

RTP Existing Conditions Report: Moving People

The Regional Transportation System

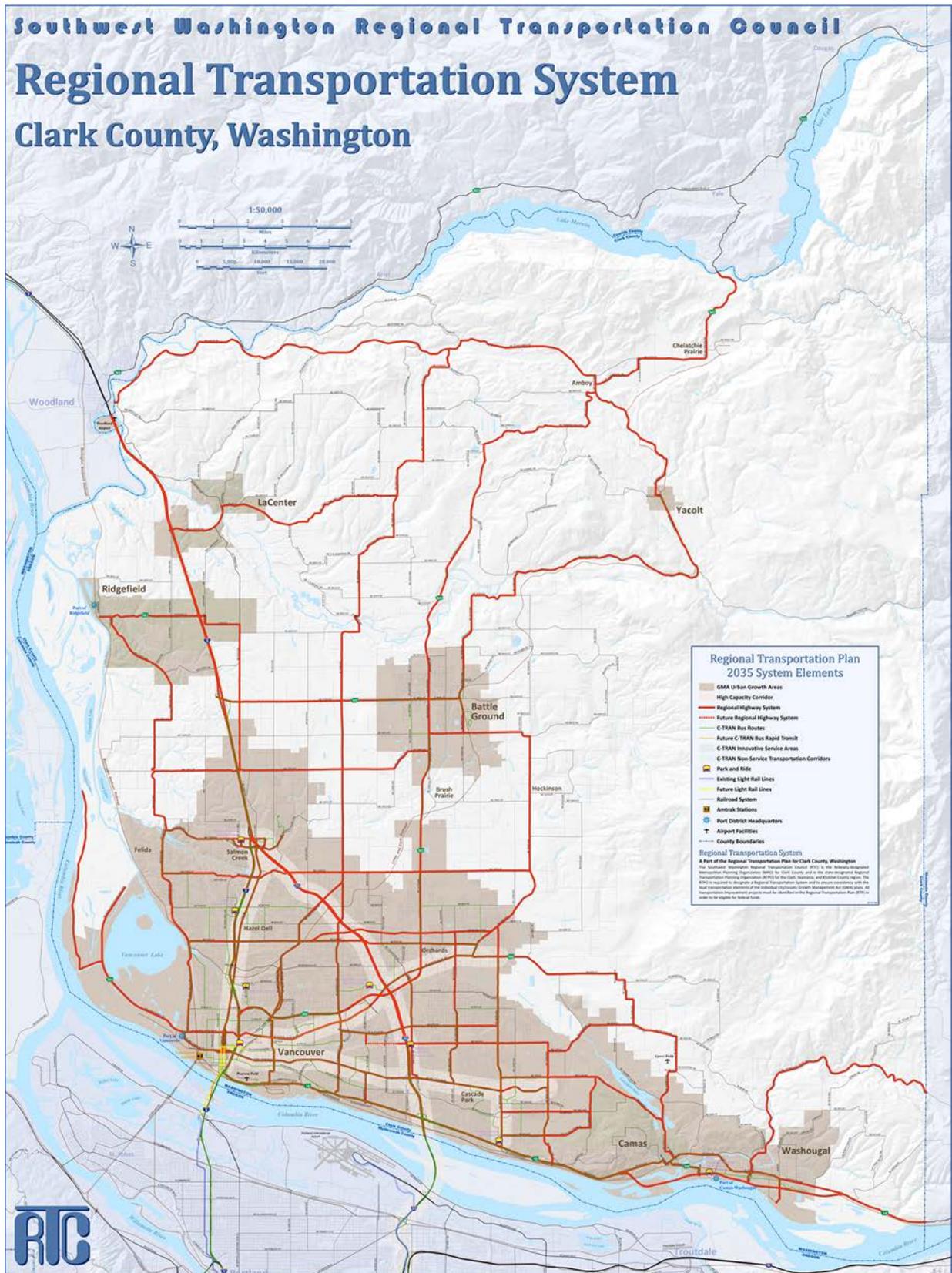
The efficient, safe movement of people and goods contributes to the quality of life for residents of this region and supports the economic activity that is vital for the region to thrive. The movement of people and goods in our region is made possible by a vast multimodal system of interconnected transportation networks comprised of the federal interstate system, state highways, local roadways, public bus routes, paratransit service, vanpools, intercity/interstate bus and rail service, bike lanes, sidewalks, multi-use paths, freight rail, airports, and marine freight.

The RTP focuses on the designated regional transportation system. RTC has defined this regional system (see figure X-X) in accordance with the state's Regional Transportation Planning Program Planning Standards and includes:

- All state transportation facilities and services
- All local freeways, expressways, and principle arterials (the definition of principle arterials can be the same as used for federal functional classification or be regionally determined)
- All high-capacity transit systems
- All transportation facilities and services, including airports, transit services and facilities, roadways, rail facilities, marine transportation facilities and etc., that an RTPO necessary to complete the regional plan.
- Any transportation facility or service that regional need or impact places in the plan, as determined by the RTPO

The designated regional transportation system includes all transportation facilities and service that are essential to the movement of people and goods within and through Clark County.

Figure -x-x: Designated Regional Transportation System



Moving People

Residents of Clark County travel for many reasons, including: work, school, shopping, medical appointments, recreation, picking up/dropping off a child, dining, civic and religious activities, errands and etc. Work, education, purchasing goods and services, and recreation all contribute to our quality of life and are an integral part of our regional economy.

Clark County residents make about 1.7 million person trips during the average weekday or 10.1 person trips per household.

On average, each Clark County household generates a total of 10.1 person trips on an average weekday. This means that all the daily activities of all the people in county contribute to producing around 1.7 million person trips per day. Of these trips, over 85% occur during a 12-hour period, between 6am and 6pm.

While many people plan their days around their commute trip, less than 15% of trips are a commute trip between work and home (Home-based Work). Around 9% of trips are between home and shopping (Home-based Retail) and 45% are between home and some other activity (Home-based Other), such as school, recreation, medical appointments, errands and etc. About one third of the trips taken by Clark County residents do not start or end at home (Non-home Based) and are often a part of a chain of trips while away from home.

The time people commit to travel varies by purpose, with work trips average the greatest travel time and distance – 24 minutes and 8.25 miles.

Table x.x: Distribution of Trip Purpose with Average Travel Time and Distance

Trip Purpose	Percentage of all trips	Average Travel Time (minutes)	Average Trip Distance (miles)
Home-based Work	14.2%	23.95	8.25
Home-based Retail	8.6%	13.49	3.32
Home-based Other	45.1%	15.37	4.03
Non-home Based	32.1%	16.06	6.09

There are many modes people can choose to satisfy their need to travel. While 85% of the county's person trips are by automobile (62% as a driver and 23% as a passenger), many trips are taken on buses, by bike, on foot and other means. The choice of travel mode is influenced by many things, including: travel time, travel distance, household vehicle availability, age, driver's license, parking costs, transit fares, sidewalks, bike paths/lanes and many others.

Travel time varies by mode of travel, with walk trips averaging the least time, about 10 minutes and transit trips the longest, taking the longest at over 25 minutes.

Table x.x: Distribution of Travel Modes with Average Travel Time

Travel Mode	Percentage of all trips	Average Travel Time (minutes)
Walk	7.3%	9.9
Bike	1.0%	19.7
Auto Driver	61.7%	17.3
Auto Passenger	23.1%	14.4
Transit	1.6%	26.1
Paratransit	0.1%	21.3
School Bus	5.1%	22.9
Other	0.1%	

While there are a few trips taken by air, rail or water, nearly all trips taken by Clark County residents utilize public roadways and a joining sidewalks and bike paths.

Clark County Roadway Network

Clark County is home to vast system of public roadways, totally over 2,300 centerline miles, operated by the state and local jurisdictions. Roadways are characterized by their function within the overall system and within the community. The Federal Functional Classification System is used for the classifying of highways, roads and streets into groups having similar characteristics for providing mobility and/or land access. Interstate freeways, classified as divided principal arterials, are designed to provide for the highest degree of mobility of large volumes of long-distance traffic. Collector facilities generally provide equal emphasis upon mobility and land use accessibility. Local facilities emphasize access to land uses.

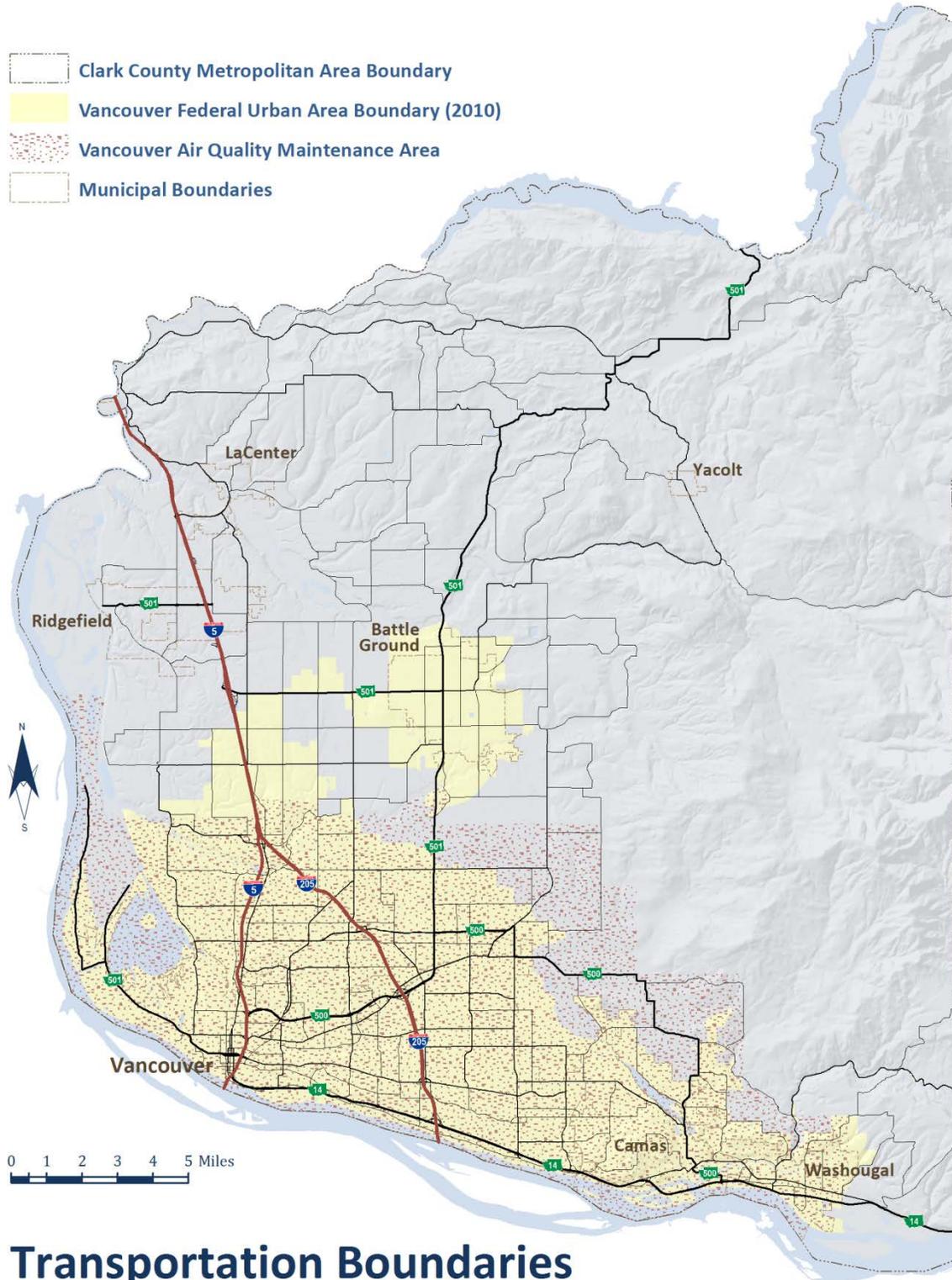
Federal Transportation Boundaries

As a pre-requisite to the federal functional classification of roads, an [Urban Area Boundary](#) must be defined (refer to Figure x-x; Transportation Boundaries). The federal Transportation Act requires that an Urban Area Boundary (UAB) is defined to delineate areas that are urban in nature distinct from those that are largely rural in nature. The distinction between urban and rural is important because facilities classified as collector or above in urban areas are eligible for federal funding while in the rural area those facilities classified as major collector and above are eligible. Generally, minor collectors in rural areas are not eligible for federal funding.

