Environmental Protection Agency

EJScreen Multisite Tool User Guide

Version 2.3

1-1-2025

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What is the EJScreen Multisite Tool?

The EJScreen multisite tool lets you easily and quickly compile demographic and environmental information summarized across hundreds or thousands of places, all at the same time.

The EJScreen multisite tool enhances EJScreen's capabilities beyond a single-site EJScreen Community Report by providing a multisite report, which shows an overall summary of environmental conditions and demographics for the average resident aggregated across all analyzed locations.

This multisite information allows environmental justice analyses to move beyond looking at a small number of indicators or a few demographic groups to a more comprehensive picture of environmental conditions and demographics near a whole set of facilities or in other types of places. Consequently, one might use this information to better characterize the areas relevant to a proposed action or initiative.

EJScreen Reports and Indicators

This document introduces EJScreen's Multisite Tool and how to start using the tool.

Note: It is highly recommended you familiarize yourself with EJScreen's Community Report and the EJScreen indicators shown on that report given this multisite tool is essentially a way to run multiple community reports all at the same time (and also summarize them as a whole). EJScreen is an environmental justice (EJ) mapping and screening tool that provides EPA with a nationally consistent dataset and approach.

What Indicators does the EJScreen Multisite Tool Use?

The Multisite Tool ***uses the same data and methods*** that EJScreen uses to provide a Community Report for a single location. Understanding what these indicators are and how to interpret them is essential whether you are using the single-site Community Report or a Multisite Report.

EJScreen Community Reports and Multisite reports both provide summaries of these three types of information:

- Environmental indicators
- Demographic indicators
- EJ Indexes

EJScreen's Community Report is explained on the EJScreen website, in the EJScreen User Guide, and in EJScreen training. The *EJScreen Technical Documentation* provide even more details on those data and methods.

Annual data updates for multisite analysis are part of the overall EJScreen data updates.[1]

[1] See https://www.epa.gov/ejscreen/ejscreen-change-log for technical details about updates.

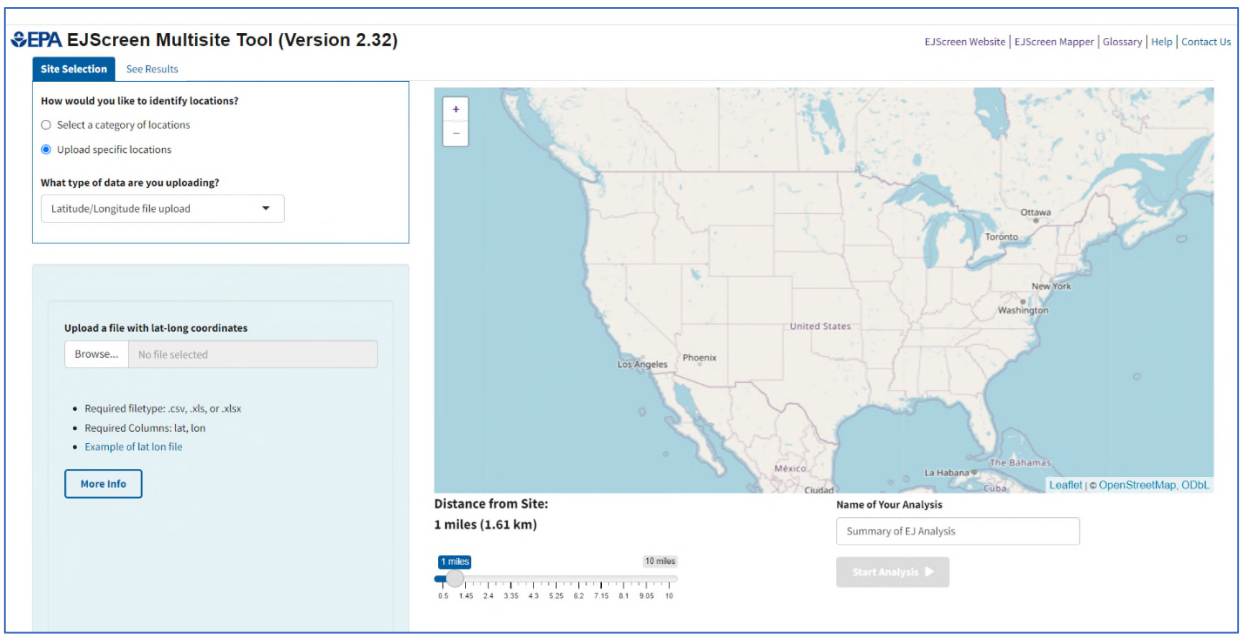
EJScreen 2.32 (the updated version released in August 2024) and the multisite tool use the same data. This version derives data from ACS 2018-2022 block group demographics and Census 2020 block weights.

Additional detail on some indicators is provided in a later section, specifically for those indicators where there is any difference in which extra indicators are shown in some reports.

Using the Web Application

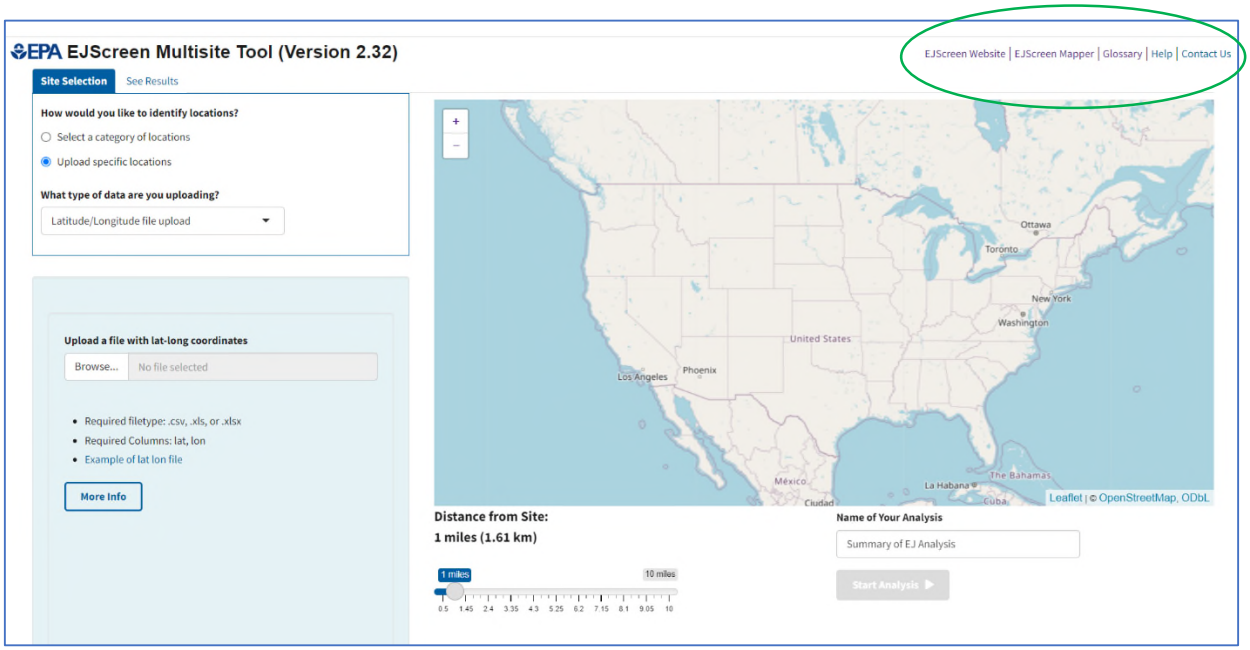
To access the application, navigate to the **Tools** tab within the EJScreen mapper tool.

The home page shows ways to specify locations for analysis (on the left), weblinks at the upper right, a map in the center, and buttons below that for setting the distance, naming the analysis, and starting the analysis.



Navigation and Weblinks

Links at the upper right let you conveniently go back to the overall EJScreen site or mapper, or get help with the indicators or the tool.



EJScreen Website link

This opens a new browser window showing the overall EJScreen website.

EJScreen Mapper link

This opens a new browser window showing the EJScreen mapper tool itself.

Glossary link

This links to the EJScreen documentation about key indicators.

Help link

This is a link to this help document / user guide.

Contact Us Email link

Use this link to send an email with any technical questions about the Multisite Tool features (e.g., the user interface, how to specify sites, the excel download, etc.). Email us with questions using the subject line "**EJScreen Multisite Tool Questions**" to ensure the question is routed appropriately.

If you have questions about EJScreen in general, however, that are not about something specific to the Multisite Tool, then you should email ejscreen@epa.gov. For example, if you have questions about the ACS demographic indicators datasets or environmental indicators datasets or EJ Indexes, EJScreen's website and help desk can provide that information.

Site Selection - How do you Specify the Places you Want to Analyze?

Locations can be defined in a few ways when using the EJScreen Multisite Tool.

The tool can summarize the following:

- **EJScreen indicators near any set of points**
  You can see information for residents near all the points you provide locations for. This can show you EJ-related information about people who live in any of the communities close to certain types of EPA-regulated facilities, for example.
- **EJScreen indicators within any areas you have defined on a map**
  You can get a report on residents in certain areas if you have a list of polygons that represent areas of interest.

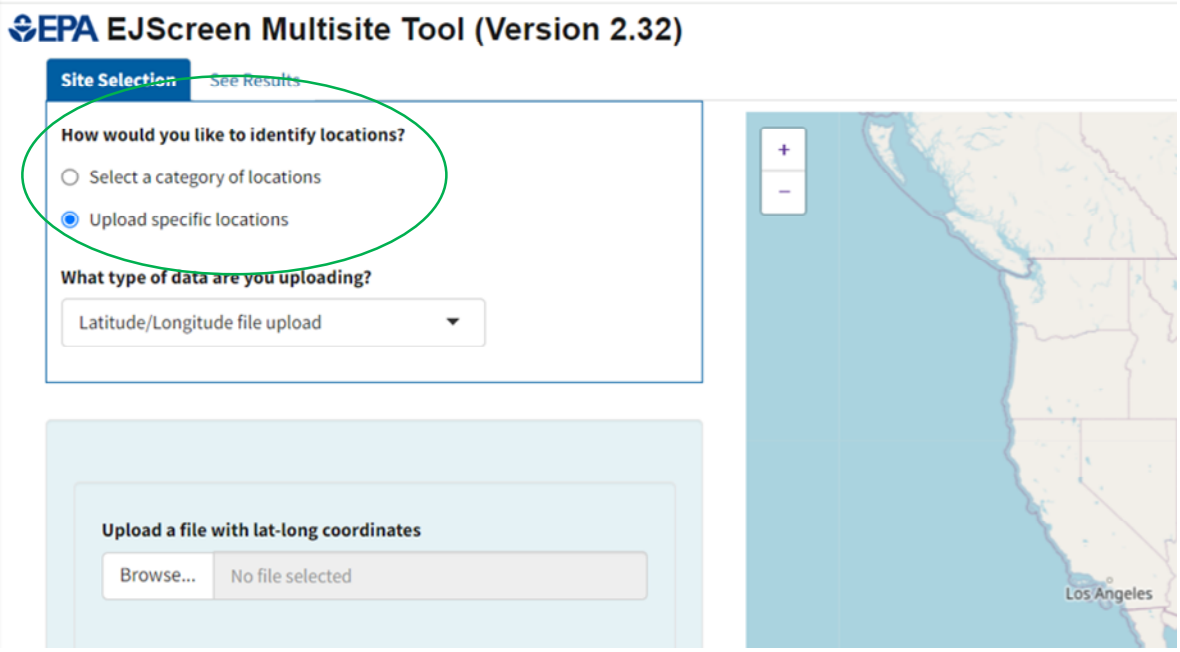
The multisite tool lets you specify locations in any of these ways:

- **Points (latitude/longitude):** you can upload a table of points identified by their latitude and longitude geographic coordinates.
- **Shapes (a shapefile):** You can provide a shapefile with polygons that define specific boundaries like neighborhoods or other types of areas.
- **Industry (industry name or NAICS code)**: You can specify EPA-regulated facilities within industry categories of various types (using NAICS industrial codes), by picking an industry type from a list in the on-screen menu.

How would you like to identify locations?

To start picking locations, make sure the Multisite Tool knows what kinds of places you are trying to analyze and how you will specify them. By default, when you open the app, it assumes you will be uploading a table of points identified by their latitudes and longitudes. If you want a different approach, you must specify that using the pulldown menus.

There are a few ways you can specify the locations you want to analyze. The two overall approaches are to upload a table of specific places, or to pick a whole category of places from a pulldown menu of categories like industry types.



After you have specified the type of location information you are using, then you can click Browse to upload the locational data or click in the NAICS window to scroll or type names of industries or code numbers.

Upload specific locations – What type of data are you uploading?

If you choose to upload a spreadsheet of locations, the data must have specific formatting and information as described below.

- The list of sites must be in the first tab (worksheet).
- The first row must be the column names, starting with column A.
- All other rows must be one site per row.
- The first row must identify them as point coordinates ("lat" and "lon" header names to denote latitude and longitude) or as "REGISTRY_ID" for EPA regulated facility ID numbers (which the tool converts to points because it knows where each facility is).

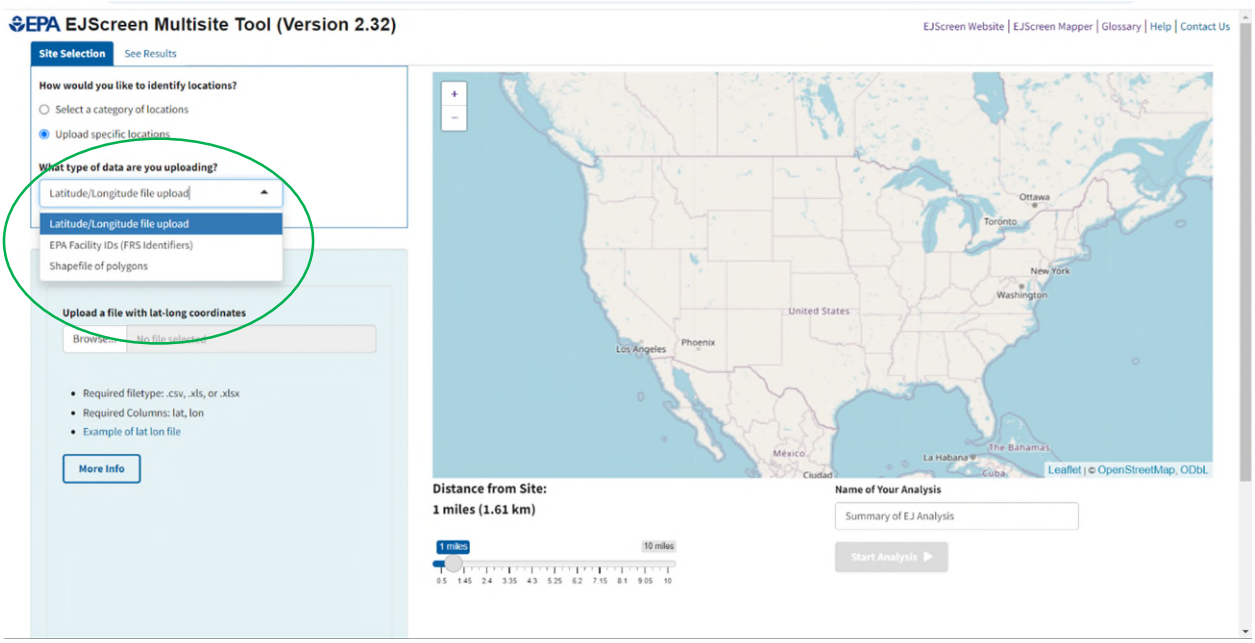
You can also upload a shapefile of locations as explained below.

