



# Using the Environmental Health Disparities Map and Supplemental Tools: A First Step to Identify Communities Burdened by Environmental Inequities

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## What Is the Environmental Health Disparities Map?

The [Washington Environmental Health Disparities \(EHD\) map](#) is an interactive mapping tool. The map compares areas across Washington State based on their exposure and vulnerability to pollution.

The EHD map ranks Washington census tracts based on their exposure and sensitivity to certain environmental health risks. Ranks are numbered from one to ten and assigned based on the amount or intensity of the measure. EHD map ranks are based on relative differences, rather than thresholds or ranges. Ranks allow comparison between areas.

For the EHD map, we refer to census tracts as “communities,” though this is not how communities generally define themselves. The geographic size of census tracts varies based on population density. The average population in a tract is 5,000 people, but it can vary from about 2,000 to 8,000 people.

In 2021, the legislature directed the Department of Health to [update and maintain the EHD map](#) under the [Healthy Environment for All \(HEAL\) Act](#). The HEAL Act requires seven state agencies to equitably engage communities for certain agency activities that may create environmental benefits or harms. In addition, these agencies are required to conduct environmental justice assessments. These assessments are meant to guide agency decisions to address historical and current inequities and ensure an equitable distribution of environmental benefits and harms. The HEAL Act identifies the EHD map as a tool that can be used to support meeting the requirements of these activities. Please know:

- No tool is perfect for identifying communities under the HEAL Act statute. We recommend using this tool in combination with additional tools, datasets, and resources when identifying overburdened communities and vulnerable populations.
- We recognize language within HEAL Act may not be how communities describe themselves or identify. Some communities prefer different terms, instead of “overburdened” or “vulnerable” communities. Some preferred terms include “minoritized,” or “invisibilized.” We use the term “highly impacted communities” for this document, because the definition of ‘overburdened community’ in HEAL includes and expands upon ‘highly impacted communities’ from the [Clean Energy Transformation Act \(CETA\)](#). These are deficit-based terms because we are looking to address deficits. These are not the fault of the communities, but rather structural inequities. Use of deficit terms is not meant to ignore the strengths of communities. We understand these terms may have negative associations for communities based on their experiences.

- This map should not be used as the sole decision-making tool for any state government work. No single tool can speak for the lived experiences of communities. Additional equitable community and Tribal engagement is needed. The EHD map provides a starting point for identifying which communities and Tribal nations to engage.

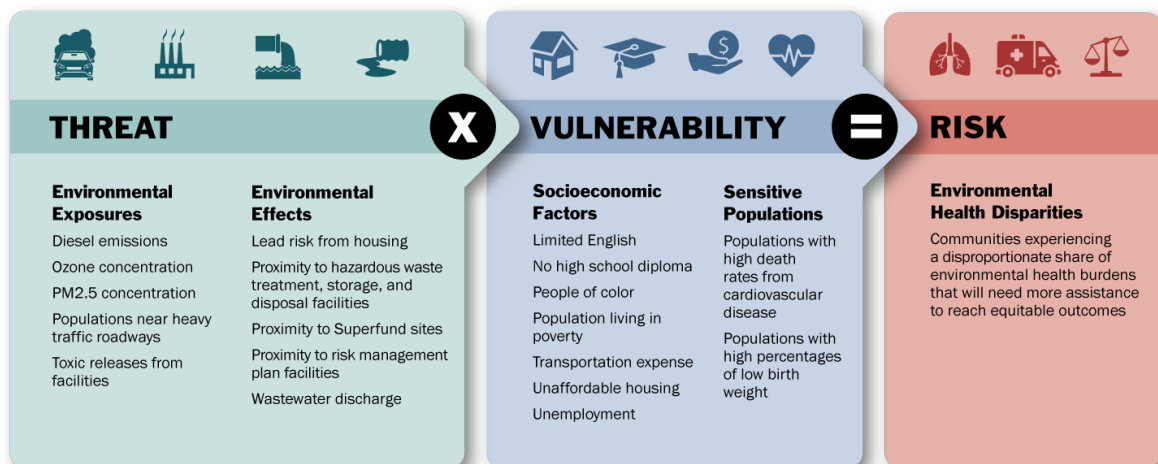
## How Was the Environmental Health Disparities Map Created?

