Using the Environmental Health Disparities Map and Supplemental Tools

Identifying Communities Burdened by Environmental Inequities

Washington Environmental Health Disparities (EHD) Map

What is the Environmental Health Disparities Map?

The Washington Environmental Health Disparities (EHD) map is an interactive mapping tool that shows where people in Washington are likely to be exposed to the greatest risk for environmental impacts on their health. Health disparities do not come from a single cause. They are shaped by how social, environmental, and biological factors intersect with systems of oppression, including racism and colonization. These factors can add up and create greater impacts in some communities.

The EHD map combines pollution data with information about community vulnerabilities to create a score for each area in Washington. Each area is ranked relative to or in comparison with the others. EHD map ranks are based on relative differences, rather than thresholds or ranges. Ranks are numbered from 1 to 10. Using this approach can help us determine where more attention and resources are needed.

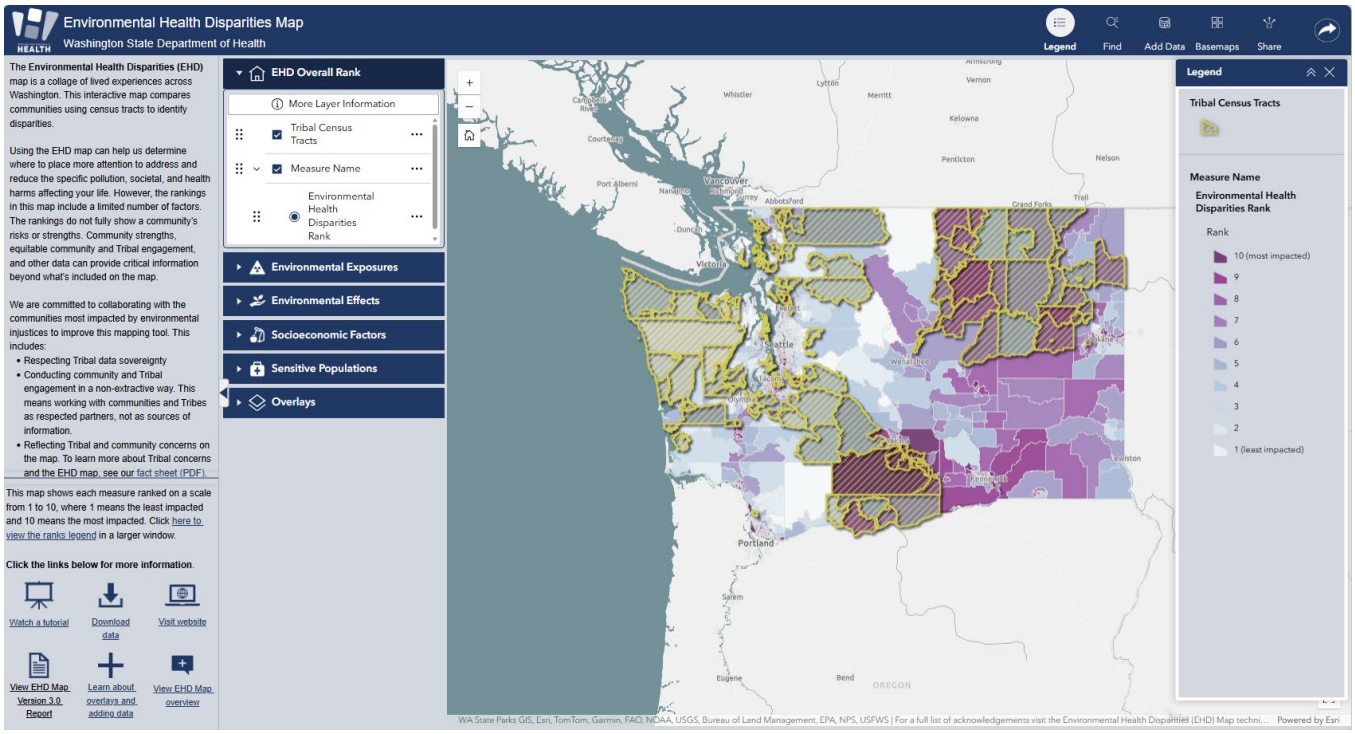
For the EHD map, we refer to census tracts as "communities". However, this is not how communities generally define themselves. The geographic size of census tracts varies based on population density. The average population in a tract is 5,000 people, but it can vary from about 2,000 to 8,000 people.

In 2021, the legislature directed the Department of Health (DOH) to update and maintain the EHD map under the Healthy Environment for All (HEAL) Act. The HEAL Act requires 7 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. They also ensure an equitable distribution of environmental benefits and harms. The HEAL Act identifies the EHD map as a tool that can help meet the requirements of these activities.

