



Community Profiles

Overview

The community profile is a narrative that describes the community affected by the Superfund site. It summarizes demographic information and identifies significant subgroups in the population, languages spoken, and other important characteristics of the affected community. It also should address whether the community might bear a disproportionate burden of exposure or environmental health effects due to race/ethnicity, national origin, or income compared to other communities (i.e., issues related to environmental justice [EJ]).

The community profile is an important element of the [community involvement plan](#) (CIP), which is intended to inform the community about EPA's plans for ensuring effective community involvement throughout the Superfund process. The CIP is a site-specific strategy that specifies EPA-planned community involvement activities to address community needs, concerns, and expectations that are identified through community interviews and other means.

Why This Is Important

The community profile provides important descriptive information about the demographic composition of the affected community at a Superfund site, which is essential to understanding their needs and how to most effectively communicate with them about the site. The community profile is an important component of the CIP, which is required under the NCP at 40 CFR §300.430(c)(2) (ii)(A-C) and 40 CFR §300.415(n) (3)(ii).

Implementation

A good CIP starts with comprehensive information about the community, which is summarized in the community profile. In addition to demographics and other descriptive information, the community profile should paint a picture of the community based on information from community interviews, EPA's experience at the site, and the site team's interactions with members of the community.

This and all tools in the Community Involvement Toolkit should be used in conjunction with the [Community Involvement Handbook](#), which provides guidance to EPA staff on how EPA typically plans and implements community involvement activities at Superfund sites.

The community profile usually describes the local government structure, identifies key community organizations, notes the places where people gather, and discusses how community members receive and share information. While many regions include primarily demographic information in the section labeled "Community Profile" in the CIP, other parts of the CIP narrative often help complete the picture that provides a true profile of the community. For example, a good CIP often will reflect knowledge of the community's current and past relationship with the site, although this information may be included in other parts of the narrative. Some regions also summarize information from community interviews in a separate section of the CIP.

When to Complete the Community Profile

The community profile should both inform and be informed by the community interviews conducted for the CIP. This means that the demographic data and other descriptive information about the community (e.g., geographic description, information about local government structure, and research about the community's history with the site) should be summarized in a draft community profile prepared prior to conducting community interviews. In some cases, the initial demographic analysis yields important information about community members, including languages spoken, cultural considerations, and potential environmental justice concerns, and may identify issues that the site team might wish to explore further through community interviews. Similarly, community interviews often yield valuable insights about the dynamics of the community. This qualitative information can be incorporated into the final community profile.





How to Prepare the Community Profile

Follow these steps to prepare a draft and final community profile. Be sure to cite the information sources used:

Before Community Interviews Are Conducted

Define the affected community: Who are the people most likely to be affected by the site? Consider the location of contamination and the exposure pathways that have been identified. Sometimes the affected community consists primarily of people who live close to the release and affected areas (a.k.a., “the site”). In other cases, the affected community includes individuals who regularly access the site or places near the site. For example, people who live farther from the site but use a contaminated waterway for recreation or fishing also may be considered members of the affected community. Be sure to take all relevant factors into consideration when defining the community affected by a site.

Be mindful that multiple subgroups may comprise the larger community affected by the site. Consider whether it is appropriate to identify and treat significant subgroups in the affected community as separate entities. Subgroups are groups sharing common features that are different from the larger population, such as history (farmers, immigrants, new residents, those on subsistence diets, etc.), religion, geography, and race/ethnicity. These subgroups may have different communication outlets; community gatekeepers; exposure pathways; places to gather; and needs, concerns, and expectations regarding the site when compared to the larger population.

Gather information about the community’s general characteristics and the government structure: Once the affected community is defined, gather information about the governmental structure and organization of the jurisdictions where community members live or work, if relevant. Good sources for this information include local libraries, municipal manuals and websites, chambers of commerce, community websites and blogs, and telephone books or online directories.

Make a list of major community-based organizations, including local environmental, neighborhood, and civic organizations. Many times, leaders of these important community groups are critical gatekeepers who can help EPA reach and work with members of the community. Identify schools, places of worship, community centers, and other popular community

gathering places near the site or where members of the affected community live. Identify key communications outlets, including local newspapers and newsletters, television and radio stations, popular social media websites, and community listservs, websites, and blogs. (These lists will be included elsewhere in the CIP, but the information also may be summarized in the community profile. This information can be revised or expanded after soliciting input from community members during interviews.)

Conduct an internet search using the site name to find out if there are media outlets that post stories about the site. Also, research whether there are existing Facebook pages, Wikipedia sites, blogs, or social media sites that address site-related issues or may be important sources of information or outreach mechanisms to members of the community or significant subgroups.

Explore the community’s relationship with the site: Find out what you can about the site’s history, particularly about site operations, site-related events, or how contamination may have affected the lives of current community members or previous generations. Research whether the site has been an important source of employment and explore its current or previous role in the recent or not-so-recent history and economy of the area. Conduct research about whether there have been previous incidents (fires, accidents, etc.) that affected current or previous members of the community in a significant way. It also is important to know if the site or potentially affected areas have been used for food gathering, hunting, fishing, or recreational purposes, or if there may be potentially significant cultural factors to consider. Use this initial research to identify issues that can be explored further in community interviews.

Collect and analyze demographic information: Demographics are statistics that detail certain characteristics of a community at a point in time. The community profile should include demographic data that describes the population of the affected community, usually in terms of population size, average age or age distribution, race/ethnicity, income levels, poverty level, educational levels, and languages spoken/linguistic isolation. Additional information on access to the internet or computer literacy is useful.

The U.S. Census Bureau provides detailed data on the age, sex, race, ethnicity, housing tenure, and income levels for defined populations on a national,



Some of the Data Available via U.S. Census Explorer

- Total population.
- Percentage age 18 younger; age 65 and older.
- Foreign-born population percentage.
- Percentage of the population with a high school degree or higher.
- Percentage with a bachelor's degree or higher.
- Percentage with a master's degree or higher.
- Labor force participation rate.
- Percentage of labor force employed in professional, scientific and tech industry.
- Home ownership rate.
- Number of renter-occupied versus owner-occupied units.
- Median household income.
- Percentage of households with incomes of \$150,000 or higher.
- Average yearly employee wage.

state, local, and census-tract level. A national census is conducted every ten years. For years between the decennial censuses, the U.S. Census Bureau makes estimates based on models and surveys, the largest of which is the American Community Survey (ACS). Census data can be readily accessed via the [U.S. Census Bureau's website](#). [Census Explorer](#) is a useful and easy-to-use interactive map that allows the user to look at selected characteristics of a population at the national, state, county, and census-tract level, using data from the latest ACS.

EPA's [EJSCREEN](#) tool can be used to collect and analyze data for the community profile. EJSCREEN is a GIS-based tool with data and mapping capabilities to help assess environmental and demographic information at a fine level of geographic resolution. The user can define a target area (indicating the affected community). EJSCREEN pulls data from the U.S. census' ACS to define characteristics of the chosen population down to the census block group level (a geographical unit that usually encompasses between 600 and 3,000 individuals). EJSCREEN includes data for six demographic factors (see text box). Because it was designed to help characterize communities with environmental justice concerns, EJSCREEN emphasizes low-income populations and minority populations through its *demographic index*, which averages these two factors. To provide better context

Six Demographic Factors Used by EJSCREEN

- Percentage of population that is low income.
- Percentage of population that is a racial minority.
- Percentage of population under age 5.
- Percentage of population over age 64.
- Percentage of population that is linguistically isolated.
- Percentage of population over the age of 25 with less than a high school education.

in which to understand the data generated, EJSCREEN allows the user to compare the characteristics of the affected community with three other reference populations: state, EPA region, or nation. (See Attachment 1: *Displaying Data Visually*; and Attachment 2: *Guide for Conducting an EJSCREEN Analysis*.)

Collect and summarize information about environmental burdens that may affect the community: Use your knowledge of the affected area and information from other EPA sources to describe the environmental factors that may affect the community in addition to the National Priorities List (NPL) site. Here, EJSCREEN may be particularly helpful because it includes data for several environmental indicators gleaned from various public EPA databases for a defined a target area at a fine level of detail.

EJSCREEN uses *environmental indicators* to identify potential exposures, and demographic factors to assess potential susceptibility. For EJSCREEN, susceptibility means greater impact for a given environmental indicator value.

EJSCREEN uses *demographic factors* as very general indicators of a community's potential susceptibility to the types of environmental indicators included in the tool¹. An *EJ index* is produced for each environmental indicator, which is a way of combining each environmental indicator with the demographic index (percentage low income and percentage minority) and the population count.

EPA's [Cleanups in My Community](#) is a GIS-based tool for learning more about other environmental

¹To calculate a single EJ Index, EJSCREEN combines a single environmental indicator with demographic information. It considers the extent to which the local demographics are above the national average. It does this by looking at the difference between the demographic composition of the block group, as measured by the Demographic Index, and the national average (which is approximately 35%). It also considers the population of the block group. (Per [EPA June 2016 Draft EJSCREEN Technical Documentation](#), p. 22).



The 11 Environmental Indicators in EJSCREEN	
▪ Particulate Matter (PM 2.5)	▪ Lead Paint Indicator
▪ Ozone	▪ Proximity to NPL sites
▪ National Air Toxics Assessment (NATA) Diesel PM (DPM)	▪ Proximity to Risk Management Plan (RMP) facilities
▪ NATA Air Toxics Cancer Risk	▪ Proximity to Treatment Storage and Disposal Facilities (TSDF)
▪ NATA Respiratory Hazard Index	▪ Proximity to Major Direct Water Discharges
▪ Traffic Proximity and Volume	
Source: EPA June 2016 Draft EJSCREEN Technical Documentation , pp.13-15.	

cleanup locations near the affected community. This database includes information on brownfields properties, federal facilities, Resource Conservation and Recovery Act (RCRA) corrective action sites, and removal sites. Unlike EJSCREEN, this database does not allow the user to define a buffer area or specific census block groups. However, it does show these locations on a map, which enables the user to get a broad idea of other hazardous waste sites that are near the affected community.

EPA's [Envirofacts](#) website is a single point of access to several EPA databases that provide information about environmental activities in a specific area that may affect air, water, and land anywhere in the United States. The Quick Start feature in Envirofacts allows users to retrieve a sampling of information by entering a specific ZIP code, city and state, county and state, water body, or park name (although it does not allow the user to define a target area using a fine level of detail). With Envirofacts, users can generate maps of environmental information. More in-depth information about a particular subject area is available through the Envirofacts list of available topics, which includes air, waste, facility, land, toxic releases, compliance, water, radiation, and others.

Prepare the draft community profile: Use the site team's knowledge of the local community and the information collected through demographic and environmental research to prepare a draft community profile.

It usually is a good idea to include the following information in the draft community profile:

- Location and boundaries of the affected community relative to the site. Are people affected who do not directly live near the site?
- Structure of local government. What is the form of local government? Who are the elected officials or important members of the council, board of selectmen, etc.?

- Summary of demographic information. What are the general characteristics of the community (e.g., population, ethnicity, income levels, educational levels)? Is there reason to believe that the community might have EJ concerns? Are there significant potentially susceptible populations of note (e.g., children under 5, women of childbearing age, or the elderly)? Are there subgroups in the population that may be more vulnerable, given what is known about the pathways of exposure (e.g., if fish ingestion is an exposure pathway, are there subgroups who engage in subsistence fishing)?
- What are the major community organizations (e.g., neighborhood groups, churches)?*
- Description of how the community receives and shares information (e.g., newspapers and media, important neighborhood newsletters, websites, blogs).*
- Places where people gather, hold major community events, etc.*
- Insights about the community's past relationship to the site, if relevant.*
- Other environmental burdens affecting the community (e.g., nearby NPL or RCRA sites, brownfields properties, TSDFs, proximity to traffic and other possible exposures).