The federal transportation Urban Area Boundary is not to be confused with [Urban Growth Areas](#) established under the Washington State Growth Management Act (GMA). The federal UAB should cover, at a minimum, the area designated by the decennial U.S. Census as “urbanized” by meeting certain population and density criteria. Following the 2010 Census, the Vancouver urbanized area encompasses Vancouver, urbanized areas of unincorporated Clark County, Camas, Washougal and Battle Ground.

Federal transportation regulations also calls for MPO's to establish a Metropolitan Area Boundary marking the area to be covered by MPO regional transportation planning activities. At a minimum it must include the urban area, the contiguous area expected to be urbanized within the next twenty years, and, in air quality attainment areas, must include the area enclosed by the attainment area boundary; the Vancouver Air Quality Maintenance Area. The Metropolitan Area Boundary established for the Clark County region includes the whole of Clark county (refer to Figure x-x; Transportation Boundaries). With a population of over 200,000 the Portland-Vancouver metropolitan area is designated as a Transportation Management Area (TMA) by the U.S. Secretary of Transportation. Within TMAs, the MPO must develop a congestion management process which was first adopted by the RTC Board in May 1995 and has since been updated annually. The MPO has authority to select, in consultation with the state, projects to receive federal funds.

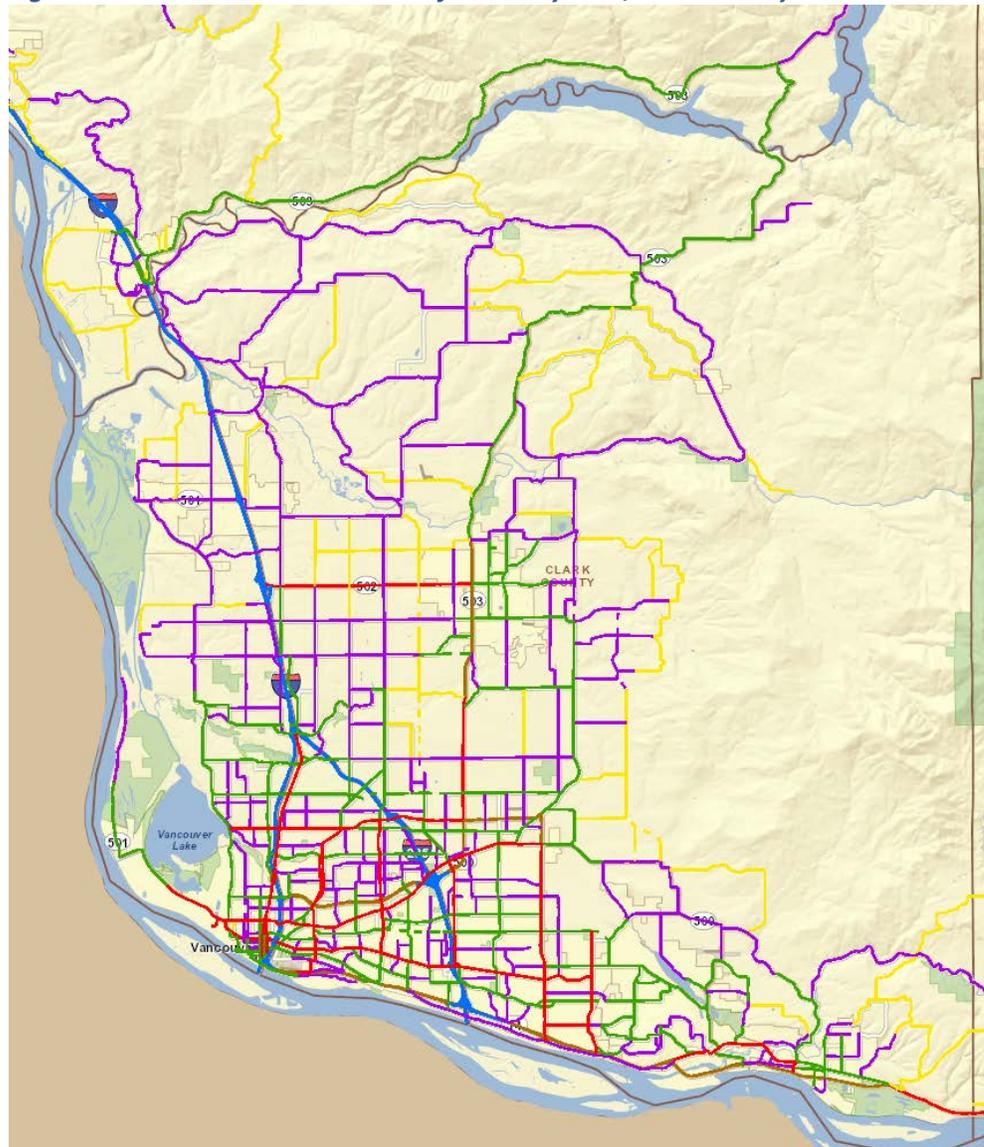
Figure x-x: Transportation Boundaries



Roadway Classification

The Federal Functional Classification system for Clark County undergoes a comprehensive update at least once every decade following the results of the decennial census and accompanying changes made to the federally recognized Urbanized Area and to the Urban Area Boundary (UAB) for the region. This usually occurs about three years following the decennial census. Further information on the [functional classification](#) of roads can be found on WSDOT's website with links to maps showing the federal functional classification, allowing for zooming in to Clark County and city detail (see example in Figure x-x below).

Figure x-x: Federal Functional Classification System, Clark County



Source: [WSDOT Functional Classification Map](#)

- A description of the federal functional classification urban categories follows:

Principal Arterials

Principal arterials permit traffic flow through the urban area and between major elements of the urban area. They are of great importance in the regional transportation system as they interconnect major traffic generators, such as the central business district and regional shopping centers, to other major activity centers and carry a high proportion of the total urban area travel on a minimum of roadway mileage. They also carry traffic between communities. Frequently principal arterials carry important intra-urban as well as intercity bus routes. Many principal arterials are fully or partially controlled access facilities emphasizing the through movement of traffic. Within the category are (1) interstates (2) other freeways and expressways and (3) other principal arterials. Spacing of principal arterials may vary from less than one mile in highly developed central business areas to five miles or more in the sparsely developed urban fringes.

Minor Arterials

Minor arterials collect and distribute traffic from principal arterials to lesser classified streets, or allow for traffic to directly access their destinations. They serve secondary traffic generators such as community business centers, neighborhood shopping centers, multiple residence areas, and traffic from neighborhood to neighborhood within a community. Access to land use activities is generally permitted. Such facilities are usually spaced under two miles apart and in core areas can be spaced at 1/8 to 1/2 mile apart.

Collectors

Collectors provide for land access and traffic circulation within residential neighborhoods and commercial and industrial areas. They distribute traffic movements from such areas to the arterial system. Collectors do not handle long through trips and are not continuous for any great length.

Local Streets

Local streets provide direct access to abutting land and access to the higher classification facilities. They offer the lowest level of mobility and usually contain no bus routes. They are not intended to carry through traffic but make up a large percentage of the total street mileage.

- Rural roads consist of those facilities that are outside of urban areas. They too are categorized into functional classifications:

Rural Principal Arterials

Rural principal arterials are sub-divided into two sets: (1) interstate facilities, and (2) other principal arterials. They consist of a connected rural network of continuous routes and provide an integrated network without stub connections.

Rural Minor Arterials

In conjunction with the principal arterials, the rural minor arterials form a rural network which link cities and larger towns together with other major traffic generators. The principal arterials and rural minor arterials are spaced at such intervals that all developed areas of the state are within a reasonable distance of an arterial highway. Minor arterials should be expected to provide for relatively high overall travel speeds with minimum interference to through movement.

Other Rural Road Classifications

- Rural Major Collector Roads (are eligible for federal funding)
- Rural Minor Collector Roads (are not eligible for federal funding)
- Rural Local Roads

Local Functional Classification

A local classification system also exists. Clark County maintains a local classification system as part of its Comprehensive Growth Management Plan. This classification system is reported in the Clark County Arterial Atlas which shows arterial and local street cross-sections anticipated for roads in Clark County within the next twenty years. The Arterial Atlas is approved by the Board of County Commissioners. Efforts are made to try to be as consistent as possible between the federal functional classification system and the local classification. Local cities also maintain a local classification system as part of their comprehensive plans.