Healthy Environment for All
WASHINGTON STATE DEPARTMENT OF HEALTH

Please know:

- No tool is perfect for identifying communities under the HEAL Act statute. We recommend using the EHD map with additional tools, local datasets, and resources to identify overburdened communities and vulnerable populations.
- We recognize language within the HEAL Act may not be how communities describe or identify themselves. 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. This is 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 that these terms may have negative associations for communities based on their experiences.
- The EHD Map uses a specific model to estimate cumulative environmental risks. But it only represents one way to measure these impacts and cannot capture every factor affecting community health. Many measures rely on proxies, census tract averages, and statewide data. This means the results may not reflect individual experiences or all local conditions. The map is intended as a starting point for understanding environmental health patterns and will continue to evolve with additional community input, tools, and data.

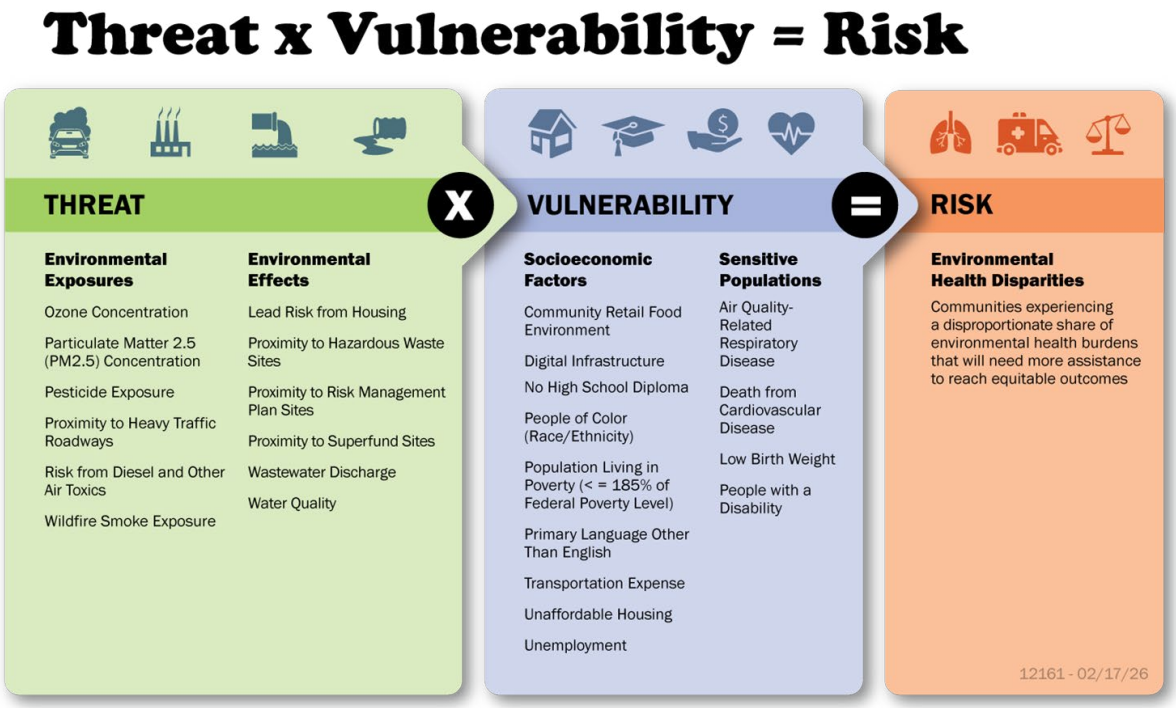


Environmental Health Disparities (EHD) Map ***Using the Map and Tools***

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. DOH, in consultation with the Environmental Justice Council, is required to develop and maintain the EHD map. In addition, the EHD map is evaluated every 3 years. This ensures 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.



Pollution, cost of living, and other social conditions don't happen on their own. They combine with the ongoing impacts of racism, colonization, and other injustices to affect community health.

This type of model recognizes that health disparities do not come from a single cause. They are shaped by how social, environmental, and biological factors intersect with systems of oppression, including racism and colonization. **These factors can add up and create greater impacts in some communities.** They are important for understanding and addressing environmental and climate justice issues.

Tips to Know About the Environmental Health Disparities Map

We recommend watching our short tutorial video that provides a brief overview of the map.

