



**CLARK COUNTY**  
WASHINGTON  
PUBLIC HEALTH

## **CLIMATE & HEALTH EXPLORER**

### **Technical Notes**

#### **ABOUT**

The Clark County Climate and Health Explorer includes information about areas and population in Clark County that may be most affected by the impacts of climate on our health. Clark County Public Health (CCPH) compiled this information based on:

- A literature review to identify communities or populations that may be most burdened or affected by a changing climate or environment (priority populations)
- Available public health data on populations identified from the literature review, as well as measures of climate/environmental exposures

Local partners and organizations can use this information to better understand specific geographic areas and populations in Clark County that may be more exposed to climate impacts or have greater opportunities for climate resilience. The Explorer is meant to be used for:

- Educational or program purposes
- Making plans or preparing for climate events
- Grant writing

#### **CAVEATS**

This is an *initial* public health assessment of a combination of available population and climate data measures. This is a newer body of work for Clark County Public Health, and more resources or data tools on climate and health may be made available in the future. Data or findings may change over time when new information becomes available.

It does not include all climate and health data measures or indicators. For example, we do not have complete public health data available that can be mapped for some priority populations or climate exposures, even though we know they may be important to climate and health.

The Climate & Health Explorer is also not meant to represent individual exposure or risk.

## COMMON QUESTIONS

### ***How can I use the Climate & Health Explorer?***

Local partners and organizations can use the Climate & Health Explorer to better understand specific areas and populations in Clark County that may be more exposed to climate impacts or have greater opportunities for climate resilience. The Explorer data can be used for grant writing or funding applications, for educational or program purposes, or to support plans or preparing for climate events. For a demonstration of how to use the Explorer, go to the *Overview* section and click *About Explorer*.

### ***What is a census tract?***

A census tract is a “geography” or representation of a geographic area, like a zip code. Geography is central to the work of many data collection efforts, providing the framework for survey design and sampling, data collection, and reporting. Geographies like the zip code, census tract, school boundaries, or neighborhood boundaries, provide meaning and context to statistical data. Sometimes the boundaries are meaningful (e.g. how you identify with your neighborhood, or your school district) while others are purely administrative.

Census tracts were drawn by the U.S. Census Bureau and typically encompass an area with about 4,000 people in it. Tracts tend to follow existing boundaries (including city, county, and road boundaries). Click on [this link to learn more on the U.S. Census website](#). The Climate & Health Explorer also has the option to view maps with neighborhood or city boundaries.

### ***Why are some data measures included from past years?***

The data sources utilized in public health undergo rigorous processing and quality assurance at the state and/or national levels, which can take up to two years after data collection is complete. In addition, some data are collected only every other year (such as Healthy Youth Survey) or less frequently. We make every effort to provide the most recent data available at the time of publishing.

### ***Why are some measures about climate and health not included, like wildfires?***

We mapped climate and health measures that were available and most complete by census tracts in Clark County. We do not have complete public health data available that can be mapped for some priority populations or climate exposures, even though we know they may be important to climate and health. Some measures are only available at the county level or do not vary by census tract, which would be less useful for mapping in this project.

### ***Where can I find more information about climate and health?***

- [Washington Department of Health Climate and Health Program](#)
- [Centers for Disease Control and Prevention \(CDC\) Climate and Health Program](#)

For more common questions, please [visit our Definitions and FAQs website](#).

## METHODS

We mapped out 12 measures of priority populations and five measures of climate/environmental exposures by census tract across Clark County using ArcGIS Pro. Measures were selected based on the populations identified in a literature review, the connection to climate exposures, and the availability and completeness of data. Data used in this analysis was retrieved from the [Washington Tracking Network \(WTN\)](#) and [CDC PLACES](#) online tools, last pulled in August 2023.

### ***Maps with multiple measures combined***

Climate & Health Explorer includes three choropleth maps that combine several measures:

1. Overall combination map with all measures (17 measures)
2. Priority populations map that combines all priority population measures (12 measures)
3. Climate exposures map that combines all climate exposure measures (5 measures)

For each census tract, we created a combined estimate of all measures for priority populations, climate exposures, and both priority populations and climate exposures combined using z-scores. The methodology used for calculating the z-score was taken from the [County Health Rankings](#). Each measure was equally weighted in the analysis. For each combination map, a darker area on the map means a higher opportunity for climate resilience or higher “burden” (i.e., a higher percent of the population considered overburdened or a higher climate/environmental exposure rate). The three combination maps were created using five quantile breaks.

### ***Maps with individual measures***

Individual choropleth maps for each measure with percentages or counts by census tract are also included in the Explorer. For each individual measure maps, the darker areas on the map represent higher percentages or counts of that measure compared to the rest of the county. These maps also use five quantile breaks.

See below for more information about the measures included.