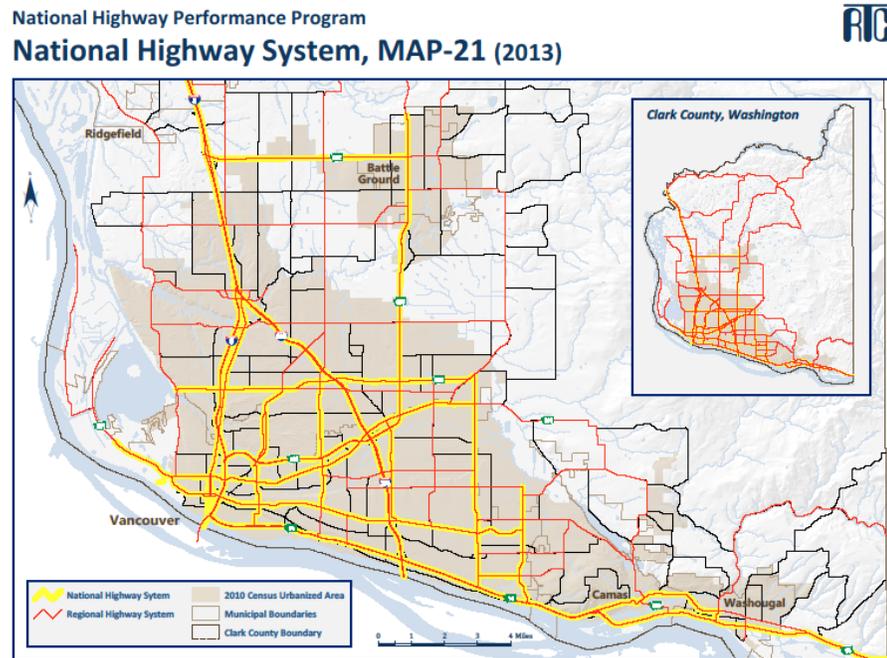


Other Roadway Designations

National Highway System (NHS)

The National Highway System (NHS) includes the Interstate Highway System as well as other roads important to the nation's economy, defense, and mobility. It is designated to focus federal investment on a set of high priority routes. Initially, ISTEA required that roads be designated as National Highway System (NHS) facilities and Congress approved the initial NHS System with passage of the National Highway System Designation Act of 1995 (NHS Act). Under Section 1104 of MAP-21 (2012), update and expansion of the NHS was required to additionally include urban and rural principal arterials that were not included in the NHS before October 1, 2012. This resulted in increasing the NHS in Clark County from about 78.5 centerline road miles to about 148.5 centerline road miles. Maps of the 2012 expanded NHS system, a sub-set of the MTP's designated regional transportation system, are available on FHWA's website.

Figure x-x: National Highway System



Highways of Statewide Significance (HSS)

In 1999 the state legislature adopted Highways of Statewide Significance, fulfilling a requirement of House Bill 1487 passed in 1998. In Clark County highway facilities defined as “of Statewide Significance” are I-5, I-205, SR-14 and part of SR-501 to access the Port of Vancouver.

Highway System: Interstates and State Routes

The Washington State Department of Transportation manages about 125 centerline miles of interstate freeways and state highways within Clark County

I-5

Clark County has a 20.78 mile section of I-5, the major interstate freeway serving the west coast of the U.S.A. I-5 provides for north-south travel and is used for interstate travel from southern California, through the state of Oregon northward through Washington State to the Canadian border. I-5 crosses the Columbia River from Oregon to Washington over the Interstate Bridge. The I-5 Columbia River Crossing Project’s Locally Preferred Alternative includes a future replacement I-5 Interstate Bridge. I-5 has three through lanes in each direction from the Interstate Bridge north to the county line.

I-205

A 10.57 mile stretch of I-205 traverses Clark County until it joins I-5 just north of N.E. 134th Street. I-205 was constructed as an alternative route to I-5, as a by-pass facility through the Portland/Vancouver metropolitan area. I-205 crosses the Columbia River over the Glenn Jackson Bridge opened in 1982. The Glenn Jackson Bridge has four travel lanes in each direction. North of the bridge the facility has three lanes in each direction to a point just north of the interchange with SR-500. I-205 continues north to its terminus as a two lane facility in each direction.



SR-14

SR-14 provides the main east-west highway from the southwest of Washington State to the southeast of the state along the north bank of the Columbia River. The facility extends 21.77 miles through Clark County to the Skamania County line. It has two lanes in each direction up to milepost 12 and one lane in each direction thereafter.

SR-500

SR-500 is a 22.64-mile facility entirely within Clark County and allows for east-west cross-county travel. It crosses I-205, provides access to the Orchards area via Padden Parkway, then traverses rural Clark County until it reaches the Camas urban area. SR-500 intersects with SR-14 in Camas. The facility carries traffic to and from the Clark County regional shopping mall. The segment of SR-500 between I-5 and I-205 was first opened as a limited access facility in 1984.

SR-501

SR-501 is comprised of two unconnected segments. The south segment extends from the interchange with I-5 westward with three lanes in each direction along the Mill Plain/15th Street couplet to Columbia Street. West of Columbia the facility is two lanes in each direction. This segment of SR-501 carries traffic to and from the Port of Vancouver. The facility reduces to two lanes, one in each direction, and branches into two in the Vancouver Lake lowlands area with both branches terminating in the lowlands. The northern segment of SR-501 extends as a two-lane facility from I-5 westward to the City of Ridgefield where it terminates. Originally it was intended that the two segments join to complete a circumferential route around the westside of the Vancouver urban area and to carry traffic to and from the lowlands industrial area. However, the facility was never completed.

SR-502

SR-502 extends from the I-5/N.E. 219 Street interchange to Battle Ground.

SR-503

SR-503 extends northward from its intersection with SR-500. It carries traffic between the Vancouver urban area and North County through Battle Ground. SR-503 extends into Cowlitz County.

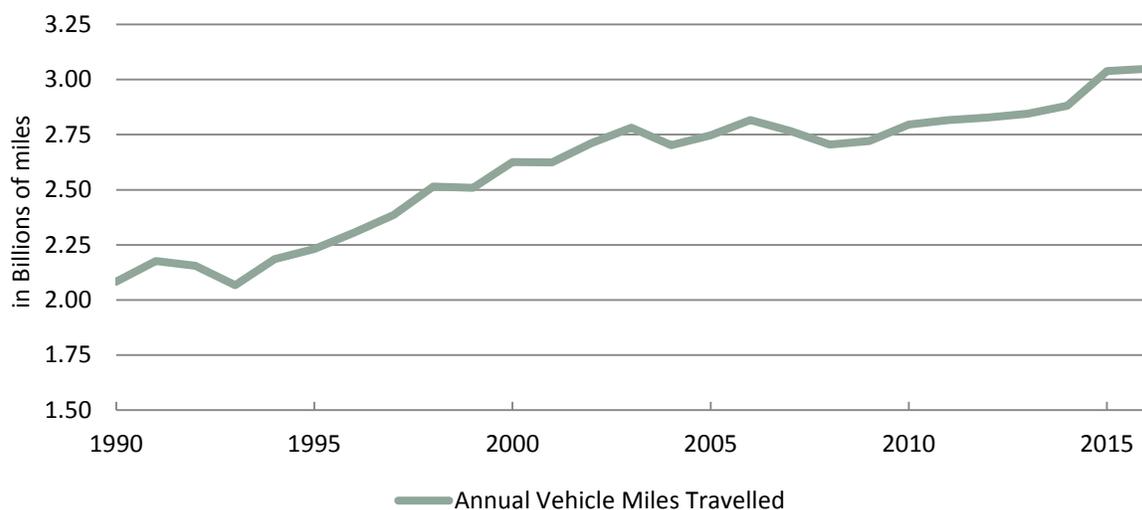
Table x-x: State Route Mileage in Clark County (2015)

Facility	Begins	Ends	Centerline Miles
I-5	Oregon State Line, Interstate Bridge	Cowlitz Co. Line	20.73
I-205	Oregon State Line, Glenn Jackson Br.	I-5 Interchange	10.57
SR-14	Interchange with I-5, Vancouver	Skamania Co. Line	21.77
SR-500	Interchange with I-5	SR-14 Intersection, Camas	22.64
SR-501, south	Interchange with I-5	Terminus of S. segment	10.99
SR-501, couplet	Interchange with I-5	Franklin St., Vancouver	0.55
SR-501, north	City of Ridgefield	Interchange, I-5 at Pioneer	2.97
SR-502	Intersection with I-5 at N.E. 219 St.	Intersection with SR-503	6.12
SR-503	Intersection with SR-500	Cowlitz Co. line	27.87

Source: [WSDOT State Highway Log](#)

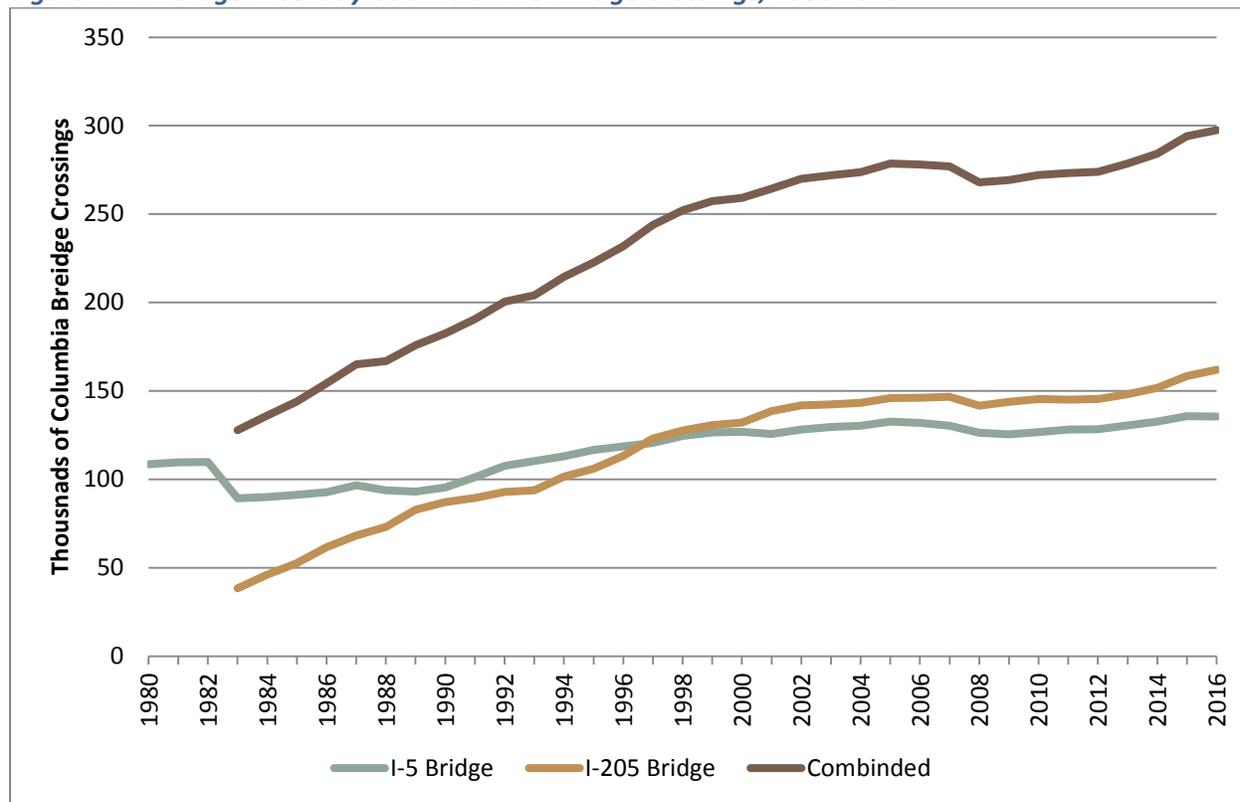
Interstate and State Highway Use and Performance

Annually, automobiles, trucks and buses travel over 3 billion miles on roadways within Clark County. The number of vehicle miles traveled (VMT) on the system has been steadily growing with the region's increasing population, despite the ups and downs of the region's economy. Roughly 45% of those vehicle miles are traveled on the interstate and state highway system.