You can access the EHD Map on the EHD Map webpage. Here are some terms that we use when talking about the EHD map:

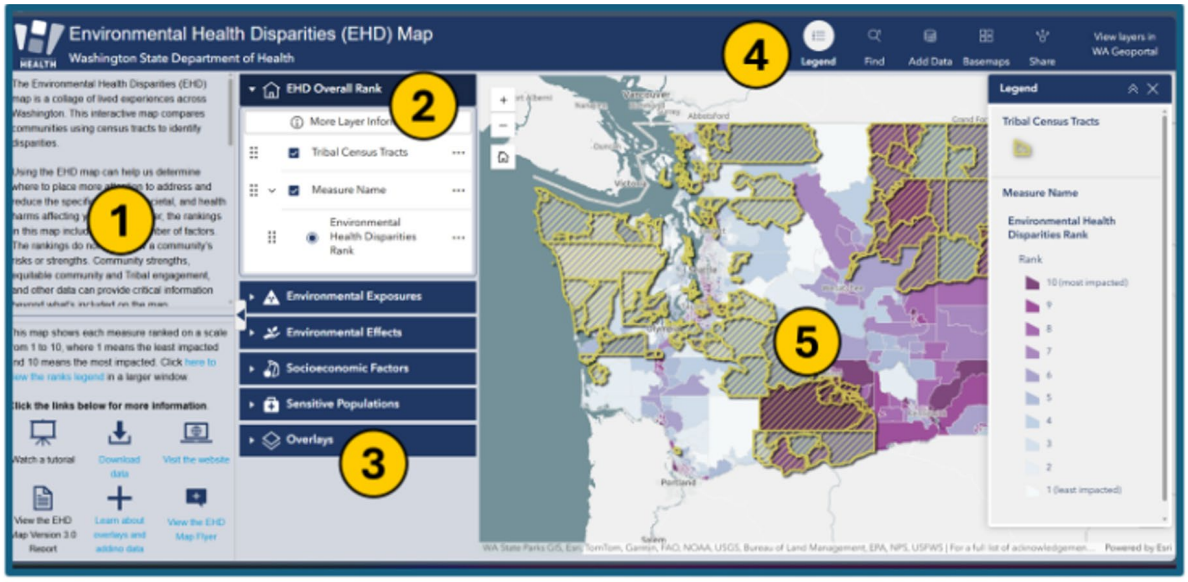
- **Theme** is a group of related measures with combined ranks. The EHD map includes 4 themes: environmental exposures, environmental effects, sensitive populations, and socioeconomic factors.
- **Measures** are individual factors of health, environmental conditions, or socioeconomic status. The EHD map includes 25 measures.
- **Overlays** are data layers that you can add to the map to provide additional context and visual support. Overlays do not contribute to a community's environmental health risk score.
- **Rank** is the level of impact for a community relative to other census tracks. Ranks are numbered from 1 to 10. Areas ranked 10 are the most impacted. Areas ranked 1 are the least impacted communities.

The map displays a community's overall environmental health disparity rank. Each rank represents about 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.

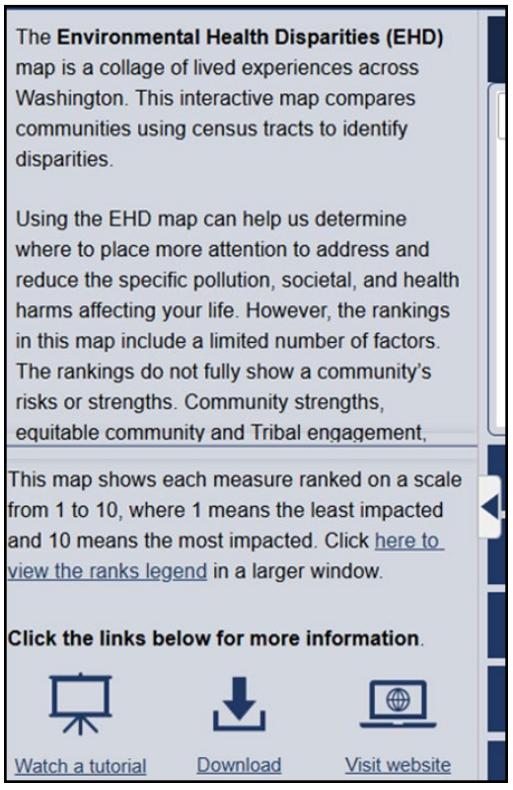


Using the Environmental Health Disparities Map

When you first open the map, you will first see a splash or introduction page with information about the EHD map. In the tool, you can hover over the yellow numbers to learn more about how to navigate the EHD map.