(The items marked with an asterisk () are the most likely to be affected by what is learned through community interviews, and subject to revision in the final community profile.)*

The research conducted for the draft community profile often can be used to help identify potential issues to explore in community interviews and also to help identify potential interviewees. See Attachment 3: *Using EJSCREEN Data for the CIP Community Profile for the Public and an Enhanced Analysis for the Site Team*. (Note: Example 3a uses EJSCREEN data for the CIP Community Profile for the Public.)



Prepare a summary of information from EJSCREEN for the site team (optional): You can use the information from EJSCREEN to prepare a separate analysis of the demographic and environmental data for the site team. In some cases, it may be possible to recommend specific actions (such as providing translations when data show significant linguistically isolated populations) or factors to consider when developing a community involvement approach (for example, providing easy-to-read information when data show significant numbers of community members who have less than a high school education). (See Attachment 3. Example 3b shows an optional “Enhanced EJSCREEN Analysis for the Site Team”.)

After Community Interviews Are Conducted

Prepare the final community profile for the CIP:

After conducting the community interviews for the CIP, revise the draft community profile by adding or refining information based on what was learned, especially about:

- Major community organizations and neighborhood groups, including churches, etc.
- Ways that the community gets and shares information, including newspapers and media, important neighborhood newsletters, websites, and blogs.
- Places where people gather, hold major community events.
- The community’s past relationship to the site.

At this stage, it may be a good idea to share a draft of the community profile with a local community leader, historian or librarian to get their comments and input.

Overview: Preparing the Community Profile

Usually, the community profile is less than three pages long. There is some variation among regions in the types of information included. In some CIPs, the community profile is a simple description of the geographical area that comprises the affected community and the demographic composition of the community. Information about the government structure and community organizations may be included in a different part of the CIP. In other CIPs, the community profile is more robust and may include other types of information (such as the community’s past relationship with the site) that are recommended in this tool.

- Regardless of how the community profile is defined, the narrative should be concise and written in a conversational style that tells a story and gives the reader a sense of the “pulse” of the affected community.
- Point out the more important characteristics of the community that may be relevant to site issues or might affect the community involvement approach or its implementation. For example:
 - Use demographic information to describe the characteristics of a community and identify important subgroups—such as minority populations or low-income populations—that suggest that the community may have potential environmental justice concerns.
 - Make note of a large proportion of children under 5 years of age, women of childbearing age, or the elderly, as these subgroups may be more vulnerable to health effects from contaminants of concern.
 - Identify subgroups that may be linguistically isolated, and if possible, indicate the languages spoken, because this will be important information when planning community involvement activities.
 - Identify any widespread or cultural practices, such as subsistence on fish, vegetation, or wildlife, that might be relevant in light of the type of contamination or identified exposure pathways.
- Use visuals—graphs, charts, histograms, etc.—to summarize important demographic information. (See Attachment 1.)
- You also can use EJSCREEN data to prepare an enhanced analysis and recommendations for the site team. (See Attachment 3.)

Attachments

- Attachment 1: *Presenting Data Visually*
- Attachment 2: *Guide for Conducting an EJSCREEN Analysis: An EJSCREEN Decision Chart for Site Teams Assessing Individual Superfund Sites*
- Attachment 3: *Using EJSCREEN Data for the CIP Community Profile for the Public and an Enhanced Analysis for the Site Team*



Attachment 1: Presenting Data Visually

When gathering information for a community profile, site team members often have to sort through a trove of numeric data that is as diverse and complex as the community it represents. Demographic data from the U.S. Census Bureau and outputs from tools such as [EJSCREEN](#) can provide a useful snapshot of a community, but it can be challenging to present this information to an audience while maintaining their interest and attention. This can be particularly difficult when using tables filled with numbers arranged in traditional rows and columns. While tables can display data in a convenient, organized format, they do not visually display relationships between data points or how those relationships change over time.

Affected Communities	Population	% Minority	% Linguistically Isolated	% Less than HS Education	% Pop over 64	% Children under 5	Average Income	% Hispanic/Latino
Alamo	25,243	89	16	50	15	8	47,470	88
Scissors	4,632	99	28	60	6	9	30,875	99
Donna	23,777	89	24	46	12	11	25,360	90
United States Average	25,145,561	36	5	15	13	7	53,046	17

Figure 1: Traditional tables display data arranged in rows and columns.

Most people are not as interested in absolute values as they are in the relationships between data points. Therefore, graphs, charts, and other visual data representations typically are the best way to present this type of information in a simple and meaningful way. Using color to highlight important data points and providing a reference population for comparison (the U.S. average in Figure 1 above) provides useful context that can help the reader understand the significance of the numbers.

Maps also are useful tools that can help your audience visualize the spatial characteristics of a community. EJSCREEN, [Envirofacts](#), and other mapping tools can use geospatial data to show the locations of hazardous waste sites in relation to the communities they impact.

Graphs and Charts

Graphs and charts can be used to display the summarized results of large data sets and to simplify complicated relationships between data points. The three basic types of graphs that are typically used to present data are:

- Bar graphs.
- Line graphs.
- Pie charts.

A bar graph uses columns with heights that represent the value of the data points for the parameters being plotted. They are best suited for presenting data with large changes in the values of parameters and for comparing similar data for two or more places, such as shown in Figure 2.

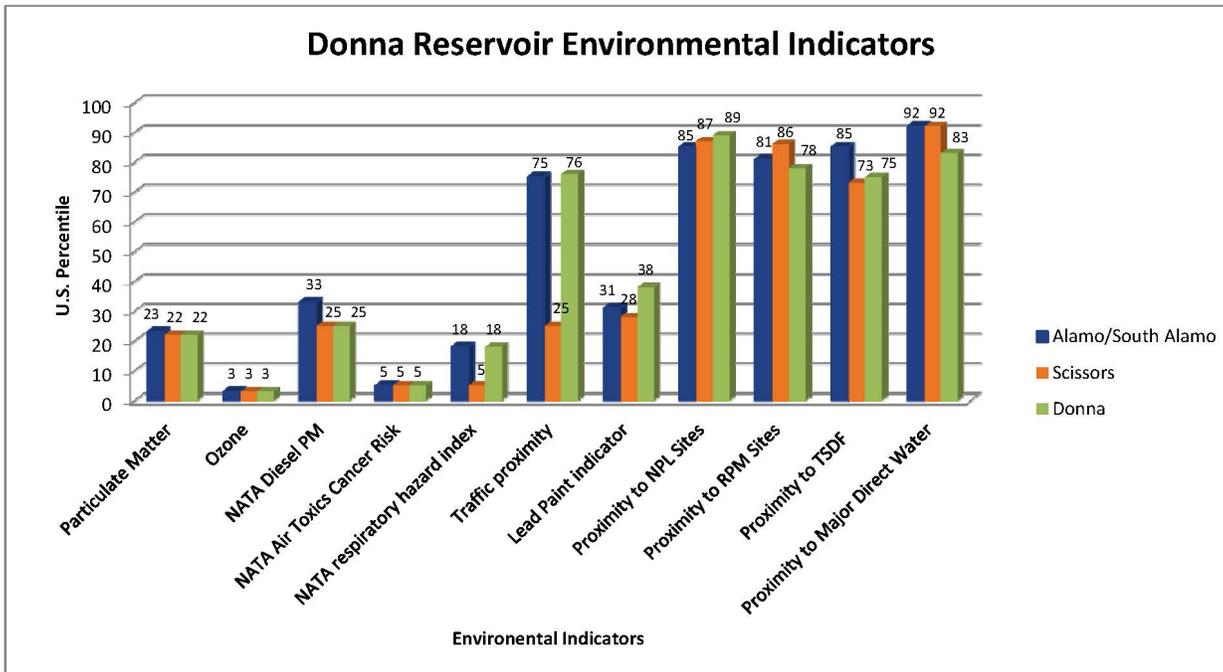


Figure 2: A bar graph displaying relationships between EJSCREEN environmental indicators at several locations near the Donna Reservoir site¹.

Graphing Tips

Regardless of which graphic style you choose, follow these rules:

- **Each graph should have a clear purpose.** The graph should be easy to interpret and should relate directly to the content of the text of a document or the script of a presentation.
- **Show proportional data points.** The data points on a graph should be proportional to the actual values so as not to distort the meaning of the graph. Labeling should be clear and accurate and the data values should be easily interpreted from the scales. Do not overcrowd the points or values along the axes. If there is a possibility of misinterpretation, accompany the graph with a table of the data.
- **Keep it simple.** The more complex the graph, the greater the possibility for misinterpretation.
- **Limit the number of elements.** Pie charts should be limited to five or six wedges; the bars in a bar graph should fit easily; and the lines in a line graph should be limited to three or less.
- **Create a balanced look and feel.** Consider the proportions of the graph and expand the elements to fill the dimensions, thereby creating a balanced effect. Often, a horizontal format is more visually appealing and makes labeling easier. Try not to use abbreviations that are not obvious to someone who is unfamiliar with the information.
- **Keep titles simple.** Create titles that are simple, yet adequately describe the information portrayed in the graph.
- **Use legends and captions.** When necessary, use a legend to describe the categories within the graph. Accompanying captions also may be needed to provide an adequate description of the elements.
- **Use appropriate visuals.** Make sure your visuals are neither too technical nor too simplistic for your intended audience.

¹ Note that this graph was drawn using data generated from an early version of EJSCREEN that included 12 environmental indicators. EJSCREEN now has only 11 environmental indicators.



A **histogram** is a type of bar chart that summarizes the distribution of the data by placing observations into intervals (also called classes or bins) and counting the number of observations in each interval.

Sometimes, including more descriptive details is all that is required to give more meaning to demographic data. In most community involvement plans (CIPs), information about generational differences in the community is confined to the mean or median age of the population. For some sites, the CIP contains a comprehensive accounting of the community's age in the form of a histogram, providing far more granularity and actionable information than the mean or median age. Figure 3 uses a histogram to display census data showing the age and gender distribution of residents of the District of Columbia. In this case, the community involvement coordinator (CIC) might use this fuller analysis of community ages to determine appropriate use of technology as an involvement tool.

2010 Census: District of Columbia Profile

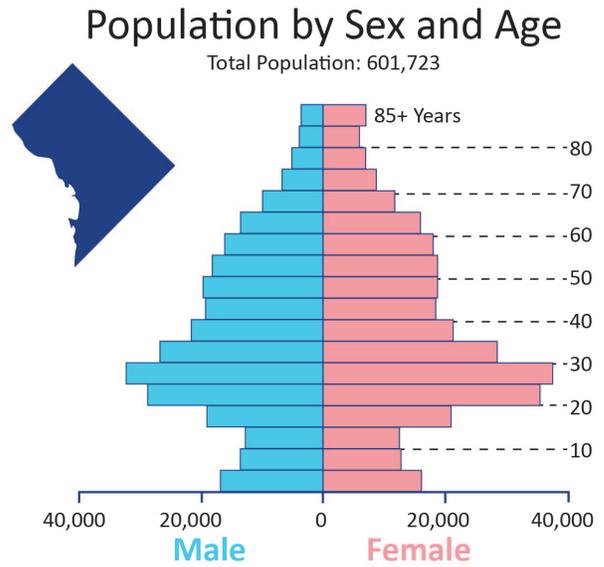


Figure 3: Histogram showing the age and gender distribution of District of Columbia residents.

A **line graph** is constructed by connecting the data points with a line. A line graph places more emphasis on trends over time and the relationship among data points and less emphasis on any particular data point.