Figure x-x: Annual Clark County Vehicle Miles Traveled, 1990 - 2016 (in billions of miles)

VMT provides one measure for the use of the system and daily counts of traffic volumes provide another. Permanent traffic recorders are in place on the I-5 and on the I-205 bridges. RTC compiles the Columbia crossing traffic counts provided by Oregon Department of Transportation from these recorders or from estimates provided by ODOT. In March 1995 RTC published the Columbia River Bridge Traffic, 1961 - 1994 report and continues to report on river crossing data [online](#). Figure x-x shows the average weekday traffic volumes crossing the Columbia River bridges, 1980 to 2016. In 2016 the estimated average weekday traffic (AWDT) volumes on the I-5 Interstate Bridge were 135,496 and on the I-205 Glenn Jackson Bridge were 162,031. In 2016, the average northbound weekday evening peak hour crossings of the I-5 Interstate Bridge were 4,649 and 6,876 on the I-205 Glenn Jackson Bridge. In the southbound direction, average weekday morning peak hour crossings were 5,216 on the I-5 Interstate Bridge and were 7,098 on the I-205 Glenn Jackson Bridge.

Figure x-x: Average Weekday Columbia River Bridge Crossings, 1980-2016



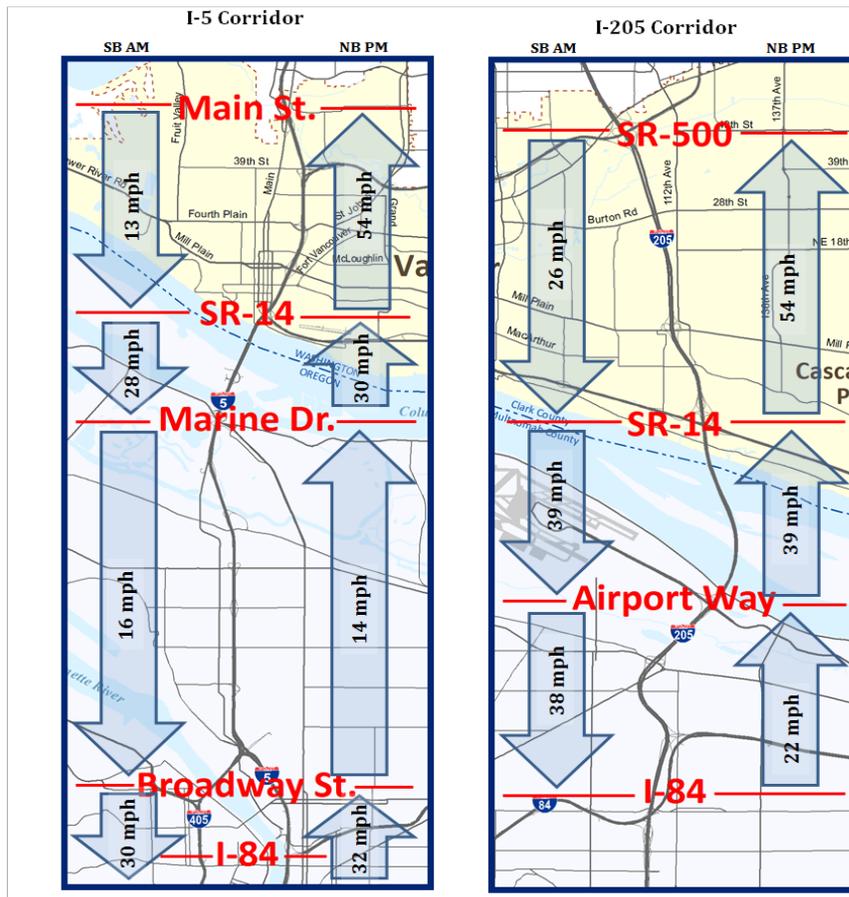
Source: Oregon Department of Transportation

The highest daily traffic ever recorded on the I-5 Interstate Bridge was on Friday July 2, 2004 when 157,301 bridge crossings were made. The highest evening peak hour traffic ever recorded on the I-5 Bridge was on Tuesday, May 28, 1996 when 10,838 bridge crossing were made. For the northbound direction, the highest evening peak hour traffic was recorded on Thursday, June 11, 1998 when 5,987 bridge crossings were made. For the southbound direction, the highest morning

peak hour traffic was recorded on Wednesday March 31, 2004 when 6,119 bridge crossings were made. The I-205 Glenn Jackson Bridge’s highest daily number of crossings recorded was on Friday, July 25, 2014 with 172,683 crossings. The highest evening peak hour traffic recorded on the I-205 Glenn Jackson Bridge was on Friday, August 3, 2006 when 13,284 bridge crossings were made. The highest northbound evening peak hour traffic recorded on the Bridge is the 8,426 crossings made on Friday May 24, 1996. For the southbound direction, the highest morning peak hour traffic was recorded on Tuesday, October 7, 2003 when 8,247 bridge crossings were made. The highest all-day total river crossings were recorded on Friday, July 27, 2004 when 325,095 trips crossed the Columbia River on the I-5 Interstate and I-205 Glenn Jackson bridges.

The interstate and state highway system is intended not only to carry relatively large volumes of automobile and truck traffic, but also move that volumes at higher speeds. As demand for travel increases, traffic volumes rise and congestion levels increase causing travel speeds to drop. Like every major urban area in the nation, congestion during the peak morning and evening commute times is common in Clark County. This congestion is most acutely felt by traffic crossing the I-5 Interstate and I-205 Glenn Jackson bridges over the Columbia River (see Figure x-x).

Figure x-x: Average Weekday Speeds for AM and PM Periods for I-5 and I-205 Bridges

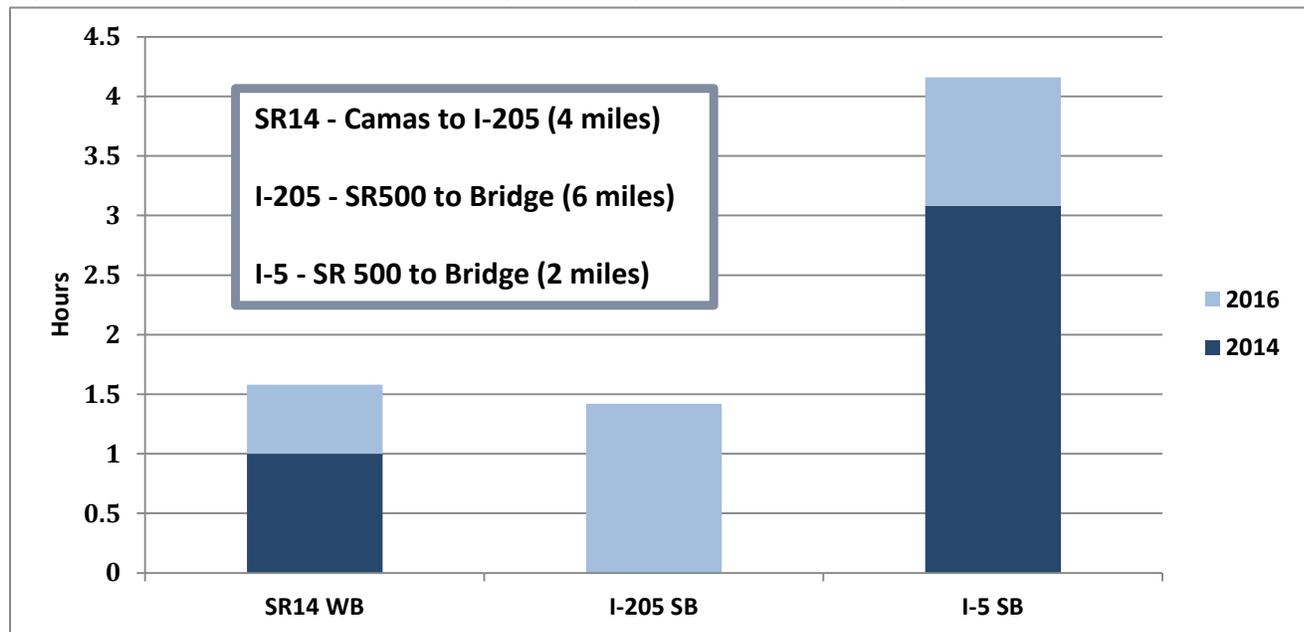


Approaching I-5 Interstate Bridge from the north during the AM peak period, traffic moves at an average speed of 13 mph between the Main Street exit and the bridge. During the PM peak, northbound traffic averages a speed of 14 mph from Broadway Street up to Marine Drive as it approaches the bridge.

Similarly, traffic approaching the I-205 Glenn Jackson Bridge experiences an average speed of 26 mph in the southbound direction in the morning and an average speed of 22 mph in the northbound direction during the evening peak.

Congestion in Clark County is not limited to a single hour. The duration of congestion during the morning commute has been increasing (see Figure x-x). In 2016, southbound I-205 traffic, between SR500 and the Glenn Jackson Bridge, averaged less than 45mph for nearly 1.5 hours, up from zero hours in 2014. Westbound SR14 traffic between Camas and I-205 now experiences congestion for over 1.5 hours per day. At over 4 hours, southbound segment of I-5 between SR500 and the Interstate Bridge has the longest period of congestion of any roadway in the county.