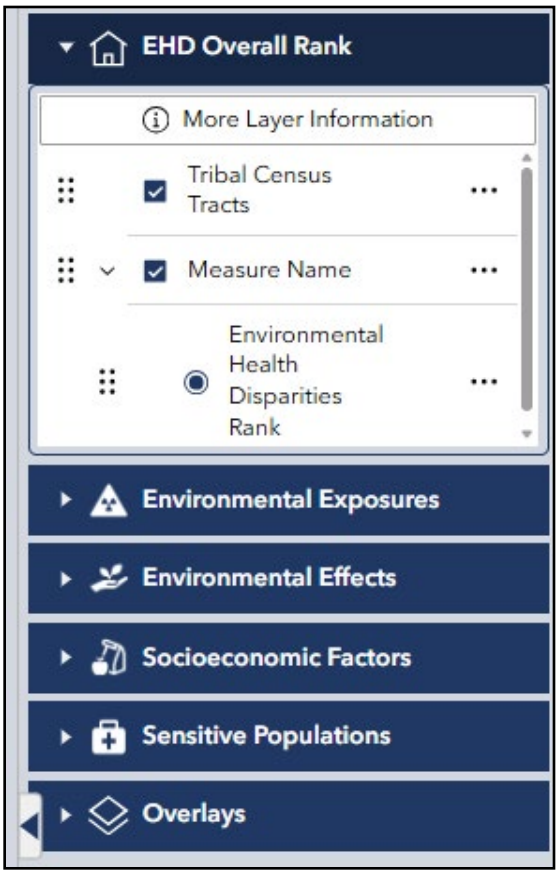
You can click the blue "Enter Map" button in the bottom right to exit the splash page.

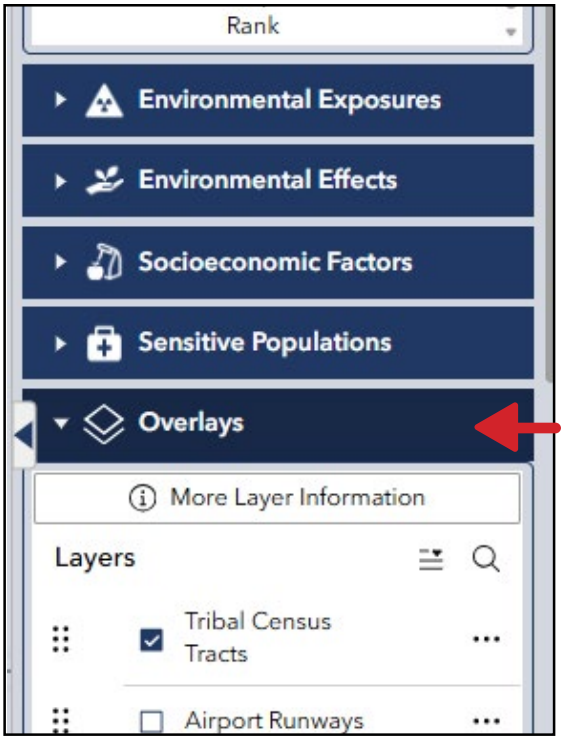




On the left-hand side, there is a menu of resources showing you how to use the map. You can also collapse this sidebar by clicking on the blue arrow on the right side of the text.

Click on the dark blue bars in this column to expand the list of measures used in the map. Measures are organized by theme. You will see that tribal census tracts and the overall EHD rank are automatically selected. Tribal census tracts should be prioritized to address environmental inequities. This is demonstrated by the definition of "overburdened communities" in Washington's HEAL Act and Climate Commitment Act (CCA). Tribes are longstanding Environmental Justice advocates. They are often most impacted by environmental injustice in ways represented and not represented on the EHD map. The Tribal census tracts layer may not fully represent the Tribe's definition of their land based on historical injustices. Map users should prioritize Tribal engagement to fully understand the environmental health impacts on their community.





Map overlays are available in the last blue bar. Overlays are layers of data that that provide additional context to the map. They do not impact the any EHD ranking. They simply provide a visual aid. A separate document describes how to use the overlays.

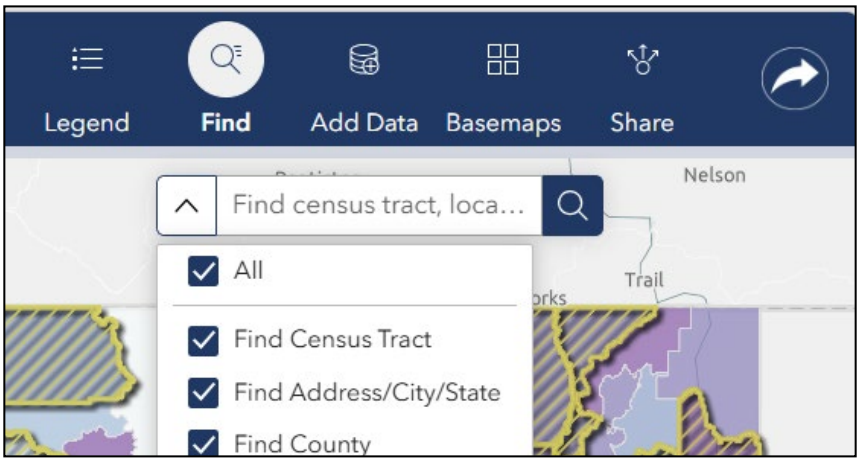
The buttons on the top right-hand side of the tool allow you to:

