. Click the **Print** icon.
3. The print map option allows you to select image, PDF or HTML format.



4. For printing a map and its associated legend, use the HTML format and print the map using your internet browser.

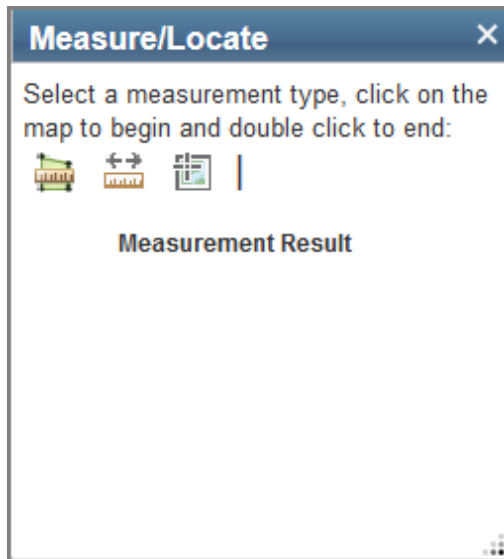
7. Measure/Locate Widget

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

1. Locate the Widget toolbar at the top of the application.
2. Click the **Measure** icon.

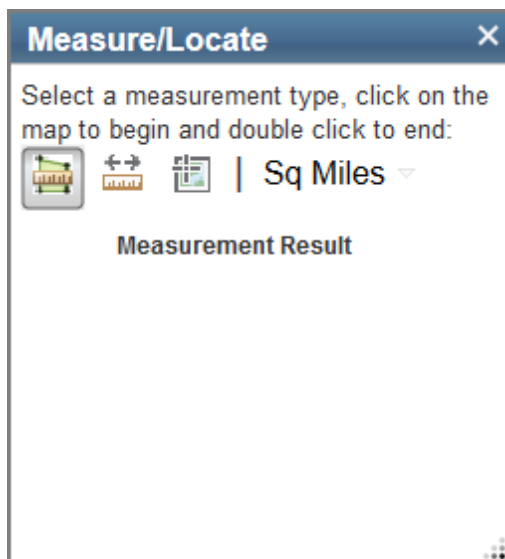



The **Measure/Locate** widget will be displayed.

