

Pierce County Equity Index Methodology Report

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Prepared for:





*Community Attributes Inc. tells data-rich stories about communities
that are important to decision-makers.*

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Introduction

The 2024 update of the Pierce Equity Index reflects a commitment to a comprehensive equity assessment. The Index encompasses sixty-five indicators and five sub-indices: Accessibility, Economy, Education, Environment, and Livability. This report outlines the changes and updates made in 2024, providing detailed information on each indicator or index and its calculation method.

Definition of Terms

- **Indicator:** An individual measure to assess well-being.
- **Index:** A cumulative measure of a set of defined indicators in each category.
- **Year:** The year in which the data were published.
- **Polarity:** Describes the desired outcome, reflecting preferences such as *reducing* car crashes and *increasing* park availability.
- **Unit:** Signifies the measurement unit of the indicator visible on the map.
- **Aggregation:** The method of consolidating data.
- **Scope:** Delineates the granularity of geographic data.

Calculation Methodology

A crucial aspect of the assessment involves calculating indicators based on land area. Notably, for block groups and census tracts encompassing water, this water area is excluded from the calculations. This approach ensures a focused and precise evaluation, especially when assessing factors influenced by spatial considerations.

Equity Overview and Determinant Categories

- **Livability:** This category includes housing cost burden, general health, crime, and crashes, this category focuses on the quality-of-life aspects within the region.
- **Accessibility:** This category delves into the ease of access to resources and services, highlighting the availability and proximity of essential facilities.
- **Economy:** This category focuses on financial factors such as jobs, poverty, and income, providing insights into the economic well-being of the community.
- **Education:** This category evaluates the educational landscape within the region and includes educational attainment, student mobility, and testing proficiency.
- **Environment:** This category assesses the impact of the environment on the community's well-being.

Index Calculations

The Equity Index is composed of five indices (Accessibility, Economy, Education, Environmental Health, and Livability), shown in **Exhibit 1**. These indices are made of individual indicators. The table below shows which indicators are included in and

excluded from the index calculation. Please note that all Demographic indicators are excluded from the index calculations.

2024 Updates

- **Data Refresh:** All data have been updated to reflect the most recent available information.
- **Data Source Optimization:** Sources were changed to ensure accuracy and currency, focusing on more up-to-date data from reliable outlets.
 - For Total Retail Employees, the source was switched from EPA Smart Location Database to the Pierce County Open Data Portal and Esri's Business Analyst.
 - The Average Life Expectancy metric was changed to Percent Low Life Expectancy and the source was updated to EPA's EJScreen data source due to newer data and more frequent updates.

This updated equity index is a valuable resource for community members invested in improving the factors that impact positive life outcomes, offering a comprehensive and detailed analysis of Pierce County across determinant categories of well-being and equity.

Exhibit 1. Equity Index Components

Index Category	Included in Index	Excluded from Index
Accessibility	<i>9 indicators</i>	<i>0 indicators</i>
	Parks & Open Space (<i>composite of Neighborhood Parks, Community Parks, and Regional Parks</i>) Voter Participation Rate Healthy Food Availability Households with Internet Transit Access Score Library Access Total Retail Employees Household Vehicle Access Average Pavement Condition	
Economy	<i>5 indicators</i>	<i>2 indicators</i>
	200% of Poverty Jobs Index Median Household Income Unemployment Rate Median Home Value	*Poverty Rate **Homeownership Rate
Education	<i>5 indicators</i>	<i>0 indicators</i>
	Average Student Mobility Average Testing Proficiency Educational Attainment Index High School Graduation Rate Kindergarten Readiness Rate	
Environmental	<i>4 indicators</i>	<i>0 indicators</i>
	Diesel Emissions Ozone Concentration PM _{2.5} Particulates Proximity to Heavy Traffic Roadways	
Livability	<i>7 indicators</i>	<i>0 indicators</i>
	Personal Crime Property Crime Cost-Burdened Households (<i>composite of Owner Cost Burden and Renter Cost Burden</i>) Percent Low Life Expectancy Uninsured Rate Fair or Poor Health Pedestrian and Bicyclist Crashes	

*Poverty Rate is excluded from the to avoid being duplicative of 200% of Poverty
 ** Homeownership Rate is excluded from the index to avoid being duplicative of Median Home Value

Indices

Equity Index

Description

This overall score is the average of each sub-index (Accessibility, Economy, Education, Environment, and Livability). See Exhibit 1 for a detailed breakdown of the index components.

Calculation Method

Compute the final equity index by averaging the Accessibility, Livability, Education, Economic, and Environment Indexes across the analyzed area. Text definitions are assigned based on quintile:

- Very Low (20th percentile)
- Low (21st to 40th percentile)
- Moderate (41st to 60th percentile)
- High (61st to 80th percentile)
- Very High (81st to 100th percentile)

Importance

This comprehensive indicator provides a high-level overview of equity across multiple categories.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Calculated by CAI

Accessibility Index

Description

Average of Z-Scores of each of the following indicators in the Accessibility category:

- Parks & Open Space (*composite of Neighborhood Parks, Community Parks, and Regional Parks*)
- Voter Participation Rate
- Healthy Food Availability
- Households with Internet
- Transit Access Score
- Library Access
- Total Retail Employees
- Household Vehicle Access
- Average Pavement Condition

Calculation Method

This index is calculated by taking the average of the Z-scores of accessibility indicators in the geographic area of analysis. Text definitions are assigned based on quintile:

- Very Low (20th percentile)
- Low (21st to 40th percentile)
- Moderate (41st to 60th percentile)
- High (61st to 80th percentile)
- Very High (81st to 100th percentile)

Importance

This comprehensive indicator provides a high-level overview of equity in community resource access. Greater accessibility in a community can promote economic, mental, physical, and environmental well-being.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source
Calculated by CAI

Economy Index

Description

Average of Z-Scores of each of the following indicators in the Economy category:

- 200% of Poverty
- Jobs Index
- Median Household Income
- Unemployment Rate
- Median Home Value

Calculation Method

This index is calculated by taking the average of the Z-scores of Economy indicators in the geographic area of analysis. Text definitions are assigned based on quintile:

- Very Low (20th percentile)
- Low (21st to 40th percentile)
- Moderate (41st to 60th percentile)
- High (61st to 80th percentile)
- Very High (81st to 100th percentile)

Importance

This comprehensive indicator provides a high-level overview of equity in community economic well-being.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Calculated by CAI

Education Index

Description

Average of Z-Scores of each of the following indicators in the Education category:

- Average Student Mobility
- Average Testing Proficiency
- Educational Attainment Index
- High School Graduation Rate
- Kindergarten Readiness Rate

Calculation Method

This index is calculated by taking the average of the Z-scores of Education indicators in the geographic area of analysis. Text definitions are assigned based on quintile:

- Very Low (20th percentile)
- Low (21st to 40th percentile)
- Moderate (41st to 60th percentile)
- High (61st to 80th percentile)
- Very High (81st to 100th percentile)

Importance

This comprehensive indicator provides a high-level overview of equity in community education.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Calculated by CAI

Environmental Index

Average of Z-Scores of each of the following indicators in the Environmental Health category:

- Diesel Emissions
- Ozone Concentration
- Proximity to Heavy Traffic Roadways
- PM_{2.5} Particulates

Calculation Method

This index is calculated by taking the average of the Z-scores of Environmental indicators in the geographic area of analysis. Text definitions are assigned based on quintile:

- Very Low (20th percentile)
- Low (21st to 40th percentile)
- Moderate (41st to 60th percentile)
- High (61st to 80th percentile)
- Very High (81st to 100th percentile)

Importance

This comprehensive indicator provides a high-level overview of equity in community environmental well-being. Environmental factors play a pivotal role in health.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Calculated by CAI

Livability Index

Description

Average of Z-Scores of each of the following indicators in the Livability category:

- Personal Crime
- Property Crime
- Cost-Burdened Households (*composite of Owner Cost Burden and Renter Cost Burden*)
- Percent Low Life Expectancy
- Uninsured Rate
- Fair or Poor Health
- Pedestrian and Bicyclist Crashes

Calculation Method

This index is calculated by taking the average of the Z-scores of Livability indicators in the geographic area of analysis. Text definitions are assigned based on quintile:

- Very Low (20th percentile)
- Low (21st to 40th percentile)
- Moderate (41st to 60th percentile)
- High (61st to 80th percentile)
- Very High (81st to 100th percentile)

Importance

This comprehensive indicator provides a high-level overview of equity in the livability of a community.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Calculated by CAI

Metrics

Demographics

American Indian/Alaska Native

Description

Percent of block group population that identifies as American Indian or Alaskan Native.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race but are counted distinctly. The US Census defines American Indian/Alaska Native as: "A person having origins in any of the original peoples of North and South America (including Central America) and who maintains tribal affiliation or community attachment. This category includes people who indicate their race as "American Indian or Alaska Native" or report entries such as Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, or Nome Eskimo Community."