The EHD map was created by community organizations, researchers, and government agencies. Communities identified critical factors that helped guide the selection and development of measures in the map through 14 listening sessions. The Department of Health, in consultation with the Environmental Justice Council, is required to continue to develop and maintain the EHD map. In addition, the EHD map is evaluated every three years, ensuring updates to the map include community and Tribal engagement, and incorporate new data and science.

The EHD map uses a cumulative impacts model to compare communities, as shown in the graphic below.

Washington Environmental Health Disparities

### **Threat x Vulnerability = Risk**



Cumulative impacts are when factors interact to have a larger combined impact. Cumulative environmental health impacts are the combination of several environmental, social, and health impacts. Cumulative impact assessments are important for understanding and addressing environmental and climate justice issues.

## How to Use the Environmental Health Disparities Map

We recommend watching our [four-minute video](#) that shows some of the ways you can use the map.

The [EHD map](#) is one of the “topics” available on our [Information by Location tool](#). Each topic is divided into themes and measures.

**Topic:** the top level of the map which represents the overall rank, combining data for all the measures in the topic.

**Theme:** a group of related measures whose ranks have been combined. The EHD map includes four themes: environmental exposures (ex. Proximity to roadways with heavy traffic), environmental effects (ex. Lead risk from housing), sensitive populations (low birth weight), and socioeconomic factors (poverty).

**Measure:** an individual indicator of health, environmental conditions, or socioeconomic status. The EHD map includes 19 measures.

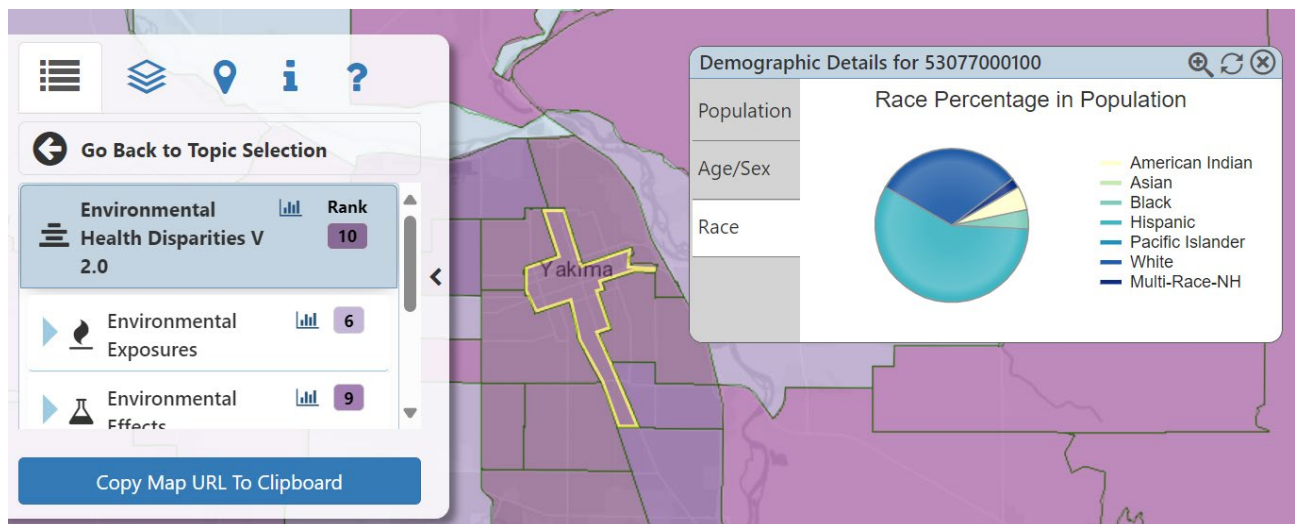
**Rank:** the level of impact for a community.

**Overlay:** a feature on the map that adds additional context and sometimes combines multiple data types. Overlay data is not included in rank calculations.