Latitude/Longitude file upload

Choose this option to upload a file with lat-long coordinates.

- Required filetype: .csv, .xls, or .xlsx
- Required Columns: lat, lon (but some aliases will work too, such as "latitude" and "longitude")

Note: An example of a lat lon file with correct fields and formatting is provided via a link in the tool. Click to download, save, and then click Browse to try uploading that saved file as an example for trying out the tool.

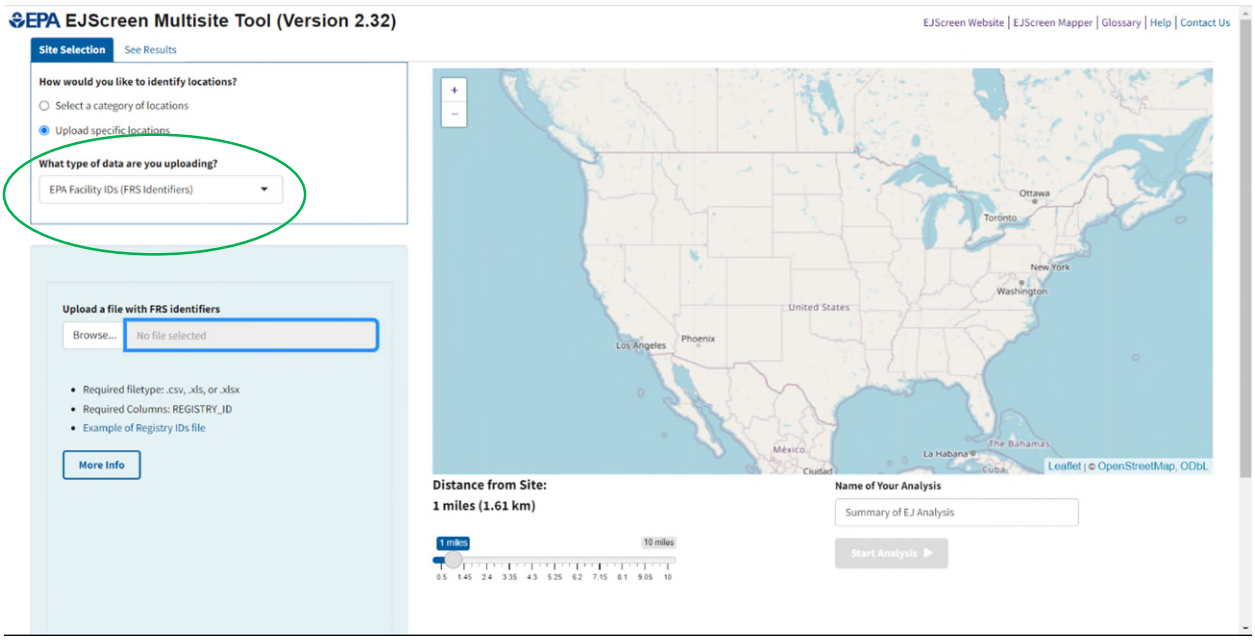


EPA Facility IDs (FRS identifiers)

The EPA regulated facilities are stored in a database/tool called the EPA Facility Registry Services (FRS). The Multisite Tool uses a regularly updated snapshot of that database to store the latitude and longitude and name, etc. of each active regulated site, based on a unique ID called the FRS ID or Registry ID. For example, the ECHO tool shows FRS IDs and lets you search by ID.

- Required filetype: .csv, .xls, or .xlsx
- Required Columns: REGISTRY_ID (but some aliases are recognized such as “regid” and as a last resort “siteid”)

Note: An example of the Registry IDs file is provided via a link in the tool. Click to download, save, and then click Browse to try uploading that saved file as an example for trying out the tool.

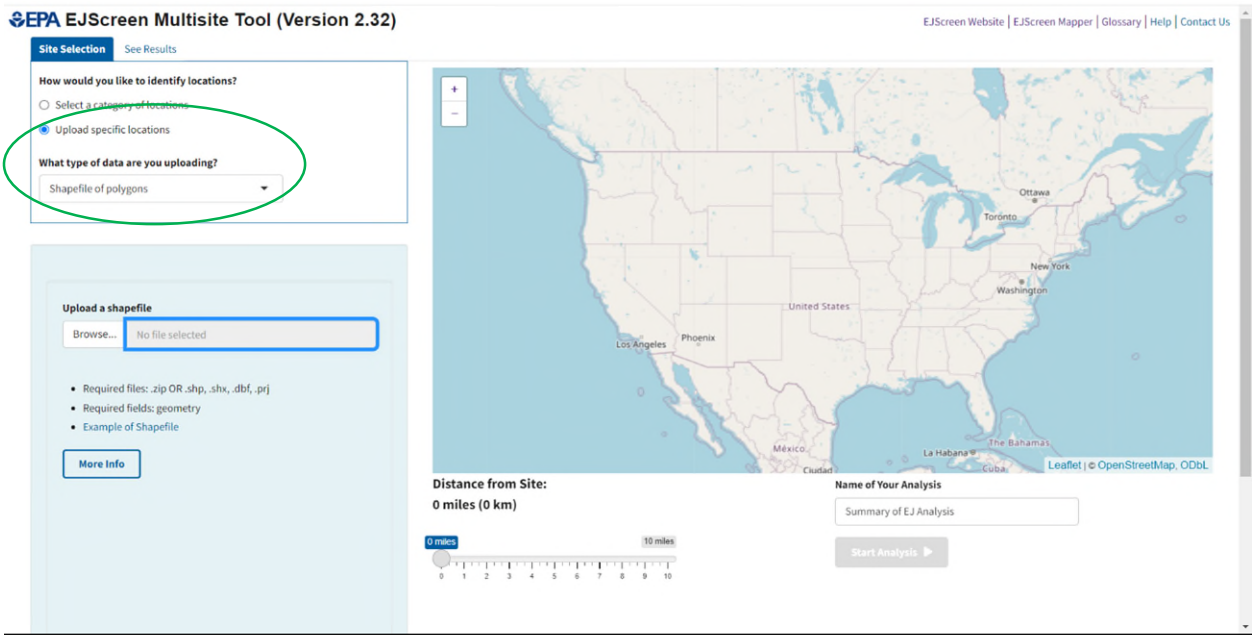


Shapefile of polygons

Another option is to upload a shapefile that contains polygons. These polygons might represent neighborhood boundaries, areas defined by air quality modeling results, or places within some buffer distance of a rail line or pipeline, etc. The Multisite Tool web app does not provide the shapefiles – you must create or obtain shapefiles elsewhere and then upload them to the tool for analysis of residents inside each polygon.

- Required files: .zip OR .shp, .shx, .dbf, .prj
- Required fields: geometry

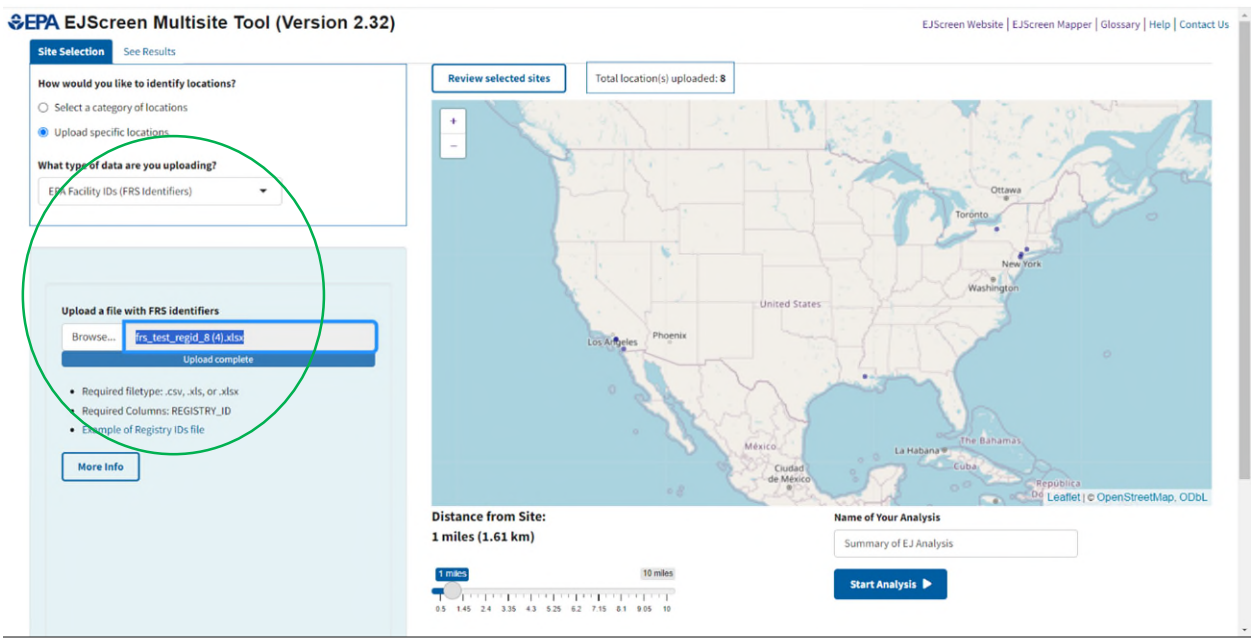
Note: An example of a shapefile and the necessary components is provided via a link in the tool. Click to download, save, and then click Browse to try uploading that saved file as an example for trying out the tool.

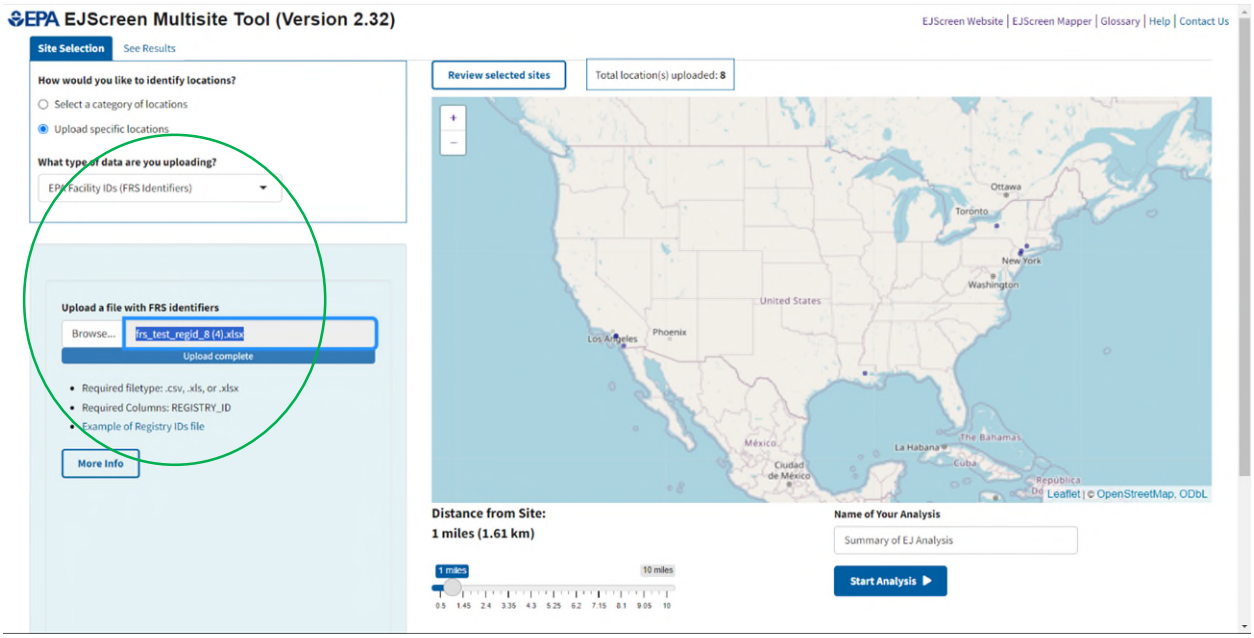


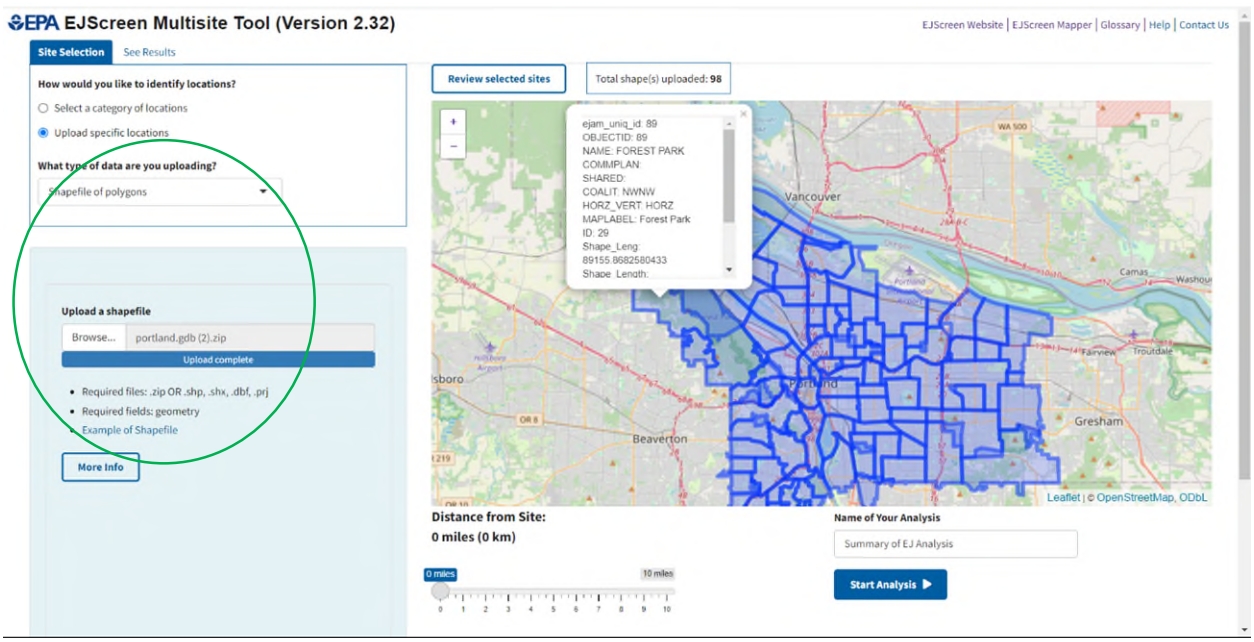
Use the "Browse" button to upload a file

After you have specified the type of location information you are using, then you can click Browse to upload a spreadsheet or shapefile.

Note that trying to click "Browse" to upload a file will not work if you are trying to upload a type different than what is specified by the pulldown menus. For example, if you want to upload a shapefile, you must click in the pulldown menus to indicate that is the type you want.







Select a category of locations – How would you like to select categories?

Instead of providing a list of specific places, you can pick a category like all the facilities that are classified as one type of EPA-regulated site.