Percent of Children with Blood Lead Levels $\geq 10 \mu\text{g}/\text{dl}$
Kellogg and Basin, 1988-2011

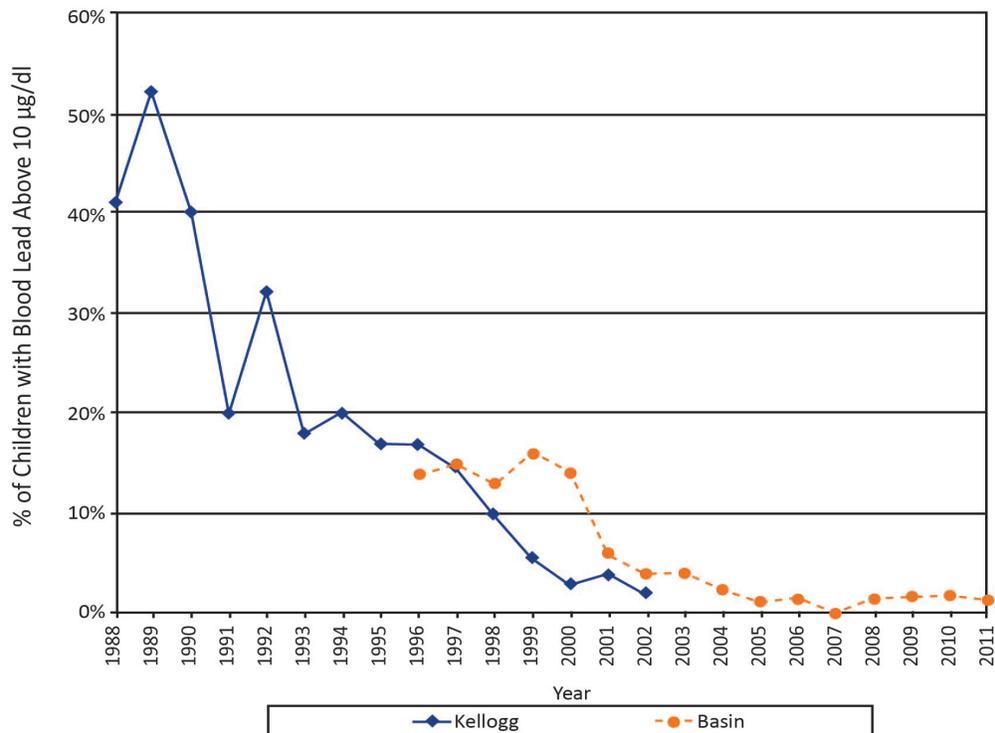


Figure 4: Line graph shows temporal changes in the percent of children with blood lead levels above 10 micrograms in areas near the Bunker Hill site in Region 10.



When smaller changes between parameters exist, line graphs are better to use than bar graphs.

Line and bar graphs typically are used to track changes over time and space.

Both bar and line graphs also can be used to compare changes over the same period of time for more than one set of data (such as unemployment and poverty rates plotted over the same period).

A **pie chart** can be used to show parts or percentages of a whole at a set point in time. They do not show changes over time. The proportion of each category is represented by the size of the wedge. Pie charts are popular due to their simplicity and clarity.

Understanding Scale

Analyzing data at various geographic scales can provide clues to differences in the community. The chart below, from Region 9's Klau-Buena Vista Mine site, displays demographic characteristics of the communities within 0.5, 5, 10, and 20 miles of the site. With this information, the CIC can learn about the neighborhoods most impacted by the site and also get a sense of the larger community. In this case, we see a local community that is relatively lower income and has lower rates of home ownerships compared to the surrounding area. Similar analysis also could be done for racial, ethnic, or linguistic information, and this information could be used—in part—to determine the need to address potential environmental justice concerns and to consider partnering with Environmental Justice staff, for instance.

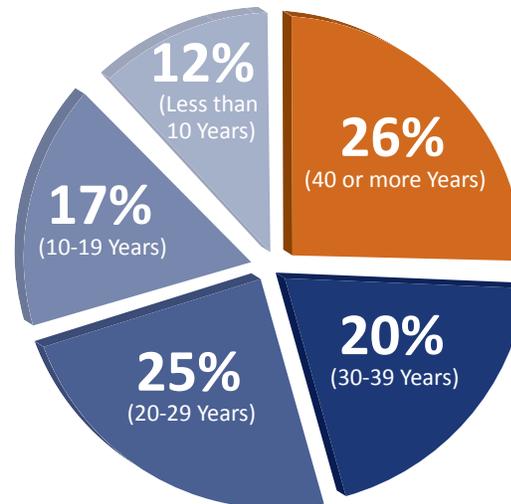


Figure 5: A pie chart displaying the amount of time residents have lived in neighborhoods adjacent to Fridley area Superfund sites in Anoka County, Minnesota.

Community Household Information

	1/2 Mile	5 Miles	10 Miles	20 Miles
Total Population	74	654	3612	29,256
Median Household Income	\$41,778	\$48,657	\$54,207	\$39,775
Avg Household Size	2.32	1.94	1.7	2.66
Occupied	57%	57%	93%	93%
Owner Occupied	34%	34%	51%	51%

Source: U.S. Census Bureau, Census 2000

Figure 6: A chart displaying demographic characteristics of communities located at varying distances from the Klau-Buena Vista Mine site in Region 9.

Tools for Creating Charts and Graphs

Microsoft Excel, PowerPoint, and Word are among the simplest and most readily accessible tools for creating basic charts and graphs. They also offer advanced design tools that enable you to easily create colorful, dynamic three-dimensional graphics using existing data. Site team members should have access to these software programs through licensing agreements with Microsoft.



Incorporating Graphic Elements

The use of bold colors and fonts, creative design elements (such as text boxes, emblems, and stylized pictograms) and other graphic features can greatly enhance the appearance and appeal of the community profile and the entire CIP. Colored text boxes break up the page and draw the reader’s attention to the most critical information. Different font sizes and typefaces can be used to highlight the most important demographic data in your community profile. Emblems or stylized pictograms representing concepts commonly found in community profiles, such as silhouettes of people or houses, help your audience visually locate statistics without having to search through pages of text. Many common word processing programs, including Microsoft Word, include clip art that can be used for this purpose.

Maps

Maps help your audience understand the geospatial relationships between potential sources of contamination and affected communities. They can be used to show the boundaries of a community as well as hazardous waste site boundaries, delineate contaminant plumes, display areas potentially impacted by air emissions, or pinpoint the locations of schools, churches, community centers, or other areas where community members live, work, or gather. Most people have used maps before, so there is an inherent familiarity with how information is displayed.

Tools such as EJSCREEN and Envirofacts can generate maps for use in the community profile.

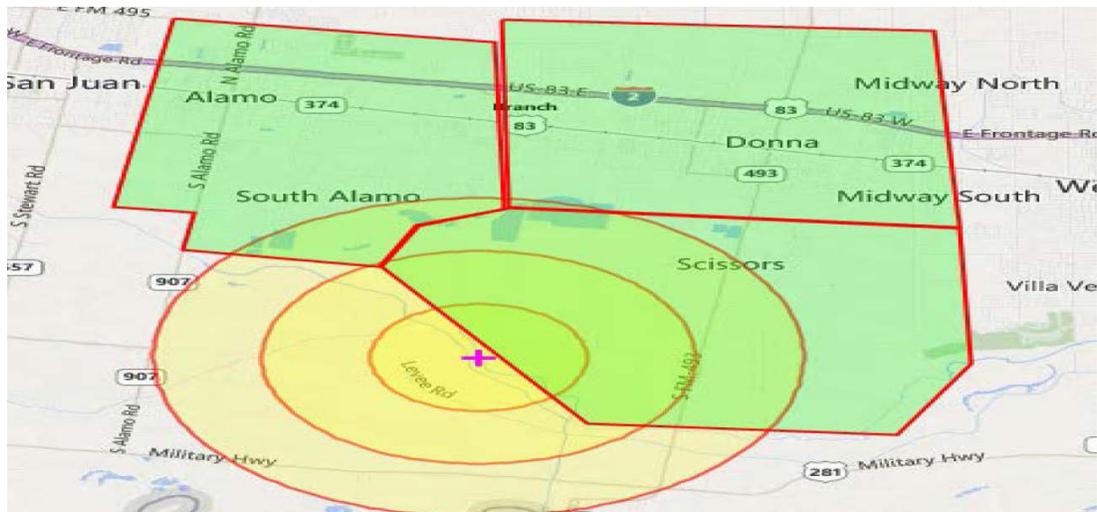


Figure 8: Map generated using EJSCREEN shows affected communities using a 1-3 mile buffer ring.

References

[Create a Graph Tutorial](#)

Planning for Participation: Trends & Opportunities in Superfund’s Community Involvement Plan, Justin Heilier, NNEMS Fellow, US EPA.

THE COMMUNITY

COMMUNITY PROFILE

The City of Rialto is located in western San Bernardino County in the area known as “the Inland Empire.” According to 2010 US Census Bureau results (<http://quickfacts.census.gov/>):

99,170 Population of the city of Rialto

68% Hispanic or Latino population, compared to a California average of 38%



Reported percentages for white, black or African-American, and Asian were 44%, 16% and 2% respectively, compared to California averages of 58%, 6%, and 13% respectively

\$50,555 Median household income, compared to a California average of \$60,883

15% Percentage of families below the poverty level, compared to a California average of 14%

Figure 7: This text box from the community profile section of the B.F. Goodrich Superfund site CIP uses bold colors, varying text sizes, and stylized pictograms to draw the reader’s attention to the most important demographic information.



Attachment 2: Guide for Conducting an EJSCREEN Analysis: An EJSCREEN Decision Chart for Site Teams Assessing Individual Superfund Sites

EJSCREEN is a GIS-based tool that offers users a variety of compelling data and mapping capabilities to help assess environmental and demographic information at a fine level of geographic resolution. It is a screening tool that can be used in a wide variety of circumstances for the Superfund program, such as informing outreach and community involvement activities, prioritizing work, or directing attention toward potential environmental justice (EJ) concerns (see text box to the right).

The following decision chart is a tool for Superfund site teams using EJSCREEN to characterize populations that are potentially affected by Superfund sites.

Background

The Superfund program has a long history of working with communities affected by Superfund sites—particularly low-income, minority, and/or indigenous populations—to promote community involvement in decision-making and work toward achieving environmental justice through site cleanup. Effective community involvement, site characterization, and risk management start with an understanding of populations potentially affected by the release and affected areas (a.k.a., the site).

What are Environmental Justice Concerns?

The site team should become aware of whether a community may:

- *have disproportionate burden of exposure or environmental health effects due to race, national origin, or income compared to other communities located nearby;*
- *face unique exposure scenarios (e.g., fish consumption patterns or high levels of diesel pollution); or*
- *experience or perceive that they have unequal access to the decision-making process (e.g., live in unincorporated areas).*

Executive Order 12898 mandated that each federal agency “make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...”¹ EJSCREEN is an effort to meet a commitment included in Plan EJ 2014 “to develop a nationally consistent environmental justice screening and mapping tool in order to better meet the Agency’s responsibilities related to the protection of public health and the environment in a manner that is consistent with EO 12898 and the goals of Plan EJ 2014.”² It provides access to a great amount of data and presents standardized reports. These reports use summary metrics and percentiles to facilitate national, regional or state-level perspectives and a better understanding of EJ concerns.

For EPA’s purposes, EJSCREEN will be used as an initial step in highlighting locations that might be candidates for further review. EPA recognizes that screening-level results have significant limitations and are not intended or designed to provide a risk assessment. For example, EJSCREEN does not provide data on every environmental impact and demographic indicator that might be relevant to a particular location, and data may be several years old. Thus, EPA will supplement EJSCREEN outputs with additional information and local knowledge before making any decisions about potential environmental issues.

How to Use the EJSCREEN Decision Chart

This decision chart describes a step-by-step process that Superfund site teams can use to:

- A. Define the parameters for an EJSCREEN analysis.
- B. Generate and review the EJSCREEN standard report.
- C. Use the EJSCREEN standard report to present information in a useful and easy-to-understand way.

¹ Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, February 11, 1994.

² Page 8, U.S. EPA, *EJSCREEN Environmental Justice Screening Tool: Technical Documentation June 2016 Draft*.



A. Define parameters for an EJSCREEN analysis:

Step 1: Choose a location that represents the site location and the potentially affected populations.