There is a menu box at the top left of the Information by Location tool. At the top of the menu box, there are five symbols – each leading to a different tab on the menu.



The first tab lets you select which topic you want, which in this case is the EHD map. The next tab is where you can add overlays to see other features on the map, such as hospital or farmworker housing locations. The remaining tabs allow you to look up locations by address or census tract number, find out background information about the map and its data, and get usage tips. When you click on a census tract on the map, you can see its rank and demographic information.



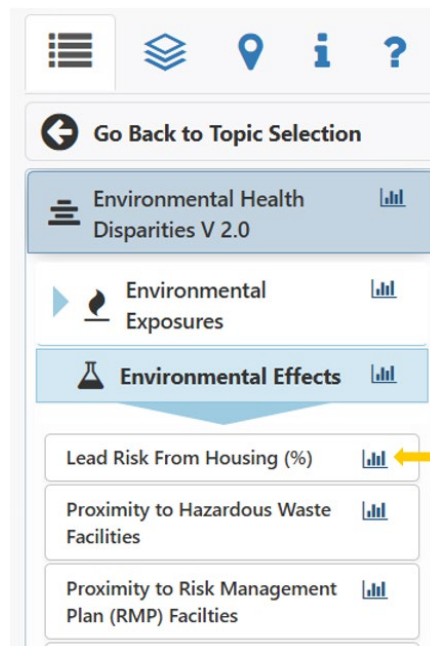
The map displays a community's overall environmental health disparity rank between 1 (least burdened) and 10 (most burdened). Each rank represents 10 percent of communities. For example, if a community is ranked an 8, then 70 percent of Washington communities have a lower level of environmental health

burden. Twenty percent have a greater level of burden, and 10 percent have the same burden. You can see ranks at the topic, theme, and measure level, depending on your selection in the menu box.

Least impacted							Most impacted		
1	2	3	4	5	6	7	8	9	10
10% of communities	10% of communities	10% of communities	10% of communities	10% of communities	10% of communities	10% of communities	10% of communities	10% of communities	10% of communities
70% of communities are less impacted							10% of communities are similarly impacted	20% of communities are more impacted	

## Accessing the Underlying Data

To access the data used to create the ranks, you can select the graph icon next to the measure, as in the highlighted example below. You can also export a table with the underlying data. More information on how to export the data is [available online](#).



Our data is also available on the [Washington Geospatial Open Data Portal](#). DOH anticipates releasing updates every 2-3 years.

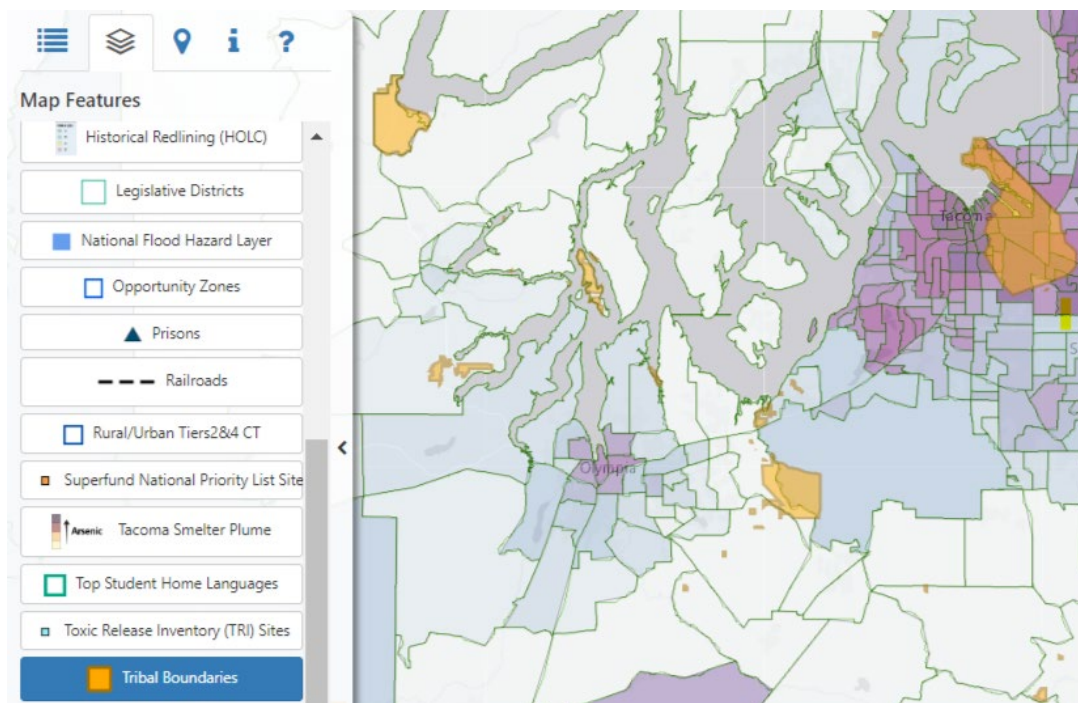
# Overburdened Communities and Vulnerable Populations