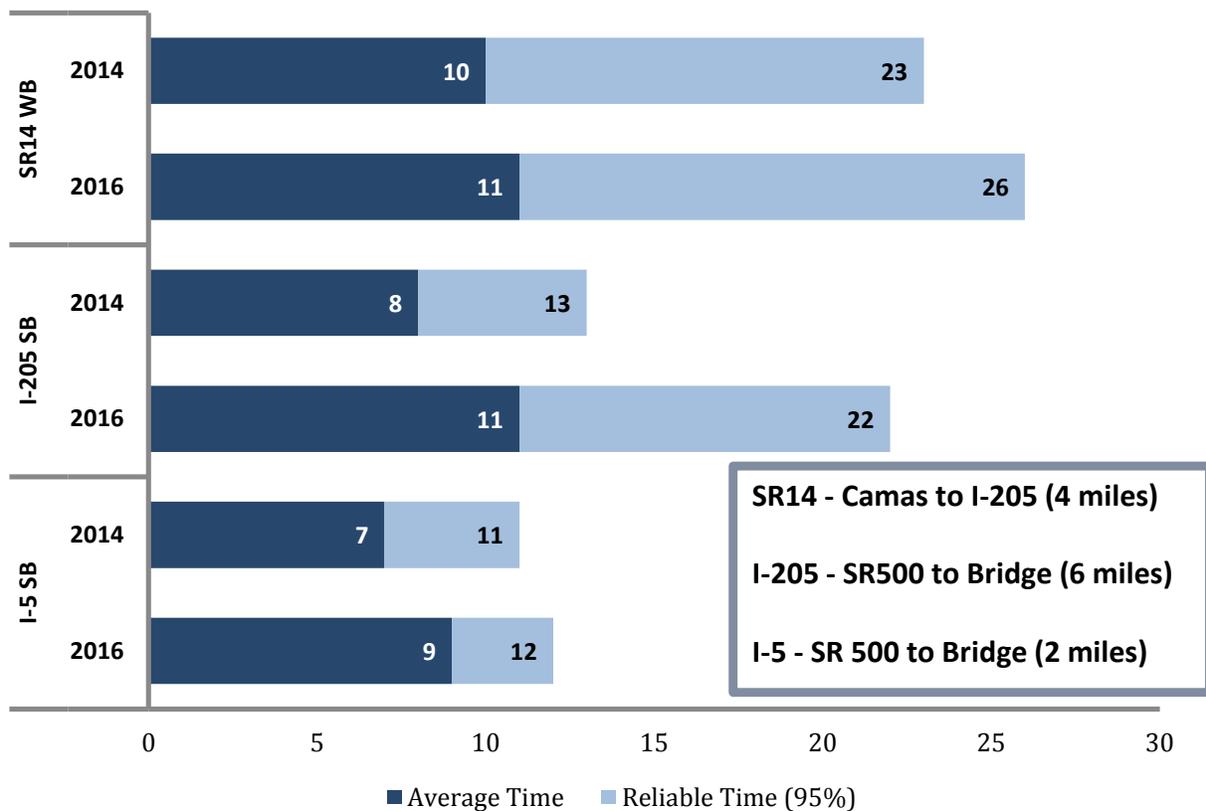
Figure x-x: Duration that AM Peak Average Travel Speed is Less Than 45mph – I-5, I-205 and SR14



While growing congestion is a source of frustration for many Clark County residents, the unpredictable nature of congestion is often more problematic. On-time arrival at work, medical appointments, delivery schedules and other travel purposes are often complicated by uncertainty regarding travel time. Nearly every commuter makes travel decisions based on how long they expect it take to get from their trip origin to their destination. Congestion, accidents, weather, stalled vehicles and other incidents all combine to create variation in travel times from day to day. Measures of travel time reliability help to illuminate non-recurring congestion problems that add additional travel delay to average congested conditions.

Figure x-x shows the average 2014 and 2016 travel times for three segments of SR14, I-205 and I-5 and their corresponding “reliable” travel time. For example, the average travel time between SR500 and the Glenn Jackson Bridge in 2014 was 8 minutes during the AM peak. However, due to travel time variations one could be confident they could reliably travel the segment in 13 minutes or less in 19 out of 20 of mornings (95% of the time). The average travel time for the same segment increased 3 minutes, to 12 minutes in 2016. However, the “reliable” travel time increased by 9 minutes, meaning one could be confident they could travel the segment in 22 minutes or less on 95% of mornings. From 2014 to 2016, the average travel time increased along the I-205 southbound approach to the Glenn Jackson Bridge by about 60%, while reliable travel time doubled due to increasing variation and severity in sources of congestion, resulting in greater uncertainty when traveling the corridor.

Figure x-x: Average Travel Time and Reliability for Segments of I-5, I-205 and SR14 during the AM Peak



Local Jurisdiction Roadways

Over 2,200 centerline road miles are managed by local jurisdictions. Annually, around 2 billion vehicle miles are traveled on these non-state roadways. About 70% of these roads are classified as local streets that primarily provide access to tens of thousands of homes across the county. Within the Federal Urban Area there are about 230 centerline miles of arterials (principle and minor) and 160 centerline

miles of collectors (major and minor) connecting residential locations to commercial areas, job centers and the state highway system.

During the PM peak, I-5 and I-205 and of SR-14 east of I-205 display volumes greater than 3,000 vehicles per hour (see Figure x-x). Within the region, facilities carrying more than 1,500 vehicles in the PM peak hour include segments of SR-14, SR-500, SR-503, Mill Plain, Fourth Plain, 78th Street, Padden Parkway, Andresen Road, 112th Avenue, 164th Avenue, and 192nd Avenue.

Figure x-x: PM Vehicle Volumes, 2016

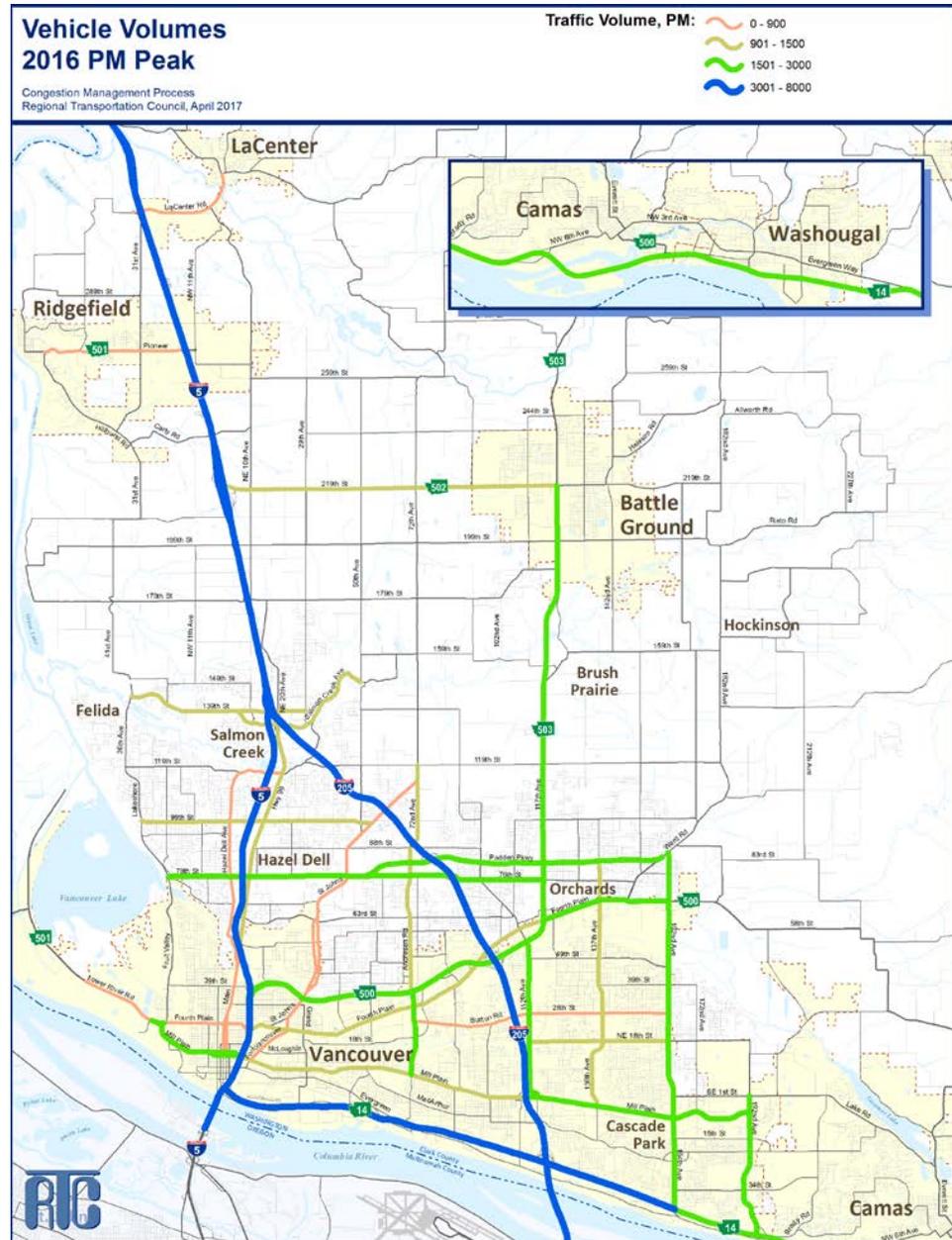


Table x-x displays the highest volume intersections in 2016 based on the total number of vehicles entering an intersection on an average weekday. At-grade

intersections along SR-500, Mill Plain, SR-503, and Padden Parkway dominate the list.

Table x-x: Highest Volume Intersections, 2016 Daily Weekday Volumes

Rank	East/West	North/South	Volume
1	Fourth Plain	SR-500	72,000
2	Mill Plain	Chkalov Dr.	71,000
3	SR-500	54 th Avenue	62,000
4	Mill Plain	136 th Avenue	61,000
5	Padden Parkway	State Route 503	61,000
6	State Route 500	NE 42 nd Avenue	58,000
7	Fourth Plain	Andresen Road	58,000
8	Mill Plain	SE 164 th Avenue	57,000
9	NE 78 th Street	Highway 99	54,000
10	Padden Parkway	Andresen Road	53,000
11	Mill Plain	NE 120 th Avenue	52,000
12	Mill Plain	NE 117 th Avenue	51,000
13	134 th Street	20 th Avenue / Hwy 99	51,000
14	SR-502	SR-503	50,000
15	McGillivray Blvd.	SE 164 th Avenue	49,000

High volume intersections have the potential to experience significant delay as traffic waits at a signal for a green light. Occasionally, some travelers will wait through multiple traffic signal cycles before clearing an intersection. [RTC's Congestion Management Process Monitoring Report](#) reports on intersection delay for through movements on major corridors in the region.

Generally, intersections that displayed a 45 second or greater delay, for the average through movement at an intersection, were located where two major arterials intersect. Figure x-x displays the location of the 50 intersections that demonstrated this characteristic. Of these intersections, 23 had at least one direction with an average delay between 60-89 seconds and 7 had at least one direction with an average delay greater than 90 seconds. Delay at these intersections adds to the overall travel time and increases congestion at these locations.