Total population that identifies as American Indian and Alaska Native alone divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B03002?q=B03002&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B03002?q=B03002&g=050XX00US53053$150000)

Asian

Description

Percent of block group population that identifies as Asian.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race but are counted distinctly. The US Census defines Asian as, "A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, India, China, the Philippine Islands, Japan, Korea, or Vietnam. It includes people who indicate their race as "Asian Indian," "Chinese," "Filipino," "Korean," "Japanese," "Vietnamese," and "Other Asian" or provide other detailed Asian responses such as Pakistani, Cambodian, Hmong, Thai, Bengali, Mien, etc."

Total population that identifies as Asian alone divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B03002?q=B03002&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B03002?q=B03002&g=050XX00US53053$150000)

Black/African American

Description

Percent of block group population that identifies as Black or African American.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race. Individuals can choose to report more than one race or some other race but are counted distinctly. The US Census defines Black or African American as, "A person having origins in any of the Black racial groups of Africa. It includes people who indicate their race as "Black or African American" or report responses such as African American, Jamaican, Haitian, Nigerian, Ethiopian, or Somali. The category also includes groups such as Ghanaian, South African, Barbadian, Kenyan, Liberian, Bahamian, etc."

Total population that identifies as Black or African American alone divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

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Hispanic/Latino of any Race(s)

Description

Percent of block group population that identifies as Hispanic or Latino ethnicity.

Calculation Method

Race and ethnicity data are based on self-identification. This category includes all individuals who responded that their ethnicity. The US Census defines "Hispanic or Latino" as a person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin regardless of race."

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

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Native Hawaiian/Pacific Islander

Description

Percent of block group population that identifies as Native Hawaiian or Pacific Islander.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race but are counted distinctly. The US Census defines Native Hawaiian or Pacific Islander as “a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. It includes people who indicate their race as “Native Hawaiian,” “Chamorro,” “Samoa,” and “Other Pacific Islander” or provide other detailed Pacific Islander responses such as Palauan, Tahitian, Chuukese, Pohnpeian, Saipanese, Yapese, etc.”

Total population that identifies as Native Hawaiian and Other Pacific Islander alone divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

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Other Race

Description

Percent of block group population that identifies as other race.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race. According to the US Census, "Some Other Race: Includes all other responses not included in the "White," "Black or African American," "American Indian or Alaska Native," "Asian," and "Native Hawaiian or Other Pacific Islander" race categories described above. Respondents reporting entries such as multiracial, mixed, interracial, or a Hispanic, Latino, or Spanish group (for example, Mexican, Puerto Rican, Cuban, or Spanish) in response to the race question are included in this category."

Total population that identifies as some other race alone divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACSDT5Y2022.B03002?q=B03002&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACSDT5Y2022.B03002?q=B03002&g=050XX00US53053$1500000)

White

Description

Percent of block group population that identifies as White.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race. The US Census defines White as “a person having origins in any of the original peoples of Europe, the Middle East, or North Africa. It includes people who indicate their race as “White” or report responses such as German, Irish, English, Italian, Lebanese, and Egyptian. The category also includes groups such as Polish, French, Iranian, Slavic, Cajun, Chaldean, etc.”

Total population that identifies as white divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B03002?q=B03002&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACS5Y2022.B03002?q=B03002&g=050XX00US53053$1500000)

Two or More Races

Description

Percent of block group population that selects two or more races.

Calculation Method

Race data is based on self-identification. Individuals can choose to report more than one race or some other race. The US Census defines Two or More races as “people may choose to provide two or more races either by checking two or more race response check boxes, by providing multiple responses, or by some combination of check boxes and other responses. The race response categories shown on the questionnaire are collapsed into the five minimum race groups identified by OMB, and the Census Bureau’s “Some other race” category. For data product purposes, “Two or More Races” refers to combinations of two or more of the following race categories: 1. White 2. Black or African American 3. American Indian or Alaska Native 4. Asian 120 5. Native Hawaiian or Other Pacific Islander 6. Some Other Race"

Total population that identifies as two or races divided by the total population.

Importance

Knowing a community's ethnic and racial makeup can help in understanding the culture and identifying potential racial inequalities and barriers.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACSDT5Y2022.B03002?q=B03002&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACSDT5Y2022.B03002?q=B03002&g=050XX00US53053$1500000)

Foreign Born

Description

Percent of population that is foreign born.

Calculation Method

The foreign population is considered anyone who was not a U.S. citizen at birth. This includes both citizens who are a U.S citizen by naturalization and those who are not a U.S. citizen.

This metric is calculated by dividing the foreign-born population by the total population.

Importance

Foreign-born residents may need specific program support.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Average

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B05002?q=B05002&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACS5Y2022.B05002?q=B05002&g=050XX00US53053$1400000)

Individuals with Disabilities

Description

Percentage of non-institutionalized population within the block group with disability.

Calculation Method

“An individual with a disability is defined by the ADA as a person who has a physical or mental impairment that substantially limits one or more major life activities, a person who has a history or record of such an impairment, or a person who is perceived by others as having such an impairment. The ADA does not specifically name all of the impairments that are covered.”

This indicator is calculated by summing males and females with a disability in the age ranges under 5, 5 to 17 years, 18 to 34 years, 35 to 64 years, 65 to 74 years, and 75 years and over divided by the total civilian noninstitutionalized population.

Importance

People with a disability or disabilities may be at a greater risk of adverse impacts from built social and environmental environments.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Average

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B18101?q=B18101&g=050XX00US53053\\$140000](https://data.census.gov/table/ACS5Y2022.B18101?q=B18101&g=050XX00US53053$140000)

Total Population

Description

Total count of population.

Calculation Method

Count of total population.

Importance

Data is used in some indicator calculations. It also represents how populated a block group is.

Year

2022

Polarity

Neutral

Unit

Integer

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2020.B01003?q=B01003&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACS5Y2020.B01003?q=B01003&g=050XX00US53053$1500000)

Population 18 to 64

Description

Population aged 18 to 64.

Calculation Method

Data on age are based on the age of the person in complete years at the time of the interview. To calculate the most accurate age, respondents were asked to provide age and date of birth.

This metric is calculated by summing males and females in age ranges 18 to 19 years old, 20 years, 21 years, 22 to 24 years, 25 to 29 years, 30 to 34 years, 35 to 39 years, 40 to 44 years, 45 to 49 years, 50 to 54 years, 55 to 59 years, 60 to 61 years, and 62 to 64 years then dividing by the total population.

Importance

This population is generally considered to be working-age and the primary group composing the workforce.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B01001?q=B01001&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACS5Y2022.B01001?q=B01001&g=050XX00US53053$1500000)

Population 65 and Above

Description

Population aged 65 and above.

Calculation Method

Data on age are based on the age of the person in complete years at the time of the interview. To calculate the most accurate age, respondents were asked to provide age and date of birth.

This metric is calculated by summing males and females in age ranges 65 and 66 years old, 67 to 69 years, 70 to 74 years, 75 to 79 years, 80 to 84 years, and 85 years and over then dividing by the total population.

Importance

Understanding the proportion of residents who are 65+ may help to determine areas where additional programs and services for this population may be beneficial.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B01001?q=B01001&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACS5Y2022.B01001?q=B01001&g=050XX00US53053$1500000)

Population Under 18

Description

Population under 18.

Calculation Method

Data on age are based on the age of the person in complete years at the time of the interview. To calculate the most accurate age, respondents were asked to provide age and date of birth.

This metric is calculated by summing males and females in the age ranges under 5 years old, 5 to 9 years, 10 to 14 years, and 15 to 17 years then dividing by the total population.

Importance

Understanding the proportion of residents who are under 18 may help to determine areas where additional programs and services for this population may be beneficial.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B01001?q=B01001&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACS5Y2022.B01001?q=B01001&g=050XX00US53053$1500000)

Language Spoken at Home

Korean Speaking

Description

Population that is Korean speaking.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home. Population 5 years and over that speak Korean divided by the total population 5 years and over.

Importance

Knowing a community's most frequently spoken language can help in understanding the culture and improving civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACSDT5Y2022.C16001?q=C16001&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACSDT5Y2022.C16001?q=C16001&g=050XX00US53053$1400000)

Other Asian/Pacific Island Languages Spoken

Description

Population that is other Asian / Pacific Island languages speaking.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home.

Population 5 years and over that speak other Asian and Pacific Island languages divided by the total population 5 years and over.

Importance

Knowing a community's most frequently spoken language can help in understanding the culture and improving civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053$1400000)

Russian / Polish / Slavic Languages Spoken

Description

Population that is Russian / Polish / Slavic languages speaking.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home.

Population 5 years and over that speak Russian, Polish, or other Slavic languages divided by the total population 5 years and over.

Importance

Knowing a community's most frequently spoken language can help in understanding the culture and improving civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053$1400000)

Spanish Speaking

Description

Population that is Spanish speaking.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home.

Population 5 years and over that speak Spanish divided by the total population 5 years and over.

Importance

Knowing a community's most frequent spoken language can help in understanding the culture and improving civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053$1400000)

Tagalog Speaking

Description

Population that is Tagalog speaking.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home.

Population 5 years and over that speak Tagalog (including Filipino) divided by the total population 5 years and over.

