User Guide:

Minnesota Department of Commerce Weatherization Assistance Program (WAP) Map



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Introduction

The Minnesota Weatherization Assistance Program (WAP) Map User Guide provides a detailed overview of the <u>web-based mapping tool</u>¹ to serve as a guide for users. The web based tool aims to visualize the impacts and equity of the Weatherization Assistance Program in Minnesota. Using the unique proprietary data from Minnesota's Energy Assistance Program (EAP)— including the Weatherization Assistance Program (WAP)—the map-tool provides a novel outlook on the characteristics of weatherized households in Minnesota from 2007-2020. Users can see the history of WAP activities in their areas as well as make comparisons between the participating households and surrounding populations. The web map contains WAP data aggregated up to Census Tract and service provider areas, as well as demographic data from the American Community Survey (ACS) for equity analysis.

It was created using ESRI's ArcGIS Online software and standard out-of-the-box templates. The map is dynamic and allows users to move around the map or zoom in to particular areas. The graphs and data displays update automatically to reflect only those geographies shown on the map.

Layers in the map include geographic boundaries such as service provider territories, counties, and Tribal lands as well as demographic and socioeconomic layers like race, income, age of housing and tenure. Demographic and socioeconomic layers are from the ACS 5-year sample from 2016-2020. Additional layers created to include Average Energy Burden and a Social Vulnerability Index.

¹ z.umn.edu/WAPMAP

List of Abbreviations

WAP	Weatherization Assistance Program
EAP ²	Energy Assistance Program
ACS	American Community Survey
SVI	Social Vulnerability Index
BIPOC	Black, Indigenous, and People of Color
NRI	National Risk Index
FPL	Federal Poverty Level
CEJST	Climate and Economic Justice Screening Tool
РМ	Particulate Matter
HOLC	Home Owners' Loan Corporation

Geographical Levels

County	Counties are made up of cities, towns, and rural populations. There are 87 counties in the state of Minnesota.
Census Tracts	Small, relatively permanent statistical subdivisions of a county. Census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. ³
Zip-codes	A zip code is a five-digit number that identifies address distributions across regions.
Census Block Groups	Census blocks are divisions of census tracts, generally containing between 600 and 3,000 people.
Service Providers	Service Provider boundaries are geographical areas that WAP service providers serve.
Tribal Boundaries	Areas that have been set aside by the federal government for the use by Tribes. Their exterior boundaries are defined in the final Tribal treaties, agreements, executive orders, federal statutes, secretarial orders, or judicial determinations. ⁴

² Known as Low Income Home Energy Assistance Program (LIHEAP) at the federal level.

^{3 &}lt;u>United States Census Bureau - Glossary</u> (https://www.census.gov/programs-surveys/geography/about/glossary.html#par_textimage_13)

^{4 &}lt;u>United States Census Bureau - My Tribal Area</u> (https://www.census.gov/tribal/tribal_glossary.php)

Key Terms

Air Quality	Air quality is defined on the concentration of pollutants present in the air (particulate matter concentration). ⁵
American Community Survey (ACS) 5-year Data	5-year estimates from the ACS are period estimates that represent data collected over a period of time, from years 2018-2022. ⁶
Climate Vulnerability Index	The U.S. Climate Vulnerability Index (CVI) visualizes how drivers of cumulative vulnerability disadvantage communities across the United States. Better understanding of the intersections between growing climate risks and pre-existing, long-term health, social, environmental, and economic conditions is critical to effectively building climate resilience for everyone and deploying targeted adaptation efforts. ⁷
Disadvantaged Communities	A community is highlighted as disadvantaged on the <u>CEJST</u> (https://screeningtool. geoplatform.gov/) map if it is in a census tract that is (1) at or above the threshold for one or more environmental, climate, or other burdens, and (2) at or above the threshold for an associated socioeconomic burden. ⁸
Eligible Requirements for LIHEAP for Households	Eligibility for energy assistance under LIHEAP is based on 50% of State Median Income (SMI) for household sizes 1-16 and on 110% of Federal Poverty Guidelines for household sizes 17-20. Household size and one month of household income. ⁹
Eligible Requirements for WAP for Households	A household may qualify for weatherization services if they meet eligibility criteria based on 200% Federal Poverty Income Guidelines (updated annually) or is eligible for assistance under the Low-Income Home Energy Assistance Program income limit of 50% of State Median Income (whichever is greater). ¹⁰
Energy Burden	Energy Burden is defined as the percentage of household income spent on energy expenses. An energy burden of 6% or higher is typically considered a high energy burden. https://www.energy.gov/scep/slsc/low-income-community-energy-solutions. ¹¹