You need to identify a location to start the EJSCREEN analysis. Open the [EJSCREEN application](#), select the “Generate Reports” widget, and choose “Select Location.” Start with the latitude/longitude coordinates or site address found in [SEMS](#) (EPA’s new CERCLIS database) or [EnviroFacts](#). (If using latitude/longitude coordinates, use the format: latitude,-longitude). If the site is not listed in SEMS, consider an address that is documented. Consider using the “Basemap” widget to change the basemap to aerial view to see the site more clearly.

▪ ***Are the latitude/longitude coordinates or site address a good representation of the site?***

- The coordinates are located within the site.
- The coordinates are in the center of the site or placed in a location that fairly represents the site.
- The site has a regular shape that has a center, rather than an unusual shape (e.g., a watershed).

If NO:

- ❖ Choose an address or pair of latitude/longitude coordinates that more closely represents the site and affected areas. You can use more than one address or pair of coordinates. Each address or coordinate pair will need to be analyzed separately using the report features. Be sure to document what location(s) you choose.
- ❖ Consider working with your regional information management coordinator (IMC) to include or update the latitude/longitude coordinates in SEMS.

▪ ***Is your selected location(s) the only location(s) affected by the site?***

- Contamination (and potential exposure to contamination) is limited to an area around the selected location.
- The remedy does not include dig and haul of waste to an offsite disposal site (i.e., away from the location).

If NO:

- ❖ Consider accounting for transportation corridors that will be used to access the site or haul waste away from the site. Does this change your potentially affected population?
- ❖ Consider accounting for a disposal location. Does this change your potentially affected population?
- ❖ Remember, you can use more than one address or pair of coordinates. However, each address or coordinate pair will need to be analyzed separately because EJSCREEN reports only for a single discreet address or location. Be sure to document any additional locations you use.

▪ ***Does your selected location(s) represent populations that are potentially affected by the site?***

- The potentially affected populations live near the location(s).
- There are not any significant “other” populations who readily access the site (e.g., to fish or hunt, to go to work or school, for recreation) but do not live near the location.
- There are no transient populations (e.g., university students, homeless, seasonal workers) who reside on or access the site (i.e., to bathe, sleep, etc.). These populations may or may not be accounted for in the U.S. Census Bureau’s American Community Survey, which is the primary source for the demographic information in EJSCREEN.



If NO:

- ❖ Consider other populations that are affected by the site, or may travel to the site but do not live near the selected location(s). For example, populations that access the site but do not live near the site might be represented by another location. In this case, choose more than one address or pair of coordinates to represent the potentially affected populations. If the other populations affected by the site do not live nearby and are not represented by a geographic area, use local knowledge or local data to supplement information from EJSCREEN. Each address or coordinate pair will need to be analyzed separately using the report features.

Step 2: Choose the shape and size of the area to analyze.

Once you have chosen your location, define the shape and size of the area to analyze. EJSCREEN allows a user to define a polygon shape to outline the affected area (using “Select Location” from the “Generate Reports” widget), or a buffer, such as a circle that includes everything within one mile of a specific point (from the “Chart or Report” dialogue box that pops up after you have chosen your location; If the “Chart or Report” dialogue box has been closed, enter your location again in the “Select Location” dialogue box).

- *Do you have expert knowledge about the selected location?*

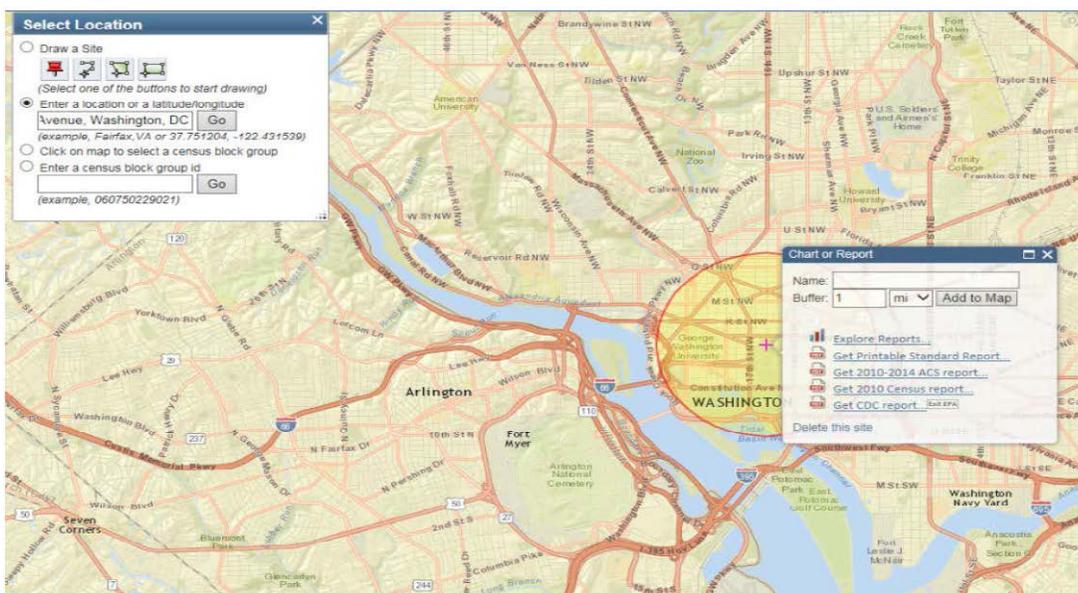
If NO:

- ❖ Consider using mapping options under the “Add Maps” widget to explore the demographic and environmental data for the census block groups surrounding the chosen location.

- *If you used a circular buffer ring, does the area accurately represent the populations potentially affected by the selected location(s)?*

EJSCREEN allows users to define the size of buffer ring for a chosen location (except for boundaries of census block groups). For example, you may wish to consider the following:

- 0.5-mile buffer ring (roughly 500 acres or 0.8 square miles);
- 1-mile buffer ring (roughly 2,000 acres or 3 square miles); or
- 3-mile buffer ring (roughly 18,000 acres or 28 square miles).

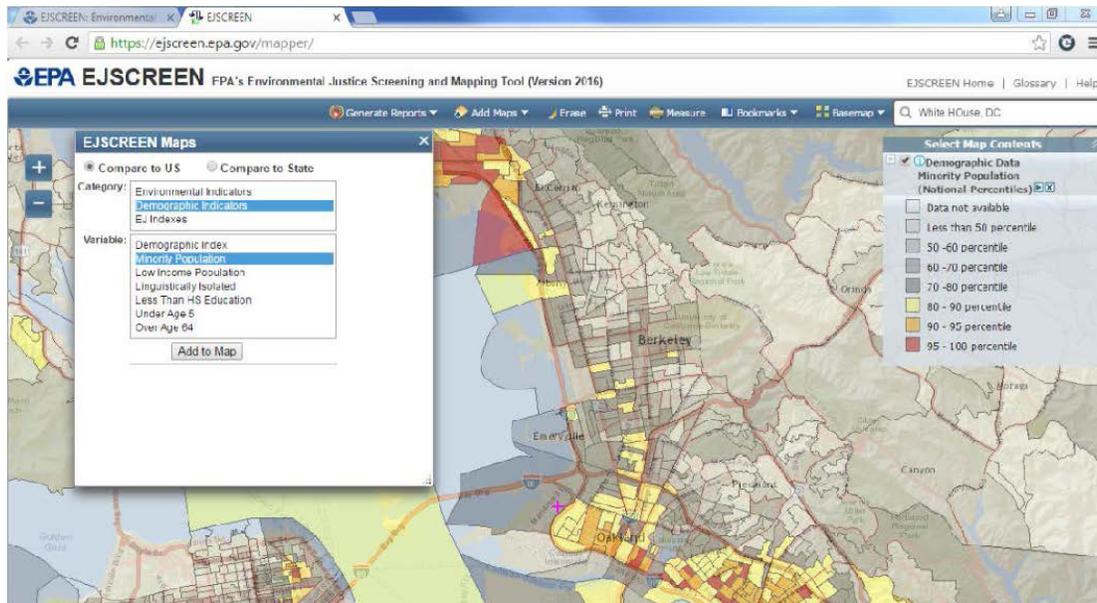




If NO:

- ❖ Consider a set* of census block groups that better represents where the potentially affected populations live.
- ❖ Consider drawing a user-defined polygon shape that better represents the area.

A user-defined polygon shape may best represent the populations potentially affected by the site. You can draw a line (i.e., to represent a watershed) or a polygon. Similar to a circular buffer ring, you can buffer an area around your user-defined polygon.



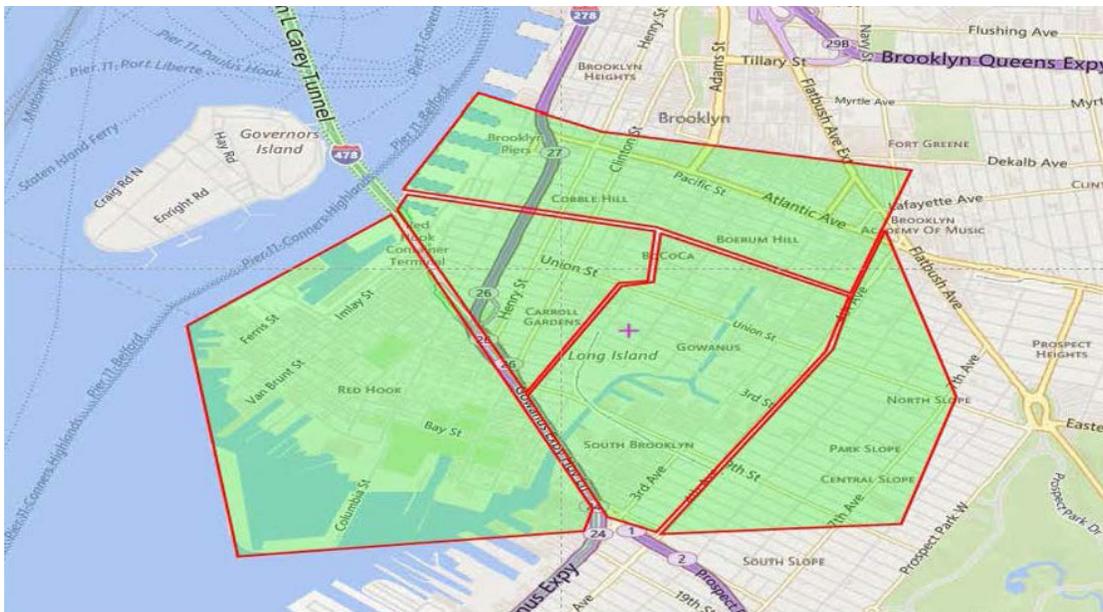
▪ ***Are the potentially affected populations fairly homogeneous?***

- The potentially affected populations can be represented by one buffer ring.
- Aggregating the potentially affected populations in a buffer ring, polygon shape, or set of census block groups does not overlook small pockets with significant percentages of minority or low-income residents or “hot spots” with high values for one or more environmental or other demographic indicators. Hot spots can be examined by selecting “EJSCREEN Maps” using the “Add Maps” widget in EJSCREEN, which allows you to browse the various indicators by census block group.

If NO:

- ❖ Consider analyzing more than one geographic location.
- ❖ Consider analyzing more than one buffer ring or polygon shape, or honing down into one census block group or a set of census block groups. Many times, populations vary greatly within a geographic area. If your goal is to fully characterize the populations potentially affected by the site, consider whether these different levels of analysis will give you additional useful information.
- ❖ Consider using the “Add Maps” widget to explore the demographic and environmental data for census block groups near the chosen location. (Review Step 5 in section C.)