The term “overburdened communities” describes communities where vulnerable populations face combined, multiple environmental harms and health impacts. “Vulnerable populations” are those more likely to be at higher risk for poor health outcomes in response to environmental harms. These terms are used within the Healthy Environment for All (HEAL) and [Climate Commitment Acts](#) (CCA).

Different acts define these communities differently, and you will need to use the definition relevant to the legislation you are working under.

The HEAL Act’s definition of ‘overburdened community’ includes, but is not limited to, the Clean Energy Transformation Act (CETA) definition of “highly impacted communities.” Highly impacted communities are:

1. Determined by the Department of Health using a cumulative impact analysis. We designated census tracts with a topic (overall) rank of 9 or 10 on the EHD map as highly impacted.
2. Census tracts that are fully or partially on what is referred to as “Indian Country.” Indian Country is defined in [18 U.S.C Sec. 1151](#). [This Excel file](#) lists Washington census tracts and whether they include reservation lands, disputed lands, and off-reservation Tribal lands. This information can also be viewed on the EHD map using the “Tribal Boundaries” overlay.



We recognize that outside the legal definition, all land in Washington State is historically Indian Country. The history of how the U.S. came to the limited definition of Indian Country is visualized in a video [here](#).

The information used to create the Tribal lands layer comes from the Department of Ecology (ECY). ECY maintains and shares the information. It depicts Tribal lands of varying legal statuses. We understand this might not be how Tribes view their relationships to lands and some ongoing developments may not

be reflected. To better depict Tribal lands, we recommend further engagement with Tribes. You can learn more about ECY's curation of the information on their [data set information page](#).

The HEAL Act and the CCA define overburdened communities and vulnerable populations in a way that includes the CETA definition and more. HEAL agencies will need to identify these communities for each project using guidance from the [Environmental Justice Council](#) and the detailed process developed by the HEAL Interagency Workgroup (IAWG) and Tribal Interagency Workgroup.

Further, consider using additional data, tools and community knowledge for your project. For example, in rural areas where census tracts are larger, you may wish to use relevant census block-level data to get greater detail. Census blocks are small sections of a census tract. They are the smallest level of geography you can get basic demographic data for, such as total population by age, sex, and race. The U.S. Environmental Protection Agency's [EJScreen](#) has many datasets at the block level.

Use your program area expertise to identify tools and methods that are appropriate to the project and the data you are working with. Where possible, consult the communities you will be working with. Communities and Tribes often develop priorities, plans, and public-facing media that describe their concerns.

## A Starting Point to Be Supplemented with Other Tools

The EHD map shows which census tracts are experiencing greater environmental health burdens based on the cumulative impact of the map's measures. This is not all that can negatively impact a community.

- The EHD map on its own is insufficient for identifying overburdened communities.
- **The EHD map is not a replacement for Tribal consultation or community engagement.**
- Communities can be added after the initial selection process of 9s, 10s, and Tribal land, but community engagement should be part of that process. You should avoid doing too much quantitative data work before you start community engagement. Engagement is more meaningful and beneficial when started early. The EHD map was created because of community voices and should be used to continue to amplify them.

