

WASHINGTON COUNTY FIRST AND LAST MILE TRANSIT ACCESS STRATEGIES TOOLBOX



In support of policies adopted by Washington County, local jurisdictions, Metro, and TriMet, Washington County is developing a *Strategic Solutions for First Mile/Last Mile Transit Connections Plan*.

The plan aims to expand travel options for commuters, expand first/last mile access to transit, and leverage new technologies to make transit, walking, and biking more convenient and accessible. This plan builds on previous plans and studies developed by the County and its partners.

This toolbox presents first/last mile transit access strategies that have potential to be successful in Washington County.

Washington County is comprised of a diverse array of people, land uses, and transportation needs; therefore, this toolbox recognizes there is no single strategy that can address transit access deficiencies equivocally throughout the various community contexts in Washington County. The project seeks to advance transit equity in Washington County, which includes developing policies that promote the equitable distribution of burdens and benefits and equal access to resources and services. As first/last mile solutions are refined throughout this planning process, strategies will be evaluated with an equity lens and will consider the specific transportation and land use factors relevant to the residents travelling within Washington County.

As a major jobs center served by light rail, regional and local buses, and commuter rail, Washington County is a significant destination for transit riders in the Portland metropolitan region.

Home to over 600,000 people and with greater ethnic and racial diversity than the region overall, Washington County is a mix of suburban and rural communities, with denser town centers in Hillsboro and Beaverton along the TriMet MAX light rail line. Most people who live or work in Washington County commute by single occupant vehicle, and workers who both live and work in Washington County are less likely to commute by transit than Washington County workers who live outside the County. This discrepancy may indicate a lack of easy access to transit for Washington County residents.

Combined with Washington County's generally low-density development patterns, the low rate of transit commuting (below 5% for Washington County workers and residents) indicates that first/last mile connectivity improvements could be a powerful tool to increase transit use. As Washington County prepares to add 150,000 residents and over 100,000 jobs by 2035, making transit attractive to commuters will be key to maintaining the County's livability and economic vitality.

This toolbox includes national and international case studies that are relevant to the local context.

Case studies were selected to reflect a range of implemented first/last mile strategies, taking into account the following criteria:

- **Where possible, reflecting similar land use/transportation context to Washington County (suburban locations with a combination of light rail or other regional transit and access to nearby urban and/or rural areas)**
- **Integration of transit services and first/last mile strategies, via fare payment, trip planning, or other means**
- **Real-world implementation for at least several months, with publicly-available results**
- **A range of delivery models, including public-private partnerships, employer-provided strategies, and services provided by transit operators**



BIKESHARE



DESCRIPTION

Bikeshare aims to provide convenient, affordable, on-demand access to bikes for short-term use while enhancing access to transit. Bikeshare stations typically are situated near transit stops and major residential or commercial destinations. Bikeshare programs can help reduce traffic congestion, air pollution, and the demand for vehicle parking. Bikeshare also may be attractive to people who prefer to not own a bike because of the risk of theft and vandalism, a lack of parking or storage, and maintenance costs.

Bikeshare systems include: station-based bikeshare, where bikes are parked at automated kiosks typically located near transit stations and major destinations; dockless bikeshare, where GPS-enabled bikes can be parked anywhere within a designated service area; hybrid station-based and dockless bikeshare systems, similar to Portland's BIKETOWN; and internal bikeshare systems, provided by employers, hotels, and other large organizations for their users. Several parties or companies could be involved in any given system. One party may produce the bikes, another may operate the program, and a city or private entity may own the bikeshare system. Many cities have bikeshare systems that are owned and operated by private companies.

OBJECTIVE

Bikeshare offers a flexible nonmotorized transportation option for people who choose not to own a bicycle or who prefer not to bring their bikes on transit.

CONTEXT

Urban areas and dense suburban areas with major destinations.

TRANSIT INTEGRATION

Bikeshare can be a first/last mile connection to transit and reduce the need for parking at transit stations. It also increases the station access area beyond what people can comfortably walk.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunity

Work with local jurisdictions and providers to pilot dockless bikeshare services near light rail stations, using Portland's e-scooter pilot and NACTO's *Guidelines for the Regulation and Management of Shared Active Transportation* as guides for implementation.



Costs

Since providers are privately owned, the public investment for dockless bikeshare pilot programs is primarily staff time. Some bikeshare providers require no public investment, although, as mentioned before, this type of system has the potential to be more successful with an integrated payment and trip planning platform, which may require some public costs.



Benefits

Station-based bikeshare systems, such as Capital Bikeshare in Washington DC, provide important first/last mile connectivity in cities where they are well-established. Initial data from dockless bikeshare providers indicate that they may attract more riders from a broader demographic than station-based systems.