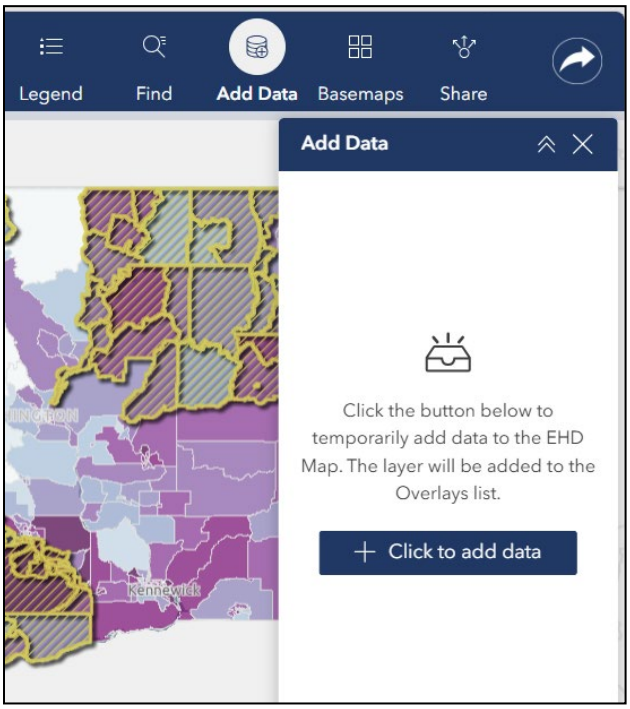
- Bring back the legend if you close it
- Add data from external sources as an overlay
- Search for an address or place on the map
- Change the style of the underlying map
- Share the map with others.

The “Legend” button displays the legend for the layer you selected.



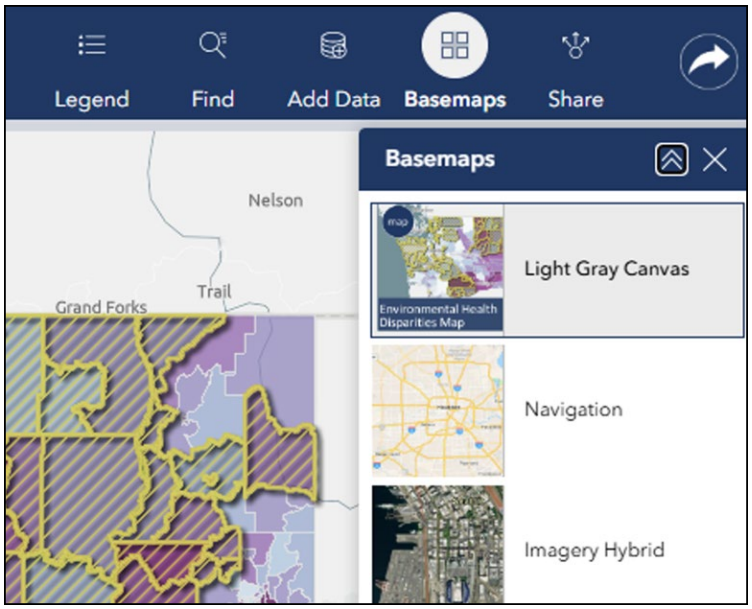
The “Find” button allows you to type in an address, city, zip code, county, or census tract. The map will automatically zoom to the location you enter.

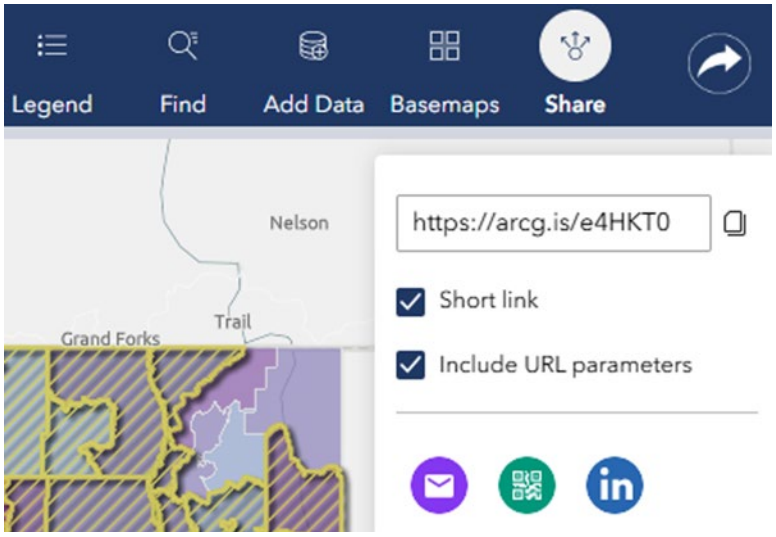




The “Add Data” button lets you bring in data from external sources. The [“Guide to Adding Other Data to the EHD Map”] describes how to add data.