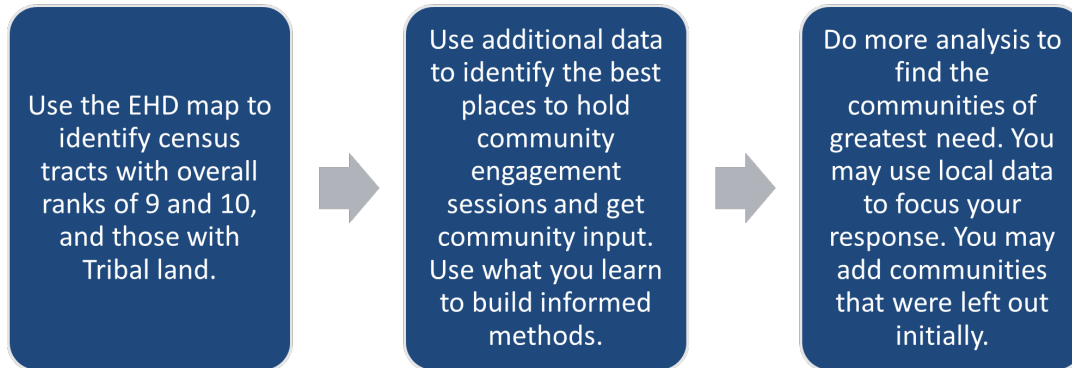
## Using Additional Data with the EHD Map

The flow charts on the next page show the basic way the EHD map is meant to be used. It is a starting point for analysis. As with any project, please consider what would be the appropriate tool or methodology to address your concern or project.



## General Community Identification Process

Note: this is the general process for identifying non-Tribal communities.



## Tribal Consultation on the EHD Map

[The HEAL Act](#) requires DOH to offer consultation with federally recognized Tribes on the development of the EHD map. In 2023, DOH held listening sessions and round tables leading up to a formal consultation in May 2023. During this collaboration and consultation, DOH heard that Tribal priorities and values are not adequately represented within the current tool.

In response, we have increased our Tribal outreach to better understand Tribal concerns with the map, provide education about the map, and ensure Tribal perspectives and values are incorporated. DOH is planning to add additional measures in the next version that were raised as important by Tribes and communities. DOH also communicates that Tribal lands must be included as overburdened communities under the HEAL Act and [Climate Commitment Act](#).

## Limitations of the EHD Map

The EHD map is a useful model but does not include all environmental and health issues. Communities are made up of people, with diverse ideas, histories, and experiences. Be aware of the map's limits and apply critical thinking and creativity. Consider the lived experiences of those historically placed at the margins of society.

Limitations of the EHD map include:

- The EHD map does not include every environmental concern or population vulnerability. It currently includes 19 measures. You should also use other data and information related to your project. For example, you should be cautious when using the EHD map to assess rural areas and Tribal lands because of the uniqueness of the communities and large area in rural census tracts.
- Census tracts have limitations for analysis. They vary in size and density. These can make analysis in rural areas more difficult. There are some census tracts that have no occurrences

for some of the measures, or limited data, due to low population. A small number of cases or counts makes statewide comparisons more difficult. Rates calculated in these areas vary widely from year to year.

- The data on the EHD map are limited to current data collection methods and timeframe of collection. Each method has limitations. Please see the measure data notes for more details on these limitations. The EHD map uses the most recent data available for each measure at the time of release.
- Because the EHD map ranks are relative, the differences in the underlying measures may be small. Please use the underlying measure data to look at the differences. You can access this through the graph icon next to the measure described in the 'Accessing the Underlying Data' section.
- The EHD map uses data that is a snapshot in time. Communities, and their needs, can change rapidly. Members of the community should be consulted on those needs and opportunities to support.
- Numbers are not the whole story. Consider the cultural differences, history, and other characteristics of a community. Each situation will need different pieces of supporting information. Indigenous and non-indigenous communities each have their own unique histories and ways of knowing.
- The data used in the EHD map is from the past. It should not be used as a predictive tool.