The longest delays are at the following intersections:

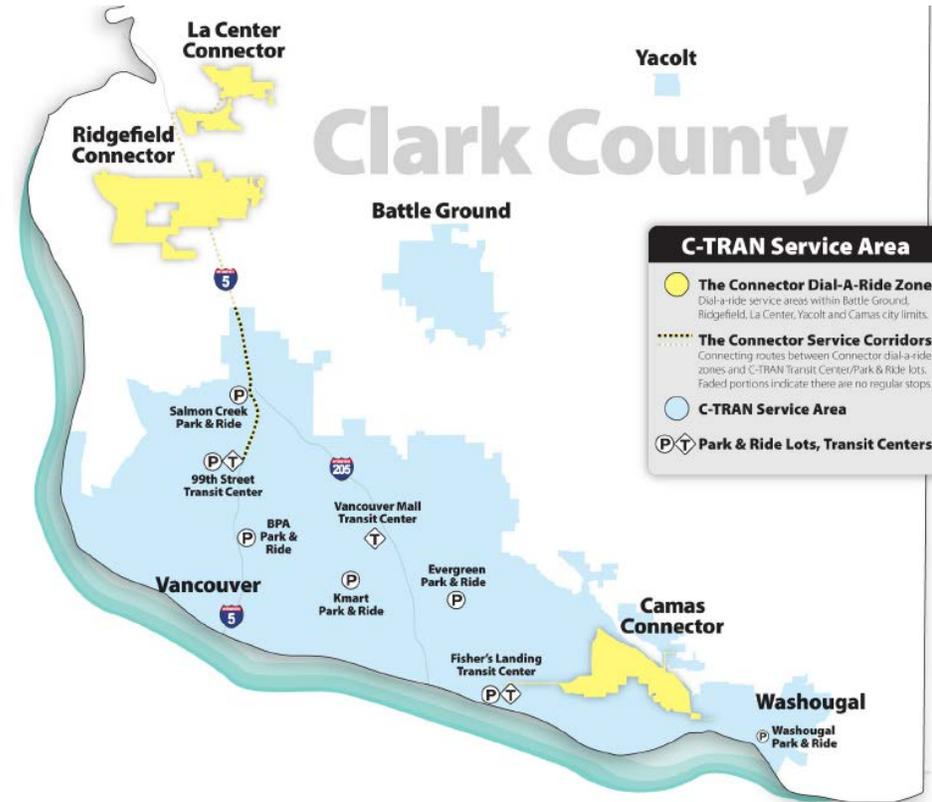
1. Fourth Plain/Andresen Rd. (Northbound) – 256 seconds
2. Fourth Plain/SR-500 (Eastbound) – 180 seconds
3. SR-500/42nd Av./Falk Rd. (Eastbound) – 146 seconds
4. Padden Parkway/NE 94th Av. (Westbound) – 100 seconds
5. 134th Street/NE 20th Av. (Southbound) – 95 seconds

In addition to intersection delay, delay can also occur at freeway off-ramps, where high volumes of traffic are loaded onto the arterial system. This can create a significant problem when traffic backs onto the freeway. Locations known to experience this characteristic in the PM peak include northbound I-205 off-ramp to SR-14, Mill Plain, and SR-500. In the AM peak, backups can occur on SR-500, Fourth Plain, Mill Plain, and SR-14 ramps to I-5 South, and Padden Parkway, SR-500, 18th Street, Mill Plain, and SR-14 ramps to I-205 South.

use lift-equipped buses, making them easily accessible to people with disabilities. Roughly 48% of Clark County households and 72% of county employment are currently within walking distance of peak period fixed route transit service.

Roughly, 48% of the households and 72% of the employment within Clark County are within walking distance of peak period fix route transit service.

Figure x-x: C-TRAN's Current Service Area



C-TRAN's system includes three transit centers at 1) Fisher's Landing, 2) 99th Street at Stockford Village and 3) Vancouver Mall as well as six park and ride lots. Some are operated under a site use agreement. The six C-TRAN park and ride facilities provide nearly 2,000 parking spaces (see Table x-x).

Table x-x: C-Tran Park and Ride Facilities, 2016

Park and Ride Facility	Lot Capacity	Occupancy
99 th Street	609	65%
Evergreen	267	12%
Salmon Creek	472	55%
Andresen/Living Hope	100	96%
Fisher's Landing	563	89%
La Center	30	
Total	2,041	

C-TRAN maintains approximately 945 bus stops throughout the fixed route system within Clark County. Various passenger amenities spread among the routes include 179 passenger shelters and 79 “Simme” seats (paired seats that mount on bus stop pole). C-TRAN installed solar-powered shelter flashers and transit stops, which provide passenger-activated illumination for safety and to more easily read posted schedule information, at bus stops along key transit corridors. All C-TRAN buses are also equipped with a bicycle rack that holds two bicycles. C-TRAN provides instruction and assistance to bicyclists who plan to use transit for part of their trip. Bike lockers are provided at most of C-TRAN’s transit centers and park and ride lots.

C-TRAN Fixed Route Service



C-TRAN operates a fixed route bus system with urban and suburban routes, express commuter service to destinations in Portland, limited routes that connect with light rail in Portland, and a vanpool program. Figure x-x maps C-TRAN’s fixed route system. C-TRAN also provides general purpose dial-a-ride/deviated fixed route, Connector service, and Americans with Disabilities Act (ADA)-compliant paratransit service.

C-TRAN currently operates one Bus Rapid Transit line, 19 local urban, 2 regional limited, and 7 premium commuter express routes (see Table x-x for a list of the routes). Operating hours are generally 4:30 a.m. to 9:30 p.m. on weekdays (with key urban routes operating until midnight), 7:00 a.m. to 8:00 p.m. on Saturdays, and 8:00 a.m. to 7:00 p.m. on Sundays/holidays. C-TRAN provided 286,034 total vehicle hours and 258,416 revenue hours of fixed route service in 2016, with ridership totaling 5,591,464 in 2016. C-TRAN service levels are dependent on sustaining funding sources, with local sales tax being a significant revenue source for system operations.



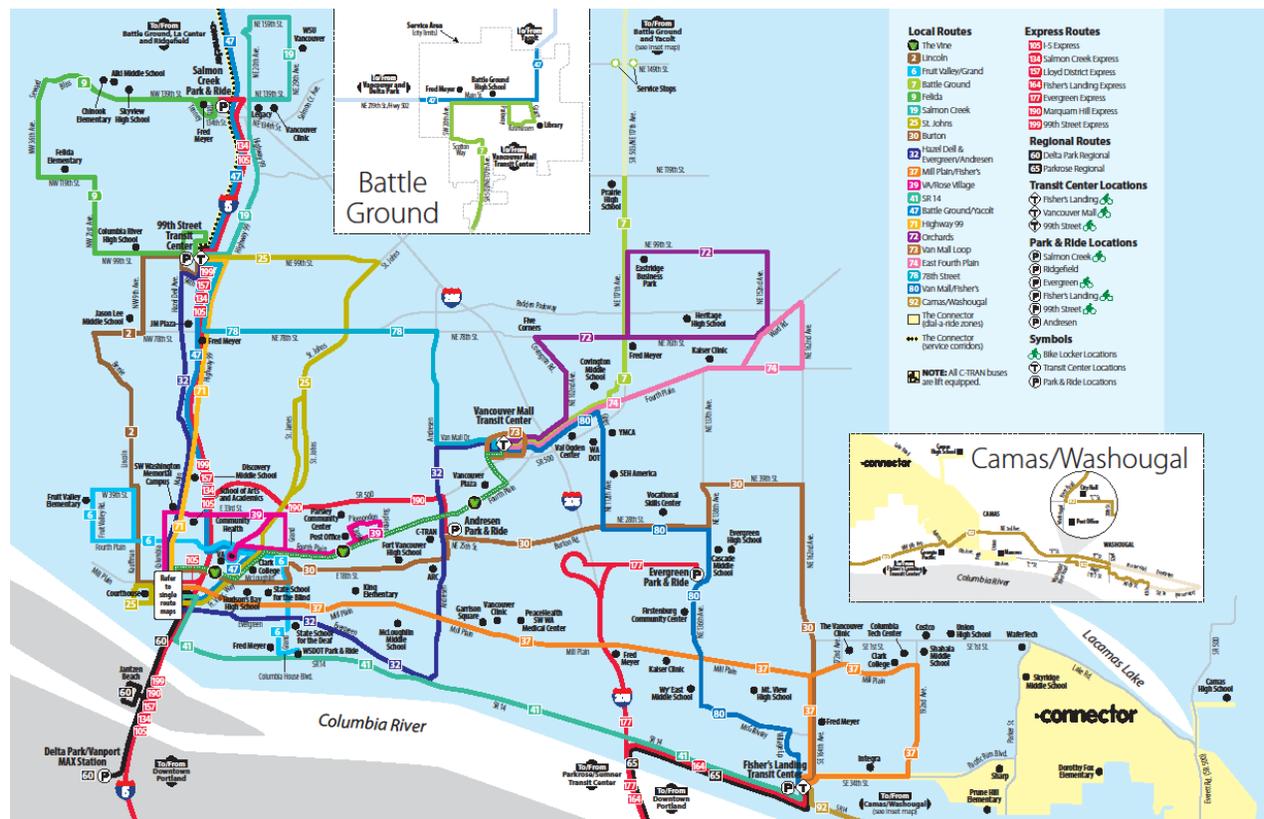
Table x-x: C-TRAN’s Ridership by Service Type, 2016

Service Type	Annual Riders	Percent
Urban/Local	4,798,278	80.8%
Commuter	778,400	13.1%
C-VAN	249,532	4.2%
Events/Other	30,635	0.5%
Connector	14,786	0.2%
Vanpool	68,864	1.2%
Total	5,940,495	100.0%

Table x-x: C-TRAN's Current Fixed Route Bus Service

Bus Route	Route Name	Weekday Service First Trip Begins	Weekday Service Last Trip Ends	Weekday Service Frequency (minutes)	Saturday Service	Sunday & Holiday Service
BRT	The Vine	4:55am	1:06am	10	Yes	Yes
2	Lincoln	6:30am	7:19pm	60	Yes	No
6	Fruit Valley/Grand	5:41am	8:09pm	30	Yes	Yes
7	Battle Ground	6:00am	9:26pm	45	Yes	Yes
9	Felida	6:27am	6:49pm	60	Yes	No
19	Salmon Creek	6:15am	9:49pm	45	Yes	No
25	Saint Johns	5:25am	9:11pm	30	Yes	Yes
30	Burton	5:22am	9:32pm	30	Yes	Yes
32	Hazel Dell & Evergreen/Andresen	5:30am	9:50pm	30	Yes	Yes
37	Mill Plain/Fisher's	4:47am	12:45am	30	Yes	Yes
39	VA/Rose Village	7:30am	7:21pm	60	Yes	Yes
71	Highway 99	5:25am	12:23am	25	Yes	Yes
72	Orchards	5:00am	9:42am	30	Yes	Yes
73	Van Mall Loop	5:39am	9:47pm	60	Yes	Yes
74	East Fourth Plain	5:00am	9:38pm	60	Yes	Yes
78	78th Street	5:00am	9:23pm	60	Yes	Yes
80	Van Mall/Fisher's Landing	5:23am	9:30pm	30	Yes	Yes
92	Camas/Washougal	5:36am	7:50pm	30	Yes	Yes
41	SR14 Limited	7:00am	6:05pm	3 am and 3 pm trips	No	No
47	Battle Ground Limited	5:57am	6:47pm	1 am and 1 pm trips	No	No
60	Delta Park Limited	5:00am	12:34am	15	Yes	Yes
65	Park Rose Limited	5:00am	7:46pm	15	Yes	Yes
105	I-5 Express	5:38am	8:06pm	15	No	No
134	Salmon Creek Express	5:20am	7:10pm	15	No	No
157	Lloyd District Express	6:00am	5:53pm	6am and 4 pm trips	No	No
164	Fisher's Landing Express	5:20am	7:49pm	10	No	No
177	Evergreen Express	6:00am	5:59pm	4 am and 4 pm trips	No	No
190	Marquam Hill Express	6:00am	5:57pm	5 am and 5 pm trips	No	No
199	99th Street Express	5:20am	7:10pm	15	No	No

Figure x-x: C-TRAN’s Fixed Route Transit System Map



C-TRAN Paratransit Service

C-TRAN provides an ADA-compliant paratransit service, known as C-VAN. Paratransit service is provided inside the Vancouver urban growth boundary (UGB) and within three-quarters of a mile of all C-TRAN fixed routes operating outside Vancouver’s UGB. C-TRAN attained full compliance with the ADA by January 1997. Connections with TriMet’s LIFT service, operating in the Portland, Oregon metropolitan region, are made at the Parkrose and Jantzen Beach transit centers.