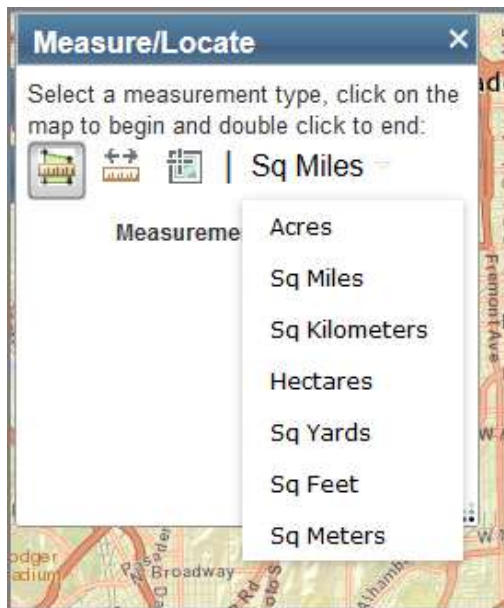


7.1 Measure Area

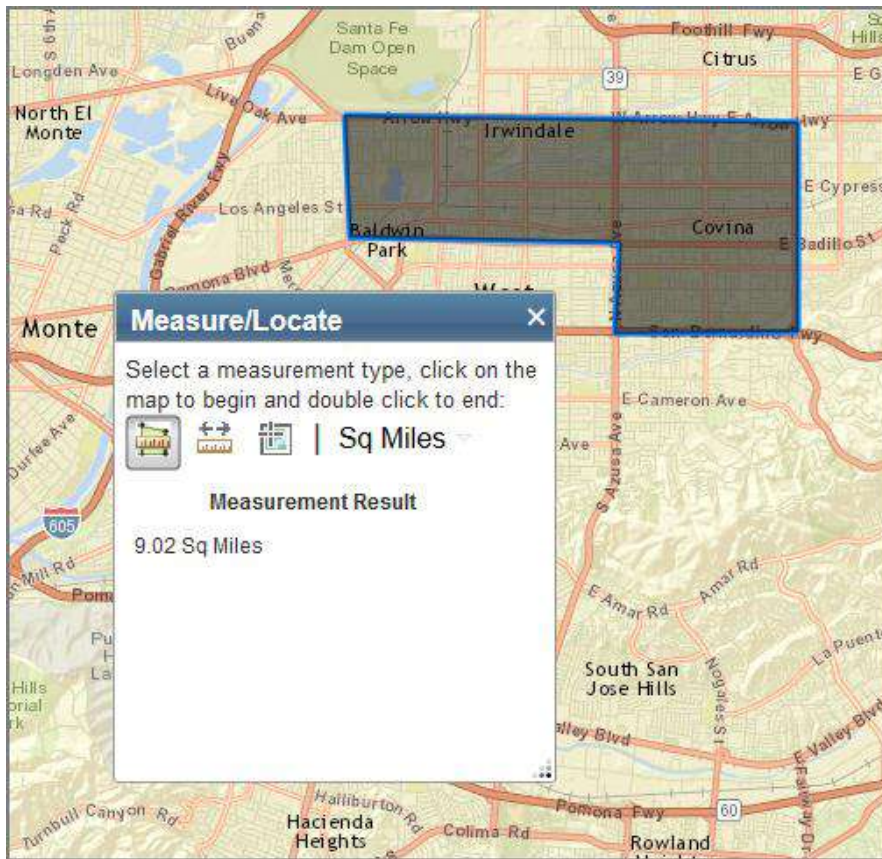
The **Measure Area** tool allows the user to measure the area of a polygon.



1. Locate the Widget toolbar at the top of the application.
2. Click the **Measure** icon.
3. Click the **Measure Area** icon .
4. Area Units of Sq Miles will appear on the Measure window. A dropdown menu with all unit options is located next to the default units.



5. Select the desired unit.
6. Click on the map to begin drawing the polygon. Continue clicking to add to the polygon and double click to complete the drawing.
7. The area measurement will appear in the Measure window.

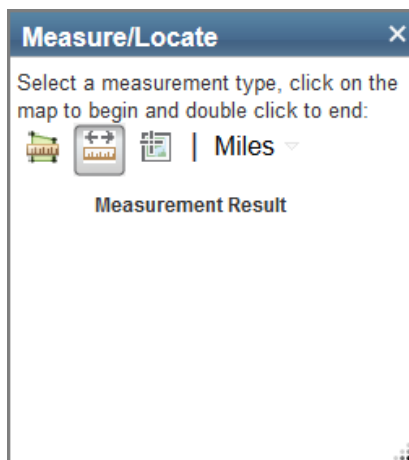


8. To remove the drawing click the Erase Icon in the toolbar, click on the map to begin a new drawing, or close the Measure tool.




