

Washington Transit Access Map: Methods

The Washington Transit Access Map allows you to look up information about the type of transit service available in any location in Washington State. The map is tool for advocates, planners, policymakers, researchers, and students interested in understanding where transit is frequent and reliable, who has access and who doesn't.

A. Data Sources

1. 2016-2020 American Community Survey 5-year Estimate (2020 ACS) – an ongoing U.S. Census survey that generates data on housing characteristic, transportation use, community demographics, income, and employment.
2. U.S. Census TIGER/Line Files – geographical features such as roads, railroads, and rivers, as well as legal and statistical geographic areas.
3. U.S. Census Longitudinal Employment-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES) – detailed spatial distributions of workers' employment and characteristic detail on age, earnings, industry distributions, and local workforce indicators. LODES data built on 2019 Census data are used here.
4. Transit data – Transit stops and schedules data including bus, rail, and ferry service for both transit agencies that report their GTFS data publicly and those derived by CNT staff for agencies that do not. (see Appendix A for a list of agencies included)
5. Housing and Transportation (H+T®) Affordability Index – Housing and transportation costs as a percent of area median income from Center for Neighborhood Technology's, Housing and Transportation (H+T®) Affordability Index 2022 release.
6. CDC Places Data Portal – Asthma rates as captured from the Behavioral Risk Factor Surveillance System (BRFSS), 2019
7. Washington State Patrol - Crash data, 2021

B. Calculations and definitions

1. Transit stops – A transit stop is defined from GTFS data. An individual stop is derived from the GTFS stop file (defined here) and has a few nuances that are worth pointing out.
 - a. If a transit route has stops on either side of a street, for example an east bound bus on one side and a west bound bus on the other, that counts as two stops because transit service in both directions provides value.
 - b. Some transit agencies define unique stops for each route using the same location. In this case we would count each unique stop, for example where two bus lines intersect and share a stop, this may be coded as one stop for some agencies, but two for others.
 - c. The distinction between a station and a stop is ignored for the purposes of this website.
2. High Frequency Transit – High frequency transit is defined in three ways for weekdays (Monday-Friday) and weekends (Saturday & Sunday):
 - a. Rush Hour – Transit service that maintains average headways of 15 minutes or less between peak commuting hours of 7AM – 9AM and 4PM – 6PM.
 - b. Full Day – Transit service that maintains average headways of 15 minutes or less between the hours of 7AM and 10PM.

- c. Late Night – Transit service that maintains average headways of 60 minutes or less between the hours of 12AM and 5AM.
- 3. Near High-Frequency Transit – A ½ mile buffer around stops on routes that meet our criteria for “High Frequency Transit” is calculated and data is aggregated to the sum of all such buffers. Household, population and job characteristics are summed to obtain these calculations.
- 4. Weekday and Weekends – Weekday is defined as 12 AM 11:59 PM from Monday to Friday and weekend is defined as 12 AM 11:59 PM from Saturday to Sunday.

C. Metrics – Calculation & Data Source Overview

Metric	Method	Data Source
Transit service by frequency	Number of transit routes available at different time periods by average headways	Transit data from agencies
Access to high frequency transit	Population and household data aggregated to ½ mile around high frequency transit	American Community Survey 5-year Estimate (2019 ACS); Transit data from agencies
Transit access to jobs	Jobs data aggregated to ½ mile around high frequency transit	Longitudinal Employer-Household Dynamics, 2019; Transit data from agencies
Housing & transportation costs	Housing costs as a percent of income for regional typical household - calculated from the H+T Index	CNT's Housing + Transportation Affordability Index, American Community Survey 5-year Estimate (2019 ACS)
	Transportation costs as a percent of income for regional typical household - calculated from the H+T Index	CNT's Housing + Transportation Affordability Index
Asthma rates	Percentage of 18 years or older population with Asthma (self-reported)	PLACES. Centers for Disease Control and Prevention, accessed 2022
Crash data	Number of automobile crashes per 100,000 residents	Washington State Patrol, 2021

APPENDIX A: List of transit agencies

Amtrak
Apple Line
Asotin County PTBA
BFT
Black Ball Ferry Line
Central Oregon Breeze
Central Transit Ellensburg
City of Milton-Freewater
City of Seattle
Clallam Transit System
Colville Confederated Tribes Transit
Community Transit
Confederated Tribes and Bands of The Yakama Nation (Pahto Transit)
C-TRAN
Dungeness Line
Everett Transit
Garfield County Transportation Authority
Gold Line
Grant Transit Authority
Grape Line
Grays Harbor Transit
HopeSource
Island Transit
Jamestown S'klallam
Jefferson Transit Authority
Kaltran
Kitsap Transit
Lake Chelan Boat Company (Lady of the Lake)
L.E.W.I.S. Mountain Highway Transit
Link Transit
Lower Columbia CAP
Lower Elhwa Klallam Tribe (Elhwa Transit)
Lummi Nation
Makah Public Transit
Mason Transit Authority

Metro Transit
Microsoft Shuttles
Mount Adams Transportation Service
Muckleshoot Transportation (Tribal Transit)
Northwestern Trailways
Pacific Transit
People for People
People Mover
Pierce Transit
Puget Sound Express
Pullman Transit
RiverCities Transit
Rural Resources Community Action
ruralTRANSIT
SeattleCenterMonorail
Seattle Children's Hospital
Selah Transit
Skagit Transit
Skamania County Transit
Snoqualmie Valley Transportation
Sound Transit
Spokane Transit Authority
Squaxin Island Transit
The Moccasin Express
The Victoria Clipper
TranGO
Tulalip Transit (TT)
Twin Transit
Union Gap Transit
Valley Transit
Wahkiakum Ferry
Wahkiakum on the Move
Washington State Ferries
Whatcom Transportation Authority
Yakima Transit