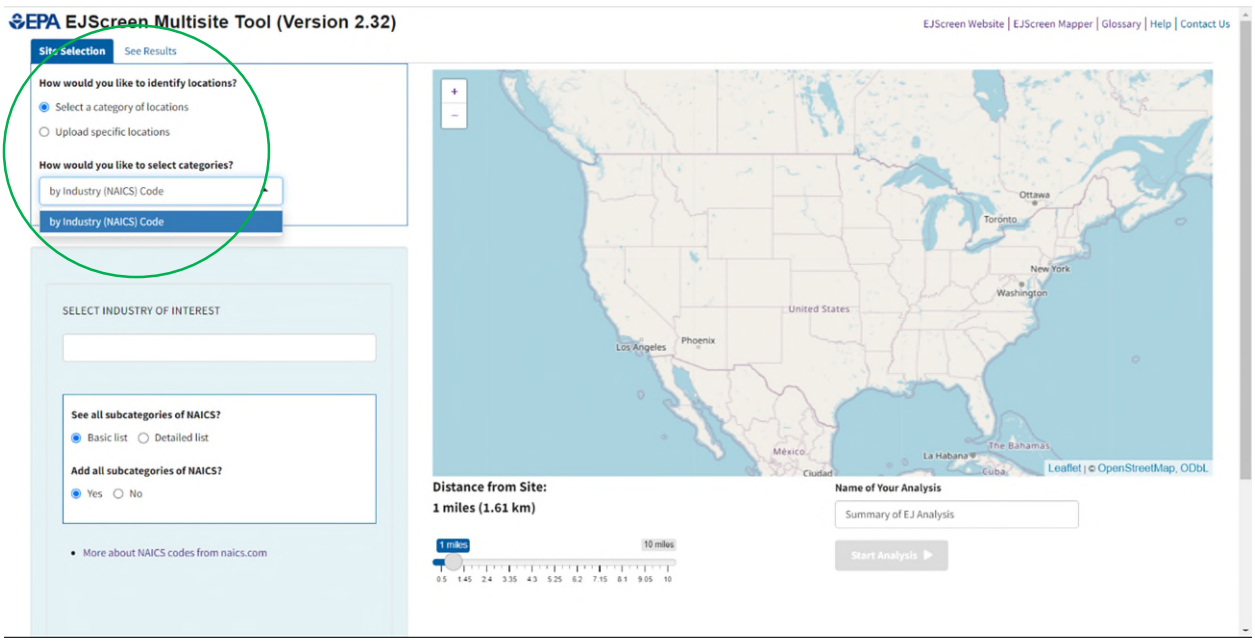
By Industry (NAICS) Code

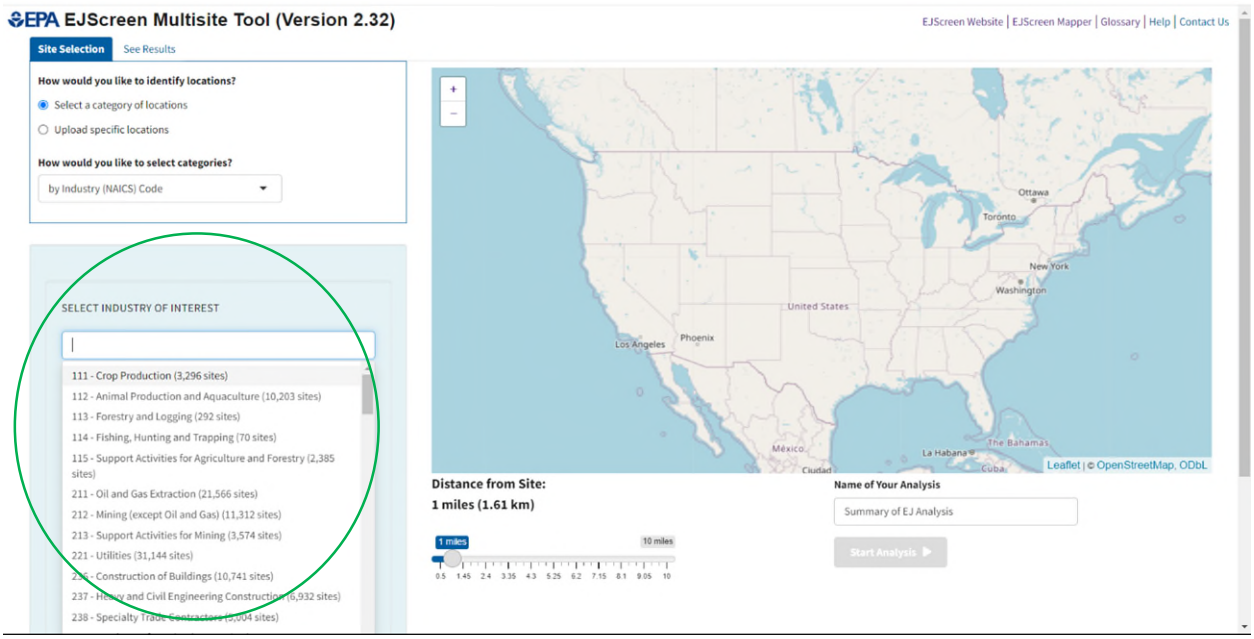
Industries are classified into types and subtypes using NAICS codes that correspond to industry names. If you want to analyze all the EPA-regulated active facilities that are tagged as being in a particular industry according to EPA's databases, you can do so by NAICS.

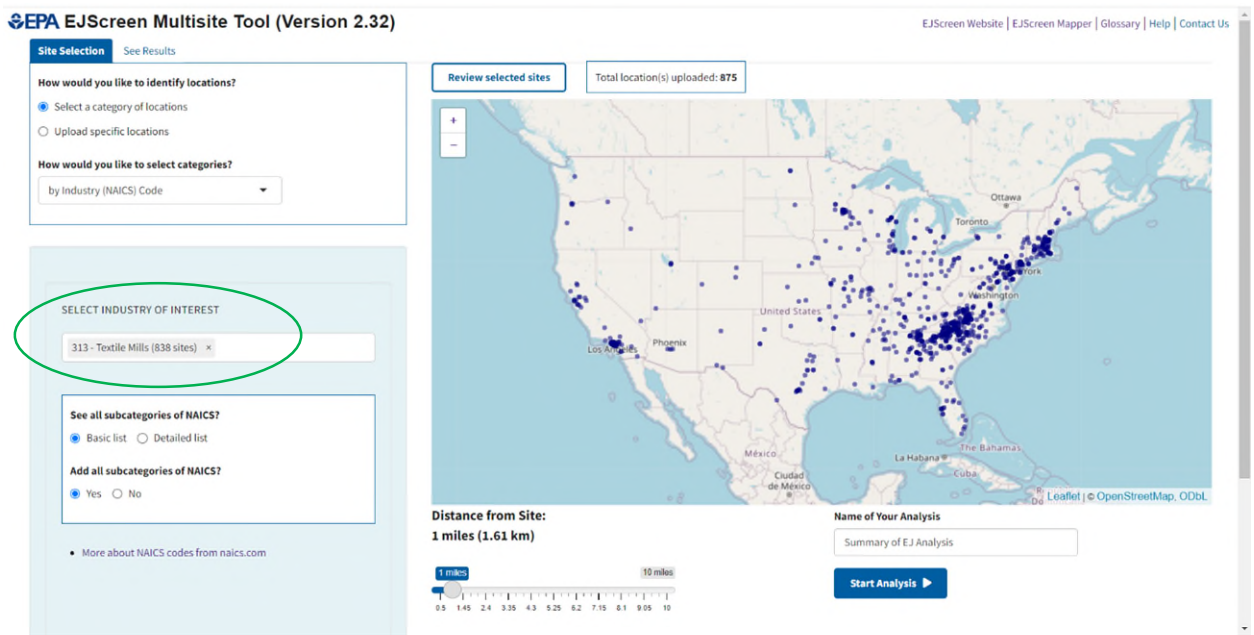
In the box labelled "SELECT INDUSTRY OF INTEREST" you can click and then either browse or start typing a name or number. Industry names and codes will appear, along with counts of how many EPA-regulated facilities have been identified as under that NAICS. It is important to note that a very large percentage of EPA-regulated sites in the EPA Facility Registry Services (FRS) database do not have any NAICS information, so a set of facilities found using this approach cannot be considered a comprehensive list of all the EPA-regulated sites in a given NAICS.

The NAICS and FRS data used in the Multisite Tool are snapshots of the information provided on active facilities in the EPA FRS database.

The FRS data used here were updated in August 2024, and for more details on updates please Contact Us.







See all subcategories of NAICS? (Basic or Detailed List)

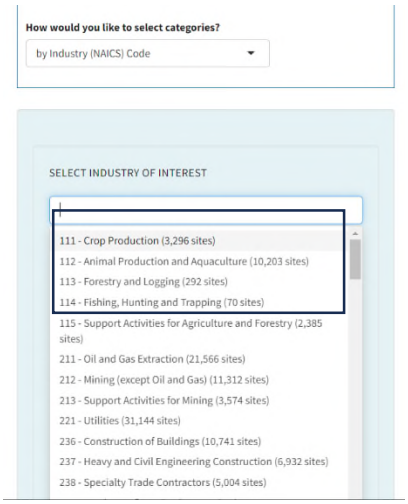
This button helps you efficiently browse or search through the industry categories.

The basic/detailed radio button helps you quickly see which industry groups you might be looking for before you switch to a detailed view in case you need to pick a narrow/specific industry. It is recommended that you use the basic list to start exploring industry categories, given the sheer number of NAICS codes and subcategories.

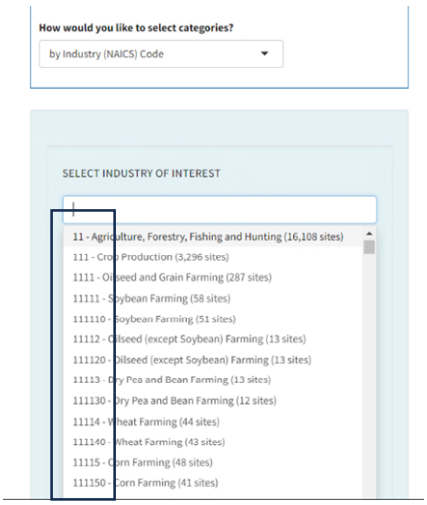
However, if you know the specific NAICS code you want, you may want to start off by viewing the detailed list and just start typing a few letters to search for and quickly jump to the exact industry you are looking for.

A given regulated facility may be identified in the EPA database as being in only one NAICS code, but that code might be a broad category (e.g., a 3 or 4-digit code) or narrow category (e.g., a 6-digit code). The NAICS codes are organized like a tree-like hierarchy with subgroups and sub-subgroups. The short codes are 2 digits and represent extremely broad categories such as "Manufacturing." The longer codes are very specific industries, such as "Walnut Farming."

Simple industry list view



Detailed industry list view

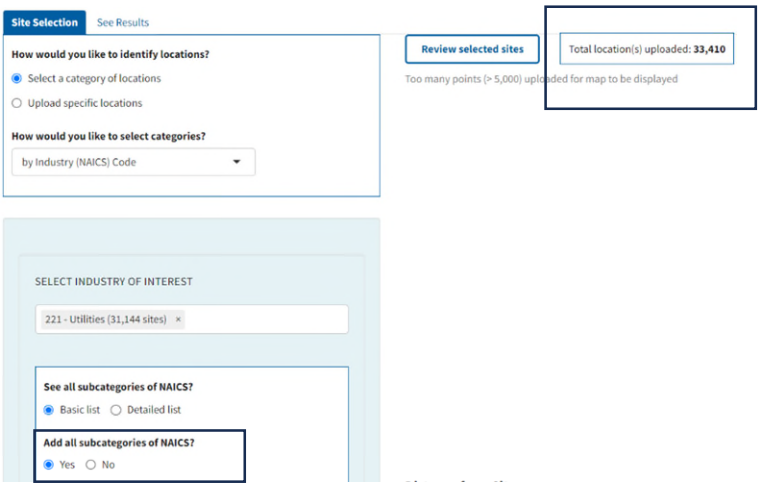


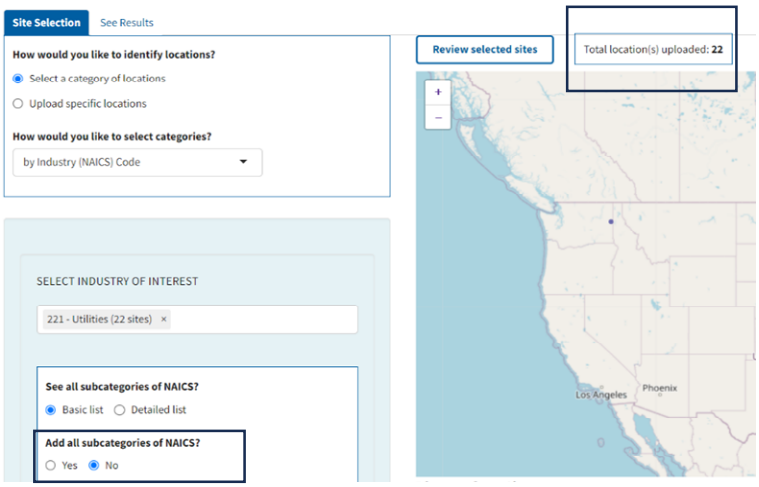
Add all subcategories of NAICS? (Yes or No)

This button helps ensure inclusion of all facilities you intend to include in the analysis.

Typically, you want to choose "Yes" to include subcategories. This means if you choose code 123, the tool will also pull in for analysis all the facilities under the umbrella of that broader category (e.g., codes 1234, 123451, 123452, etc.).

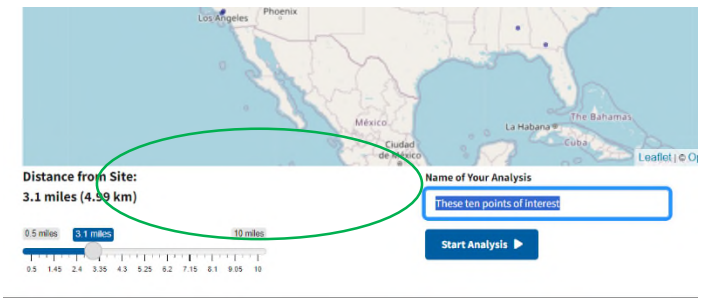
If you choose "No," you run the risk of excluding sites you intended to include (e.g., a facility tagged as being in industry 123451 often is not explicitly tagged as also being under the broader 12345, 1234, 123, 12 codes).





Name of Your Analysis

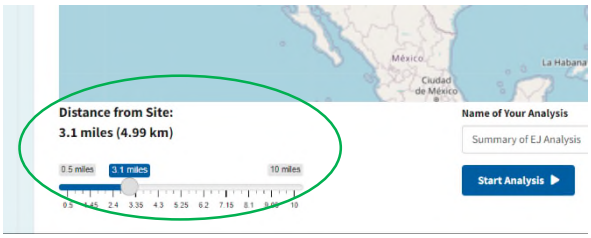
You can type a name for your analysis, and that will appear in the results report and downloaded spreadsheet of results.



Distance from Site

Using the slider control, you can specify the distance from each point (the radius of the circle around each point) or the buffer (extra distance from the edges) added to polygons. For example,

if you set it to 3.1 miles as the radius and use points defined by latitude/longitude, the analysis will include all residents within 3.1 miles (about 5 kilometers) of any one or more of the specified points. If you use a shapefile of polygons and add a buffer of 1 mile, the analysis will account for residents inside each polygon plus any residents who are within 1 mile of any edge of a polygon.