C-TRAN continues to use a functional assessment process to determine eligibility for paratransit services. Additionally, C-TRAN offers a Travel Training program that provides customized training to seniors and individuals with disabilities so they become comfortable riding the bus. Participants learn the skills necessary to plan trips and travel across the C-TRAN system. Additionally, travel trainers offer the Blue Strap program, providing a blue securement strap to individuals using mobility devices who ride fixed route buses. The blue strap helps ensure mobility devices can be quickly and safely secured. The Travel Training program is provided using New Freedom formula funding.

While C-VAN carries about 4% of C-TRAN system ridership, it accounts for approximately 24% of C-TRAN’s operating costs. With forecasts of significant growth in demand for paratransit service in the coming years with the increase in

percent of aged population in Clark County, managing the costs of this service is a challenge for C-TRAN

C-TRAN Connector Service

C-TRAN operates other innovative transit services including Connectors and the shopping shuttle. In 2003, C-TRAN implemented its first innovative transit service, a dial-a-ride route replacing a low performing fixed route in Camas. In 2006, three additional innovative Connector routes were deployed resulting in a significant increase in trips and revenue hours. These additional routes restored a transit connection to smaller cities in C-TRAN's service area. In early 2007, the Battle Ground Connector was replaced with Route #7 Battle Ground due to ridership demand. The Yacolt Connector was replaced by an extension of Route #47.



Connector services are equally accessible and available to the general public. These routes take standing reservations, same day reservations as available, and also pick customers up at identified stop locations. Connector trip numbers are documented in Table x-x.

The Camas Connector operates in the Camas area, with a connection to the Fisher's Landing Transit Center. This service operates 5:30 a.m. to 9:15 a.m. and 2:00 p.m. to 7:30 p.m., Monday – Friday.

Connector service also operates in the cities of Ridgefield and La Center. These Connectors each have two components: 1) a deviated fixed route within each city's limits and 2) a feeder service connection to the local urban fixed route system at the 99th Street Transit Center.

C-TRAN Shopping Shuttle

The [shopping shuttle](#) was established at the recommendation of C-TRAN's ADA Task Force. It provides direct transit service between select housing areas and shopping destinations on a fixed schedule. The shuttle operates on the first and third Tuesdays of each month.

C-TRAN, Security

C-TRAN uses security measures to make the transit system safer for its users. These security measures include provision of mobile security patrols at the 99th Street, Fisher's Landing, Vancouver Mall, and Salmon Creek facilities. The City of Vancouver's Police Department maintains a close working relationship with C-TRAN and responds, as needed, to ensure a safe and secure environment for transit passengers. C-TRAN buses are equipped with emergency alarms, automated vehicle

locators, and two-way radios. Additionally, C-TRAN's entire fixed route fleet, part of its paratransit fleet, and park and rides are equipped with digital video cameras.

Human Services Council: Transportation Brokerage

The Human Services Council Transportation Brokerage arranges rides for elderly, low income and people with medical needs and disabilities through contracts and arrangements with a variety of transportation providers. This service is highly valued in the community by people that have no access to C-TRAN or C-VAN services or for people for whom regular transit service does not work. Continuation of the Brokerage services is dependent on grant funding.

Inter-City Bus

Inter-city bus service to cities throughout the northwest and nation-wide, provided by Greyhound Bus Lines, is no longer available from Vancouver. The Greyhound bus service stop in Vancouver, Washington closed on January 1, 2009. Vancouver residents now have to travel to Portland, Oregon to access this service and the Bolt Bus service. Connection with Skamania County is provided through Skamania Senior Services and connection with Cowlitz County provided by CAP managed by Lower Columbia Community Council. Connections to both Skamania and Cowlitz counties are subject to continued grant funding.

Rail

[Amtrak](#) has an agreement with BNSF to operate passenger service on the freight carrier's rail lines. Amtrak trains serve Vancouver daily. During the 1990s Washington and Oregon began to invest transportation funds to improve local Amtrak service. In 1993, Amtrak offered a single local daily round-trip connecting Eugene and Seattle with ridership totaling 94,061 trips. By 2011, service has grown to four daily [Amtrak Cascades](#) roundtrips operating between Seattle and Portland, with two extending to Eugene and Vancouver BC, Canada. Between 1993 and 2013, ridership increased by 758% from 94,061 annual riders in 1993 to 807,349 riders in 2013. 72,500 passengers boarded or deboarded at the Vancouver Amtrak station in 2013.

The *Coast Starlight*, with service between Seattle and Los Angeles, via Vancouver and Portland, also provides once a day, daily service. The Empire Builder also provides one train a day, on a daily basis, between Chicago and Spokane from where one part of the train continues to Seattle and the other part continues, via Pasco and Bingen-White Salmon, to Vancouver with service terminating in Portland.

The Pacific Northwest Rail Corridor is one of eleven designated high-speed corridors in the nation. Its designation pre-qualifies the region for federal high-speed rail funding. In late 1995, the Washington State Department of Transportation (WSDOT) and project partners published [Options for Passenger Rail in the Pacific Northwest Rail Corridor](#) report. An Environmental Impact Statement on corridor

improvements was completed and construction of rail corridor improvements began in 1998. Custom-built Talgo trains are now in service on Amtrak's Pacific Northwest Rail Corridor service. The Vancouver Amtrak station facility was upgraded as part of the Eugene to Vancouver B.C. passenger rail service improvements. In the early 2010's, the [Vancouver Rail Project](#) improvements in the vicinity of the Vancouver Yard were made with the intent of increasing safety, reducing rail congestion, and improving on-time performance of Amtrak's passenger rail service. The project added a new rail bypass track and a grade-separated crossing of the rail lines for vehicles using west 39th Street in Vancouver was opened in 2010.

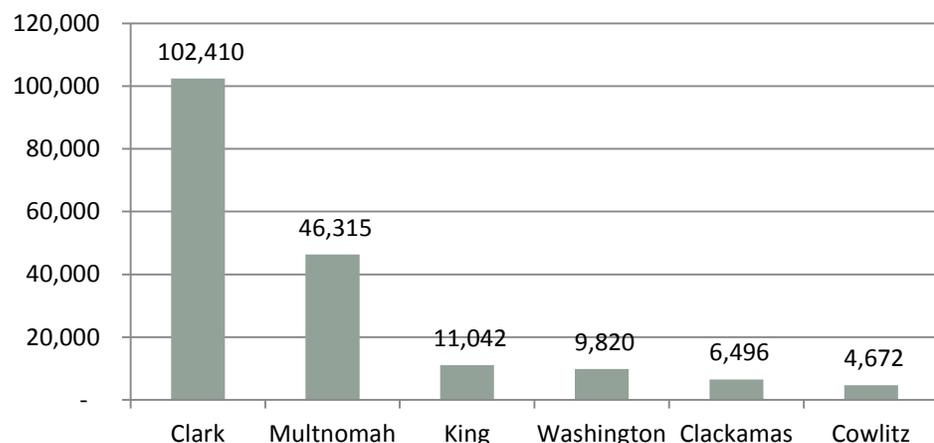
Travel to Work

Commute trips often serve as the anchor for our daily travel plans and decisions. Data from the US Census (2011-2015 ACS 5-year) provides some information regarding the nature of commuting for Clark County residents.

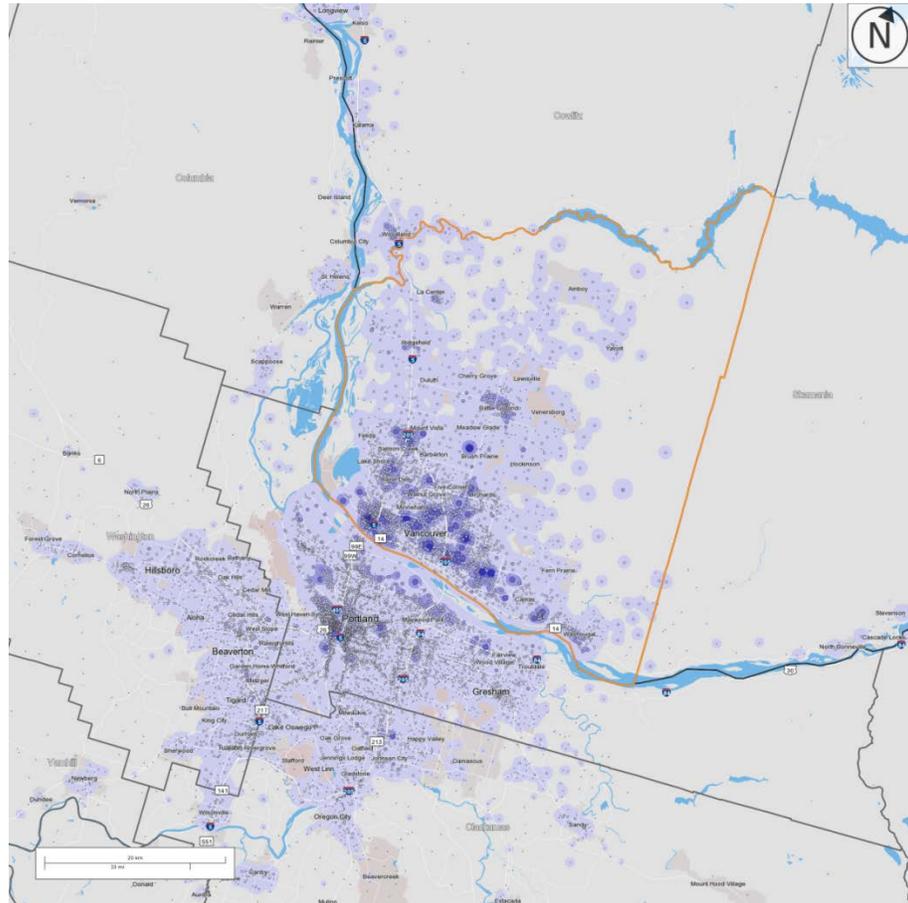
- Mean Travel Time to Work = 25.30 minutes
- Commutes under 15 minutes = 24.2%
- Commutes of 45 minutes or more = 13.5%
- Commutes by transit, 45 minutes or more = 56.4%
- Depart for work between 5 – 9 am = 68.1% of all commuters

Residents of Clark County commute to a variety of workplace locations. Of nearly 200,000 employed residents, 102,000 work in Clark County and nearly 63,000 (31.3%) work in the Oregon counties of Multnomah, Washington and Clackamas (see Figure x-x). King County, WA is also a significant draw with 11,000 residents working in the Seattle area. In total, these areas account for 88% of the workplace locations for county residents.