Importance

Knowing a community's most frequently spoken language can help in understanding the culture and improving civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053$1400000)

Vietnamese Speaking

Description

Population that is Vietnamese speaking.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home.

Population 5 years and over that speak Vietnamese divided by the total population 5 years and over.

Importance

Knowing a community's most frequently spoken language can help in understanding the culture and improving civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053\\$1400000](https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053$1400000)

Limited English

Description

Percent of population with limited English proficiency.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home. Respondents who reported speaking a language other than English were asked to indicate their English-speaking ability based on one of the following categories: “Very well,” “Well,” “Not well,” or “Not at all.”

This metric sums the population 5 years and over that speak Spanish, other Indo-European languages, Asian and Pacific Island languages, and speak other languages that speak English "not well" and "not at all" divided by the total population 5 years and older.

Importance

Communities with high levels of linguistic isolation experience greater civil engagement barriers and is an indicator of social vulnerability.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACSDT5Y2022.B16004?q=B16004&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACSDT5Y2022.B16004?q=B16004&g=050XX00US53053$1500000)

Other than English Speaking

Description

Population that speaks a language other than English.

Calculation Method

The population 5 years and over were asked about their primary language spoken at home.

Total population 5 years and over minus total population 5 years and over that speak only English.

Importance

Knowing a community's most frequently spoken language can help understand the culture and improve civil engagement.

Year

2022

Polarity

Neutral

Unit

Percentage

Aggregation

Sum

Scope

Census Tract

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053\\$140000](https://data.census.gov/table/ACS5Y2022.C16001?q=C16001&g=050XX00US53053$140000)

Accessibility

Average Pavement Condition

Description

Aggregates the average quality of roads in a block group. Lower scores indicate poorer road quality, resulting in higher repair costs to the local municipality.

Calculation Method

The pavement condition index (PCI) is a numerical index between 0 and 100, used to indicate a pavement section's general condition. The PCI is widely used in transportation, civil engineering, and asset management, and many municipalities use it to measure the performance of their road infrastructure and their service levels. It is a statistical measure and requires a manual survey of the pavement.

Pierce County Planning and Public Works supplied pavement conditions report, which details the conditions of road segments within the county. The PCI value for a block group is calculated by averaging all the roads' PCI's.

This indicator represents the average PCI value of the roads intersecting a geographic area, i.e., block group. The PCI is divided into seven classes per the American Society of Testing and Materials:

1. 85-100: Good
2. 70-85: Satisfactory
3. 55-70: Fair
4. 40-55: Poor
5. 25-40: Very Poor
6. 10-25: Serious
7. 0-10: Failed

Importance

Maintenance of the road system supports access and community connection.

Year

2023

Polarity

Higher is better

Unit

Integer

Aggregation

Average

Scope

Block Group

Source

Pierce County Planning and Public Works | Pierce County Road Conditions

Community Parks

Description

Percent of block groups within 1 mile of community parks.

Calculation Method

PSRC's Regional Open Space Conservation Plan defines parks as neighborhood (less than 10 acres), community (10 to 100 acres), and regional parks (area larger than 100 acres) according to the American Planning Association's Planning and Urban Design Guidelines. Park service areas were defined from the Washington State Recreation and Conservation Office's level of service guidelines. Neighborhood park service areas are considered half a mile, community park service areas are considered 1 mile, and regional park service areas are considered 10 miles. The parks' centroids were generated, and the service areas were created from those points.

Community park access was calculated by summing the acres of the community park service areas within a block group and dividing it by the block group's total area. The unit ranges from 0 to 100%, with 100% meaning a block group is entirely within the community park service area.

Importance

Access to parks and open space can encourage increased physical activity, improved mental health, and community connectedness.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Puget Sound Regional Center | Puget Sound Regional Center Data Portal

Source URL

<https://psrc-psregcncl.hub.arcgis.com/apps/regional-open-space-network-1/explore>

Healthy Food Availability

Description

A weighted index that rates the access to healthy food outlets. Weighted scoring for healthy versus less healthy food outlets allows for differentiation between outlet types within block groups. A ½ mile buffer was used for food outlets in urban areas, and a 10-mile buffer was used for food outlets in rural areas. The indicator was normalized on a scale of 1-100.

Calculation Method

Using Esri Business Analyst data, download food outlet point locations by NAICS codes that are defined as healthy and non-healthy per the Kirwan Methodology. Healthy outlets are defined as NAICS 445110 with employees greater than or equal to 10, 445230, and 455211. Non-healthy food outlets are defined as NAICS 445110 with employees less than or equal to 3, 445131, and 722513. Partial food sources are considered farmers markets per the Kirwan Methodology as they are not year-round and require public investment, but are still better than a non-healthy outlet or no outlet as options. Food outlets are given a 1/2 mile service area if they fall within urban areas and a 10-mile service area if they fall within rural areas, defined by the USDA Food Access Research Atlas research methodology. Urban and rural areas are defined by the U.S. Census Bureau.

Once service areas are identified, we calculate the count of service area overlaps to get weighted scores and their total acreages. Healthy food outlets are weighted by multiplying the service area overlap counts by 1. This scoring allows for overlapping options of healthy food outlets that score as a bonus. Less healthy food outlets are weighted by multiplying the service areas' overlap counts by the maximum count as a decimal. We do not want a score of 1 or higher for this portion of the index because less healthy options are not preferred but are better than no access at all and 1 is a benchmarked value used to indicate access to healthy outlets. Partial food outlets are weighted by dividing the service area overlap counts by the highest service area overlapping count in the dataset and multiplying by 2. This scoring allows for overlapping options of partial food outlets that score as a bonus.

The total weighted scores are summed by block group along with their total acreages. The summed service area acreages are divided by the block group's total acreage and then multiplied by the summed weighted scores.

Importance

Access to healthy food impacts physical health and mental well-being.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

ESRI | ESRI Business Analyst, Pierce County Planning and Public Works | Pierce County Farmers Markets

Source URL

<https://cainc.maps.arcgis.com/home/item.html?id=87d874e12a1847119acb056d000446d2>

<https://www.piercecountywa.gov/5284/Farmers-Markets>

Household Vehicle Access

Description

Percentage of block group households with access to a household vehicle.

Calculation Method

The American Community Survey (ACS) provides data on the percentage of occupied households that have access to at least one vehicle. This information is derived from Housing Question 12

The ACS data categorizes occupied households into owned and rented, but for this calculation, these categories were not differentiated in the count of total occupied households. To determine the percentage of households with access to a vehicle, the total number of occupied households with a vehicle is divided by the total number of occupied households. This calculation provides an estimate of the proportion of households that have access to a vehicle based on the available ACS data.

Importance

Access to a household vehicle increases mobility, particularly in rural areas, where transit service is less frequent.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B25044?q=B25044&t=Transportation&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B25044?q=B25044&t=Transportation&g=050XX00US53053$150000)

Households with Internet

Description

The percentage of households with access to home internet.

Calculation Method

Internet access is defined as the percentage of households that can connect to the Internet. This calculation is based on data from the American Community Survey, which provides insights into the presence or availability of internet connections within households.

The focus of this calculation is on determining the extent to which households have the means to connect to the Internet, without considering whether they pay for the service. It recognizes that access to the online world is a crucial aspect of modern living and encompasses the ability to use or connect to the internet, regardless of the specific payment arrangements.

By measuring access as the percentage of households with internet connectivity, we gain insights into the level of digital inclusion within a given population. This metric allows us to assess the availability of Internet services and the potential for individuals within these households to engage with online resources, services, and opportunities.

It is important to note that this calculation does not differentiate based on whether the household members pay for the internet service. Instead, it focuses on the broader aspect of access, indicating the proportion of households that can connect to the Internet and take advantage of the benefits it offers.

Importance

Access to home internet provides connection to online education, telemedicine, financial services, and expanded employment opportunities.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACSDT5Y2022.B28002?q=B28002&g=050XX00US53053\\$150000](https://data.census.gov/table/ACSDT5Y2022.B28002?q=B28002&g=050XX00US53053$150000)

Library Access

Description

Percent of block group within 1/2 mile of a library in urban areas and 10 miles of a library in rural areas.

Calculation Method

The Washington Geospatial Open Data portal provides a comprehensive collection of library point locations across the state, encompassing public, academic, medical, law, government, and tribal libraries.

To determine the extent of library service, the portal takes into account the distinction between urban and rural areas using the US Census urban-rural differentiator. The designated library service area represents the geographical region within which the library aims to serve the surrounding community. For consistency in reflecting boundaries, the service radius for libraries is set to be equal to urban and rural boundaries used in the Health Food Access indicator, which is a 1/2-mile radius for urban and a 10-mile radius for rural areas of the library location.

Library access is represented by dividing the library service area coverage within a block group by the total area of the block group which will range from 0% to 100%. By examining the relationship between the library service area and the block group's total area, we can gauge the accessibility and coverage of library services for residents within that specific geographic unit.

Importance

Libraries increase access to information, resources, technology, and community connection.