## Priority Population Measures

Climate & Health Explorer Section	Measure	Description	Data year	Source
Age	<b>Children Under Five-Years-Old</b>	The percent of the population that is under five-years-old.	2016-2020 5-year estimates	<a href="#">WTN</a>
	<b>Older Adults (65+ Years-Old)</b>	The percent of the population aged 65 years and older.	2015-2019 5-year estimates	<a href="#">WTN</a>
Race/Ethnicity	<b>Black, Indigenous and People of Color (BIPOC)</b>	The percent of the population who are people of color. People of color include all race/ethnicity categories except white/non-Hispanic. This includes Black, American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, multi-racial, and the ethnic grouping "Spanish/Hispanic/Latino".	2020	<a href="#">WTN</a>
Language	<b>Limited English Proficiency</b>	The percent of the population five years and older that speak English less than "very well" and "not at all".	2015-2019 5-year estimates	<a href="#">WTN</a>
Disability	<b>People with Disabilities</b>	The percent of the population with a disability. For more information on how disability is defined by the American Community Survey, see <a href="#">Disability - Census Reporter</a> .	2015-2019 5-year estimates	<a href="#">WTN</a>
Health Status	<b>People with Fair or Poor Health</b>	Estimated crude prevalence of fair or poor health among adults aged 18 years and older. (self-rated)	2021	CDC PLACES
	<b>People with Frequent Mental Distress</b>	Estimated crude prevalence of mental health not good for 14 or more days in the past month among adults aged 18 years and older.	2021	CDC PLACES
	<b>People with Frequent Physical Distress</b>	Estimated crude prevalence of physical health not good for 14 or more days in the past month among adults aged 18 years and older.	2021	CDC PLACES
Financial Security	<b>Low-income Populations</b>	The percent of the total population whose income was less than or equal to 185% of the federal poverty level within the past 12 months.	2015-2019 5-year estimates	<a href="#">WTN</a>
	<b>Unaffordable Housing</b>	Households spending greater than 30% of their monthly income on housing costs (includes both households with mortgages and renters).	2015-2019 5-year estimates	<a href="#">WTN</a>
	<b>Transportation Expense</b>	Percentage of income spent on transportation costs for moderate income households. The Center for Neighborhood Technology (CNT) defines regional moderate household income as a household income of 80 percent of the area median, the regional average household size, and the regional average commuters per household.	2019	<a href="#">WTN</a>
Education	<b>Without a High School Diploma</b>	The percent of the population over age 25 with less than a high school education.	2015-2019 5-year estimates	<a href="#">WTN</a>

## Climate Exposures Measures

Climate & Health Explorer Section	Measure	Description	Data year	Source
Heat	<b>Increased need for air conditioning (A/C)</b>	Change in Annual Cooling Degree Days (CDD) - the need to cool buildings and spaces. CDD are calculated using a day's average temperature and a baseline temperature of 65 degrees Fahrenheit. If the day's average temperature is 65 or below, the value is 0 (indicating no need for cooling). If the day's average temperature is above 65, it is calculated by subtracting 65 from the day's average temperature. For example, if a day's average temperature were 90 degrees, the day would have 25 CDD. For this measure, CDD were calculated for each cell for each day in the historical period (1976-2005) and future period (2036-2065). That total was then divided by 30 (the number of years) to produce the annual CDD for each period for each cell. The number of historical annual CDD was then subtracted from the number of future CDD. A positive number indicates that the future period will have more CDD, a negative number indicates fewer.	N/A	<a href="#">WTN</a>
	<b>Paved Surfaces</b>	The percent of developed land in each census tract, used as a proxy measure for urban heat.	2019	<a href="#">WTN</a>
Air Quality	<b>PM2.5 Concentration</b>	A measure of air quality using field concentrations of particulate matter (PM) which are 2.5 microns or less in diameter.	2014-2017	<a href="#">WTN</a>
	<b>Proximity to Heavy Traffic Roadways</b>	This map layer shows the maximum distance-weighted traffic along Washington highways for each census tract. Average Annual Daily Traffic (AADT) on highways is from a network of permanent and short-duration traffic counters. The units are maximum highway AADT (vehicles per day) / Distance to highway (km) or vehicles/day/km. This is used a proxy measure for air quality as air pollution near heavy traffic roadways tends to be worse because of vehicle emissions.	2019	<a href="#">WTN</a>
Flood Risk	<b>People in a Flood Zone</b>	Number of people per census tract living in a 100-year flood zone.	2020	<a href="#">WTN</a>

If you have questions, to let us know how you are using data from Clark County Public Health, request data updates, request data in a different format, or would like to request a demonstration on how to use the Climate & Health Explorer, please contact [CntyHealthHAE@clark.wa.gov](mailto:CntyHealthHAE@clark.wa.gov)

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