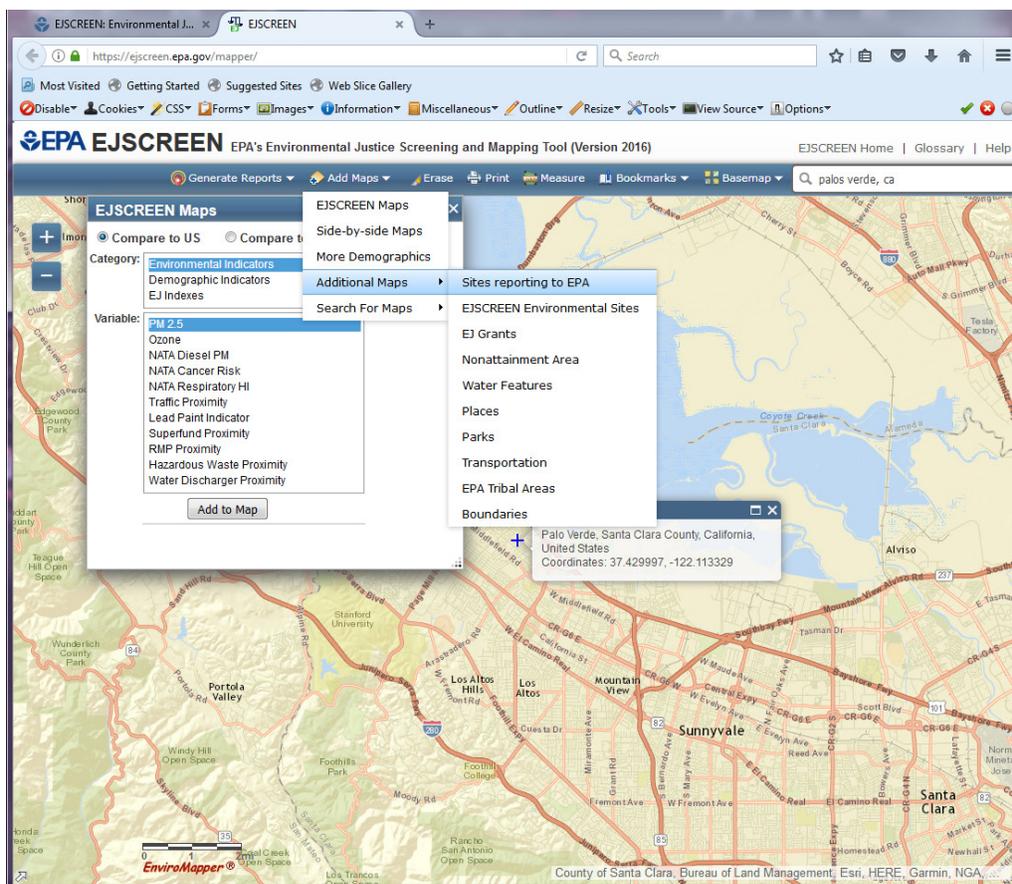
* “It is also important to keep in mind that all of the numbers are estimates, so small differences in raw values or percentiles should not be regarded as certain and meaningful, given the uncertainty in the environmental and demographic estimates.” See U.S. EPA, *EJSCREEN Environmental Justice Screening Tool: Technical Documentation June 2016 Draft*, Appendix B, p. 80.



The affected communities as defined by the Regional Superfund staff; Cobble Hill, Red Hook, Carroll Gardens, Gowanus, and Park Slope. (EJSCREEN)

The figure above is an example of how you can use EJSCREEN to show several neighborhoods or small areas within a defined geographic area.

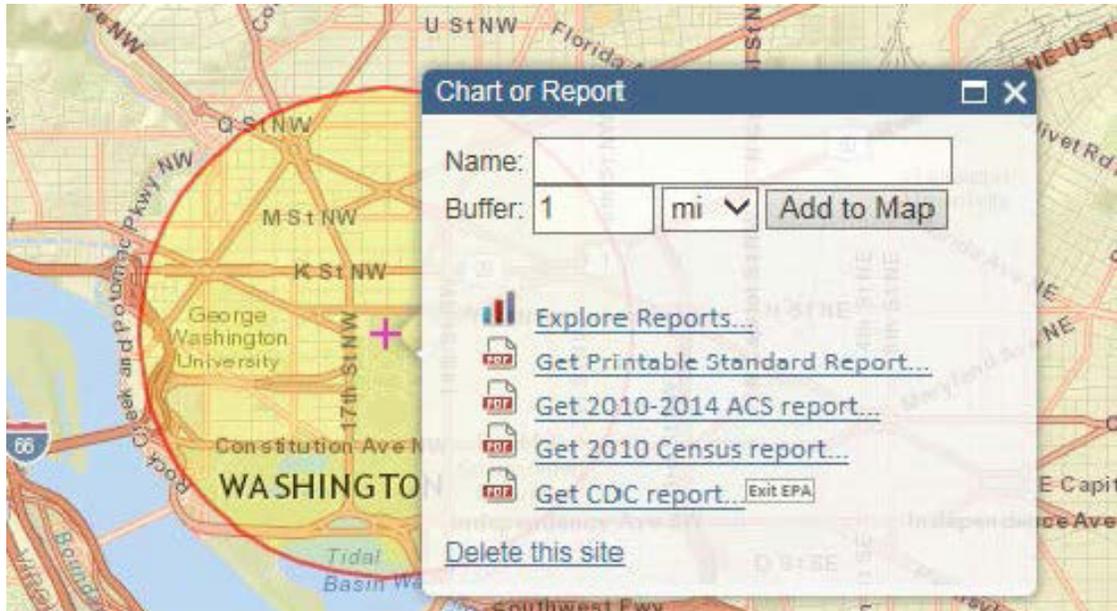
You can use the “Add Maps” widget (see below) to add one or more types of additional demographic or environmental information to your analysis.





B. Generate the EJSCREEN Standard Report:

Once you are satisfied that the location you have chosen is representative of the site and the surrounding community, generate an EJSCREEN standard report. The standard report provides summary statistics from the analysis in chart and tabular form and a map of the analyzed area. The generated map will correspond with the view on your computer screen.



Click on the “Get Printable Standard Report” hyperlink in the “Chart or Report” dialogue box to create an EJSCREEN standard report, which summarizes the data. Remember that the view on your computer screen will correspond to the map generated in the EJSCREEN standard report.





C. Review and analyze the output of the EJSCREEN standard report using the following steps:

Step 1: Compare your data to the EJSCREEN reference populations.

To help you better understand the affected populations you have identified, EJSCREEN allows the user to compare their characteristics with other reference populations. EJSCREEN includes aggregate information for reference populations at three levels: state, EPA Region, or nation.

The primary default reference population for EJSCREEN is the nation. However, “using a national comparison prioritizes areas that have the highest scores in the country.”³ For a site-specific analysis, prioritizing the highest scores in the nation may be less relevant than understanding the potentially affected population within the context of a more localized reference population, such as the appropriate state or EPA Region.

- ***Does the potentially affected population reside in a state or EPA Region with demographics that are relatively consistent with national averages?***

If YES:

- ❖ Use the nation as the reference population.

If NO:

- ❖ Review further the local knowledge and additional information (See Section A, Step 1).
- ❖ Consider using the appropriate state or EPA Region instead of the nation as the reference population.
- ❖ You also may want to consider using a neighboring community, city or county as a reference population. To do this, run an EJSCREEN standard report for the neighboring area and compare the same statistics between the two reports.

Step 2: Review EJ Indexes from EJSCREEN standard report.

EJSCREEN includes eleven environmental indicators. EJSCREEN uses environmental indicators to show potential exposures, and demographic factors to show potential susceptibility. (Susceptibility [for EJSCREEN] means greater impact for a given environmental indicator value.)

The eleven environmental indicators in EJSCREEN are:

Particulate Matter (PM 2.5)	Lead Paint Indicator
Ozone	Proximity to National Priorities List (NPL) sites
NATA Diesel PM	Proximity to Risk Management Plan (RMP) facilities
NATA Air Toxics Cancer Risk	Proximity to Treatment, Storage, and Disposal Facilities (TSDF)
NATA Respiratory Hazard Index	Proximity to Major Direct Water Dischargers
Traffic Proximity and Volume	

Each of the environmental indicators is combined with the Demographic Index (percentage minority, percentage low income, and population) to develop an EJ Index. There is an EJ Index for each environmental indicator, which means there are several EJ Indexes for each place. The EJ Index for each environmental indicator “highlights places that contribute the most toward the national disparity in that environmental factor.” These numbers may be useful to better understand the potentially affected populations in comparison to the rest of the nation, Region, or state. ***Are any of the EJ Indexes at or above the 80th percentile for the nation, EPA Region, or state?***

(Use page 1 of the standard report to review the Primary EJ Indexes for the location(s) you chose.)

³ Page 12, U.S. EPA, *Interim EJSCREEN Common User Guidelines Draft November 5, 2012*. This point was not repeated in the *EJSCREEN Environmental Justice Screening Tool: Technical Documentation June 2016 Draft*. See also the discussion of Percentiles on pp.26-29 of the June 2016 Draft.



If YES:

- ❖ If any of the EJ Indexes for the reference population are at or above the 80th percentile, EJSCREEN guidance notes that this area should be further reviewed for potential environmental justice characteristics (go to step 3).

If NO:

- ❖ Consider whether this area warrants further review. If the Regional or program office has other knowledge that the area may have environmental justice characteristics, this location should be further reviewed for potential environmental justice characteristics.

Step 3: Review the individual environmental indicators from EJSCREEN.

A variety of considerations has contributed to the selection of the environmental indicators chosen for EJSCREEN.”⁴

- **Are any of the environmental indicators at or above the 80th percentile for the nation, Region or state?** (Use the table at the bottom of the standard report to compare the environmental data.)

If YES:

- ❖ Consider reviewing this area further for potential environmental justice concerns (go to step 4).

If NO:

- ❖ If you chose a reference population other than the nation, review the EJ Indexes for the reference population you chose (i.e., state or EPA Region). If any of the EJ Indexes for the reference population are at or above the 80th percentile, this location should be further reviewed for potential environmental justice concerns.
- ❖ If the Regional or program office has other knowledge[†] that the area may have environmental justice concerns, this location should be further reviewed for potential environmental justice concerns.
- ❖ Are there differences between the affected population and the reference population in specific environmental factors that would be useful in understanding the needs, concerns, and expectations of the affected population? If yes, consider additional review.

Step 4: Review demographic information from EJSCREEN.

The six demographic indicators in EJSCREEN are:
Minority Population
Low Income Population
Linguistically Isolated Population
Population with Less Than a High School Education
Population under Age 5
Population over Age 64

As noted above, EJSCREEN emphasizes low-income, minority populations through its **Demographic Index** (percentage racial minority and percentage minority). This index is most useful when comparing several sites for work-planning or national-level analysis. For a site-specific analysis, it may be more useful to use the state or EPA Region as a reference population instead of prioritizing the highest scores in the nation, which is the case when using the nation as the reference population.

⁴ Page 13, U.S. EPA, *EJSCREEN Environmental Justice Screening Tool: Technical Documentation June 2016 Draft*.

[†] Field staff has extraordinary knowledge of the local communities affected by Superfund sites. Many times information from community interviews, dialogue with community leaders, or getting feet on the street provides insight on areas with potential environmental justice concerns.



- **Is there a noteworthy difference between the affected population and the reference population in any of the demographic factors?** Use page 1 of the standard report to compare the data.

If YES:

- ❖ Review the environmental data further.
- ❖ If these differences include linguistic isolation or high school education, consider using census data to investigate the area further in order to better tailor communication and outreach. (Choose 2010 census data from Supplementary Data menu.) (This could highlight important considerations for community involvement and outreach. If this is the case, it is a good idea to explore languages spoken and educational levels attained, using census data and local knowledge.)