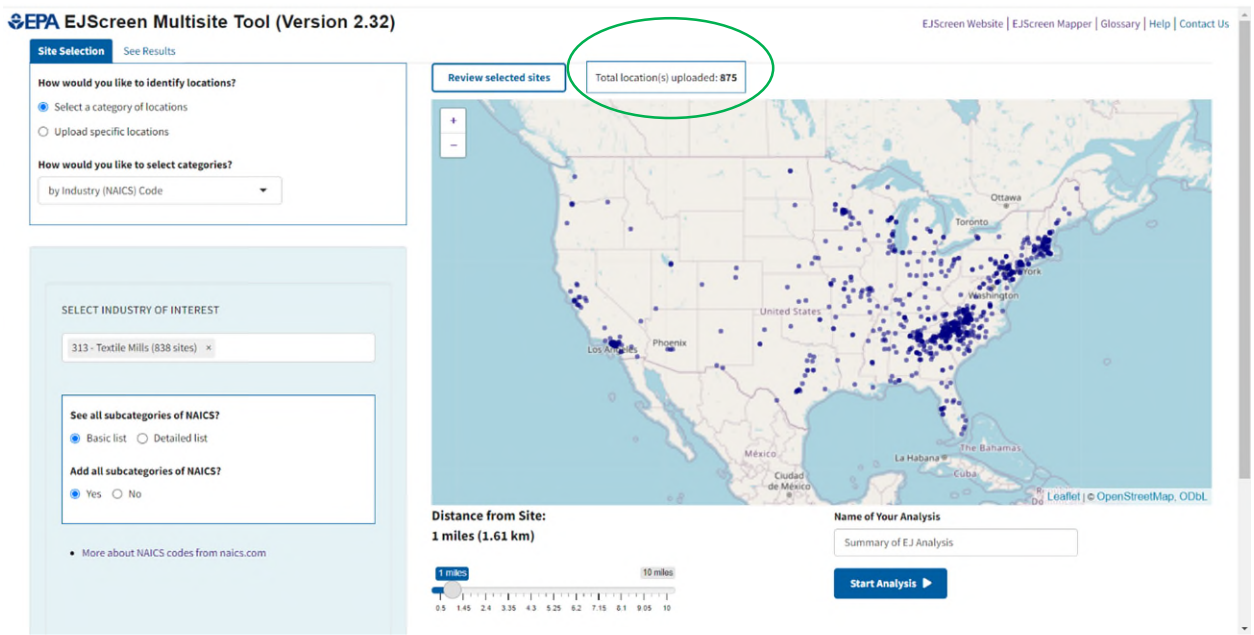


Verifying the Uploaded Sites

Total location(s) uploaded information box

After you upload (or otherwise specify) locations, an information box shows how many sites were uploaded or selected and if any have invalid information such as bad or missing lat/lon data. The results table of all sites should reflect all the uploaded locations but will only provide results for the ones with valid location information.

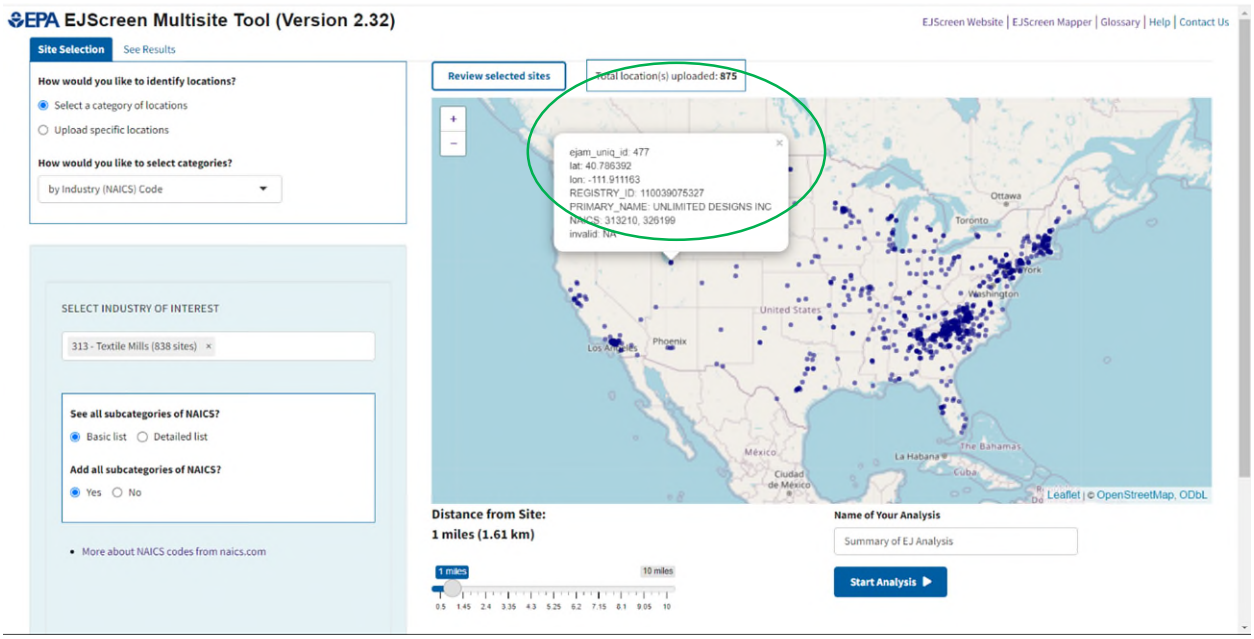
Note: Like an EJScreen single-site Community Report, the Multisite Report will not provide indicator results if a site is too small relative to the local population density, because it will not be able to adequately estimate how many residents are at that location.

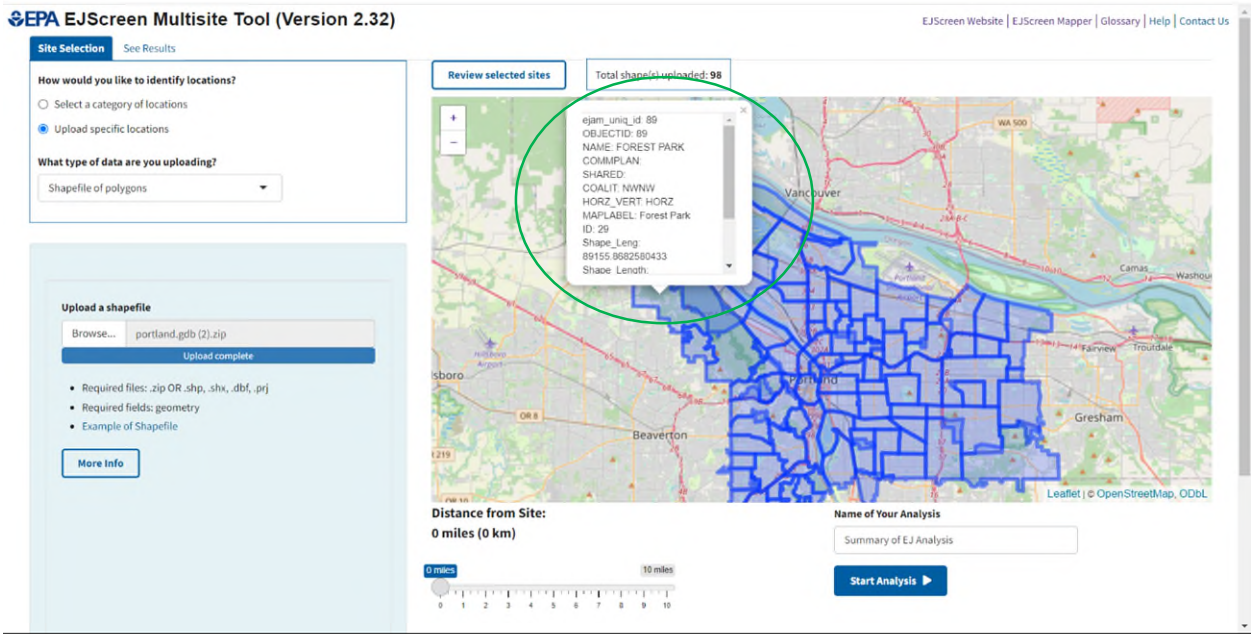


Interactive Map

The map on the site selection page and the map in the Multisite Report are "interactive" when viewed on the tool website and when used as a saved .html file when you download the report. This means you can interact with the map on the webpage or in the report, by clicking on it.

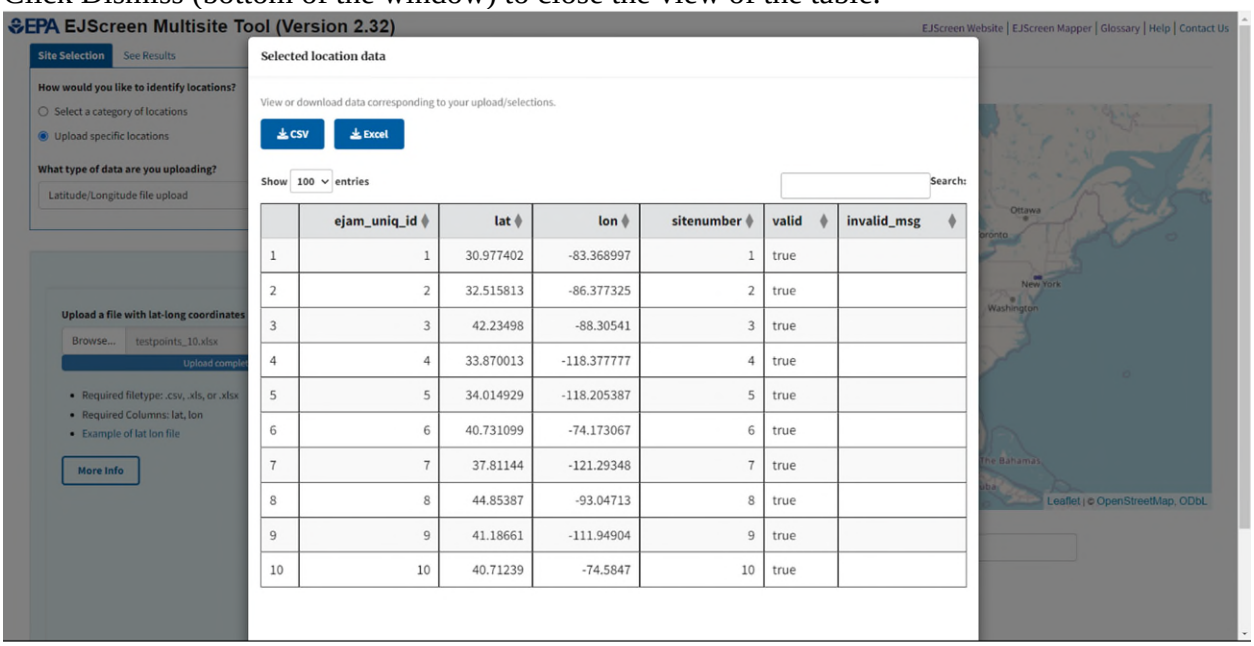
- Click + or – to zoom in/out the map, or use the scroll wheel on a mouse
- Click and drag on the map to move right/left/up/down
- Click on a point or polygon to see a popup window with information on the site. The popup shows results for the site, but importantly it has two useful weblinks inside that small popup window: 1) a link to the EJScreen Report for that location – this shows the official EJScreen Community Report for that one location. 2) It also has a link to the EJScreen Map that opens a map at that location. This makes it easy to explore further information at that one location, using all the normal tools available in the EJScreen mapper, such as color-coded maps by blockgroup, or additional point data such as EPA-regulated facilities. The EJScreen website and user guide have details about how to use those tools.
- Click the small x at the upper right of a popup window to close that window.





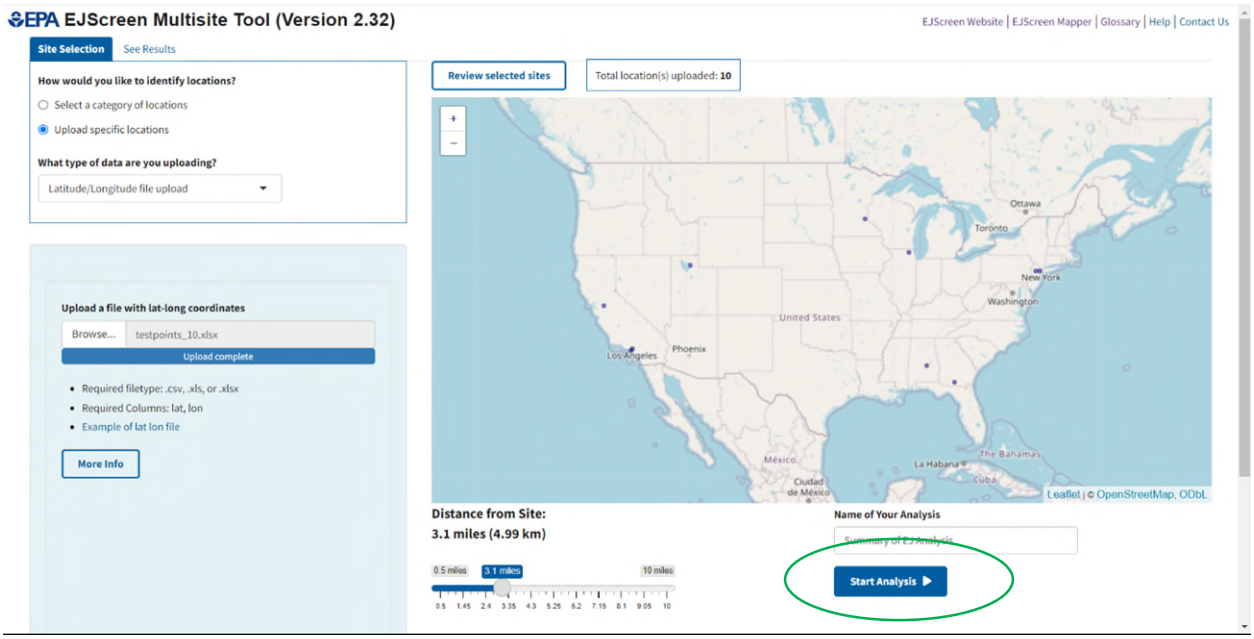
Review selected sites button

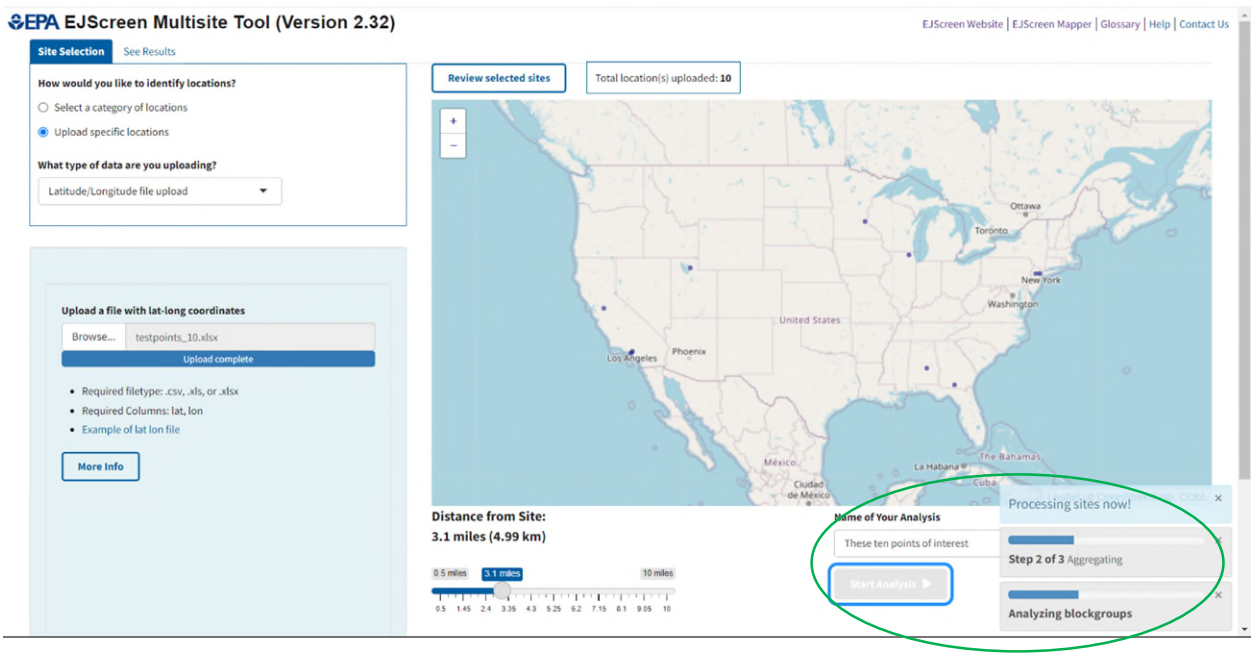
- Click to see a table of the uploaded information.
- Click CSV or Excel to download that information in case you want to save it along with the assigned ejam_uniq_id column that is automatically created to keep track of the sites to be analyzed.
- Click Dismiss (bottom of the window) to close the view of the table.