^{5 &}lt;u>University Corporation for Atmospheric Research - What Is Air Quality?</u> (https://scied.ucar.edu/learning-zone/air-quality/what-is-air-quality)

 ^{6 &}lt;u>United States Census Bureau - American Community Survey 5-Year Data</u> (https://www.census.gov/data/developers/data-sets/acs-5year.html)
 7 <u>The U.S. Climate Vulnerability Index</u> (https://climatevulnerabilityindex.org/about/)

^{8 &}lt;u>Climate and Economic Justice Screening Tool - Methodology</u> (https://screeningtool.geoplatform.gov/en/methodology)

 ⁹ Minnesota Department of Commerce - Energy Assistance Program Eligibility (https://mn.gov/commerce/energy/consumer-assistance/energy-assistance-program/guidelines.jsp)

Minnesota Department of Commerce - Weatherization Assistance Program Eligibility (https://mn.gov/commerce/energy/consumer-assistance/wap/)

^{11 &}lt;u>United States Department of Energy - Low-Income Energy Affordability Data (LEAD) Tool and Community Energy Solutions</u> (https://www.energy.gov/scep/low-income-energy-affordability-data-lead-tool-and-community-energy-solutions)

Housing Burden	A household is cost-burdened when it spends more than 30% of its income on rent and utilities. ¹²
Low-Income	Percent of a census tract's population in households where household income is at or below 200% of the Federal Poverty Level. ¹³
National Risk Index	Risk is defined as the potential for negative impacts as a result of a natural hazard. It includes three components: a natural hazards component (expected annual loss), a consequence enhancing component (social vulnerability), and a consequence reduction component (community resilience). ¹⁴
Particulate Matter (PM)	A mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small they can only be detected using an electron microscope. In this tool, PM is used to determine the air quality. ¹⁵
People of Color	The percent of individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non- Hispanic white-alone individuals. The word "alone" in this case indicates that the person is of a single race, not multiracial. ¹⁶
Poverty	The Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or non- cash benefits (such as public housing, Medicaid, and food stamps). ¹⁷
Redlined Areas (HOLC)	Areas or neighborhoods that are considered high risk or "Hazardous" by lending institutions. Defined as a discriminatory practice that consists of denial of services such as mortgages, insurance loans, and other financial services to residents based on race or ethnicity. ¹⁸

^{12 &}lt;u>United States Department of Housing and Urban Development - CHAS Background</u>. (https://www.huduser.gov/portal/datasets/cp/CHAS/bg_chas.html#:~:text=Cost%20burden%20%E2%80%93%20Monthly%20 housing%20costs,exceeding%2030%25%20of%20monthly%20income)

^{13 &}lt;u>Climate and Economic Justice Screening Tool - Methodology</u> (https://screeningtool.geoplatform.gov/en/methodology)

¹⁴ Federal Emergency Management Action - Determining Risk (https://hazards.fema.gov/nri/determining-risk)

^{15 &}lt;u>United States Environmental Protection Agency - Particulate Matter</u> (PM) Pollution (https://www.epa.gov/pm-pollution/particulate-matter-pm-basics)

^{16 &}lt;u>United States Environmental Protection Agency - Overview of Socioeconomic Indicators in EJScreen</u> (https://www.epa.gov/ejscreen/overview-socioeconomic-indicators-ejscreen)