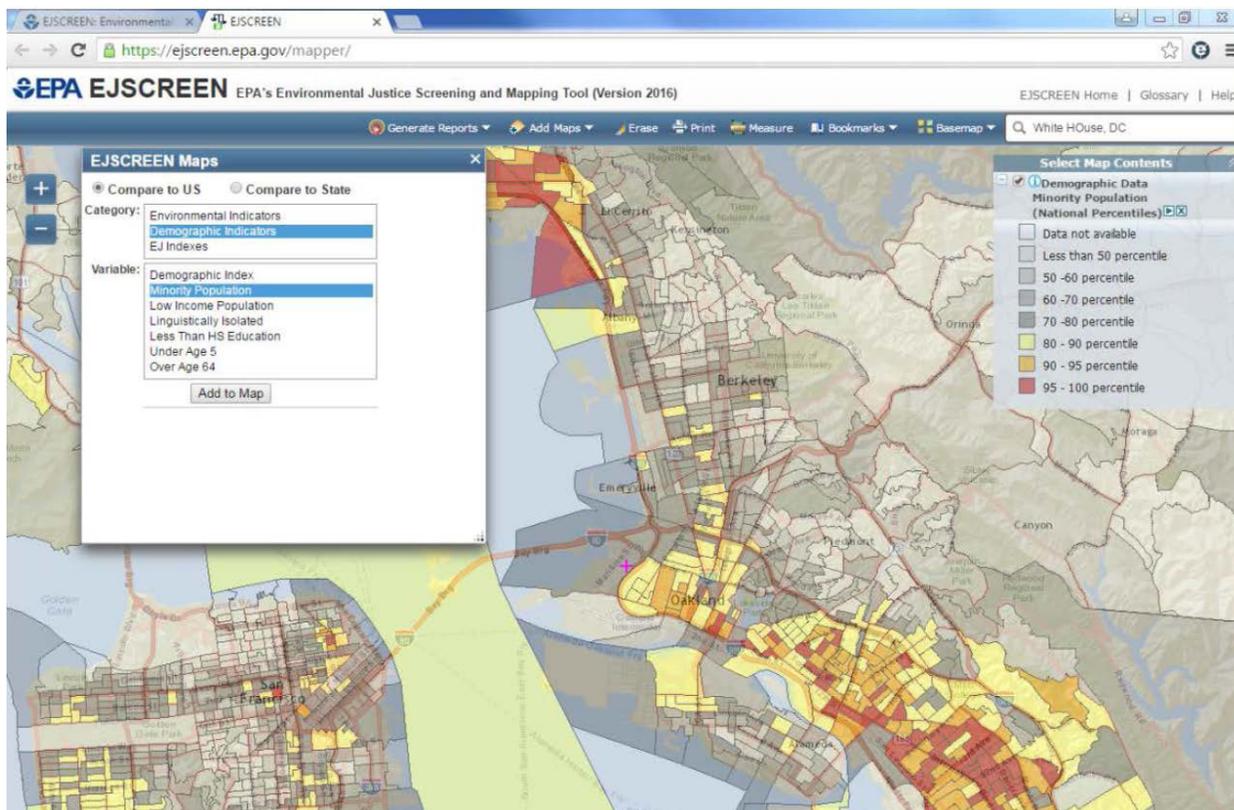
If NO:

- ❖ If the Regional or program office has other knowledge that indicates the area has potential environmental justice concerns, this location should be reviewed further for potential environmental justice concerns.

Step 5: Review information in the Color Coded Map Data widget.

If the location you prepared in the standard report is no longer visible on the map, in the “Generate Reports” widget, enter the chosen address or latitude/longitude coordinates (using the format: latitude,-longitude), indicate a buffer ring size or draw a polygon shape that encompasses the area, and hit “go.”

Once the map shows your chosen location, open the “Add Maps” widget. Choose “EJSCREEN Maps” and select the categories and variables you want to analyze. These options include Environmental Indicators, Demographic Indicators, and EJ indexes.



- **Are there any census block groups that have disproportionate demographic factors?** Visually compare the demographic factors for census block groups around the chosen location(s) compared to national data. Are any of the census block groups shaded in yellow, orange, or red?





- ***Are there any census block groups that have high environmental burden?*** Visually compare each of the environmental indicators for census block groups around the chosen location(s) compared to the national data. Are any of the census block groups shaded in yellow, orange, or red?

If YES:

- ❖ On the map, click on the census block group you are interested in to see the statistics related to the category and variable you have selected.

If NO:

- ❖ If the Regional or program office has other knowledge that the area is one with potential environmental justice concerns, this location should be reviewed further for potential environmental justice concerns (go back to step 4).

Step 6: Use local knowledge and additional information.

The local knowledge of EPA staff, local decision makers, or community members *always* should be considered when determining whether an area might have environmental justice concerns. Local knowledge includes information on area-wide cumulative exposures, unique exposure pathways, or population vulnerability (e.g., health status, prevalence of the elderly or children, educational status, or access to healthcare). If potentially affected residents self-identify as an environmental justice community, this perception is important to consider.

Look at the demographic and environmental data gleaned from the EJSCREEN analysis. What do you know about the affected population and its environmental burden that would increase understanding of the data, or provide nuance that would enhance the picture of the community? (For example, you may know about the location of industrial plants or potential sources that may help explain or describe a high environmental burden, or your knowledge of a population of non-English speakers might provide important additional information about a linguistically isolated population. You also may know of small subpopulations that might be somewhat hidden within a larger census block group).

D. Present useful information:

Summarize the demographic and environmental information from EJSCREEN in an output analysis that the site team can use to develop its community involvement approach or a community profile for the site's community involvement plan (CIP).

Step 1: Summarize demographic and environmental data for the public.

The community profile is a narrative within the CIP that describes the community affected by the Superfund site; summarizes demographic information; and identifies significant subgroups in the population, languages spoken, and other important characteristics of the affected community. It also should address whether the community may bear a disproportionate burden of exposure or environmental health effects due to race/ethnicity, national origin, or income compared to other communities (i.e., issues related to environmental justice).

Data from EJSCREEN's standard report can be used to describe the potentially affected community and the community's overall environmental burden. The description should indicate whether the data suggest that the affected community may have environmental justice concerns that may warrant further examination.

Summarize the demographic data from EJSCREEN for the potentially affected population, using the raw census data shown on page 2 of the standard report. Compare the data to the appropriate reference population to provide context in which to view the data. Do the same for the environmental indicators in EJSCREEN, particularly those indicators that suggest that the affected community may bear a disproportionate burden. Look at individual environmental indicators compared to the appropriate reference population. Summarize and present the data visually, using graphs, histograms and charts whenever possible. (See Attachment

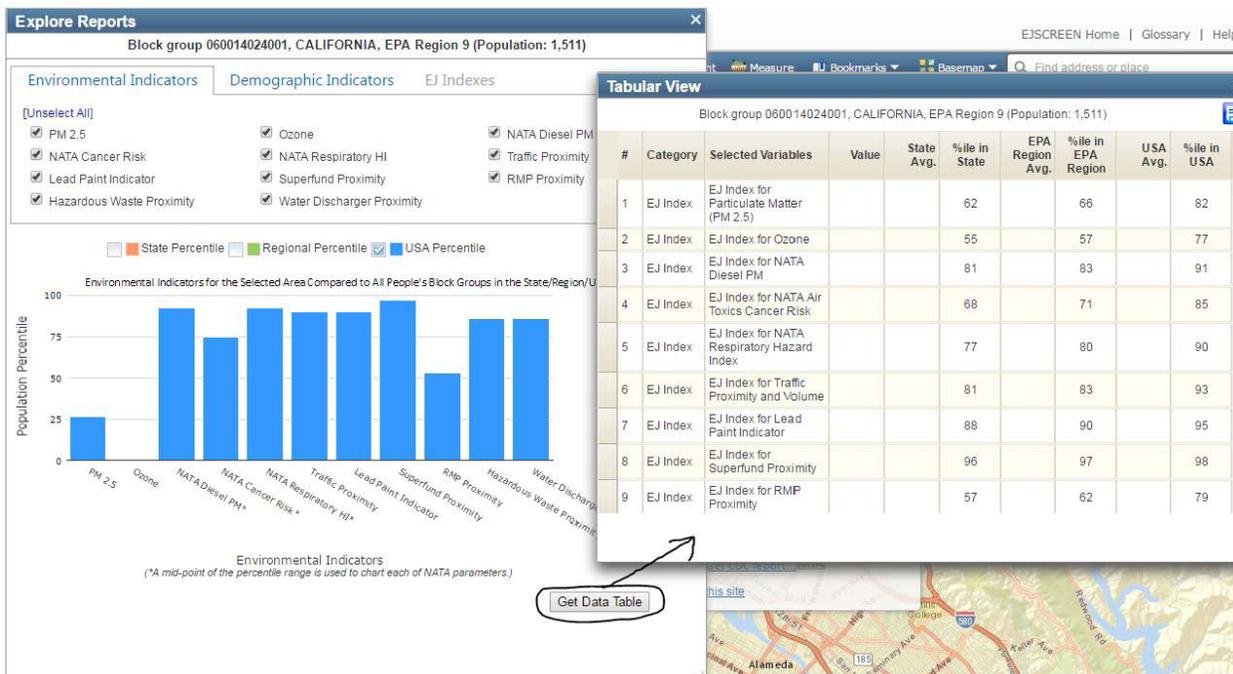


1 for additional advice about how to present the information from EJSCREEN in a useful and easy to understand manner. See Example 3a in Attachment 3 for an example of a community profile that uses data from EJSCREEN.)

Step 2: Summarize demographic and environmental data in an enhanced analysis for the site team.

You can summarize the demographic and environmental data from EJSCREEN prepared in an enhanced analysis for the site team. The enhanced analysis generally includes additional information and may be more heavily annotated than the community profile for the public. Use data from EJSCREEN's Standard Report and U.S. census data to describe the potentially affected community and the community's overall environmental burden. Highlight data points that may be useful to the site team, particularly for designing its community involvement approach. Discuss whether the data suggest that the affected community may have environmental justice concerns that may warrant further examination.

Summarize the demographic data from EJSCREEN for the potentially affected population, using the raw census data shown on page two of the standard report. Compare the data to the appropriate reference population to provide context in which to view the data. Do the same for the environmental indicators in EJSCREEN, particularly those indicators that suggest that the affected community may bear a disproportionate burden. Look at individual environmental indicators compared to the appropriate reference population. Also look at the EJ Index for each of the environmental indicators to identify whether there may be potential environmental justice concerns that warrant further examination.



Summarize and present the data visually, using graphs, histograms, and charts whenever possible. This can be done using the standard report. You also can click on the “Get Data Table” command of the “Explore Reports” output. Be sure that the check boxes are marked for the information you wish to export. Consider developing a table or bar charts of the demographic information, highlighting disproportionate demographic factors.

In some cases, it may be possible to recommend specific actions (providing translations when data show significant linguistically isolated populations) or factors to consider when developing a community involvement approach (for example, providing easy-to-read information when data show significant numbers of community members have less than a high school education). (See Example 3b in Attachment 3, for an example of an (optional) Enhanced EJSCREEN Analysis for the site team.)



Attachment 3: Using EJSCREEN Data for the CIP Community Profile for the Public and an Enhanced Analysis for the Site Team

You can summarize information from EJSCREEN to develop a community profile that is integral to a site's community involvement plan (CIP). You also can use EJSCREEN data to prepare an enhanced analysis that the site team can use to inform its community involvement approach.

Example 3a (page 23): Example of a Community Profile that uses data from EJSCREEN

The community profile is a narrative within the CIP that describes the community affected by the Superfund site; summarizes demographic information; and identifies significant subgroups in the population, languages spoken, and other important characteristics of the affected community. It also should address whether the community may potentially bear a disproportionate burden of exposure or environmental health effects due to race/ethnicity, national origin, or income compared to other communities (i.e., issues related to environmental justice).

Data from EJSCREEN's standard report can be used to describe the potentially affected community and the community's overall environmental burden. The description should indicate whether the data suggest that the affected community may have environmental justice concerns that warrant further examination.

Steps:

- Summarize the demographic data from EJSCREEN for the potentially affected population, using the raw census data shown in the standard report.
- Compare the data to the appropriate reference population (state or national) to provide context in which to view the data. Do the same for the environmental indicators in EJSCREEN, particularly those indicators that suggest that the affected community may bear a disproportionate burden.
- Look at individual environmental indicators compared to the appropriate reference population.
- Summarize and present the data visually, using graphs, histograms and charts whenever possible. (See Example 3a, below.)