Year

2021

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Washington Geoservices | Washington Geospatial Open Data Portal

Source URL

<https://geo.wa.gov/datasets/washington-library-locations/explore?location=47.141555%2C-120.841168%2C8.00>

Neighborhood Parks

Description

Percent of block group within 1/2 mile of neighborhood parks.

Calculation Method

PSRC's Regional Open Space Conservation Plan defines parks as neighborhood (less than 10 acres), community (10 to 100 acres), and regional parks (area larger than 100 acres) according to the American Planning Association's Planning and Urban Design Guidelines. Park service areas were defined from the Washington State Recreation and Conservation Office's level of service guidelines. Neighborhood park service areas are considered half a mile, community park service areas are considered 1 mile, and regional park service areas are considered 10 miles. The parks' centroids were generated, and the service areas were created from those points.

Neighborhood park access was calculated by summing the acres of the neighborhood park service areas within a block group and then dividing it by the block group's total area. The unit ranges from 0 to 100%, with 100% meaning a block group is completely within the neighborhood park service area.

Importance

Access to parks and open space can encourage increased physical activity, improved mental health, and community connectedness.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Puget Sound Regional Center | Puget Sound Regional Center Data Portal

Source URL

<https://psrc-psregcncl.hub.arcgis.com/apps/regional-open-space-network-1/explore>

Parks & Open Space

Description

Percentage of a block group's area within 1/2 mile of neighborhood parks, 1 mile of community parks, and 10 miles of regional parks divided by total block group area. Overlapping park areas yield higher totals, meaning greater park access. Park classifications per PSRC urban open space plan.

Calculation Method

PSRC's Regional Open Space Conservation Plan defines parks as neighborhood (less than 10 acres), community (10 to 100 acres), and regional parks (area larger than 100 acres) according to the American Planning Association's Planning and Urban Design Guidelines. Park service areas were defined from the Washington State Recreation and Conservation Office's level of service guidelines. Neighborhood park service areas are considered half a mile, community park service areas are considered 1 mile, and regional park service areas are considered 10 miles. The parks' centroids were generated, and the service areas were created from those points.

Park and open space access was calculated by summing the acres of the regional, community, and neighborhood park service areas within a block group and then dividing it by the block group's total area. The unit ranges from 0 to 300%, with 300% meaning a block group is completely within regional, community, and neighborhood park service areas.

Importance

Access to parks and open space can encourage increased physical activity, improved mental health, and community connectedness.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Puget Sound Regional Center | Puget Sound Regional Center Data Portal

Source URL

<https://psrc-psregcncl.hub.arcgis.com/apps/regional-open-space-network-1/explore>

Regional Parks

Description

Percent of block groups within 10 miles of regional parks.

Calculation Method

PSRC's Regional Open Space Conservation Plan defines parks as neighborhood (less than 10 acres), community (10 to 100 acres), and regional parks (area larger than 100 acres) according to the American Planning Association's Planning and Urban Design Guidelines. Park service areas were defined from the Washington State Recreation and Conservation Office's level of service guidelines. Neighborhood park service areas are considered half a mile, community park service areas are considered 1 mile, and regional park service areas are considered 10 miles. The parks' centroids were generated, and the service areas were created from those points.

Regional park access was calculated by summing the acres of the regional park service areas within a block group and then dividing it by the block group's total area. The unit ranges from 0 to 100%, with 100% meaning a block group is completely within the regional park service area.

Importance

Access to parks and open space can encourage increased physical activity, improved mental health, and community connectedness.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Puget Sound Regional Center | Puget Sound Regional Center Data Portal

Source URL

<https://psrc-psregcncl.hub.arcgis.com/apps/regional-open-space-network-1/explore>

Total Retail Employees

Description

Total number of employees by place of work within a block group in retail service categories.

Calculation Method

PSRC Covered Employment Estimates data are based on the Washington State Employment Security Departments (ESD) Quarterly Census of Employment and Wages (QCEW) series (formerly known as ES-202). This series consists of employment for those firms, organizations, and individuals whose employees are covered by the Washington Unemployment Insurance Act. PSRC's Covered Employment Estimates data summarize employment from PSRC's point-level workplace employment dataset. The data represents a census of covered employers within the Puget Sound Region. Using the PSRC's covered employment data by census tract - major sector retail column, we calculate the proportion of jobs by census tract to block groups based on total employment.

Where aggregate employment values represent fewer than three reporting firms, or when a single employer accounts for more than 80 percent of jobs, the value is withheld and marked as suppressed. To account for this, major sector employment numbers were summed and subtracted from the total employment to calculate the total suppressed data. The total suppressed data was equally distributed across the suppressed employment major sectors.

Importance

Retail services that are close to communities provide needed services and support the local economy.

Year

2022

Polarity

Higher is better

Unit

Integer

Aggregation

Sum

Scope

Block Group

Source

Pierce County | Pierce County Open Data Portal, ESRI | ESRI Business Analyst

Source URL

<https://psrc-psregcncl.hub.arcgis.com/datasets/PSREGCNCL::covered-employment-by-census-tract-major-sector/explore>

Transit Access Score

Description

Acreage of a block group's area within 1/4 mile of rail and bus service stops, within 3 miles of park and ride locations, and micro transit service areas divided by total block group area. Overlapping transit areas yield higher totals, meaning greater transit access. The indicator was normalized on a 1-100 scale.

Calculation Method

The Sound Transit Open Transit Data initiative brings together schedules and data from various transit agencies including King County Metro, Pierce Transit, InterCity Transit, Community Transit, Sound Transit, Washington State Ferries, Seattle Center Monorail, and Everett Transit. The consolidated data set, known as the GTFS Schedule File Set, combines regional GTFS bundles and addresses any overlapping data conflicts found in shapes, routes, stops, and trips across the agencies.

To determine transit service areas, a 1/4 mile radius is assigned to rail and bus stops. This distance is commonly used in public transit research and represents an average five-minute walk. It helps assess the reach of public transportation within neighborhoods and access to nearby destinations. Additionally, park and ride locations are assigned a 3-mile service area to accommodate commuters, especially those traveling longer distances. These areas allow commuters to conveniently park their vehicles or bikes and complete their journey using alternative transportation modes. Micro transit areas for Spanaway, Tideflats, and Ruston were provided by Pierce County Transit and Paratransit service, which allows agencies to offer riders an on-demand option that is more flexible than designated fixed routes and appointment-like paratransit and allows for individual service in response to demand.

To calculate transit access for a block group, we sum all service areas of all transit and divide by the block group's total area. The presence of overlapping transit service areas contributes to higher totals, indicating greater transit access within the block group.

Importance

Transit options increase access to essential services, amenities and employment.

Year

2023

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Sound Transit | Open Transit Data, Pierce County | Pierce County Open Data Portal, Pierce County | Pierce County Transit

Source URL

<https://www.soundtransit.org/help-contacts/business-information/open-transit-data-otd/otd-downloads>, <https://open.piercecountywa.gov/dataset/Park-and-Ride-Lots/7ipt-5vhz>

Voter Participation Rate

Description

The percentage of voters who voted in the general election is divided by the number of eligible voters in the block group. This evaluates voter participation and can be used to determine access to civic processes.

Calculation Method

The American Community Survey provides detailed information on citizens aged 18 and above, serving as the basis for determining eligibility within the voting population. The dataset includes individuals aged 18 years or older at the time of the interview, and the information is obtained using data on age and citizenship status. The Washington State Secretary of State Elections maintains a list of address point locations for ballots that have been returned for the general election every year, which we subsequently geocode.

To calculate the voting participation percentage, we aggregate the number of returned geocoded ballots per block group. This total is then divided by the citizen voting-age population, as determined by the data derived from the American Community Survey. The resulting percentage indicates the level of voting participation within each block group.

By using this calculation, we gain insights into the extent to which eligible citizens exercise their voting rights. It allows us to evaluate the level of civic engagement and participation in the electoral process at the block group level.

Importance

Voting is a significant measure of participation in civic life. This metric captures both the barriers to registration and level of civic engagement.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Washington Secretary of State | Election Results and Voters' Pamphlets, U.S.
Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://www.sos.wa.gov/elections/data-research/2022-general-election,](https://www.sos.wa.gov/elections/data-research/2022-general-election)
[https://data.census.gov/table/ACSDT5Y2022.B29001?q=B29001&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACSDT5Y2022.B29001?q=B29001&g=050XX00US53053$1500000)

Economy

200% of Poverty

Description

Percent of individuals within block group earning less than 200% of the Federal Poverty Level.

Calculation Method

If a family's total income falls below a specific threshold, as determined by the Federal Poverty Level, the family and each individual within it are considered to be in poverty. The Federal Poverty Level is a standard used by the federal government to determine eligibility for various subsidies and assistance programs. It relies on census data to estimate the number of people living in poverty and establishes a threshold that qualifies households or individuals as living in poverty.

Poverty status is determined for all individuals except those who are institutionalized, in military group quarters, in college dormitories, or unrelated individuals under 15 years old. These specific groups are excluded from the calculation of poverty rates.

The 2021 federal poverty line for one person is \$12,880. That income threshold increases by \$4,540 for each additional person within the family/household. A ratio is used to assign individuals to a poverty level designation.