^{17 &}lt;u>United States Census Bureau - How the Census Bureau Measures Poverty</u> (https://www.census.gov/topics/income-poverty/poverty/guidance/poverty-measures.html)

^{18 &}lt;u>National Community Reinvestment Coalition - HOLC Redlining Maps</u> (https://ncrc.org/wp-content/uploads/dlm_uploads/2018/02/NCRC-Research-HOLC-10.pdf)

Service Providers/ Community Action Agencies	An entity that delivers weatherization services to its designated service area. There are 22 Service Providers in Minnesota.
Social Vulnerability	Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss. ¹⁹
Tribal Government	Any Indian Tribe, Band, Nation, or other organized group or community, including any Alaska Native village or regional or village corporation as defined in or established pursuant to the Alaska Native Claims Settlement Act (85 Stat. 688; <u>43 U.S.C.</u> <u>1601 et seq.</u> (https://uscode.house.gov/view.xhtml?path=/prelim@title43/ chapter33&edition=prelim) which is recognized as eligible for the special programs and services provided by the United States to Indians because of their special status as Indians. ²⁰
Vulnerable Populations	Vulnerable populations are characterized by members of minority populations or individuals who have experienced health disparities. ²¹ Families that have seniors, children, or disabled members are identified as vulnerable members. ²²

Additional Details

Commerce Energy Information Center: 1-800-657-3710 <u>energy.info@state.mn.us</u> More information about the WAP program and income-eligibility guidelines can be found <u>here</u> (https://mn.gov/commerce/energy/consumer-assistance/wap/).

19 Agency for Toxic Substances and Disease Registry - Social Vulnerability Index (https://www.atsdr.cdc.gov/placeandhealth/svi/index.html)

- 20 § 305.7701-1 Definition of Indian tribal government.(https://www.law.cornell.edu/cfr/text/26/305.7701-1)
- 21 <u>United States Department of Health and Human Services Serving Vulnerable and Underserved Populations</u>

(https://www.energy.gov/scep/weatherization-assistance-program)

⁽https://www.hhs.gov/guidance/sites/default/files/hhs-guidance-documents/006_Serving_Vulnerable_and_Underserved_Populations.pdf) 22 <u>United States Department of Energy - Weatherization Assistance Program</u>

The Weatherization Assistance Program (WAP) Map is a web-based tool developed by the Minnesota Department of Commerce and the University of

Minnesota to visualize the impacts and equity of the Weatherization Assistance Program in Minnesota. This tool uses proprietary data from 2007 to 2020 from Minnesota's Energy Assistance Program (EAP), which includes both the Weatherization Assistance Program (WAP) and the Low-Income Home Energy Assistance Program (LIHEAP).

To learn more about the WAP Map, click on the ① icon.

Getting Started

Welcome Screen

The map opens with a pop-up screen with some basic information about the map and tips for getting started.

Basic Navigation and Key Features





Data Layers/Legend



Viewing the Layer List

Click on the layers icon in the upper right to display a list of available map layers below.



Viewing the Legend

Click on the legend icon in the upper right to display the layers represented on the map below.



Map	Layers	$\times \times$	Legend	× ×
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~	Boundaries		Tribal Governments	
 ✓ 	By Service Provider			
	Equity Assessment Report		Service Provider Boundaries	
ł	 Demographics 			
ļ	✓ Weatherized Households		County Boundaries	
	✓ Vulnerable Populations			
~	By Census Tract		By Service Provider	
	Disadvantaged Communities -	- 1 - 1	Equity Assessment Report	

TIP: Resize the legend or map layer display by adjusting the pop-up box size in the lower right-hand corner. Also, remember to scroll down to see any hidden legend and layer information.

Data Layer Organization

Data layers are grouped into three areas:

- Boundaries
- By Service Provider
- By Census Tract

To view the complete data layer list and sources, please see <u>Appendix A</u>.

Turning Layers On/Off

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Click on the check boxes to turn layers on/off.