The “Basemaps” button lets you switch backgrounds and add road layers or other imagery.

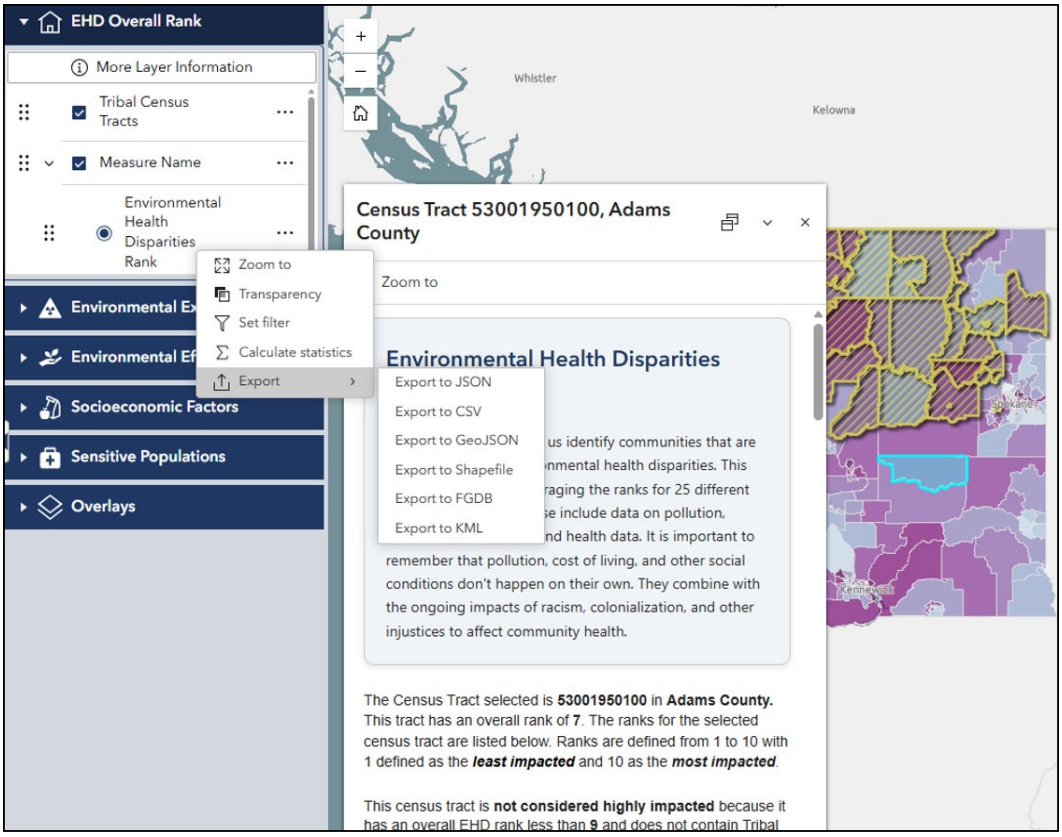




The “Share” button provides an easy way to share the EHD map web application.

Accessing the Underlying Data

To view the data used to create the ranks, select a census tract. In the screenshot below, the census tract selected is highlighted in blue. A pop-up screen will appear. You can use the scroll icon to view the rank data and demographic data. Additionally, you can export this data, by selecting the three dots to the right of the measure name, export, and then you will see a variety of options available (as shown below).



Our data is also available on the Washington Geospatial Open Data Portal. DOH anticipates releasing updates about every 3 years.