Start Analysis button

Once you have selected sites to analyze and chosen a distance (optionally naming the analysis being performed), click the “Start Analysis” button. A progress bar appears at the lower right to show you it is still working on the results. If you are analyzing hundreds or thousands of sites, you may have to wait longer to get results. For example, analyzing 1,000 sites might take up to 30 seconds (less time for shorter distances). For a radius of about 3 miles, the tool may require roughly about one minute for 2,000 sites.





See Results tab

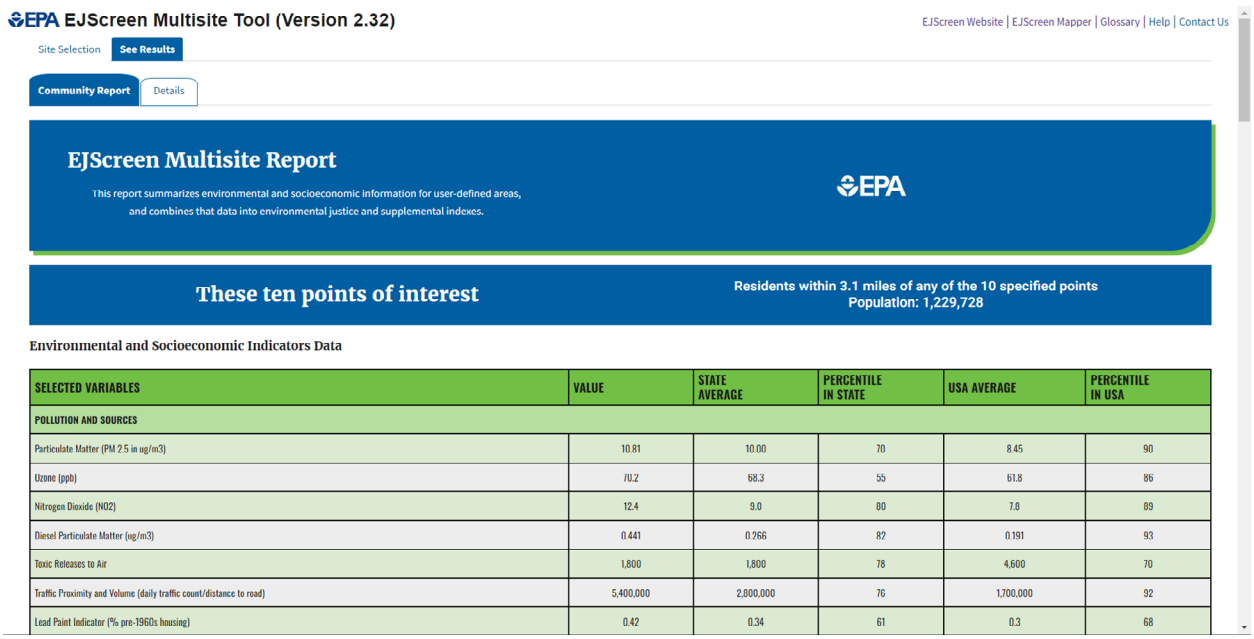
As soon as the analysis is finished, the “See Results” tab opens to display the summary as a Multisite Report.

Community Report tab / Multisite Report

This page features the overall summary results aggregated across all the analyzed sites. It counts each resident only once even if they are near two or more of the analyzed sites. This lets the tool correctly report values for the average resident who is at any one or more of the sites.

The Multisite Report is intended to largely mimic the EJScreen Community Report for a single site; however, there are some differences in which indicators are shown (see Appendix). The report contains the following:

- **Barplot:** A barplot is provided in the Multisite Report, and this may be the first place you want to look because it summarizes overall results.
- **Tables:** Tables of data summarizing a “Value” for each indicator that is the indicator value for the average resident, across all residents at the locations analyzed. These tables are just like the tables in the EJScreen single-site reports.
- **Map:** The report also provides a map that is interactive (you can click in it to move around and get info on a single site, etc.).
- **Download Button:** You can download the report to save or share it, using the download button. A snapshot copy of it is also found in the downloaded detailed spreadsheet in the detailed results tab.



EPA EJScreen Multisite Tool (Version 2.32)

EJScreen Website | EJScreen Mapper | Glossary | Help | Contact Us

Site Selection | See Results

Community Report | Details

EJScreen Multisite Report

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

EPA

These ten points of interest

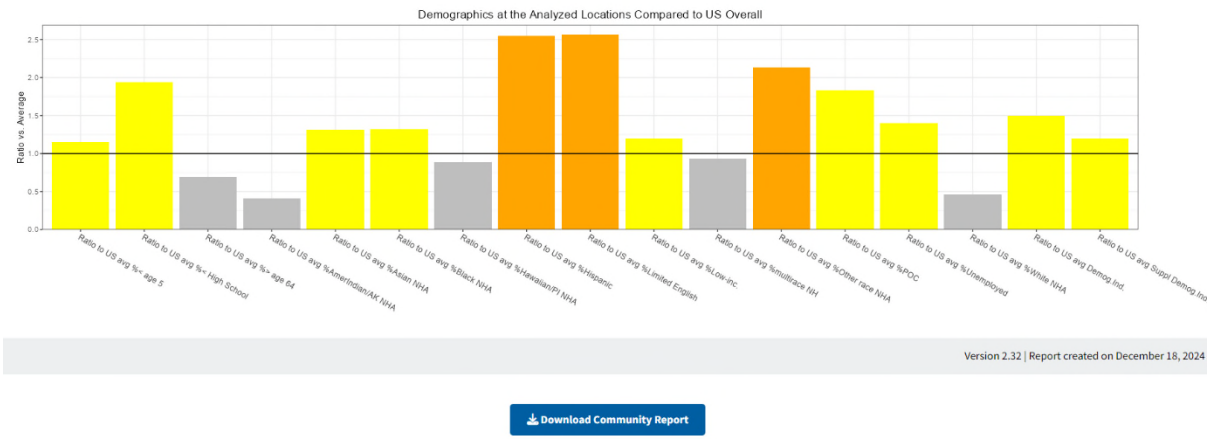
Residents within 3.1 miles of any of the 10 specified points
Population: 1,229,728

Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (PM 2.5 in ug/m3)	10.81	10.00	70	8.45	90
Ozone (ppb)	70.2	68.3	55	61.8	86
Nitrogen Dioxide (NO2)	12.4	9.0	80	7.8	89
Diesel Particulate Matter (ug/m3)	0.441	0.266	82	0.191	93
Toxic Releases to Air	1,800	1,800	78	4,600	70
Traffic Proximity and Volume (daily traffic count/distance to road)	5,400,000	2,800,000	76	1,700,000	92
Lead Paint Indicator (% pre-1960s housing)	0.42	0.34	61	0.3	68

Barplot

The barplot is a very useful way to immediately see if any of the analyzed demographic groups present in the analyzed locations are found at levels above overall national levels. It uses **RATIOS** to make it easy to see which indicators are relatively high and how high they are relative to reference areas (US or State). A heatmap approach was used, showing the bars in different colors to help quickly interpret notable results, as defined below.



- Gray bars show data where the ratio is no more than 1. This means the indicator value in analyzed locations is the same as or lower than the overall average value nationwide (or statewide).
- Yellow bars indicate a ratio over 1 but no more than 2, meaning the indicator value in analyzed locations is higher than the value nationwide or statewide, so the group is "overrepresented" in these locations or the indicator is "above average," but not by a factor of 2 (i.e., it is less than twice the overall average).
- Orange means a ratio over 2 (more than twice the overall average) but no more than 3.
- **Red** means a ratio over 3x, or at least triple the overall value.

Tables of Results

The Multisite Report has a table of demographic indicators, a table of environmental indicators, a table of EJ indexes (including supplemental indexes), and a few additional statistics such as information about languages spoken, etc.

The report's tables are like the tables in the EJScreen single-site reports. One column summarizes the "Value" for each indicator, meaning the indicator value for the average resident, across all residents at the locations analyzed.

What the "State" Average or Percentile Means on a Multisite Report

The State percentile and State average for a Multisite Report or "overall" summary table in the downloaded spreadsheet differ from the EJScreen single-site Community Report. In that report, the average or percentile can be based on just one State. But the Multisite Report and downloaded "overall" results tables summarize conditions across many locations that can be in multiple states. The tables show the national and "State" averages for the indicators. The average resident's indicator value is also expressed in terms of a national percentile and within the States analyzed.

Because a multisite / overall report summarizes information aggregated across sites that may be in many States, the percentiles and averages are not for just one State. They reflect the mix of States for the population analyzed. The average shown is the average of the State averages where each State is weighted by the share of all analyzed residents who

RATIOS TO AVERAGES

The EJScreen Multisite Tool uses ratios as another way to quickly communicate how high each indicator is. The ratios provide a useful perspective on the results, similar to how percentiles also give a sense of how high each indicator is. Just like percentiles, the ratios compare each indicator to the whole State or the whole US. By putting all indicators into one common scale, percentiles or ratios make it easy to compare across several indicators and to see which ones are relatively elevated or notable. Barplots in the tool show ratios for a few demographic or environmental indicators side by side, where the highest bars have the highest ratios and are the most elevated relative to the US or State overall. The detailed tables provide all the ratios as well as the averages.

Each ratio is calculated by the tool as the value of the indicator for the average resident in areas analyzed divided by the overall value nationwide or statewide. For example, if the "Ratio to US avg %Hispanic" is 1.5, it means the %Hispanic among residents in the analyzed locations is 1.5 times as high as %Hispanic for the whole US. If the US overall is 18% Hispanic, a ratio of 1.5 means that almost 27% of residents in the analyzed locations were Hispanic (because 18% x 1.5 = 27%).

are in that State. The percentile shown is a weighted average of State percentiles across the analyzed residents.

EJScreen Multisite Report

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

EPA

These ten points of interest

Residents within 3.1 miles of any of the 10 selected points
Population: 1,229,728

Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (PM 2.5 in ug/m3)	10.81	10.00	70	8.45	90
Ozone (ppb)	70.2	68.3	55	61.8	86
Nitrogen Dioxide (NO2)	12.4	9.0	80	7.8	89
Diesel Particulate Matter (ug/m3)	0.441	0.266	82	0.191	93
Toxic Releases to Air	1,800	1,800	78	4,600	70
Traffic Proximity and Volume (daily traffic count/distance to road)	5,400,000	2,800,000	76	1,700,000	92
Lead Paint Indicator (% pre-1960s housing)	0.42	0.34	61	0.3	68
Superfund Proximity (site count/km distance)	1.47	0.96	77	0.39	94
RMP Proximity (facility count/km distance)	2.36	0.65	84	0.57	96
Hazardous Waste Proximity (facility count/km distance)	17.2	7.8	82	3.5	95
Underground Storage Tanks (UST) indicator	15.3	5.3	41	3.6	94
Wastewater Discharge Indicator (toxicity-weighted concentration/distance)	3,000	14,000	65	700,000	81
Drinking Water Non-Compliance	N/A	1.37	N/A	2.2	N/A
SOCIOECONOMIC INDICATORS					
Demographic Index USA	2.00	1.57	71	1.34	78
Supplemental Demographic Index USA	1.96	1.42	69	1.64	72
% Low Income	36%	25%	68	30%	65
% in limited English-speaking Households	12%	7%	77	5%	88
% Unemployed	8%	6%	70	6%	75
% with Less Than High School Education	22%	12%	74	11%	84
% under Age 5	6%	5%	62	5%	64
% over Age 64	12%	17%	40	18%	35
% People of Color	72%	51%	73	40%	79

Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. For each of the environmental indicators in EJScreen, there is an EJ Index and a Supplemental EJ Index. 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 EJScreen website.

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.

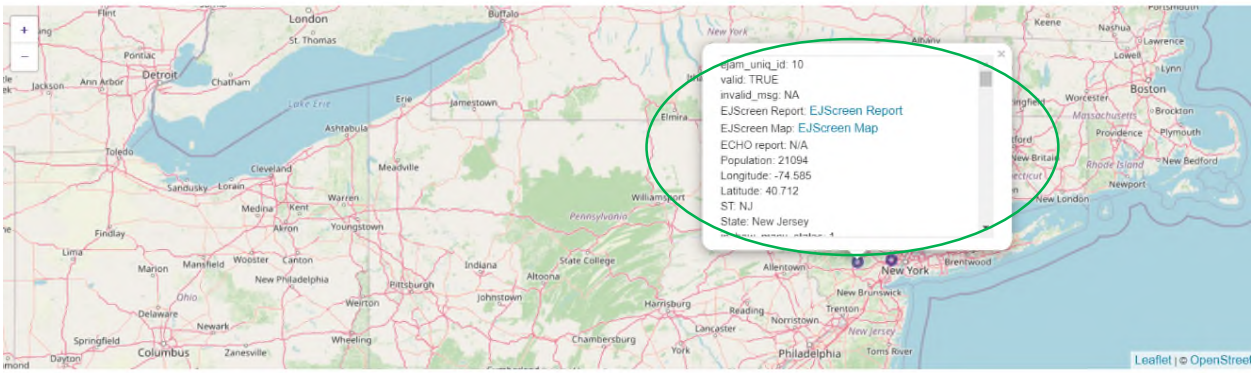
SELECTED VARIABLES	PERCENTILE IN STATE	PERCENTILE IN USA
EJ INDEXES		
Particulate Matter EJ Index	78	85
Ozone EJ Index	70	87
Nitrogen Dioxide (NO2) EJ Index	80	88
Diesel Particulate Matter EJ Index	81	90
Toxic Releases to Air EJ Index	80	85
Traffic Proximity and Volume EJ Index	79	88
Lead Paint EJ Index	73	84
Superfund Proximity EJ Index	80	90
RMP Proximity EJ Index	82	87
Hazardous Waste Proximity EJ Index	81	90
Underground Storage Tanks EJ Index	40	69
Wastewater Discharge EJ Index	72	84
Drinking Water Non-Compliance EJ Index	33	74
SUPPLEMENTAL EJ INDEXES		
Particulate Matter Supplemental EJ Index	77	84
Ozone Supplemental EJ Index	69	87
Nitrogen Dioxide (NO2) Supplemental EJ Index	79	88
Diesel Particulate Matter Supplemental EJ Index	81	91
Toxic Releases to Air Supplemental EJ Index	80	81
Traffic Proximity and Volume Supplemental EJ Index	78	89
Lead Paint Supplemental EJ Index	71	78
Superfund Proximity Supplemental EJ Index	80	89
RMP Proximity Supplemental EJ Index	81	86
Hazardous Waste Proximity Supplemental EJ Index	81	90
Underground Storage Tanks Supplemental EJ Index	40	58
Wastewater Discharge Supplemental EJ Index	72	82
Drinking Water Non-Compliance Supplemental EJ Index	31	73