TIP: Make sure the category group (i.e. Boundaries, By Service Provider, By Census Tract) is also checked to view selected layers on the map.

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×	Tribal Governments	
~	Service Provider Boundaries	
~	County Boundaries	
~ 🖌	By Service Provider	
~	Equity Assessment Report	
	Demographics	
	Weatherized Households	
~	Vulnerable Populations	
~ 🔽	By Census Tract	
~	Disadvantaged Communities - CEJEST	
	HOLC Redlined Areas	
	Demographics	
	Housing Burden	
~	Vulnerable Populations	
~	Energy Burden for Families Below or At 200% FPL	
~	Social Vulnerability Index	
~	Air Quality	
~	Climate Vulnerability Index	

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Layer Options

A list of layer options are available by clicking on the three dots to the right of the layer name.

The following options will appear:





TIP: Hide labels is an additional option on a few select layers.

Hide labels

Map Pop-ups

Displaying Pop-ups

Clicking anywhere on the map will display one or more popup boxes depending how many visible layers are turned on the Layer List.



Navigating Pop-ups

Users can move through the pop-ups by clicking on the arrow button in the pop-ups header or footer allowing users to see information about each layer and any data or graphs relating to that layer.

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Equity Assessment Reports

Accessing the Baseline Equity Report

When the Service Providers layer is visible users can click on any service provider area to get a pop-up link to view its Baseline Equity Report.

The reports open as separate PDFs and can be downloaded for printing, sharing, etc.



Q		
> 🗸	Boundaries	
~ 🖌	By Service Provider	
~	Equity Assessment Report	
	Demographics	
	Weatherized Households	
	Vulnerable Populations	
>	By Census Tract	









[Page 3]



Attribute Table



Opening the attribute table

Click on the up arrow icon on the bottom middle of the page to open the attribute table.



Closing the attribute table

Click on the down arrow icon on the top middle of the table to close the attribute table.



TIP: If no layers are added to your table, users will see a blank table. Go back to the layers menu to add a layer to the table. Note - users can add a multiple layers to the table.

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Table Layer Tabs

Toggle between layers to view individual tables. Click on the X to the right of the layer tab to remove a layer from the table.

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Sort Values

Sort column by ascending or descending values to quickly find highest and lowest values in a category.

Show/Hide Columns

Click on the check mark next to the table column layers to show or hide them from your table.

Click the trash can icon in the lower right-hand corner to clear selections.

Weatherized Households × ↑ Sort ascending ↓ Sort descending



88 Additional Actions

The table includes additional features that allow users to set filters and review data statistics.

Users can also zoom or pan to selected table rows on the map.

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Downloading the Data

There are two ways download data from the map. In the Map Layers window, click on the three dots right of any layer to reveal the export function. Users can also find the export data feature by clicking on the icon on the far right of the Attribute Table.



Map Layers



Attribute Table

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Once the user clicks on export, they will be given three file type options for downloading:

- Export to JSON
- Export to CSV
- Export to Geo JSON

Appendix A: Layers and Data Sources

Boundaries		
Specific-Layer	Layer Description	Source
Tribal Governments	Boundaries of Federally Recognized Tribes within Minnesota	Minnesota Geospatial Commons
Service Provider Boundaries	Service area boundaries of WAP service providers in Minnesota	
County Boundaries	Minnesota State County Boundaries	Minnesota Geospatial Commons

By Service Provider			
Specific-Layer	Layer Description	Source	
Equity Assessment Report	Contains a link to the Service Provider Baseline Equity Assessment Report and the Average Energy Burden for households at or below 200% FPL in the service area.	Minnesota Department of Commerce	
Demographics	 Contains the following information: Population Owner-Occupied Households Renter-Occupied Households Average Median Household Income Families Living At or Below 200% FPL Households with housing costs more than 30% of Income Weatherized Households The color coding represents the percentage of population in the Service Area that are BIPOC. 	'Weatherized Households' come from the Minnesota Department of Commerce. All the other variables are extracted from the 2019 5-Year American Community Survey (ACS).	