The poverty rate metric is calculated by subtracting the number of individuals in the 2.00 and over poverty range from the total population for whom poverty status is determined and dividing by the total population for whom poverty status is determined.

Importance

Lower poverty rates show better access to living-wage jobs and economic stability.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C17002?q=C17002&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.C17002?q=C17002&g=050XX00US53053$150000)

Homeownership Rate

Description

Owner occupied housing-unit rate by block group.

Calculation Method

Housing Question 14 in the American Community Survey, which provides information on housing tenure for individuals. The question specifically pertains to occupied housing units, which are classified as either owner-occupied or renter-occupied.

A housing unit is considered owner-occupied when the owner or co-owner resides in the unit, regardless of whether there is a mortgage or outstanding payments. In contrast, all occupied housing units that are not owner-occupied, including rented units or those occupied without payment of rent, are classified as renter-occupied.

To calculate the tenure indicator, we divide the number of owner-occupied housing units by the total number of occupied housing units. This calculation allows us to determine the percentage of owner-occupied housing units among all occupied housing units, providing insights into the proportion of households that own their homes within the surveyed area.

Importance

Homeownership is correlated with building wealth and increased stability.

Year

2022

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B25003?q=b25003&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B25003?q=b25003&g=050XX00US53053$150000)

Jobs Index

Description

The Quality Jobs Index comes directly from the Longitudinal Employer-Household Dynamics (LEHD) program, operated by the U.S. Census Bureau's Center for Economic Studies. The index counts jobs in an area, based on place of work, among three wage categories: 1) Less than \$15,000, 2) \$15,000 - \$40,000, 3) More than \$40,000 per year. The index ranges in value from 0.01 to 30; a greater share of quality jobs drives the index to the upper end of the range. Indicator was normalized on a 1-100 scale.

Calculation Method

The Longitudinal Employer-Household Dynamics (LEHD) program, operated by the U.S. Census Bureau's Center for Economic Studies, provides valuable data on employers and employees through the Local Employment Dynamics Partnership. As part of this program, the LEHD Origin-Destination Employment Statistics (LODES) dataset is accessible through OnTheMap, a web-based mapping and reporting application. This dataset allows us to examine the geographic distribution of where people work.

To analyze job characteristics within specific areas, the LODES dataset is utilized. The job points layer, representing the location of workers' employment, is examined. Within each block group, the total number of jobs falling into different income categories is calculated. To provide context to the job figures, the American Community Survey Employment Status for the Population 16 Years and Over dataset is utilized to provide the total count of employed individuals within each block group.

The quality job index is computed by assigning weights to the various income categories and normalizing the values based on the total employed individuals. Income ranges and weightings are as follows:

1. less than \$1250/ month is assigned weighting of 1
2. between \$1250 and \$3333/ month is assigned weighting of 2
3. more than \$3333/ month is assigned weighting of 4

This calculation assigns higher weights to higher-paying jobs, acknowledging their significance in the overall job landscape. It allows for a standardized measure of job quality based on the employed individuals within each block group.

Importance

Access to higher-paying jobs increases financial stability, housing options, and wealth accumulation.

Year

2021

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | Longitudinal Employer-Household Dynamics (LEHD) On The Map, U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

<https://cainc.maps.arcgis.com/home/item.html?id=4ba0f99ce42f40e39d03d4f1f992f8cb>
[https://data.census.gov/table/ACS5Y2022.B23025?q=B23025&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B23025?q=B23025&g=050XX00US53053$150000)

Median Home Value

Description

Median home value in a block group of all owner-occupied housing units.

Calculation Method

The data used for this indicator was obtained from Housing Question 18 in the American Community Survey (ACS). This question was asked to respondents residing in housing units owned, being bought, vacant for sale, or sold but not occupied at the time of the survey. It aims to capture the estimated property value, including the house and lot, mobile home and lot (if lot owned), or condominium unit.

For properties where the house was owned or being bought but the land was not, respondents were asked to provide an estimate of the combined value of the house and the land. In the case of noncondominium multi-unit buildings where the respondent lives in one of the units, such as duplexes and small apartment buildings, the value should include the building, the land, and any additional buildings on the same plot.

For vacant units, the value represents the price asked for the property. The data distinguishes between owner-occupied units, vacant-for-sale and sold, not occupied units, and owner-occupied mobile homes.

The median value divides the distribution of property values into two equal parts, with one-half of the cases falling below the median value and the other half above it. The value of a home provides insights into neighborhood quality, housing affordability, and wealth. Some Median Home Values are blank, listed as a 0, or listed as a -. To fix this issue, as no block group would ever have this value, we assign blank, listed as a 0, or listed as a - value for Median Home Value in the block group geography with the census tract value.

The American Community Survey data utilizes the described method to calculate the median home value and is directly used for this indicator. It serves as a valuable resource for understanding neighborhood characteristics and housing-related metrics.

Importance

Higher median home prices contribute to homeowner wealth accumulation and reductions in housing affordability among residents.

Year

2022

Polarity

Higher is better

Unit

Currency

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACSDT5Y2022.B25077?q=B25077%20&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACSDT5Y2022.B25077?q=B25077%20&g=050XX00US53053$1500000)

Median Household Income

Description

The median household income in a given area.

Calculation Method

Median household income is a measure that divides the income distribution into two equal parts. It represents the income level at which half of the households have income below that amount, while the other half have income above it. This calculation includes all households, including those with no income.

The median income for households, families, and individuals is determined by analyzing the distribution of total households and families. It is based on a standard distribution and is rounded to the nearest whole dollar.

Importance

Household income provides a picture of the standard of living of various households and the state of local economies.

Year

2022

Polarity

Higher is better

Unit

Currency

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B19013?q=B19013&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B19013?q=B19013&g=050XX00US53053$150000)

Poverty Rate

Description

Percent of population within the block group earning less than the Federal Poverty Limit.

Calculation Method

If a family's total income falls below a specific threshold, as determined by the Federal Poverty Level, the family and each individual within it are considered impoverished. The Federal Poverty Level is a standard used by the federal government to determine eligibility for various subsidies and assistance programs. It relies on census data to estimate the number of people living in poverty and establishes a threshold that qualifies households or individuals as living in poverty.

Poverty status is determined for all individuals except those who are institutionalized, in military group quarters, in college dormitories, or unrelated individuals under 15 years old. These specific groups are excluded from the calculation of poverty rates.

The 2022 federal poverty line for one person is \$13,590. That income threshold increases by \$4,720 for each additional person within the family/household. A ratio is used to assign individuals to a poverty level designation. Less than 100% indicates the population that falls below the federal poverty level.

The poverty rate indicator is calculated by adding the number of individuals with an income range less than 100% of the defined poverty level and dividing it by the total population for whom poverty status is determined.

Importance

Lower poverty rates show better access to living-wage jobs and economic stability.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.C17002?q=C17002&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.C17002?q=C17002&g=050XX00US53053$150000)

Unemployment Rate

Description

Unemployed percentage within a block group of the total eligible workforce over 16 years of age.

Calculation Method

The employment status data used to calculate the metric was obtained from the American Community Survey (ACS). The employment status questions in the ACS are designed to capture detailed information about individuals aged 15 years and older.

The data from the ACS allows us to determine the employment status of individuals by following a specific sequence of questions as recommended by the Census Bureau. This sequence includes identifying individuals who worked at any time during the reference week, those on temporary layoff who were available for work, individuals who were temporarily absent from their jobs or businesses (excluding layoff), individuals actively looking for work in the last four weeks and available for work during the reference week, and individuals not in the labor force. All these categories are summarized to represent the total number of unemployed individuals.

ACS also provides information regarding the total civilian labor force. The unemployment rate is determined by dividing the number of unemployed individuals by the civilian labor force.

Importance

Unemployment can limit access to necessities like healthcare and housing.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B23025?q=B23025&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B23025?q=B23025&g=050XX00US53053$150000)

Education

Average Student Mobility

Description

The percentage of students who enroll in the beginning of the school year but did not stay enrolled in the same school throughout that school year (continuity rate). Since Pierce County does not have attendance zones, the method for allocating school statistics to block groups was based on the distance of block group centroid to a school. The three closest elementary, middle, and high schools to each block group were used.

Calculation Method

The data used for this indicator is sourced from the State of Washington Open Data Portal, specifically the Report Card enrollment data for school years. This dataset provides detailed information on student enrollment at various levels, including individual schools, school districts, and the state as a whole. The enrollment data is categorized by different groups, such as grade level, gender, race/ethnicity, and student programs and special characteristics.

The continuity rate measures the percentage of students who were enrolled at the beginning of a school year but did not remain enrolled in the same school throughout the year. This rate provides insights into student mobility and the stability of enrollment within specific geographic areas.

The data for this indicator is attributed to actual schools, and in order to relate it to specific geographical areas, the concept of a school attendance area needs to be defined. When explicit designations of school attendance areas are not available, an approximation method is used.