Figure x-x: Workplace Locations for Clark County Residents, 2015 LEHD

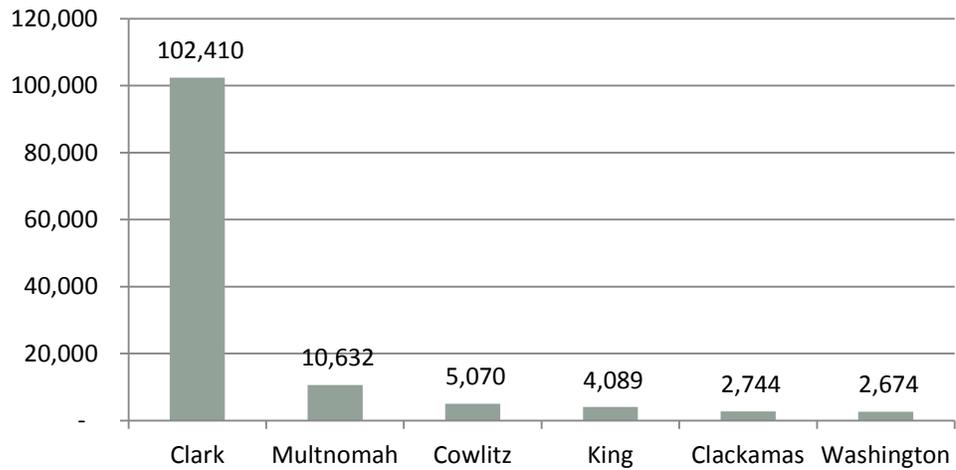


**Figure x-x: Heat Map of Workplace Locations for Clark County Residents, 2015
LEHD**



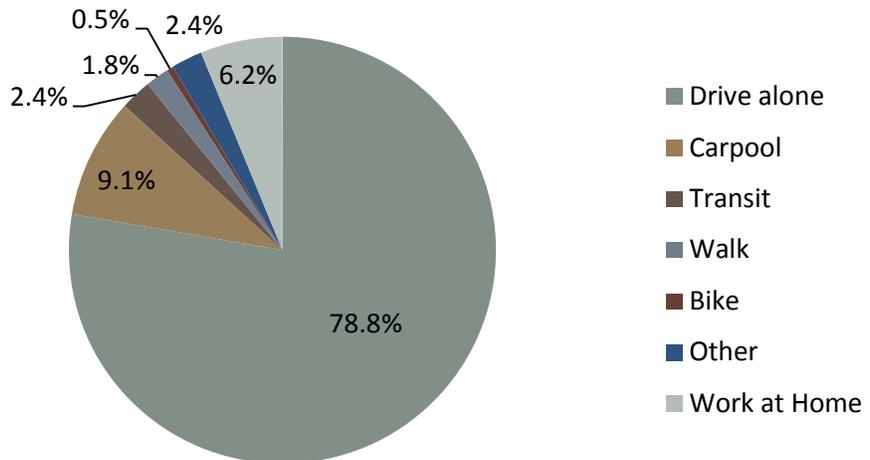
Just as many Clark County residents work outside of the county, over 25% of those working in Clark County reside outside of the county. Over 10,000 people commute from Multnomah County (see Figure x-x). Cowlitz and King counties round out the next two highest home locations for those working in Clark County, with 5,000 and 4,000 people respectively commuting to Clark County for work.

Figure x-x: Home Locations for Workers Working in Clark County, 2015 LEHD



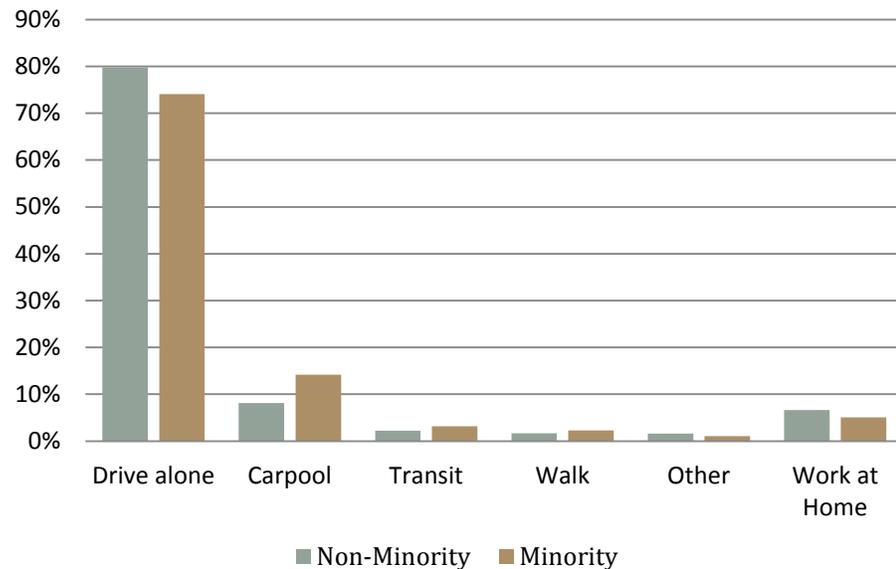
About 88% of Clark County commuters travel to work by automobile, with 78.8% driving alone and 9.2% in a carpool (see Figure x-x). Since the 1990's, the proportion of Clark County residents working from home has nearly doubled from 3.3% to 6.2%. Together, transit and non-motorized commutes account for nearly 5% of all commute trips. Overall, 26,400, or 12%, of Clark County workers do not use a car to travel to work, that is roughly equivalent to all the workers who reside in the cities of Camas, Washougal and Battle Ground.

Figure x-x: Travel Mode for Commute Trip, 2011-2015 ACS



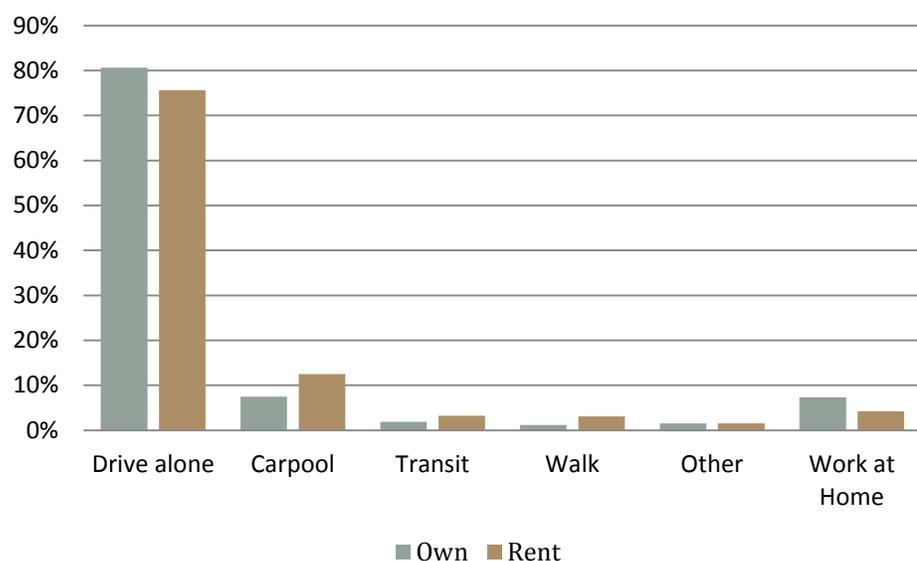
Commuter trip mode choices vary due to socioeconomic factors. Commuters with no vehicle available represent 1.5% commuters; however they represent 11.5% of all transit commuters. Minority persons are significantly more likely to carpool and less likely to work at home. 17.9% of all commuters are minority persons, while minorities make up 23.7% of all transit commuters.

Figure x-x: Commute Mode by Minority Status, 2011-2015 ACS



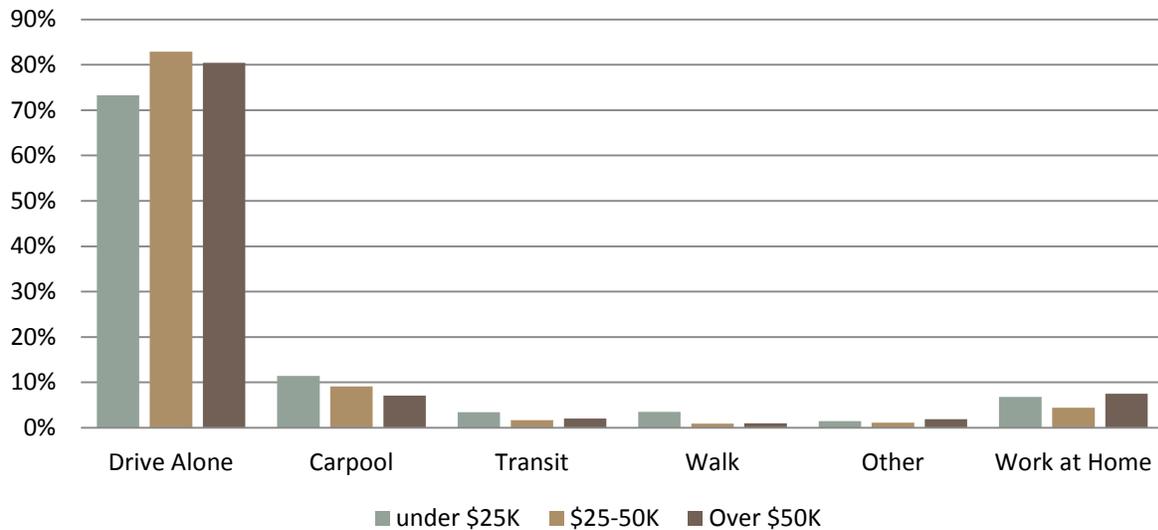
Renters are more likely to carpool, walk and use transit and less likely to work at home.

Figure x-x: Commute Mode by Home Ownership, 2011-2015 ACS



Low income persons are less likely to drive alone and more likely to carpool, walk or use transit. 5.1% of all commuters live below the poverty line, while those in poverty make up 13.3% of all transit commuters.

Figure x-x: Commute Mode by Income, 2011-2015 ACS



Commute trip destination also has an impact on commute mode. Those staying in Clark County for work are less likely to drive alone, carpool or use transit. They are more likely to use non-motorized modes and of course only they can work from home. Those working outside the state of Washington are more likely to travel by car and much more likely to use transit. In fact, about 60% of persons using transit to commute to work commute to another state.

Figure x-x: Commute Mode by Commute Destination, 2011-2015 ACS