Example 3b (page 25): Example of an (Optional) Enhanced EJSCREEN Analysis for the Site Team

An enhanced analysis for the site team includes the same steps as above, but with added information in order to provide recommendations and guidance for the site team to consider. For example, data from EJSCREEN's standard report and the U.S. census may be particularly useful to the site team when designing the community involvement approach. The enhanced analysis could highlight whether the data suggest that the affected community has environmental justice concerns that might warrant further examination or other issues.



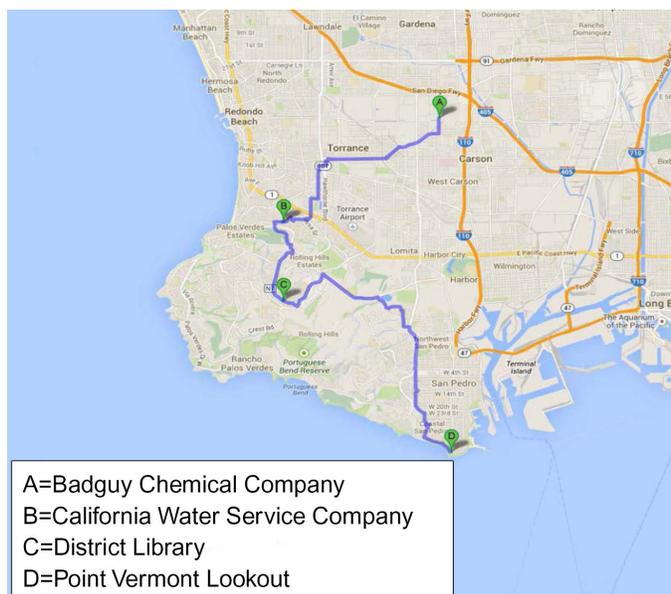
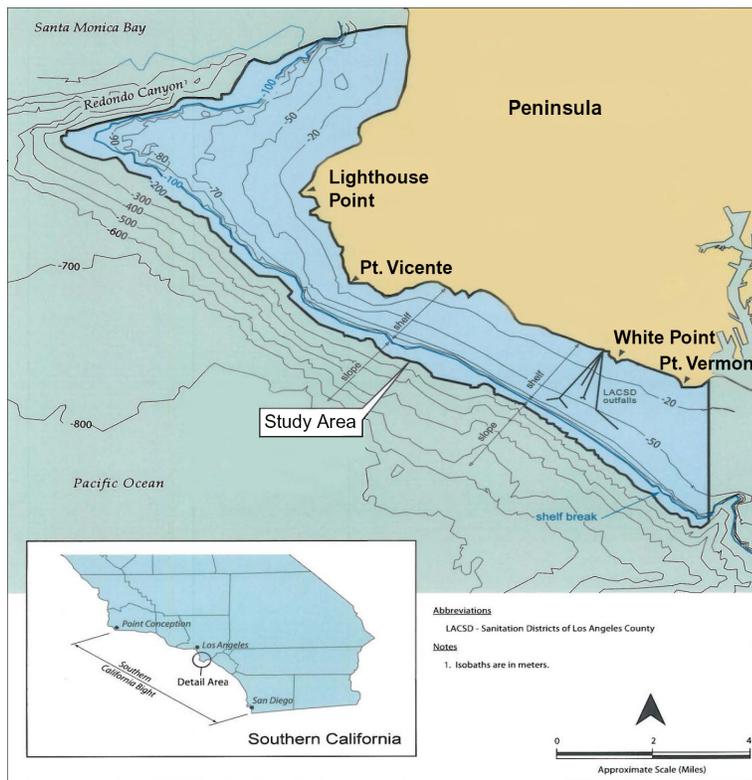
Example 3a: Summarizing EJSCREEN Information for a CIP Community Profile for the Public: LA Stormwater Pathway Superfund Site

Background

The LA Stormwater Pathway Superfund site is a 75 square kilometer (approximately 29 square miles) area of sediment on the continental shelf and slope off the coast of Los Angeles, California. It is a legacy sediment contamination site stretching about 15 kilometers from Point Vermont in the southeast to Lighthouse Point in the northwest.

Contaminants in the sea floor sediments include PCBs, lead, and mercury. These contaminants are largely a result of wastewater discharges from former Badguy Chemical Corporation south of Los Angeles, California, which operated from 1945 to 1980. The wastewater was discharged to local sewers and entered the county waste water treatment system and was discharged from submarine outfalls onto the sea floor (see diagram at the right). Because of oceanic conditions (waves, currents, and flow), EPA anticipates that most of the contaminants settled on the sea floor and were not remobilized or dispersed on other parts of the coast.

The major pathway of exposure to PCBs and mercury is through consumption of seafood caught in the nearby ocean waters. The local government closed the area to commercial fishing. Local advisories are posted for sport fishing. However, some people continue to consume fish caught from the area.



Disclaimer: This community profile combines some fictionalized information with data from a real Superfund site and is intended for training purposes only.



Community Profile

According to U.S. census data, 80,022 people live on this part of the peninsula. Because contaminants from the LA Stormwater Pathway Superfund site were deposited in sediments on the sea floor, residents of the area along the shoreline census block group (see blue shaded area on map) are probably directly affected by the contamination from the LA Stormwater Pathway Superfund site.



The 80,022 residents living on the peninsula (in the area within a three-mile radius of the District Library) and the shoreline area (see map) are more affluent, more educated, and less likely to belong to a minority group than other residents of California. More than a quarter of the shoreline residents are older than 64 years old.

Fish consumption from the area was reduced after the area was closed to commercial fishing and local advisories were posted for sport fishing. Still, people from the nearby Piedmont neighborhood continue to frequent the peninsula to fish, and thus may be among the most at-risk for exposure to the contamination.

The Piedmont neighborhood is a community with environmental justice concerns located east of the peninsula (see map on the left). Almost all of Piedmont’s 45,278 residents belong to minority groups, and most have low incomes. Many residents

are not fluent in English, which makes Piedmont one of the most linguistically isolated neighborhoods in the U.S. Nearly half of the residents have less than a high school education. Children under 5 years of age comprise ten percent of Piedmont’s population—among the highest percentages of young children among all places in the U.S.

The Piedmont neighborhood is an environmentally overburdened community by almost any measure. There are many hazardous substance treatment, storage, and disposal facilities (TSDFs) and Superfund sites nearby. Residents live near highways and major roadways and are exposed to levels of air pollution that makes them at-risk for cancer and respiratory hazards.

Demographics of the Peninsula, Shoreline Area, and Piedmont Neighborhood							
	Population	% Low Income	% Minority	% Linguistically Isolated	% Less than HS Education	% People over 64	% Children under 5
Peninsula	80,022	10	38	8	3	19	5
Shoreline	1,698	4	23	9	4	27	3
Piedmont	45,278	55	96	27	45	7	10
State Average		33	59	12	21	11	7

Sources: U.S. census data, from the American Community Survey (ACS), five-year average ACS estimates (2006-2010).

Disclaimer: This community profile combines some fictionalized information with data from a real Superfund site and is intended for training purposes only.

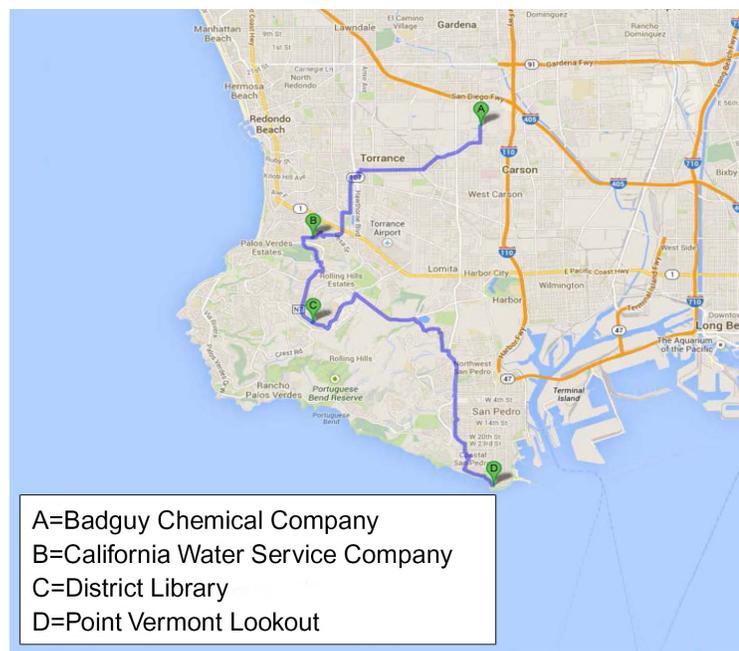
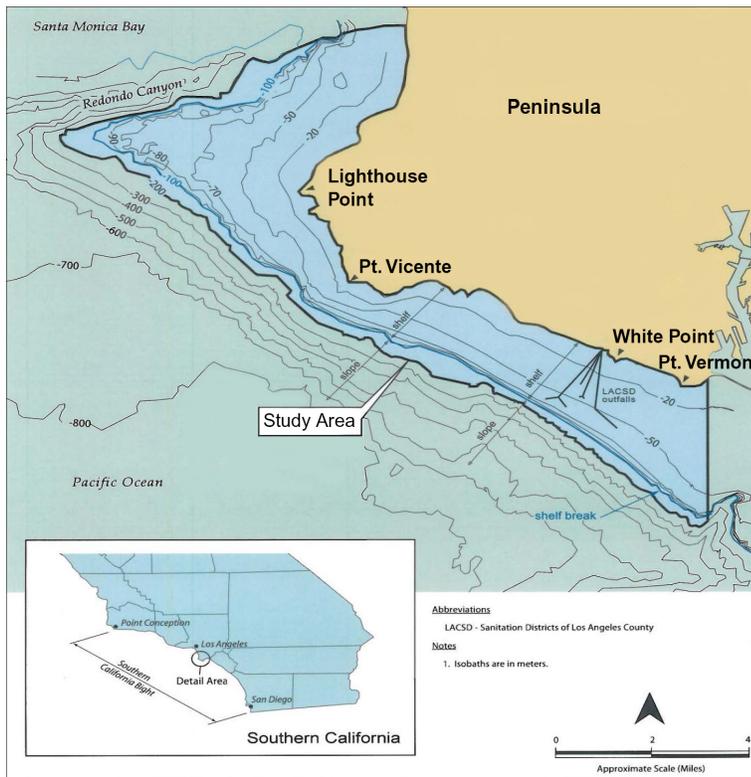


Example 3b: Enhanced EJSCREEN Analysis for the Site Team: LA Stormwater Pathway Superfund Site

Background

The LA Stormwater Pathway Superfund site is a 75 square kilometer (approximately 29 square miles) area of sediment on the continental shelf and slope off the coast of Los Angeles, California. It is a legacy sediment contamination site stretching from Point Vermont (PV) in the southeast to Lighthouse Point in the northwest, a distance of about 15 kilometers.

Contaminants in the sea floor sediments include PCBs, lead, and mercury. These contaminants are largely a result of wastewater discharges from former Badguy Chemical Corporation south of Los Angeles, which operated from 1945 to 1980. The wastewater was discharged to local sewers and entered the county waste water treatment system, it also was discharged from submarine outfalls onto the sea floor (see diagram at the right). Because of oceanic conditions (waves, currents, and flow), the site team anticipates that most of the contaminants settled on the PV Shelf and were not remobilized or dispersed in other parts of the coast.



The major pathway of exposure to PCBs and mercury is through consumption of seafood caught in the nearby ocean waters.

The local government has closed the area to commercial fishing. Local advisories are posted for sport fishing. Therefore, the baseline human health risk assessment will include a Reasonable Maximum Exposure (RME) scenario assuming a fairly high estimate of mean consumption rate of a single species of fish diet.

Disclaimer: This community profile combines some fictionalized information with data from a real Superfund site and is intended for training purposes only.