The approximation method involves identifying the three closest elementary, middle, and high schools to the centroid of a block and calculating the continuity rate for each type of school. To calculate a weighted continuity rate for a particular block group, an inverse distance weight factor is applied. The weight factor assigns the highest weight to the closest school to the centroid, and the weight decreases for the other two schools based on their distance.

The weighted continuity rates from the three schools for elementary, middle, and high school get summed then averaged together to calculate the overall continuity rate for the block group. This approach allows for the estimation of student mobility rates within specific geographic areas based on the proximity and contribution of nearby schools.

Importance

Low rates of student mobility increase stability for students and have positive effects on educational outcomes

Year

2023

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

National Center for Education Statistics | Education Demographic and Geographic Estimates, State of Washington | Access Washington

Source URL

<https://nces.ed.gov/programs/edge/Geographic/SchoolLocations> ,
<https://data.wa.gov/education/Report-Card-Enrollment-2022-23-School-Year/dij7-mbxg>

Average Testing Proficiency

Description

Combined average of 3rd grade reading and 7th grade math scores. Since Pierce County does not have attendance zones, the method for allocating school statistics to block groups was based on the distance of block group centroid to a school. The three closest elementary and middle schools to each block group were used.

Calculation Method

The data used for this indicator is obtained from the Washington State Office of Superintendent of Public Instruction Report Card Assessment. The assessment provides information on the percentage of students who have met grade-level standards in English Language Assessment, Math, and Science. Specifically, we focus on the scores of 3rd grade reading and 7th grade math to create an average test rate.

The data for this indicator is attributed to actual schools, and in order to relate it to specific geographical areas, the concept of a school attendance area needs to be defined. When explicit designations of school attendance areas are not available, an approximation method is used.

The approximation method involves identifying the three closest elementary schools for 3rd grade reading assessment and middle schools for 7th grade math assessment to the centroid of a block group. To calculate the student test rate for a particular block group, an inverse distance weight factor is applied. The weight factor assigns the highest weight to the closest school to the centroid, and the weight decreases for the other two schools based on their distance. By summing the weighted student rates from the three schools, the overall student test rates for that block group is determined and the 3rd grade reading and 7th grade math rates can then get averaged together. This approach allows for the estimation of student test rates within specific geographic areas based on the proximity and contribution of nearby schools.

By linking the student achievement data with census block groups, we can analyze the average test rates of students within specific geographic areas and across different demographic groups.

Importance

Testing proficiency shows what students know and their school's success in educating them.

Year

2023

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

National Center for Education Statistics | Education Demographic and Geographic Estimates, State of Washington | Access Washington

Source URL

<https://nces.ed.gov/programs/edge/Geographic/SchoolLocations> ,
<https://data.wa.gov/education/Report-Card-Assessment-Data-2022-23-School-Year/xh7m-utwp>

Educational Attainment Index

Description

Weighted average index educational attainment in population 25+

$$\text{Educational attainment index} = (1 * \text{Associates Degree}) + (1.2 * \text{Bachelor's Degree}) + (1.5 * \text{Master's or PhD Degree})$$

Calculation Method

The data used for this indicator is obtained from the American Community Survey (ACS) through Question 11, which collects information on educational attainment. This question is asked to all respondents aged 18 years and older, and individuals are categorized based on their highest level of education completed.

To calculate this indicator, only individuals who have completed an associate, bachelor's, master's, or PhD degree are included. These higher education achievement levels are assigned different weights: an associate's degree is weighted as 1, a bachelor's degree is weighted as 1.2, and a master's or PhD degree is weighted as 1.5.

The indicator is calculated by summing the weighted values for each educational achievement level and dividing it by the total population aged 25 years and older. This calculation provides an estimate of the proportion of the population that has achieved higher levels of education, reflecting the overall higher educational attainment in the specified area or population.

Importance

Education can increase self-esteem, workforce skills, and financial stability.

Year

2022

Polarity

Higher is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B15003?q=B15003&g=050XX00US53053\\$1500000](https://data.census.gov/table/ACS5Y2022.B15003?q=B15003&g=050XX00US53053$1500000)

High School Graduation Rate

Description

The 4-year adjusted cohort graduation rate. This is the number of students who completed high school in four years, divided by the number of students who are in their "cohort": those that started 9th grade at the same time. "Adjusted" refers to the fact that some students may have moved in or out of the school, and the cohort size needs to be adjusted to accurately track those students. Since Pierce County does not have attendance zones, the method for allocating school statistics to block groups was based on the distance of block group centroid to a school. The three closest high schools to each block group were used.

Calculation Method

The data for this indicator is obtained from the State of Washington Open Data Portal, specifically from the Report Card Graduation data for school years. This dataset provides comprehensive information on graduation rates at various levels, including school, district, county, Educational Service District (ESD), and state. It also provides disaggregated data based on different groupings such as grade level, gender, race/ethnicity, and student programs and special characteristics.

The graduation rate calculation used in this analysis is the 4-year adjusted cohort graduation rate. This rate represents the number of students who successfully completed high school within four years, divided by the total number of students who belong to the same cohort, i.e., those who started 9th grade at the same time. This rate is adjusted to account for students who may have transferred in or out of the school area during the measurement period.

The data for this indicator is attributed to actual schools, and in order to relate it to specific geographical areas, the concept of a school attendance area needs to be defined. When explicit designations of school attendance areas are not available, an approximation method is used.

The approximation method involves identifying the three closest high schools to the centroid of a block. To calculate a weighted graduation rate for a particular block group, an inverse distance weight factor is applied. The weight factor assigns the highest weight to the closest school to the centroid, and the weight decreases for the other two schools based on their distance.

By summing the weighted graduation rates from the three schools, the overall graduation rate for that block group is determined. This approach allows for the estimation of graduation rates within specific geographic areas based on the proximity and contribution of nearby high schools.

Importance

Higher high school graduation rate correlates to greater access to opportunity.

Year

2023

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

State of Washington | Access Washington, National Center for Education Statistics
| Education Demographic and Geographic Estimates

Source URL

https://data.wa.gov/education/Report-Card-Graduation-2022-23/kigx-4b2d/about_data , <https://nces.ed.gov/programs/edge/Geographic/SchoolLocations>

Kindergarten Readiness Rate

Description

Percent of students entering Kindergarten that achieve at least 5 out of 6 readiness measures. Since Pierce County does not have attendance zones, the method for allocating school statistics to block groups was based on the distance of block group centroid to a school. The three closest elementary schools to each block group were used.

Calculation Method

The WaKids data, obtained from the State of Washington Open Data Portal, provides valuable insights into kindergarten readiness through the Washington Kindergarten Inventory of Developing Skills assessment. This assessment is administered to kindergarten students within the first two months of the school year and evaluates their development and learning across six key areas: Social-Emotional, Physical, Language, Cognitive, Literacy, and Math. While the primary requirement for kindergarten is age eligibility (five years old by August 31), children who demonstrate readiness in all six areas tend to have a higher likelihood of success not only in kindergarten but also in their educational journey.

This indicator represents a percentage of kids entering kindergarten that have achieved at least five of the six readiness measures.

The data for this indicator is attributed to actual schools, and in order to relate it to specific geographical areas, the concept of a school attendance area needs to be defined. When explicit designations of school attendance areas are not available, an approximation method is used.

The approximation method involves identifying the three closest elementary schools to the centroid of a block. To calculate a weighted kindergarten readiness rate for a particular block group, an inverse distance weight factor is applied. The weight factor assigns the highest weight to the closest school to the centroid, and the weight decreases for the other two schools based on their distance.

By summing the weighted kindergarten readiness rates from the three schools, the overall kindergarten readiness rate for that block group is determined. This approach allows for the estimation of kindergarten readiness rates within specific geographic areas based on the proximity and contribution of nearby elementary schools.

This information is crucial for identifying areas of strengths and areas that may require additional support in promoting kindergarten readiness and ensuring equitable educational opportunities for all students.

Importance

Kindergarten readiness relates to educational success later in life.

Year

2023

Polarity

Higher is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

National Center for Education Statistics | Education Demographic and Geographic Estimates, State of Washington | Access Washington

Source URL

<https://nces.ed.gov/programs/edge/Geographic/SchoolLocations> ,
<https://data.wa.gov/education/Report-Card-WaKids-2022-23-School-Year/3ji8-ykgj>

Environment

Diesel Emissions

Description

Annual diesel and Nitric Oxide emissions average for the area (tons/Km²), estimated by EPA modeling.

Calculation Method

The analysis incorporates data from EJScreen, an environmental justice mapping and screening tool developed by the Environmental Protection Agency (EPA). EJScreen utilizes nationally consistent datasets and a comprehensive methodology to integrate environmental and demographic socioeconomic indicators, providing valuable insights into environmental justice issues.

The AIRPACT model (air-quality forecasting computerized system for the Pacific Northwest), defines the methodology for assigning measured emissions to geographic units. The model uses 4km by 4km grid cells to map measured emissions. Point source emissions are allocated to the grid cell they directly correspond to. Point source emissions are defined as emissions that come from a single, identifiable source. Other emission sources (non-point source and mobile emissions) are allocated to the grid cells based on spatial surrogates developed for the model. Non-point source emissions are defined as emissions that diffuse through the environment that do not originate from a discrete source.