By Service Provider			
Specific-Layer	Layer Description	Source	
Weatherized Households	Contains the following information: Weatherized Households By Race Percent White Households Percent BIPOC Households Percent Black or African American Households Percent Asian Households Percent American Indian Households By Vulnerable Populations Percent Weatherized Households with Disabled Member(s) Percent Weatherized Households with Seniors Percent Weatherized Households with Children Percent Weatherized Households with Veterans The color coding for this layer represents the percentage of weatherized households that are BIPOC in the Service Provider area.	Minnesota Department of Commerce WAP Data, 2007-2020.	
Vulnerable Populations	Contains the following information: Percent of Households with Children Percent of Households with Veterans Percent of Households with Seniors Percent of Households with Disabled Member(s) The color coding represent the percent of Seniors (age > 65) living in the Service Provider area.	2019 5-Year American Community Survey (ACS)	

By Census Tract			
Specific-Layer	Layer Description	Source	
Disadvantaged Communities- CEJST	This layer highlights Census Tracts that are categorized as disadvantaged communities by the Council on Environmental Quality's Climate and Economic Justice Screening Tool. Tribal lands within Federally Recognized Tribes are designated as disadvantaged.	Climate and Environmental Justice Screening Tool (CEJST)	
HOLC Redlined Areas	The Home Owners' Loan Corporation (HOLC) maps were created in the 1930s as a federal program to classify neighborhoods in more than 200 U.S. cities and assess mortgage loan risk. Neighborhoods were classified into four color-coded categories: green (best), blue (still good), yellow (declining), and red (hazardous).	Nelson, Robert K., LaDale Winling, et al. "Mapping Inequality: Redlining in New Deal America." Edited by Robert K. Nelson and Edward L. Ayers. American Panorama: An Atlas of United States History, 2023. https:// dsl.richmond.edu/ panorama/redlining.	
Demographics	Contains the following information: Population Owner-Occupied Households Renter-Occupied Households Average Median Household Income Families Living At or Below 200% FPL Households with housing costs more than 30% of Income Weatherized Households Renter-Occupied Weatherized Households Owner-Occupied Weatherized Households The color coding for this layer represents the percentage of weatherized households that are BIPOC in the Census Tract.	Weatherized Households, Renter & Owner-Occupied Weatherized Households come from the Minnesota Department of Commerce. All the other variables are extracted from the 2019 5-Year American Community Survey (ACS).	
Housing Burden	Contains the following information: Households with housing costs more than 30% of income Percent of households with housing costs more than 30% of income The color coding shows the percentage of cost-burdened households in the Census Tract.	2019 5-Year American Community Survey (ACS)	

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By Census Tract			
Specific-Layer	Layer Description	Source	
Vulnerable Populations	Contains the following information: Percent of Households with Children Percent of Households with Veterans Percent of Households with Seniors Percent of Households with Disabled Member(s) The color coding represent the percent of Disabled in the Census Tract.	2019 5-Year American Community Survey (ACS)	
Energy Burden for Families at or below 200% FPL	This layer shows the Average Energy Burden for families at or below 200% FPL. The color coding shows the average energy burden (200% FPL) values for Census Tracts.	Department of Energy's Low-Income Energy Affordability Data (LEAD) Tool, 2022.	
Social Vulnerability Index	This layer shows the Social Vulnerability Index score for each Census Tract.	CDC/Agency for Toxic Substances and Disease Registry (ATSDR)	
Air Quality	This layer displays the absolute average value Particulate Matter (pm2.5) for each Census Tract.	US EPA EJScreen: Environmental Justice Screening Mapping Tool. The PM2.5 value is derived from the 2019 source data from EPA's Office of Air Quality Planning and Standards (OAQPS).	
Climate Vulnerability Index	This layer shows the Climate Vulnerability Index score for each Census Tract.	Environmental Defense Fund- U.S. Climate Vulnerability Index Data Warehouse.	