SELECTED VARIABLES	VALUE
BREAKDOWN BY RACE	
% Hispanic or Latino	45%
% Black or African American (non-Hispanic, single race)	16%
% Asian (non-Hispanic, single race)	7%
% American Indian and Alaska Native (non-Hispanic, single race)	0%
% Native Hawaiian and Other Pacific Islander (non-Hispanic, single race)	0%
% Other race (non-Hispanic, single race)	1%
% Two or more races (non-Hispanic)	3%
% White (non-Hispanic, single race)	28%
BREAKDOWN BY GENDER	
% Male	50%
% Female	50%
LIMITED ENGLISH SPEAKING BREAKDOWN	
%Spanish lang (as %of limited English hhlds)	72%
%Other Indo-European lang (as %of limited English hhlds)	16%
%Asian-Pacific Island lang (as %of limited English hhlds)	11%
%Other lang (as %of limited English hhlds)	2%

Interactive Map

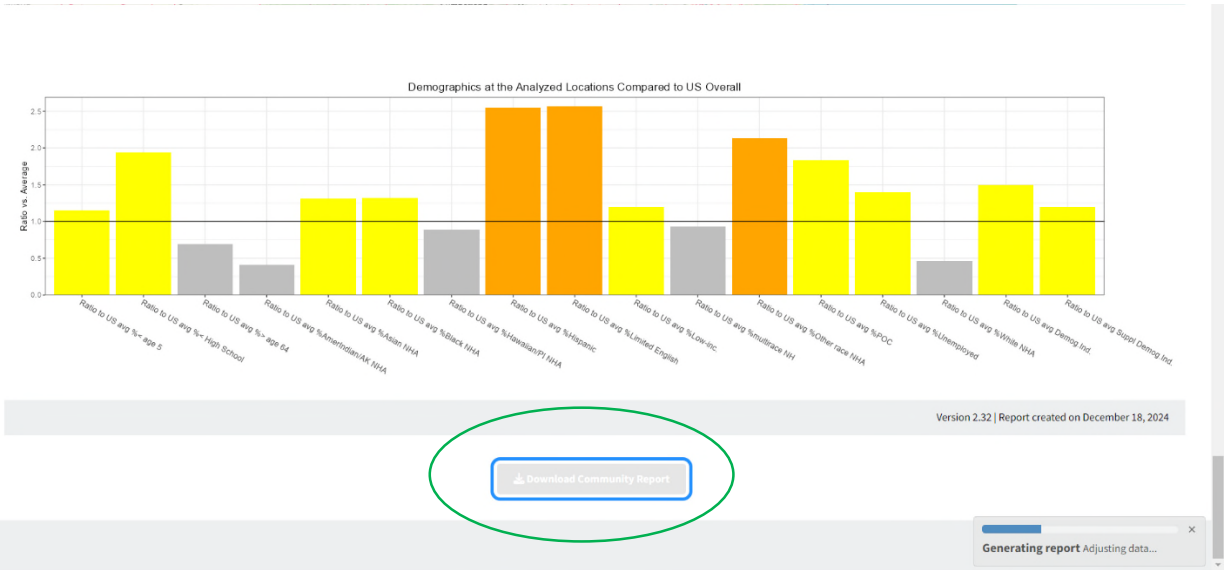
The map on the site selection page and the map in the Multisite Report are "interactive" when viewed on the tool website and when used as a saved .html file when you download the report. This means you can interact with the map on the webpage or in the report, by clicking on it.

- Click + or – to zoom in/out the map, or use the scroll wheel on a mouse
- Click and drag on the map to move right/left/up/down
- Click on a point or polygon to see a popup window with information on the site. The popup shows results for the site, but importantly it has two useful weblinks inside that small popup window: 1) a link to the EJScreen Report for that location – this shows the official EJScreen Community Report for that one location. 2) It also has a link to the EJScreen Map that opens a map at that location. This makes it easy to explore further information at that one location, using all the normal tools available in the EJScreen mapper, such as color-coded maps by blockgroup, or additional point data such as EPA-regulated facilities. The EJScreen website and user guide have details about how to use those tools.
- Click the small x at the upper right of a popup window to close that window.



Download Report button – an interactive map and report in one file

The download button is located at the bottom of the report screen – You must scroll down to find it. Click the button to download and save a file that has an interactive version of the Multisite Report. You can reuse that saved file later to look back at results overall or for each site, but you also can then email that .html file to anyone else and they will be able to use the interactive map that is stored inside that file, including seeing the popup windows.



Details tab

The details tab shows results that are more detailed than the summary report provides. It contains tabs named Site-by-site Table, and Plot Average Scores. Each is explained below.

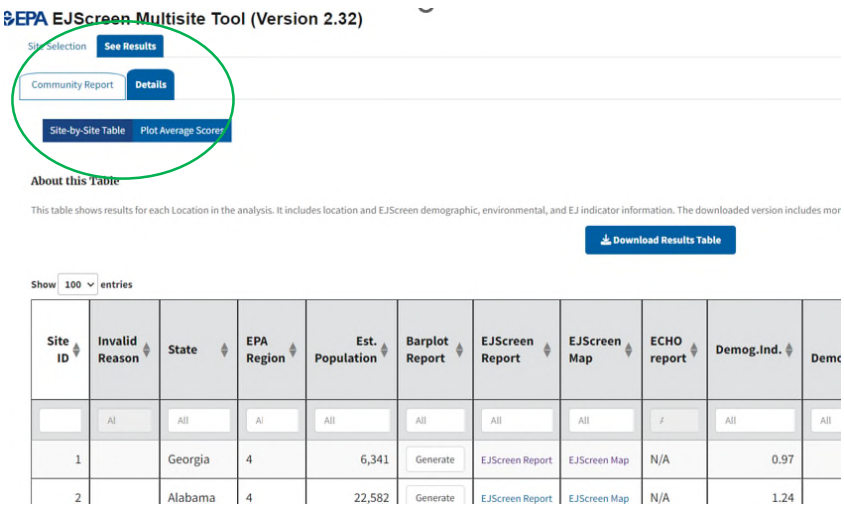
Site-by-Site Table

This tab shows an interactive "preview" table that you can use, but you can also just skip to clicking the button that lets you save the results using the **DOWNLOAD RESULTS TABLE** button.

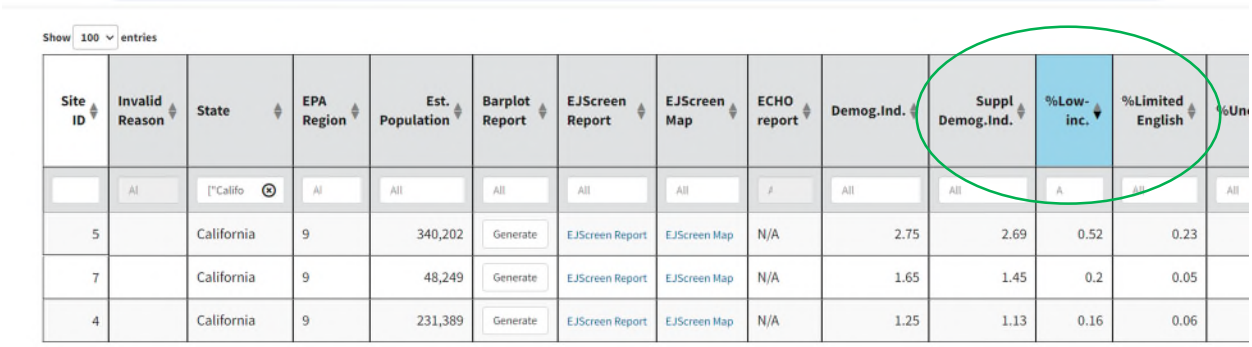
Using the Interactive preview table

The interactive table of site-by-site results has one row per site analyzed, and one column for each of the key indicators. It does not show all the indicators you can see in the downloadable results table – only some are shown in the web table view.

You can scroll down and to the right to see more of the table.



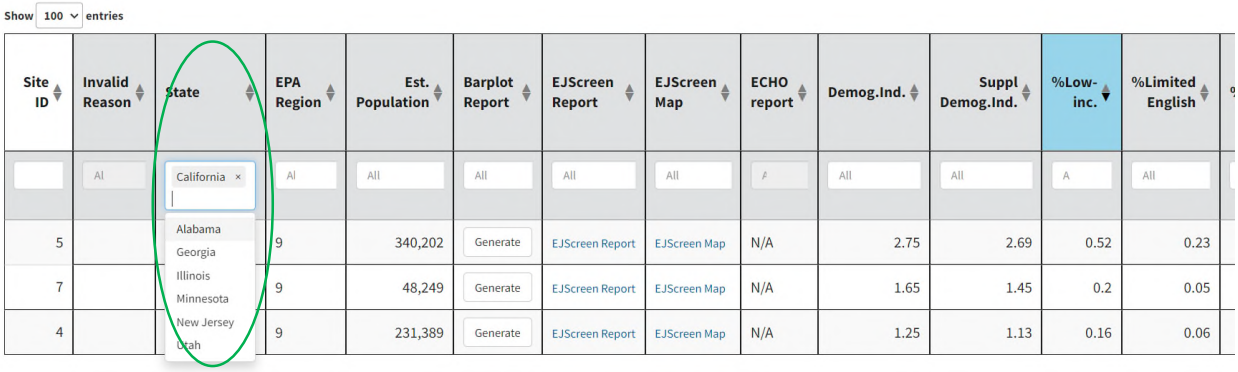
Click on a column header to sort on that column and click again to change the order of sorting. For example, you can scroll to the right to see the column for % low income and then click that column header (the name of the column) to sort and see which sites have the highest scores for % low income.



Show 100 entries

Site ID	Invalid Reason	State	EPA Region	Est. Population	Barplot Report	EJScreen Report	EJScreen Map	ECHO report	Demog.Ind.	Suppl Demog.Ind.	%Low-inc.	%Limited English	%Un
	Al	["Califo	Al	All	All	All	All	#	All	All	A	All	All
5		California	9	340,202	Generate	EJScreen Report	EJScreen Map	N/A	2.75	2.69	0.52	0.23	
7		California	9	48,249	Generate	EJScreen Report	EJScreen Map	N/A	1.65	1.45	0.2	0.05	
4		California	9	231,389	Generate	EJScreen Report	EJScreen Map	N/A	1.25	1.13	0.16	0.06	

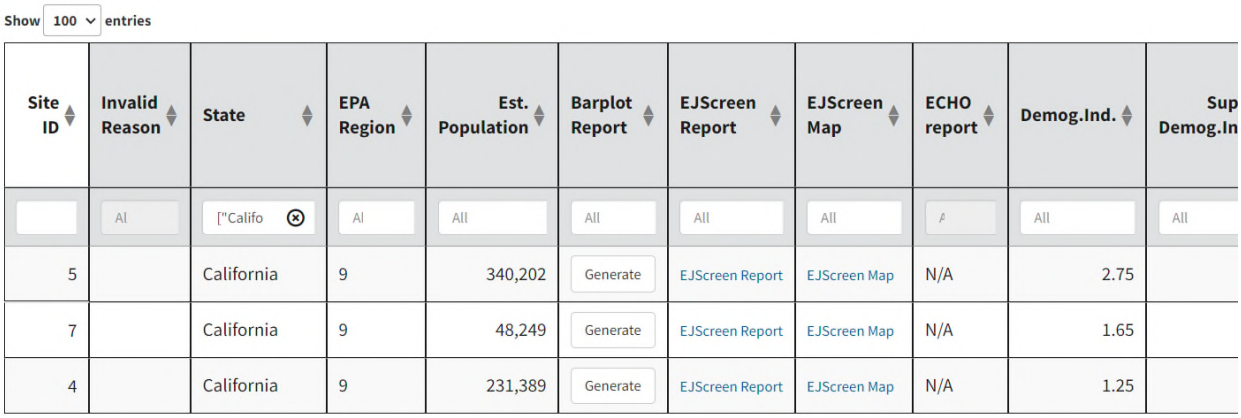
Type in a box at the top of a column (under the header) to filter on that column. For example, you can view only results in one State or one EPA Region by clicking in that box.



Show 100 entries

Site ID	Invalid Reason	State	EPA Region	Est. Population	Barplot Report	EJScreen Report	EJScreen Map	ECHO report	Demog.Ind.	Suppl Demog.Ind.	%Low-inc.	%Limited English	%
	Al	California ×	Al	All	All	All	All	#	All	All	A	All	
5		Alabama	9	340,202	Generate	EJScreen Report	EJScreen Map	N/A	2.75	2.69	0.52	0.23	
7		Georgia	9	48,249	Generate	EJScreen Report	EJScreen Map	N/A	1.65	1.45	0.2	0.05	
4		Illinois	9	231,389	Generate	EJScreen Report	EJScreen Map	N/A	1.25	1.13	0.16	0.06	
		Minnesota											
		New Jersey											
		Utah											

The blue weblinks shown in the column called EJScreen Report and EJScreen Map work like the links in the map popup windows. These are two useful columns of weblinks: 1) a link to the EJScreen Report for that location – this shows the official EJScreen Community Report for that one location. 2) It also has a link to the EJScreen Map that opens a map at that location. This makes it easy to explore further information at that one location, using all the normal tools