## Next Steps for EHD Map Development

The HEAL Act requires us to seek feedback from representatives from overburdened communities and vulnerable populations. We do this through community engagement, Tribal collaboration and consultation, and listening sessions across the state and opportunities for public comment.

We will develop:

- New measures for air-quality related lung disease, including asthma, wildfire smoke exposure, pesticide exposure, water quality, digital infrastructure, population with a disability, and community retail food environment. These will be considered for the 3.0 version.
- A group of climate change measures, including tree canopy and greenspace to be considered for the 4.0 version.
- A comprehensive evaluation of the EHD map. We will review and modify our methods for existing measures as needed.
- An update of the map to being based on 2020 census tracts instead of 2010 census tracts. There are about 400 new census tracts in the 2020 census tracts.
- Tools and measures that reflect Tribal and community values and concerns.
- Methods to add Tribal data to existing measures following Tribal data sovereignty and Tribal desires.



- A tool to track changes in community ranking over time as new versions of the map are created.
- Community engagement listening sessions and roundtables to get input on how the future versions of the map and other tools capture the lived experiences of communities.
- Alternative geographic units in addition to census tracts.
- Improvements to the Tribal lands overlay on the EHD map.
- A document describing how we develop new measures for the EHD map. We will explain:
  - How we solicit and receive feedback from the communities, Tribes, and others.
  - How data availability, scientific literature and feedback guides the selection of measures.
  - How subject matter experts provide input.
  - How we evaluate if the measures are appropriate.
  - Who makes the decisions about potential new measures.

We will continue offering government-to-government Tribal consultation and collaboration.

## Next Steps for EHD Map Guidance Development

We will create:

- Examples of how agencies are successfully using the map in combination with other data.
- Videos describing the technical aspects of the map and how to use them.
- A list of tools that may be useful in specific contexts where the map has limitations (such as rural areas). The list may include supplementary tools that other agencies or Tribal governments have found useful and trustworthy.
- Revised guidance documents as the EHD map is updated.

## How to Reference the EHD Map

Washington State Department of Health. Washington Environmental Health Disparities Map. Version 2.0. <http://www.doh.wa.gov/EHDmap>. Published July 28, 2022

## Contact the Environmental Health Disparities Map Team

We are available to consult on how to use the map or how to interpret information in the map. If you have questions, concerns, or feedback on how to improve the EHD map or its corresponding tools, please let us know. We also encourage you to tell us about how you use our map. We are happy to hear

from you to learn how the map could better serve you. Questions relating directly to the EHD map can be directed to our email: [EHDmap@doh.wa.gov](mailto:EHDmap@doh.wa.gov).

## Washington Tracking Network and EHD Map Resources:

[How to Export Data from the Data Portal](#)

[Information by Location Tool](#)

[Environmental Health Disparities Map Landing Page](#)

[Environmental Health Disparities Map](#)

[Environmental Health Disparities Map Technical Report](#)

[Washington State Geospatial Open Data Portal EHD map](#)

## Additional Tools and Resources:

[Agency for Toxic Substances and Disease Registry – Environmental Justice Index](#)

[Centers for Disease Control and Prevention – Social Vulnerability Index](#)

[Environmental Justice Council](#)

[University of Wisconsin – Area Deprivation Index](#)

[Washington State Department of Health - Clean Energy Transformation Act – Cumulative Impact Analysis](#)

[Washington State Department of Health – Guidelines for Working with Small Numbers](#)

[Washington State Department of Health – Guidelines for Using Rural-Urban Classification Systems for Public Health Assessment](#)

[Washington State Institute for Public Policy – Technical Review of the EHD Map](#)

[FEMA's National Risk Index](#)

[U.S. Department of Transportation – Transportation Disadvantaged Census Tracts](#)

[U.S. Department of Transportation – Transportation Disadvantaged Census Tracts Instructions](#)

Seek out resources that are trusted by communities and Tribes you consult: (e.g. [National Tribal Toxics Council](#)).



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