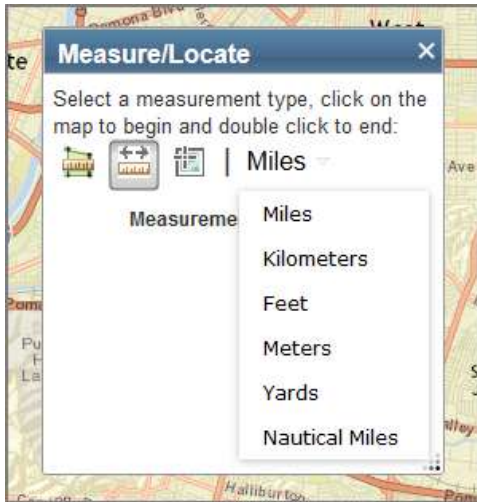
7.2 Measure Line

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

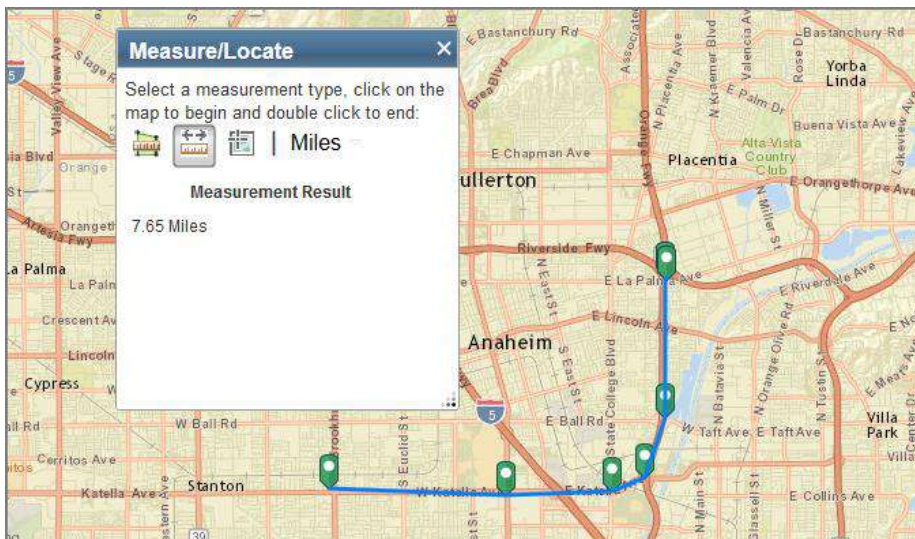


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1. Locate the Widget toolbar at the top of the application.
2. Click the **Measure** icon.
3. Click the **Measure Line** icon .
4. Distance Units of Miles will appear on the Measure window. A drop down menu with all unit options is located next to the default units.



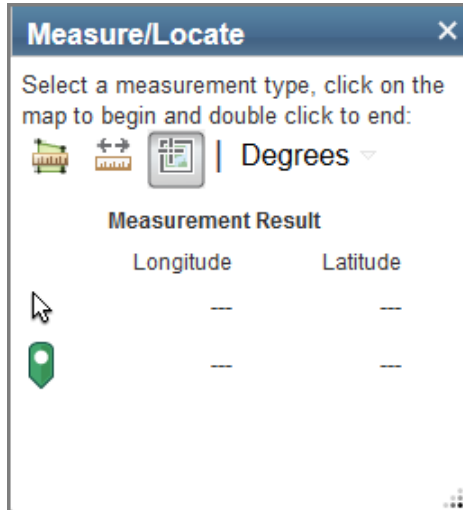
5. Click anywhere on the map display to begin a line. Click to add points along the line or to add angles to the line.
6. Double-click to complete the line.
7. The distance measurement will appear in the Measure window.




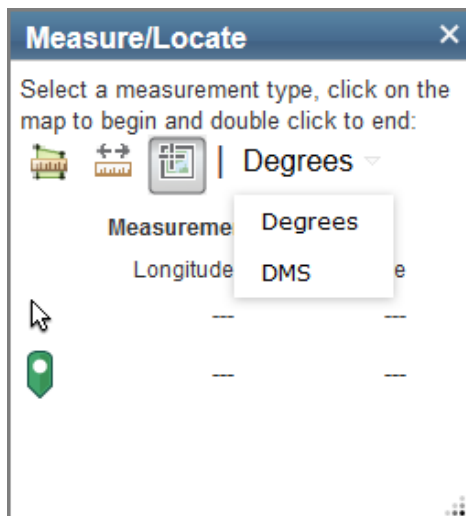
8. To remove the line click the Erase Icon in the toolbar, click on the map to begin a new line, or close the Measure tool.

7.3 Latitude Longitude for a point

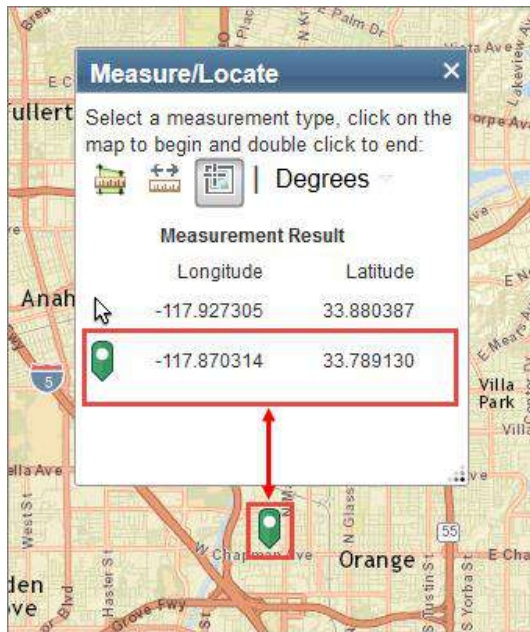
The **Measure Location** tool allows the user to obtain the latitude and longitude measurements for a point.



1. Locate the Widget toolbar at the top of the application.
2. Click the **Measure** icon.
3. Click the **Degrees** icon .
4. Location Units of Degrees will appear on the Measure window. A drop down menu with unit options is located next to the default units.



5. As the mouse is moved over the map the current location will display in the Measure window.
6. Click on the map to add a flag to the map and freeze the location in the measure window.



7. The location measurement can be copied from the Measure window.
8. To remove the flag click the Erase Icon in the toolbar or close the Measure tool.
9. To find the measurement of a new location click the Degrees icon in the measure window and click the map. This will also remove the previous flag.