Community Profile¹

According to the U.S. census data in EJSCREEN, 80,022 people live on this part of the peninsula. Because contaminants from the LA Stormwater Pathway Superfund site were deposited in sediments on the sea floor, residents along the shoreline census block (see blue shaded area on map) probably are most directly affected.² These residents are likely affected more than those who live in areas in closer proximity to the



Badguy Chemical Facility, which was the source of the contamination.

Because the major pathway of exposure to PCB and mercury contamination from the site is through consumption of seafood, people who use the area for sport fishing and consume fish caught in the nearby ocean waters may be most at-risk from these contaminants. Consumption of fish from the area was reduced after the area was closed to commercial fishing and local advisories were posted for sport fishing. However, many residents from the Piedmont neighborhood, who do not live in the adjacent peninsula, continue to frequent the area to fish and may be among the most at-risk members of the affected community. For this reason, outreach to this community should be a priority.

The 80,022 residents living on the peninsula are more affluent, more educated, and less likely to belong to a minority group than other residents of California,

and the 1,698 residents of the shoreline census block are somewhat more affluent and less diverse than the residents of the peninsula as a whole. Less than ten percent of the residents of either area are considered to be linguistically isolated. Twenty-seven percent of residents of the shoreline census block are older than 64 years of age—a percentage of elderly residents that ranks among the top six percent of places nationwide.

While residents of the peninsula generally do not face a disproportionate environmental burden from various pollutants according to EJSCREEN³, the area ranks in the 72nd percentile of all places in the U.S. for respiratory and air toxics cancer risk⁴ and in the 78th percentile of places in the U.S. for residents' proximity to traffic. The area also ranks in the 74th percentile of residents' proximity to facilities engaged in the treatment, storage, or disposal of hazardous waste (TSDFs).⁵ (See bar chart on page 28.)

The Piedmont neighborhood is a community with environmental justice concerns located just east of the peninsula. Because many Piedmont residents continue to consume fish caught in the contaminated area, neighborhood residents may be among the most at-risk from site contaminants.

¹ Data included in this narrative are from EJSCREEN analyses conducted for the following areas: the Peninsula (defined for the purposes of this analysis as the area within a 3-mile radius of the Peninsula District Library (centered at: 33.775N, -118.378 W, California); the Shoreline area (defined for the purposes of analysis as U.S. Census Block Group 060376706022); and the Piedmont neighborhood (for the purposes of this analysis, defined as the area within a one-mile radius of 1300 Avalon Blvd, Piedmont, CA). All of EJSCREEN's demographic data come from the latest annual update of the five-year average ACS estimates (2006-2010), with some lag time from publication by census to inclusion in EJSCREEN. See *EJSCREEN Environmental Justice Mapping and Screening Tool: EJSCREEN Technical Documentation* (DRAFT June 2016), p. 21.

² All of EJSCREEN's demographic data come from the latest annual update of the five-year average ACS estimates (2006-2010), with some lag time from publication by census to inclusion in EJSCREEN. See *EJSCREEN Environmental Justice Mapping and Screening Tool: EJSCREEN Technical Documentation* (DRAFT June 2016), p. 21.

³ Compared to all places in the U.S., the EJSCREEN Environmental Justice Indexes for the 11 environmental factors considered range from the 16th to 39th percentile nationwide.

⁴ According to the NATA Respiratory Hazard Index and NATA Air Toxics Cancer Risk.

⁵ See EJSCREEN report for 3-mile Ring Centered at 33.775N, -118378 W, California.

Disclaimer: This community profile combines some fictionalized information with data from a real Superfund site and is intended for training purposes only.



Demographically, the Piedmont neighborhood is very different from the other communities affected by contamination from the LA Stormwater Pathway Superfund site. Almost all of the 45,278 residents of the Piedmont neighborhood are minorities, and more than half of them have low incomes. Piedmont is one of the most linguistically isolated neighborhoods in the U.S.,⁶ and nearly half of neighborhood residents have less than a high school education. (In contrast, only three percent of residents of the peninsula do not have a high school diploma.) The neighborhood has a relatively large percentage of young children: ten percent of Piedmont residents are children under 5 years of age—a larger percentage than 89 percent of places in the U.S.

Demographics of the Peninsula, Shoreline Area, and Piedmont Neighborhood							
	Population	% Low Income	% Minority	% Linguistically Isolated	% Less than HS Education	% People over 64	% Children under 5
Peninsula	80,022	10	38	8	3	19	5
Shoreline	1,698	4	23	9	4	27	3
Piedmont	45,278	55	96	27	45	7	10
State Average		33	59	12	21	11	7

Sources: Data are from EJSCREEN analyses conducted for the peninsula (defined for the purposes of this analysis as the area within a 3-mile radius of the Peninsula District Library; the shoreline census block area (defined for the purposes of analysis as U.S. Census Block Group 060376706022); and the Piedmont neighborhood (for the purposes of this analysis, defined as the area within a one-mile radius of 1300 Avalon Blvd, Piedmont, CA).

The Piedmont neighborhood is an environmentally overburdened community by almost any measure.⁷ According to EJSCREEN, it is in the 98th percentile (or the top two percent) of communities in residents' proximity to TSDFs, major dischargers, and RMP (risk management plan) sites, and in the top 20 percent of communities nationwide in proximity to National Priorities List (NPL) sites. Residents of the Piedmont neighborhood live close to traffic and their exposure to diesel PM is among the highest in the country. Residents also are among the most at-risk for cancer and respiratory hazards.⁸ (EJSCREEN guidance recommends using the 80th percentile, when compared nationally, as a marker to help highlight areas that may warrant additional consideration, analysis, or outreach, so the chart shows a red line at the 80th percentile. Because the Piedmont area reflects a greater than 80th percentile ranking for 7 of the 11 EJSCREEN indexes, this is clearly a community with EJ concerns, particularly compared to the shoreline census block and peninsula communities.) (See bar chart on next page.)

Recommendations

In light of information from EJSCREEN and the resulting community profile, the site team should consider:

- Seeking additional information about sport fishing and fish consumption in the area, if data are available. If possible, consider conducting a special study of fishers, perhaps similar to the study completed for the Lower Duwamish Waterway Superfund site. In the absence of quantitative data, anecdotal information, particularly from community interviews, also may be helpful.
- Including questions about consumption of fish caught along the coastline in community interviews conducted for the CIP with residents of all parts of the potentially affected community. Gathering information about fish consumption by residents of the Piedmont neighborhood will be particularly important.
- Recommending that the risk assessment specifically address the risks to the elderly and small children, which are two vulnerable populations that are somewhat over-represented in the area, the elderly in the peninsula as a whole and the shoreline census block area, and children under 5 years of age in the Piedmont neighborhood.

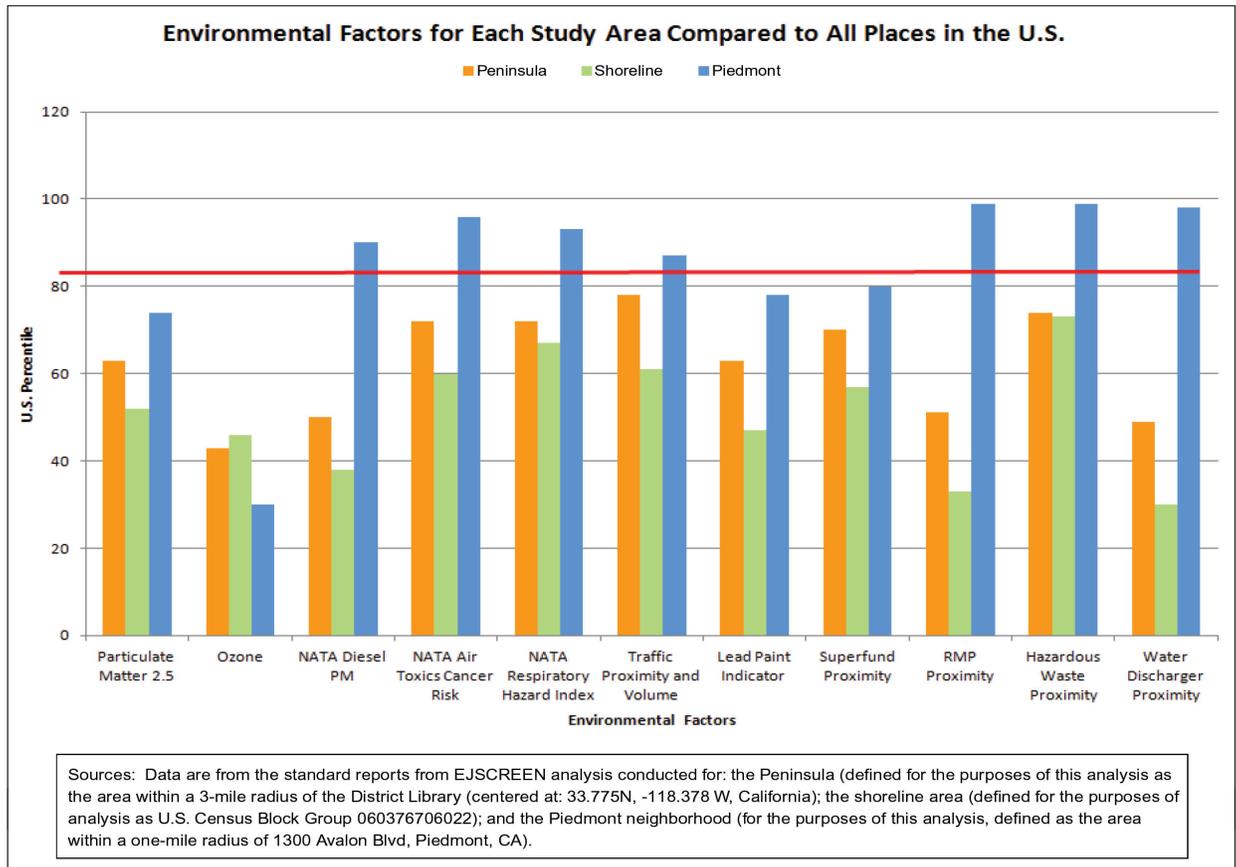
⁶ See EJSCREEN report for 1 Mile Ring Centered at 33.789 N, -18.263 W, California, page 2, which indicates that the study area (the Piedmont neighborhood) is in the 95th percentile of places in the U.S. for linguistically Isolated Population, p. 2.

⁷ Ibid. EJSCREEN recommends focusing on variables that are at or above the 80th percentile for further study. The EJSCREEN analysis for the Piedmont neighborhood indicated a primary demographic index of 75 percent, and primary EJ indexes for all environmental factors that are above the 90th percentile nationwide.

⁸ Ibid.



- Undertaking site activities in ways that minimize traffic and reduce air emissions, because residents in all parts of the potentially affected community already live in close proximity to traffic and their exposures to air toxics and diesel particulate matter (PM) are relatively high.



When planning for community involvement, the site team should consider:

- Implementing community involvement and outreach activities throughout the area, but concentrating efforts to reach residents who live along the shoreline and in the Piedmont neighborhood.
- Conducting enhanced outreach and community involvement efforts for the Piedmont neighborhood, which is a community with environmental justice concerns.
- Researching the characteristics of the linguistically isolated residents of the area, particularly in the Piedmont neighborhood, including the languages spoken, ethnicities represented, and any subsistence fishing or cultural practices that ought to be considered. Just under ten percent of peninsula residents are linguistically isolated. That percentage soars to 27 percent of Piedmont residents.
- Planning and conducting special outreach efforts using targeted risk communication messages to communicate with the elderly residents of the peninsula (including those who live along the shoreline census block) and the parents and caregivers of small children in the Piedmont neighborhood.
- Providing interpreters for meetings and interactions with community members, and translations of any outreach materials disseminated within the potentially affected areas.
- Preparing presentations and writing easy-to-read outreach materials and explanatory materials in English and the other languages spoken in the Piedmont neighborhood. This is particularly necessary for outreach to the Piedmont neighborhood, where 45 percent of adult residents lack a high school education.

Disclaimer: This community profile combines some fictionalized information with data from a real Superfund site and is intended for training purposes only.