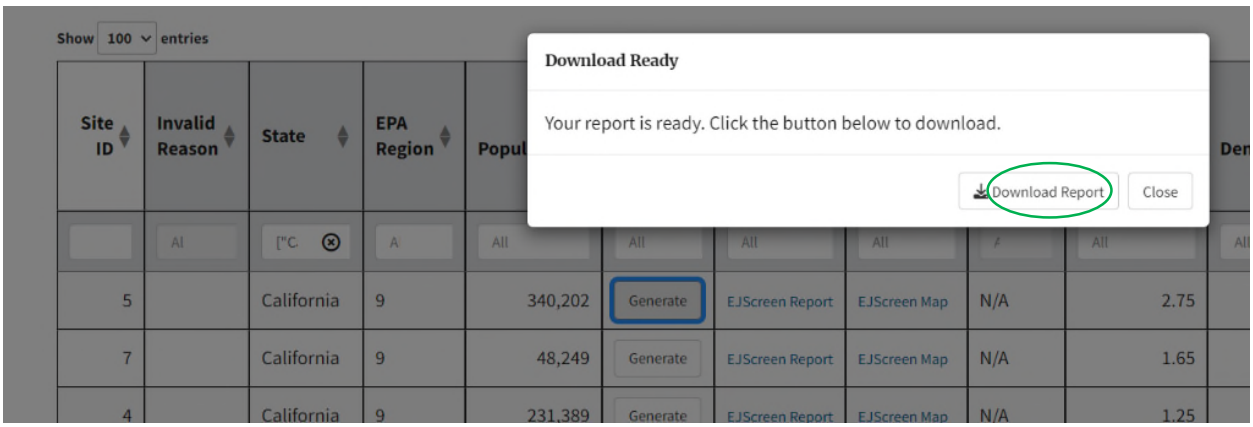


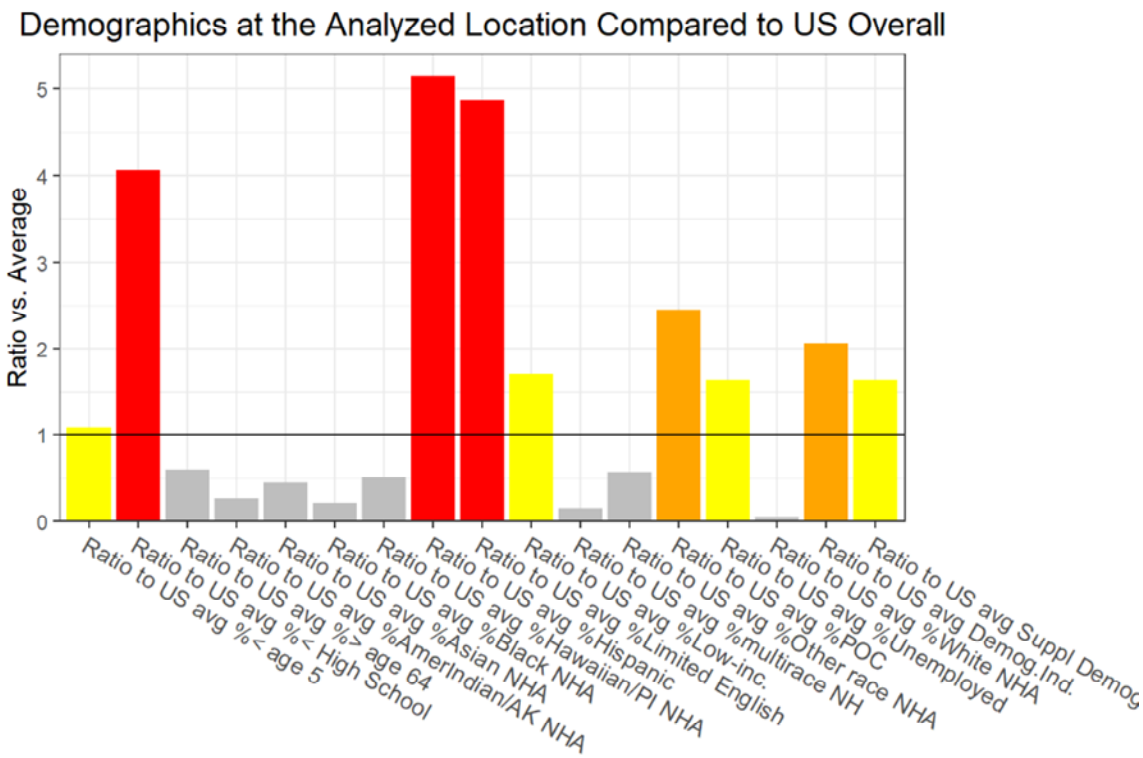
Show 100 entries

Site ID	Invalid Reason	State	EPA Region	Est. Population	Barplot Report	EJScreen Report	EJScreen Map	ECHO report	Demog.Ind.	Sup Demog.In
	Al	["Califo	Al	All	All	All	All	#	All	All
5		California	9	340,202	Generate	EJScreen Report	EJScreen Map	N/A	2.75	
7		California	9	48,249	Generate	EJScreen Report	EJScreen Map	N/A	1.65	
4		California	9	231,389	Generate	EJScreen Report	EJScreen Map	N/A	1.25	

available in the EJScreen mapper, such as color-coded maps by blockgroup, or additional point data such as EPA-regulated facilities. The EJScreen website and user guide have details about how to use those tools.

The Barplot Report column is the only column not found in the spreadsheet download. If you click the button, it lets you download and then view a report that has two barplots with **RATIOS** for that one location: ratios to the US average and ratios to the State average, for each of several demographic indicators. This gives a quick view of which, if any, demographic indicators is notable at that one location.



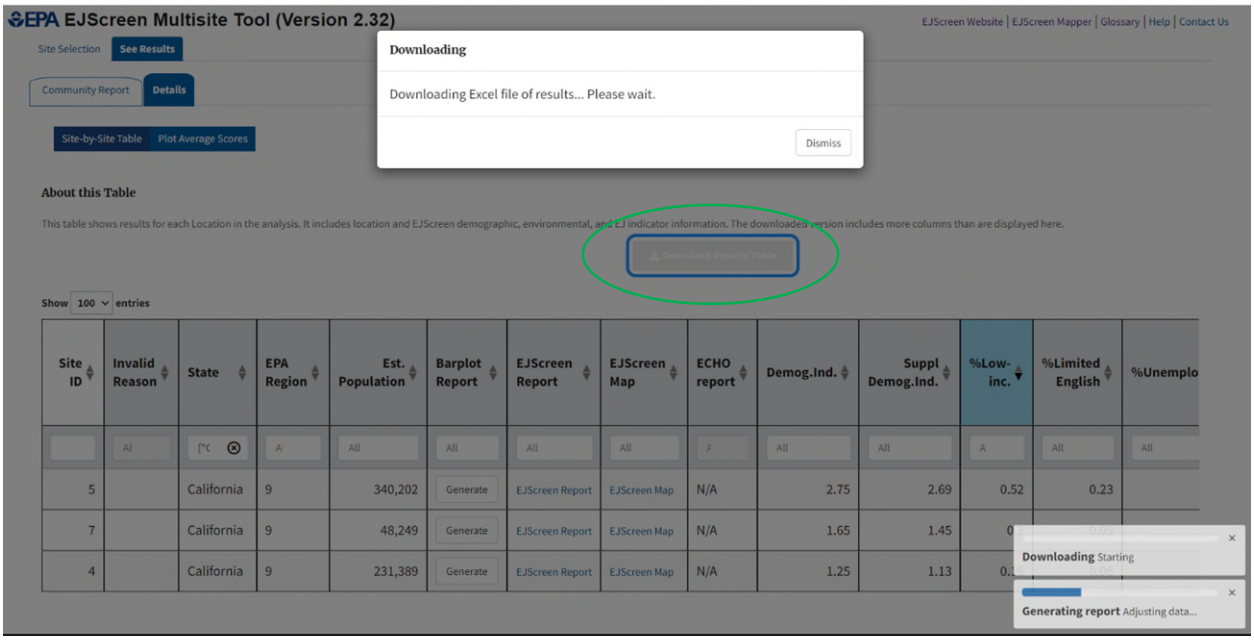


The ECHO report column has links only when you have provided facility IDs in the process of specifying sites to analyze. In that case, it will have links to the site-specific EPA reports from the ECHO system.

Download Results Table (as Spreadsheet) button

Downloading the results table is highly recommended – it is the only way to save your detailed results and contains a lot of useful information in several tabs.

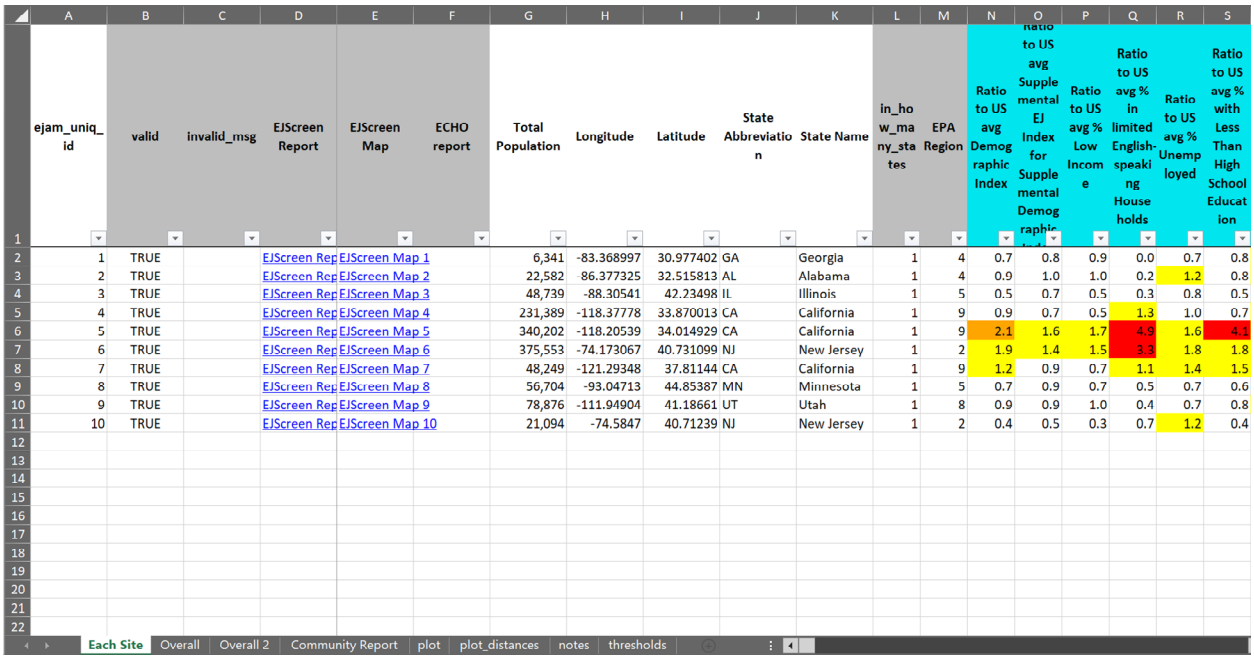
Click the button to download a spreadsheet of results. Please wait for the download to complete as it takes several seconds to create the tables and save the file to your computer.



Understanding the Excel Spreadsheet (Downloaded File)

The downloaded spreadsheet has several tabs of information. The *Overall* tab provides the same summary aggregated numbers as the Multisite Report described above. The *Each Site* tab has one row per site and one column per indicator. The two tabs have the same columns. Other tabs provide plots, a snapshot of the summary report, and notes about the analysis (how many sites, etc.). The tabs are explained below.

Excel or another similar tool will allow you to sort, copy/paste, etc. or use pivot tables, filters, or formulas to create custom summary metrics or plots.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	ejam_uniq_id	valid	invalid_msg	EJScreen Report	EJScreen Map	ECHO report	Total Population	Longitude	Latitude	State Abbreviation	State Name	in_how_many_states	EPA Region	Ratio to US avg Demographic Index	Ratio to US avg Supplemental EJ Index for Supplemental Demographic	Ratio to US avg % Low Income	Ratio to US avg % in limited English-speaking Households	Ratio to US avg % Unemployed	Ratio to US avg % with Less Than High School Education
2	1	TRUE		EJScreen Rep	EJScreen Map 1		6,341	-83.368997	30.977402	GA	Georgia	1	4	0.7	0.8	0.9	0.0	0.7	0.8
3	2	TRUE		EJScreen Rep	EJScreen Map 2		22,582	-86.377325	32.515813	AL	Alabama	1	4	0.9	1.0	1.0	0.2	1.2	0.8
4	3	TRUE		EJScreen Rep	EJScreen Map 3		48,739	-88.30541	42.23498	IL	Illinois	1	5	0.5	0.7	0.5	0.3	0.8	0.5
5	4	TRUE		EJScreen Rep	EJScreen Map 4		231,389	-118.37778	33.870013	CA	California	1	9	0.9	0.7	0.5	1.3	1.0	0.7
6	5	TRUE		EJScreen Rep	EJScreen Map 5		340,202	-118.20539	34.014929	CA	California	1	9	2.1	1.6	1.7	4.9	1.6	4.1
7	6	TRUE		EJScreen Rep	EJScreen Map 6		375,553	-74.173067	40.731099	NJ	New Jersey	1	2	1.9	1.4	1.5	3.3	1.8	1.8
8	7	TRUE		EJScreen Rep	EJScreen Map 7		48,249	-121.29348	37.81144	CA	California	1	9	1.2	0.9	0.7	1.1	1.4	1.5
9	8	TRUE		EJScreen Rep	EJScreen Map 8		56,704	-93.04713	44.85387	MN	Minnesota	1	5	0.7	0.9	0.7	0.5	0.7	0.6
10	9	TRUE		EJScreen Rep	EJScreen Map 9		78,876	-111.94904	41.18661	UT	Utah	1	8	0.9	0.9	1.0	0.4	0.7	0.8
11	10	TRUE		EJScreen Rep	EJScreen Map 10		21,094	-74.5847	40.71239	NJ	New Jersey	1	2	0.4	0.5	0.3	0.7	1.2	0.4
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
21																			
22																			

Each Site | Overall | Overall 2 | Community Report | plot | plot_distances | notes | thresholds

In the Each Site or Overall tab, the color-coded cells form a "heatmap" that lets you quick spot higher scores. For the percentiles, the color coding is the same as in EJScreen maps: yellow/orange/**red** indicate 80th/90th/95th percentiles, respectively.

The heatmap for **RATIOS** columns uses yellow/orange/red the same way the ratio barplots use them: yellow/orange/**red** indicate >1x up to 2x/ 2x-3x / >3x the average, respectively.

There are many columns in the "*Each Site*" or "*Overall*" tab, each clearly labelled with a long name that is a full description or definition of the indicator. The columns include raw indicator scores, percentiles, ratios, averages, counts, and other miscellaneous information such as the State name, number of sites or blocks or blockgroups nearby, etc. See Appendix for some additional details.

The ejam_uniq_id column is created by the tool to assign a unique identification number to each analyzed site. They appear in the same order as was provided in any uploaded table of sites.

	A	B	C	D	MD	ME	MF	MG	MH	MI	MJ	MK
1	ejam_uniq_id	valid	invalid_msg	EJScreen Report	Census blockgroups (count)	Census blocks (count)	Distance to Closest Site	Distance to Closest Site for Avg Person	Number of Sites Nearby (max)	Number of Sites Nearby (total unique)	Number of Sites Nearby (avg)	Buffer distance (miles)
2	1	TRUE		EJScreen Rep	6	221	0.23	2.02	1	1	1.0	3.10
3	2	TRUE		EJScreen Rep	22	502	0.07	2.12	1	1	1.0	3.10
4	3	TRUE		EJScreen Rep	40	941	0.05	2.30	1	1	1.0	3.10
5	4	TRUE		EJScreen Rep	190	2,653	0.03	1.92	1	1	1.0	3.10
6	5	TRUE		EJScreen Rep	243	2,965	0.02	2.36	1	1	1.0	3.10
7	6	TRUE		EJScreen Rep	283	2,947	0.03	1.97	1	1	1.0	3.10
8	7	TRUE		EJScreen Rep	29	650	0.04	2.00	1	1	1.0	3.10
9	8	TRUE		EJScreen Rep	54	963	0.06	2.10	1	1	1.0	3.10
10	9	TRUE		EJScreen Rep	68	1,182	0.04	1.97	1	1	1.0	3.10
11	10	TRUE		EJScreen Rep	18	337	0.27	2.15	1	1	1.0	3.10
12												

The *Community Report* tab has a snapshot of the Multisite Report (not interactive), for convenience.

The *Overall* tab shows the overall results (from the Multisite Report), and has the same columns as the "Each Site" tab, but has only 1 row because it represents the average residents across all sites.

The *Overall2* tab shows the overall results (from the Multisite Report) but in a tall format.