Overburdened Communities and Vulnerable Populations

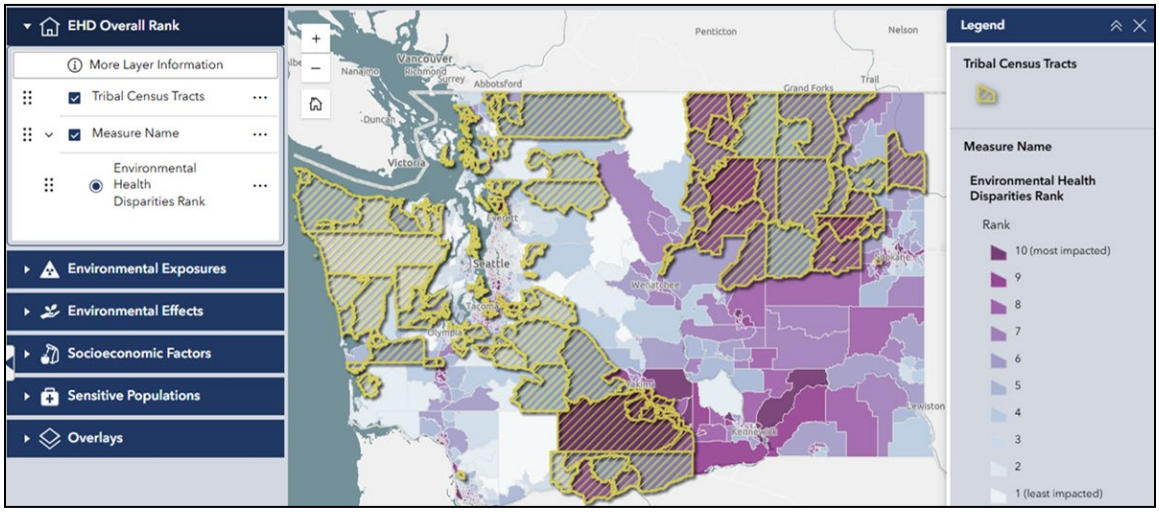
The term "overburdened communities" describes communities where vulnerable populations face multiple combined environmental harms and health impacts. "Vulnerable populations" are those more likely to be at higher risk for poor health outcomes in response to environmental harms. These terms are used within 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 designate census tracts with an overall EHD 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. The Highly Impacted Communities data table (Excel) lists Washington census tracts and whether they include reservation lands, disputed lands, and off-reservation Tribal lands. You can also view this information on the EHD map using the "Tribal Census Tracts" 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 the "Invasion of America" video.

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. This layer may also not reflect some ongoing developments. 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.

You can also 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 for basic demographic data, such as total population by age, sex, and race.

Use your program area expertise to identify tools and methods that are appropriate to the project and the data you work with. Where possible, consult the communities you work 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 not sufficient for identifying overburdened communities.
- **The EHD map is not a replacement for Tribal consultation or community engagement.**
- You can add communities 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 it's 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 Washington State Department of Transportation (WSDOT) used data from the EHD map. This was part of an analysis to help identify communities with higher environmental justice needs for the Sandy Williams Connecting Communities Program.

WSDOT combined EHD map measures with demographic and socioeconomic data from the American Community Survey. They did this to better understand where people who are made vulnerable by roadway design and environmental burdens overlap. WSDOT incorporated EHD map measures into a scoring

measure to help highlight communities that may face greater cumulative environmental health challenges. Census tracts with EHD map measures were awarded: 2 points for a rank of 8 or higher and 1 point for a rank of 6 or 7. The demographic measures were similarly scored at the census block group level.

The final scores are reported at the block group level. For variables reported at the census tract, block groups receive the same number of points in that category as the census tract they fall within.

The EHD map and additional data helped WSDOT identify areas where transportation investments (i.e., improving walking, biking, or connectivity) could provide the greatest benefit for communities experiencing higher environmental and social burdens.

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. This led to a formal consultation in May 2023. During this collaboration and consultation, DOH heard that Tribal priorities and values are not adequately represented in the current tool.

In response, we 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 plans 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 based on a specific model for risk and cumulative environmental impact. It represents one of many ways to quantify these risks. The map also includes factors important to communities and Tribes and tries to represent their lived experiences. However, there is no one true value of environmental health risks that we can measure.
- The map does not identify how pollutants get into the environment. It also does not show how pollutants and social factors interact with each other. Measuring, calculating, and summarizing data by census tract creates assumptions. There are important factors that we cannot include in the map because we don't have the tools to measure them across the state.
- Some measures serve as proxies or substitutes for larger concerns that we cannot measure directly. For example, many communities are concerned about the quality of drinking water that comes out of the tap at home. This is difficult to measure without collecting and studying water samples from households across the state.

- Several measures in the map may impact drinking water. This includes wastewater discharge, proximity to hazardous waste sites, pesticide exposure, and surface water quality (pollutants in nearby water bodies). However, these factors do not directly use data collected by water systems. These measurements also don't consider individual-level factors. For example, using a private well or living in a house with old pipes that are more likely to release toxic heavy metals into the water.
- Measures use different methods to calculate risk and vulnerability. Some represent a modeled risk to individuals based on how they are exposed to different pollutants. Other measures represent the amount of pollutants present in the environment or the proximity to a potential hazard.
- Measures are also based on census tract averages and are not necessarily representative of every person in that community. We should not interpret the ranks in the map as the risk to each individual living in a community.
- This map does not include all environmental risk factors. DOH plans to continue adding input from communities and Tribes to better reflect the experiences of all Washington residents.
- The EHD map team plans to release a qualitative EHD map, which will share community stories by county area. This addition recognizes that we cannot quickly incorporate stories into the EHD map and provide a resource that reflects the community's current lived experience. Please see the EHD map report for more information.
- The map only presents data that is available across the entire state at the census tract level. For many issues, local data may better capture community experience than state-level data. County and city data and maps, if they exist, can provide more information for local decisions.