For this specific indicator, the estimates of diesel NO_x emissions from the Washington State Department of Ecology's Comprehensive Emissions Inventory are used. Census tract values are calculated by mapping all diesel emissions according to the grid cell measurement allocations described above. The emissions are combined and allocated to census tracts based on an area-weighted spatial interpolation. Each block group within a census tract is assigned the same Diesel emissions value.

By leveraging the calculations and data provided by EJScreen, this analysis directly utilizes the method described above to assess the impact of diesel NO_x emissions on the affected areas.

Importance

Lower diesel emissions lead to reduced rates of asthma and respiratory illness, eye and skin irritation, and heart and lung disease.

Year

2023

Polarity

Lower is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Environmental Protection Agency | EJScreen

Source URL

<https://gaftp.epa.gov/EJScreen/2023/2.22SeptemberUseMe/>

Ozone Concentration

Description

Annual average ground level ozone concentration (parts per billion), as estimated by EPA.

Calculation Method

The analysis incorporates data from EJScreen, an environmental justice mapping and screening tool developed by the Environmental Protection Agency (EPA). EJScreen utilizes nationally consistent datasets and a comprehensive methodology to integrate environmental and demographic socioeconomic indicators, providing valuable insights into environmental justice issues.

This analysis focuses on the annual fourth-highest daily maximum 8-hour concentration (D8M) of ozone, averaged over three years. Ozone design value is a statistic that relates the air quality measured at an air quality monitoring station relative to the level of the National Ambient Air Quality Standards (NAAQS). To calculate the ozone design value for each block group, a relationship was established between ozone design values measured at air quality agency monitoring sites and the median D8M of ozone from the AIRPACT forecast model. The AIRPACT forecast model is a air-quality forecasting computerized system for the Pacific Northwest, which uses 4km by 4km grid cells. The interpolated ozone design value of the most populated grid cell that intersects each block group was then assigned to it.

By leveraging the calculations and data provided by EJScreen, this analysis directly utilizes the described method to assess the impact of ozone concentration on the affected areas.

Importance

Lower surface ozone concentration leads to reduced rates of asthma and respiratory illness, eye and skin irritation, and heart and lung disease.

Year

2023

Polarity

Lower is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Environmental Protection Agency | EJScreen

Source URL

<https://gaftp.epa.gov/EJScreen/2023/2.22SeptemberUseMe/>

PM_{2.5} Particulates

Description

Annual average concentration of fine particulate matter estimated based on air quality monitors and atmospheric circulation and dispersion models from the US EPA. Measured in micrograms per cubic meter.

Calculation Method

The analysis incorporates data from EJScreen, an environmental justice mapping and screening tool developed by the Environmental Protection Agency (EPA). EJScreen utilizes nationally consistent datasets and a comprehensive methodology to integrate environmental and demographic socioeconomic indicators, providing valuable insights into environmental justice issues.

This indicator assesses the concentration of fine particulate matter known as PM_{2.5}, which refers to particles with a diameter of 2.5 micrometers or less. PM_{2.5} particles have the ability to penetrate deep into the respiratory system, reaching the lungs and potentially entering the bloodstream, posing health risks.

To estimate PM_{2.5} concentrations, EJScreen uses data provided by the EPA's Office of Air Quality Planning Standards (OAQPS), which is a combination of monitoring data and Community Multiscale Air Quality (CMAQ) air quality modeling data by census tract. Tract values are calculated by utilizing the mean and 98th percentile daily PM_{2.5} concentrations estimated at 4km x 4km grid cells. The 3-year mean PM_{2.5} concentration represents an annual average, while the 3-year 98th percentile represents the highest daily concentrations. Each census tract is assigned the maximum interpolated mean and 98th percentile PM_{2.5} value from any intersecting grid cells. The mean and 98th percentile values are normalized to a scale of [0-1] for each census tract and then summed to generate a single PM_{2.5} score for each census tract. Block groups receive their census tract value so all block groups within each tract have the same PM_{2.5} values as the tract.

By leveraging the calculations and data provided by EJScreen, this analysis directly utilizes the described method to assess the impact of PM_{2.5} concentration on the affected areas, providing valuable insights into environmental justice considerations.

Importance

This needs to be changed back to "Less exposure to particulate matter leads to reduced rates of asthma and respiratory illness, eye and skin irritation, and heart and lung disease.

Year

2023

Polarity

Lower is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Environmental Protection Agency | EJScreen

Source URL

<https://gaftp.epa.gov/EJScreen/2023/2.22SeptemberUseMe/>

Proximity to Heavy Traffic Roadways

Description

Index representing the distance-weighted average annual daily traffic along major roadways for each block group, measured from the centroid of each block group.

Calculation Method

The analysis incorporates information from EJScreen, an environmental justice mapping and screening tool developed by the Environmental Protection Agency (EPA). EJScreen utilizes nationally consistent datasets and a comprehensive methodology to integrate environmental and demographic socioeconomic indicators.

This is calculated by using the AADT count (average annual daily traffic) at major roads divided by the distance in meters from a census block centroid. For the proximity scores, a distance of 500 meters from a census block centroid was selected in order to be large enough to capture the majority of road segments. Inverse distance weighting was used to give closest traffic more weight and distant traffic less weight. These weighted scores are then multiplied by the AADT count to calculate the final census block scores. This data is aggregated to the parent block group based on the population weight for each block within a block group.

By leveraging the calculations and data provided by EJScreen, this analysis directly utilizes the method described above to assess the impact of heavy traffic roadways on the affected areas.

Importance

High traffic roadways are correlated with higher incidence of certain types of disease and pollutants.

Year

2023

Polarity

Lower is better

Unit

Decimal

Aggregation

Average

Scope

Block Group

Source

Environmental Protection Agency | EJScreen

Source URL

<https://gaftp.epa.gov/EJScreen/2023/2.22SeptemberUseMe/>

Livability

Cost-Burdened Households

Description

The total percentage of all owners and renters in a block group spending 30% or more of their income on housing costs.

Calculation Method

The data for this indicator is derived from the American Community Survey (ACS), specifically from the Monthly Owner Costs and Gross Rent as a Percentage of Household Income.

To determine the gross rent as a percentage of household income, the monthly gross rent is divided by the monthly household income. The monthly household income is calculated by dividing the total household income by 12. This calculation is performed for each housing unit, resulting in a ratio that represents the percentage of monthly household income allocated towards rent payments.

Similarly, to calculate the monthly mortgage as a percentage of household income, the monthly mortgage cost is divided by the monthly household income. Again, the monthly household income is obtained by dividing the total household income by 12. This calculation is performed for each owner-occupied housing unit, resulting in a ratio that represents the percentage of monthly household income allocated towards mortgage payments.

It's important to note that units where no rent is paid or units occupied by households with no reported income or a net loss are categorized as "Not computed" and are excluded from the calculations.

The resulting ratios are then categorized into specific groups, such as Renter Gross Rent 30.0 to 34.9 Percent of Household Income, Renter 35.0 to 39.9 Percent, Renter 40.0 to 49.9 Percent, Renter 50.0 Percent or More, Owner Costs 30.0 to 34.9 Percent of Household Income, Owner 35.0 to 39.9 Percent, Owner 40.0 to 49.9 Percent, and Owner 50.0 Percent or More.

To calculate the overall indicator, the values for each category are summed, and the result is divided by the total number of renter-occupied and owner-occupied housing units. This calculation provides valuable insights into the percentage of households in different income ranges that allocate a certain percentage of their income towards rent or housing costs.

Importance

Households with a lower cost burden are more likely to accommodate unexpected financial expenditures.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B25070?q=B25070&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B25070?q=B25070&g=050XX00US53053$150000)

[https://data.census.gov/table/ACS5Y2022.B25091?q=B25091&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B25091?q=B25091&g=050XX00US53053$150000)

Fair or Poor Health

Description

Percent of block group CDC survey participants who responded that their health is "fair" or "poor".

Calculation Method

The CDC Local Data for Better Health provides data compiled from self-assessment health surveys. These surveys collect information from respondents aged 18 years and older regarding their general health status.

To calculate this indicator, the number of respondents aged 18 years and older who report their general health status as "fair" or "poor" is divided by the total number of respondents aged 18 years and older who report their general health status as "excellent," "very good," "good," "fair," or "poor" (excluding unknowns and refusals). This calculation yields the crude prevalence percentage of individuals with self-reported fair or poor health status.

To estimate the prevalence at the census block group level, statistical modeling techniques are employed. These models utilize the available data to make predictions about prevalence rates. Additionally, to calculate the self-rated health prevalence rate for each census block group, the census tracts that intersect the block groups are identified and the mean self-rated health prevalence rate of census tracts that intersect the block groups are calculated.

This allows for analysis and comparison of health indicators within specific geographic areas, such as block groups, and helps in understanding the distribution of health statuses across different demographic groups.

Importance

Self-rated health reflects individuals' perception of their health and access to necessary care

Year

2023

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Centers for Disease Control & Prevention | PLACES: Local Data for Better Health

Source URL

<https://data.cdc.gov/500-Cities-Places/PLACES-Local-Data-for-Better-Health-Census-Tract-D/cwsq-ngmh>

Owner Cost Burden

Description

Percentage of owners paying more than 30% of income on monthly housing cost expenses.