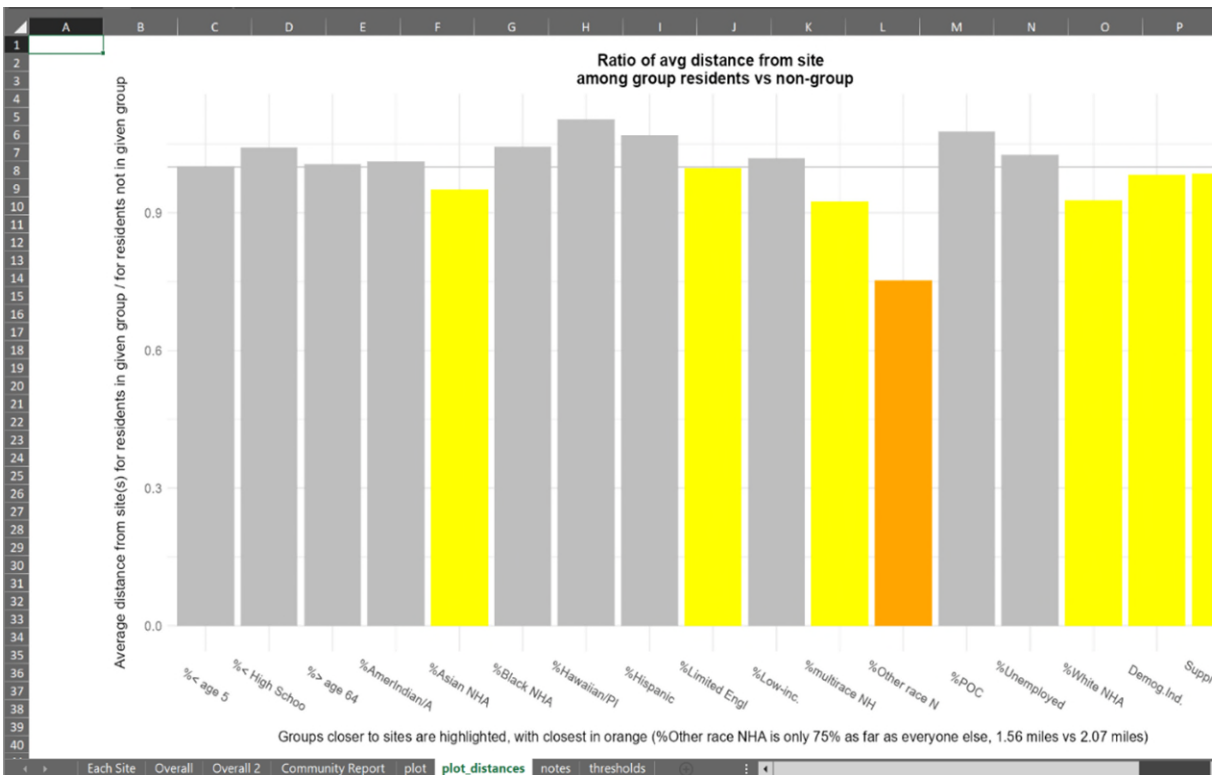
	A	B
1	value	indicator
2		ejam_uniq_id
3		EJScreen Report
4		EJScreen Map
5		ECHO report
6	1229728	Total Population
7		Longitude
8		Latitude
9		State Abbreviation
10		State Name
11	7	in_how_many_states
12		EPA Region
13	1.5	Ratio to US avg Demographic Index
14	1.2	Ratio to US avg Supplemental EJ Index for Supplemental Demographic Index
15	1.2	Ratio to US avg % Low Income
16	2.6	Ratio to US avg % in limited English-speaking Households
17	1.4	Ratio to US avg % Unemployed
18	1.9	Ratio to US avg % with Less Than High School Education
19	1.2	Ratio to US avg % under Age 5
20	0.7	Ratio to US avg % over Age 64
21	1.8	Ratio to US avg % People of Color
22	2.5	Ratio to US avg % Hispanic or Latino
23	1.3	Ratio to US avg % Black or African American (non-Hispanic, single race)
24	1.3	Ratio to US avg % Asian (non-Hispanic, single race)
25	0.4	Ratio to US avg % American Indian and Alaska Native (non-Hispanic, single race)
26	0.9	Ratio to US avg % Native Hawaiian and Other Pacific Islander (non-Hispanic, sing
27	2.1	Ratio to US avg % Other race (non-Hispanic, single race)
28	0.9	Ratio to US avg % Two or more races (non-Hispanic)
29	0.5	Ratio to US avg % White (non-Hispanic, single race)
30	1.3	Ratio to US avg Particulate Matter
31	1.1	Ratio to US avg Ozone
32	1.6	Ratio to US avg Nitrogen Dioxide (NO2)
33	2.3	Ratio to US avg Diesel Particulate Matter
34	0.4	Ratio to US avg Toxic Releases to Air
35	3.2	Ratio to US avg Traffic Proximity and Volume
36	1.4	Ratio to US avg Lead Paint Indicator
37	3.7	Ratio to US avg Superfund Proximity
38	4.1	Ratio to US avg RMP Proximity
39	4.9	Ratio to US avg Hazardous Waste Proximity
40	4.2	Ratio to US avg Underground Storage Tanks indicator
41	0	Ratio to US avg Wastewater Discharge Indicator
42		Ratio to US avg Drinking Water Non-Compliance

Each Site | Overall | **Overall 2** | Community Report | plot | plot_distances | no

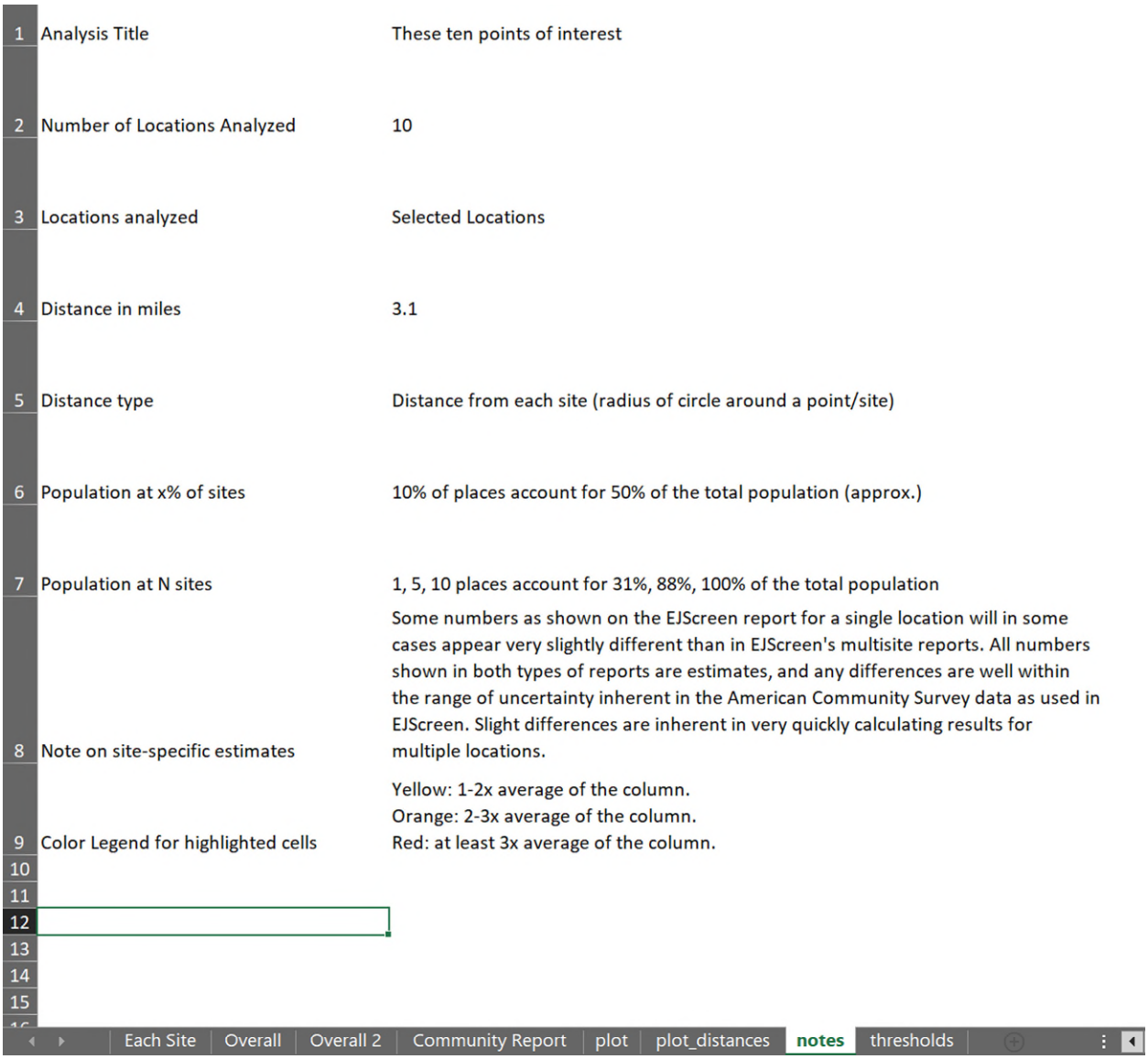
The *thresholds* tab shows how many of the EJ indexes exceed the 80th percentile, at each site.

	A	B	C	D
1	Max.of.EJ.US.or.ST	Number.of.EJ.US.or.ST.at.above.threshold.of.80	Max.of.Supp.US.or.ST	Number.of.Supp.US.or.ST.at.above.threshold.of.80
2	88	2	85	2
3	85	1	83	1
4	86	1	86	1
5	78	0	73	0
6	98	22	98	22
7	97	24	96	23
8	88	6	84	4
9	84	5	90	7
10	83	3	85	9
11	58	0	56	0

The *plot_distances* tab in the spreadsheet shows the average distance from the analyzed sites, for each demographic group, with the areas analyzed.



There is also a *Notes* tab with information about the analysis such as the number of sites and how much the total population is concentrated at a few key sites.



1	Analysis Title	These ten points of interest
2	Number of Locations Analyzed	10
3	Locations analyzed	Selected Locations
4	Distance in miles	3.1
5	Distance type	Distance from each site (radius of circle around a point/site)
6	Population at x% of sites	10% of places account for 50% of the total population (approx.)
7	Population at N sites	1, 5, 10 places account for 31%, 88%, 100% of the total population
8	Note on site-specific estimates	Some numbers as shown on the EJScreen report for a single location will in some cases appear very slightly different than in EJScreen's multisite reports. All numbers shown in both types of reports are estimates, and any differences are well within the range of uncertainty inherent in the American Community Survey data as used in EJScreen. Slight differences are inherent in very quickly calculating results for multiple locations.
9	Color Legend for highlighted cells	Yellow: 1-2x average of the column. Orange: 2-3x average of the column. Red: at least 3x average of the column.
10		
11		
12		
13		
14		
15		

Each Site | Overall | Overall 2 | Community Report | plot | plot_distances | notes | thresholds

Plot Average Scores (Barplots)

There is a page with plots (charts) that is shown if you select See Results > Details > Plot Average Scores. The charts show how each demographic group or environmental stressor, in the analyzed locations, compares to its US average. These are **RATIOS**.

These barplots let you quickly check which indicators of certain types are relatively elevated.

Select the indicator type by clicking one of these: Demographic, Environmental, EJ, or EJ Supplemental indexes.

Select the Data Type by clicking either “Ratios to US” to see **RATIOS** or choose “Raw Data” to see the actual scores such as % low income or the PM2.5 concentration in air. The Raw Data option shows you the indicator values for the average resident and the average site, as well as for the US overall.

Indicator Ratio
%< age 5
%< High School
%> age 64
%AmerIndian/AK NHA
%Asian NHA
%Black NHA
%Hawaiian/PI NHA
%Hispanic
%Limited English
%Low-inc.
%multirace NH
%Other race NHA
%POC
%Unemployed
%White NHA
Demog.Ind.
Suppl Demog.Ind.
Legend Average person in US Average site Average person at these sites
Indicator type
Demographic
Environmental
EJ
EJ Supplemental
Data Type
Ratio to US
Raw data

Indicator Value
%pre-1960
Diesel PM
Drinking
NO2
NPDES
NPL
Ozone
PM2.5
RMP
Toxic Releases to Air
Traffic
TSDF
UST
Legend Average person in US Average site Average person at these sites
Indicator type
Demographic
Environmental
EJ
EJ Supplemental
Data Type
Ratio to US
Raw data

Note: Percentiles are not shown in these barplots.

Average Person versus Average Site

Average site: The average site's average resident (the average resident's score is calculated at each site as the site-specific population-weighted mean, and then the arithmetic mean of those site-specific scores is calculated)

Average person at these sites: The average person among all the residents who are at any one or more of the sites, counting each person only once even if they live near more than one site.

Note: The average site may have a higher indicator value than the average person (resident) at those sites. This is common because some sites are in high population density locations, so they account for most of the analyzed population, and they drive the results overall when looking at the average resident. The average of sites will equally weight each site, including those with very few residents. The average person will equally weight each resident, even if most of them live at only a few sites in more urbanized areas.

Appendix

Additional Details on Calculations

How do the Calculations Work?

The multisite tool runs either a polygon-based or proximity-based analysis at each location, just like the existing EJScreen Community Report for a single location, except it does this for each of a large number of locations very quickly. It uses the same methods of calculating averages and percentiles, just in a way that is optimized for working with many locations at once. A more efficient use of spatial indexing is used to quickly identify nearby residents, for example.

The "multi-site" features in EJScreen are powered by a software toolkit developed by the United States Environmental Protection Agency (US EPA). That toolkit, called EJAM, is also available as an open-source software package for researchers, developers, and data analysts.

Note: Some numbers as shown on the EJScreen report for a single location will in some cases appear very slightly different than in multi-site reports. All numbers shown in both types of reports are estimates, and any differences are well within the range of uncertainty inherent in the American Community Survey data as used in EJScreen. Slight differences are inherent in very quickly calculating results for multiple locations.

Additional Details on Specific Indicators

Indicators not yet available in the multisite tool

Almost of the indicators shown on the EJScreen Community Report for a single site are also provided by the Multisite Tool in a downloaded results table. However, some of the extra statistics shown on the Community Report are not yet available from the Multisite Tool:

- Number of sites reporting to EPA within defined area(s), such as Superfund sites
- Number of other community features, such as schools
- Other environmental data (air non-attainment and impaired waters)
- Whether the location contains American Indian Reservation Lands, or a CEJST or EPA IRA disadvantaged community.
- Health indicators of heart disease, asthma, and cancer rates (but %low life expectancy and %persons with disabilities are in the detailed multisite results)
- Climate indicators of flood and wildfire risk
- Critical service gaps: broadband internet, lack of health insurance, housing burden, transportation access burden, and food desert statistics.

Indicators available for download but not yet shown in some tables

A few indicators are provided by the Multisite Tool but are not yet shown on the summary Multisite Report or the detailed web tables. This may change in a future version. Importantly, all indicators below are provided in the downloadable spreadsheet of results – they just do not currently appear in the short summary report or the web preview of the Site-by-Site Table. Downloading the Results Table will provide them. The ones shown only in the downloaded spreadsheet are these:

- % persons with disabilities
- average life expectancy
- per capita income
- number of households
- % owner-occupied
- languages spoken at home (but it does show languages spoken among limited English-speaking households)

Indicators unique to the Multisite Tool, shown in the Multisite Report

Almost all indicators shown on the Multisite Report are also found on a single-site Community Report (and they are defined in the same way).

For a multisite analysis, the only exception is that *ratios* are shown on the Multisite Report, in a barplot. (see sidebar on ratios)

Each indicator on that barplot is shown as a ratio to its average value (overall value) across the entire US.

Indicators unique to the Multisite Tool, in Downloaded Results Tables

The downloaded results tables, which show statistics in a spreadsheet, provide many additional numbers that are not found in the usual EJScreen Community Report. Note that some of them may be available directly from EJScreen's API for software developers, and are documented in API technical documentation there. The following indicators or metrics are not provided by EJScreen's Community Report:

- Ratios of indicators to US or State averages overall (calculated by the Multisite Tool)
- % of households below poverty level (as a fraction of the households for which poverty ratio was determined in the survey)
- Counts of almost 40 demographic indicators (e.g., the number of low-income residents, count of households, etc.) from the Census ACS data used by EJScreen
- over 30 additional indicators about race/ethnic groups: percentiles, averages, and numbers without the non-hispanic subgrouping (e.g., %White Alone, including Hispanic or Latino) from the Census ACS data used by EJScreen
- Raw scores for over 50 EJ Indexes (calculated just as in EJScreen, but typically only shown or reported as percentiles)
- Counts of the analyzed facilities near residents in analyzed areas (calculated by the Multisite Tool as simple counts)
- Counts of blocks and blockgroups nearby (calculated just as provided by the EJScreen API but not shown on community report)
- Distances of average or closest residents to analyzed facilities (calculated as simple summary statistics on estimated distances to block internal points).