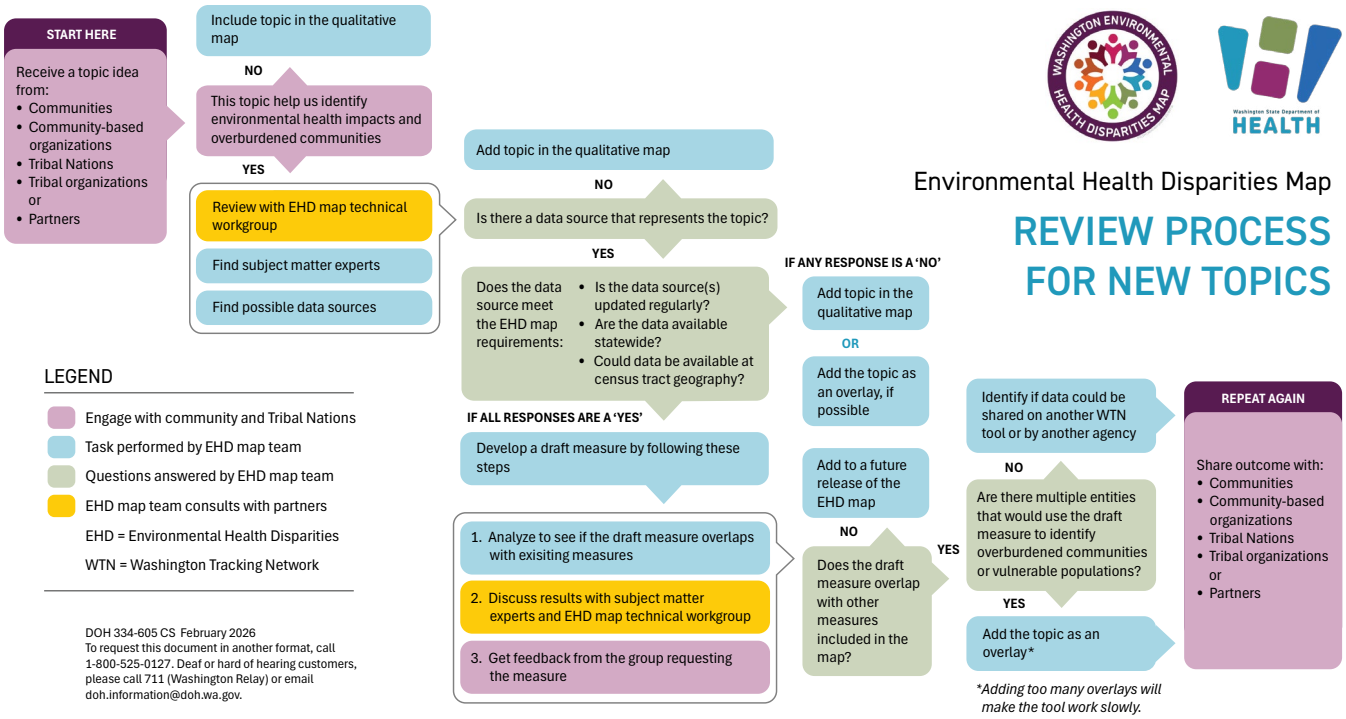
Future EHD Map Versions

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

As a state agency, we are fortunate to receive feedback. The feedback covers many parts of the map. In reviewing this feedback, our team continues to ask ourselves, "Are there ways that we could make changes to the EHD map? Is there guidance to make it more useful to communities and Tribes?"

Some of the feedback has included different categories of topics that are not currently represented on the map. These topics include environmental, social, and health concerns.

To help our team review these topics, we have developed a process for deciding how to best represent the concern, idea, or topic. The process is outlined in the figure on the following page. This could look like adding a new EHD map measure overlay to the qualitative map or a future tool or resource.



For more information about what's next for future EHD map development, see the EHD map report.

How to Reference the EHD Map

Washington State Department of Health. Washington Environmental Health Disparities Map Version 3.0. 2026.

Contact the Environmental Health Disparities Map Team

We are here to answer questions 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 tools, please let us know. We also encourage you to tell us how you use our map. We are happy to hear from you and learn how the map could better serve you. Please email us questions at EHDmap@doh.wa.gov.

Washington Tracking Network and EHD Map Resources:

Environmental Health Disparities Map Webpage

Environmental Health Disparities Map

Environmental Health Disparities Map 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).

Washington State Department of HEALTH

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