Calculation Method

Monthly housing costs as a percentage of household income is computed by taking the ratio of selected monthly owner costs to monthly household income. The data is further disaggregated by units with a mortgage and units not mortgage. This provided information on monthly housing costs for owners.

This metric is calculated by summing the owner-occupied housing units that have monthly owner cost ranges of 30.0 to 34.9 percent, 35.0 to 39.9 percent, 40.0 to 49.9 percent, and 50.0 percent or more for housing units with a mortgage and housing units without a mortgage then dividing by the total owner-occupied housing units.

Importance

Households with a lower cost burden are more likely to accommodate unexpected financial expenditures.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B25091?q=B25091&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B25091?q=B25091&g=050XX00US53053$150000)

Pedestrian/Bicyclist Crashes

Description

Occurrences of serious or fatal crashes involving bicyclists or pedestrians in the past two years per 1,000 square miles. The data has been rescaled to accommodate small values, and in cases of geographically larger block groups with few crashes, the calculated rate may round down to 0.00 per square mile. Block groups with no recorded crashes are represented as 'no data.'

Calculation Method

The Washington State Department of Transportation (WSDOT) compiles reports on pedestrian and bicyclist injuries, categorized by injury type, year, and location. The data represents the total number of injuries reported per block group. The calculation includes various injury categories such as fatalities at the scene, fatalities upon arrival, fatalities in hospitals, and suspected serious injuries. These injury categories encompass both fatal and serious injuries resulting from crashes involving pedestrians and bicyclists.

Crash data are geocoded, aggregated to the block group level, then divided by the square mileage of the block. Values are then multiplied by 1,000.

Importance

Access to safe roads by pedestrians and cyclists increases mobility, community connection, and physical activity.

Year

2022 and 2023

Polarity

Lower is better

Unit

Integer

Aggregation

Sum

Scope

Block Group

Source

Washington Department of Transportation | Crash Data Portal

Source URL

<https://remoteapps.wsdot.wa.gov/highwaysafety/collision/data/portal/public/>

Percent Low Life Expectancy

Description

Percent low life expectancy of those residing within a particular block group. Seen as a bellwether indicator on health conditions in a particular neighborhood.

Calculation Method

EJScreen employs an inverse measure to emphasize regions with life expectancies below national standards. It uses an inverse measure showing higher values for lower years and lower scores for higher years. Low Life Expectancy is an inversion of normalized life expectancy, which is calculated using the formula: "% Low Life Expectancy = 1 – (Life Expectancy / Max Life Expectancy)." The life expectancy data is derived from the Life Expectancy at Birth provided by the Centers for Disease Control and Prevention (CDC), National Center for Health Statistics (NCHS).

Importance

Percent low life expectancy is a result of a number of different factors and serves as an overall indicator of health and livability.

Year

2023

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

Environmental Protection Agency | EJScreen

Source URL

<https://gaftp.epa.gov/EJScreen/2023/2.22SeptemberUseMe/>

Personal Crimes

Description

Count of personal crimes within the past two years (2022-2023), including offenses such as assault, rape and murder.

Calculation Method

Crime data is recorded by the City of Tacoma and by Pierce County and can be downloaded as a point shapefile. Data contains information about case number, open and updated date, crime type, and other information.

Pierce County crime data includes unincorporated Pierce County, and the participating cities of Bonney Lake, Eatonville, Edgewood, Gig Harbor, Puyallup, South Prairie, and University Place are included in this data. The non-participating cities are Auburn, Buckley, Carbonado, Dupont, Enumclaw, Fife, Fircrest, Lakewood, Milton, Orting, Pacific, Roy, Ruston, Steilacoom, Sumner, Tacoma, and Wilkeson. Tacoma crime data is aggregated with Pierce County's crime data to obtain as much coverage for Pierce County as possible.

Per the Uniform Crime Reporting Program National Incident-Based Reporting System handbook, personal crimes are defined as a crime that cause physical, emotional, and psychological harm to the victim. They are offenses against a person. Crimes are categorized as personal crimes according to the handbook. Examples include murder, kidnapping, and sex offenses.

Crime data is geocoded to generate crime points. Crimes defined as personal are summed by block group to get the count.

Importance

Crime affects overall perceptions of safety, social connection, and economic opportunity.

Year

2022 and 2023

Polarity

Lower is better

Unit

Integer

Aggregation

Sum

Scope

Block Group

Source

Pierce County | Pierce Crime Data, City of Tacoma GIS | City of Tacoma Reported Crime

Source URL

<https://gisdata-piercecowa.opendata.arcgis.com/datasets/piercecowa::crime-data/explore>

<https://data.cityoftacoma.org/datasets/tacoma::city-of-tacoma-reported-crime-tacoma/explore>

Property Crimes

Description

Count of property crimes within the past two years (2022-2023), including theft, vehicle theft, and vandalism.

Calculation Method

Crime data is recorded by the City of Tacoma and by Pierce County and can be downloaded as a point shapefile. Data contains information about case number, open and updated date, crime type, and other information.

Pierce County crime data includes unincorporated Pierce County, and the participating cities of Bonney Lake, Eatonville, Edgewood, Gig Harbor, Puyallup, South Prairie, and University Place are included in this data. The non-participating cities are Auburn, Buckley, Carbonado, Dupont, Enumclaw, Fife, Fircrest, Lakewood, Milton, Orting, Pacific, Roy, Ruston, Steilacoom, Sumner, Tacoma, and Wilkeson. Tacoma crime data is aggregated with Pierce County's crime data to obtain as much coverage for Pierce County as possible.

Per the Uniform Crime Reporting Program National Incident-Based Reporting System handbook, property crimes are defined as a crime that creates interference with another person's right to use and enjoy a property. They are offenses against property. Crimes are categorized as property crimes according to the handbook. Examples include robbery, arson, and vandalism.

Crime data is geocoded to generate crime points. Crimes defined as property are summed by block group to get the count.

Importance

Crime affects overall perceptions of safety, social connection, and economic opportunity.

Year

2022 and 2023

Polarity

Lower is better

Unit

Integer

Aggregation

Sum

Scope

Block Group

Source

Pierce County | Pierce Crime Data, City of Tacoma GIS | City of Tacoma Reported Crime

Source URL

<https://gisdata-piercecowa.opendata.arcgis.com/datasets/piercecowa::crime-data/explore>

<https://data.cityoftacoma.org/datasets/tacoma::city-of-tacoma-reported-crime-tacoma/explore>

Renter Cost Burden

Description

Percentage of renters paying more than 30% of income on the monthly housing cost expenses.

Calculation Method

Gross rent as a percentage of household income is computed by taking the ratio of monthly gross rent to monthly household income, which is the total household income divided by 12. This provided information on monthly housing costs for renters.

This metric is calculated by summing the renter-occupied housing units that have gross rent ranges of 30.0 to 34.9 percent, 35.0 to 39.9 percent, 40.0 to 49.9 percent, and 50.0 percent or more then dividing by the total renter-occupied housing units.

Importance

Households with a lower cost burden are more likely to accommodate unexpected financial expenditures.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B25070?q=B25070&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B25070?q=B25070&g=050XX00US53053$150000)

Uninsured Rate

Description

Percent of a block group without health insurance.

Calculation Method

The data for this indicator is obtained from Question 16 in the American Community Survey (ACS). Respondents are asked to report their current health insurance coverage and indicate "yes" or "no" for each of the eight types listed.

In the ACS and other Census Bureau surveys, health insurance coverage includes plans and programs that provide comprehensive health coverage. Individuals are considered insured if they report at least one "yes" response to any of the listed types of coverage.

The types of coverage include:

1. Insurance through a current or former employer or union (for the respondent or another family member)
2. Insurance purchased directly from an insurance company (for the respondent or another family member)
3. Medicare, for individuals aged 65 and older or those with certain disabilities
4. Medicaid, Medical Assistance, or any government-assistance plan for low-income individuals or those with disabilities
5. TRICARE or other military health care
6. VA (including individuals who have ever used or enrolled for VA health care)
7. Indian Health Service
8. Any other type of health insurance or health coverage plan

To calculate this indicator, the number of individuals without health insurance in specific age ranges is summed. The age ranges include: Under 19 years, 19 to 34 years, 35 to 64 years and 65 years and over. The sum of individuals without health insurance in these age ranges is then divided by the total civilian noninstitutionalized population to obtain the percentage of individuals without health insurance.

Importance

Health insurance can lead to better health outcomes and decreased barriers to healthcare access.

Year

2022

Polarity

Lower is better

Unit

Percentage

Aggregation

Average

Scope

Block Group

Source

U.S. Census Bureau | American Community Survey 5-Year Estimates

Source URL

[https://data.census.gov/table/ACS5Y2022.B27010?q=B27010&g=050XX00US53053\\$150000](https://data.census.gov/table/ACS5Y2022.B27010?q=B27010&g=050XX00US53053$150000)