Risks & Challenges

Dockless bikeshare can clutter sidewalks when users park the bikes haphazardly. This market remains volatile, with providers entering and exiting markets and no proven profit model. Without active redistribution of bicycles, they can sometimes accumulate in inconvenient locations that do not provide a connection transit.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit.



Equity Considerations

Explore piloting adaptive bikeshare vehicles and providing low-income pricing and cash payment options, as BIKETOWN in Portland has done. Prioritize providers who provide non-smartphone access options. Require providers to provide service in areas with high access needs.

CASE STUDIES / REAL-WORLD APPLICATION

**Station-Based Bikeshare:
Helsinki, Finland**

Helsinki’s bikeshare system—City Bikes—is operated as a public private partnership between Helsinki Regional Transport Authority (HSL), Helsinki City Transport (HKL), Espoo Technical and Environment Services, Moventia and Smoove.

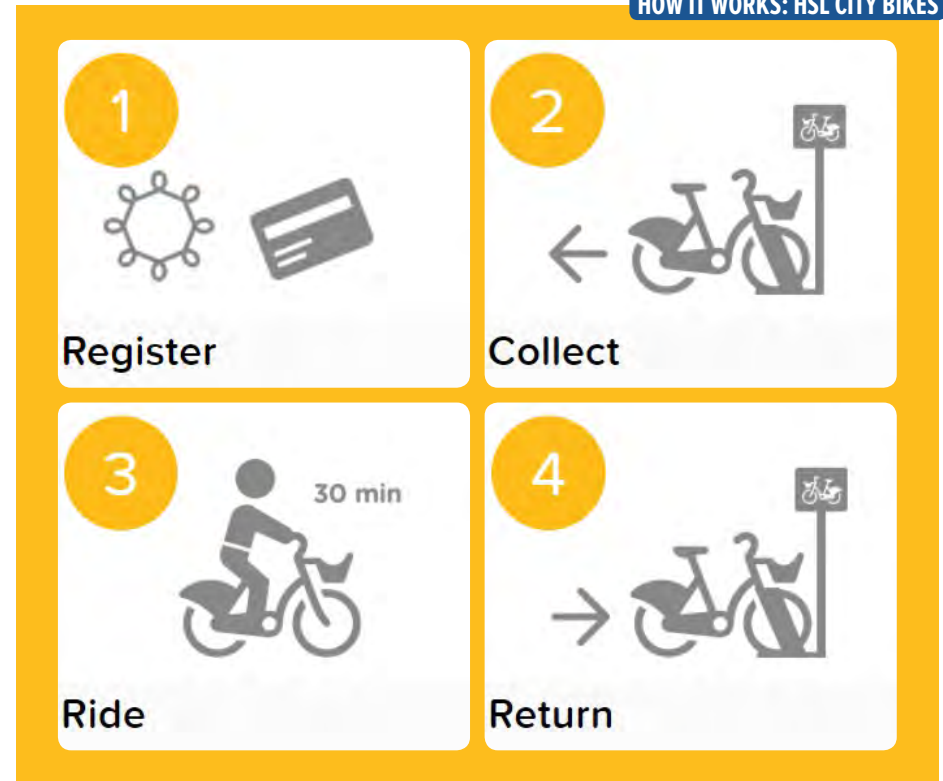
The city-owned bikes are marketed as part of the regional system to create a fully integrated transportation system that is seamless for the user. This integration is in the form of consistent branding, fare payment integration, and trip planning apps. HSL provides an open data source called Journey Planner that has resulted in a number of third party apps that allow users to easily plan and pay for multimodal trips. Helsinki also has a payment system, the Helsinki Travel Card, which is a smartcard used to pay for all trips, and can be used for personal identity verification in the bikeshare system.

**Station-Based Bikeshare:
Hangzhou, China**

Hangzhou runs what was largest bikeshare program (until the proliferation of dockless bikes) with 84,000 bikes and 2,700 stations.

This bikeshare, starting in 2008 as the first bikeshare system in China, is funded entirely by the municipal government. Hangzhou’s bikeshare system was planned and designed carefully to serve as a first/last mile solution. The density and service radius of its bike stations is about a half mile, which makes for an effective connection to or from transit. In addition, the largest bike stations (with 80 to 140 bikes) are located at transit hubs, and smaller stations are found at bus stops. The system also uses fare payment integration, where a single fare card provides access to subways, buses, ferries, taxis and bikeshare. The first hour of bikeshare use is free, but if you transfer from a bus, the first 90 minutes is free.

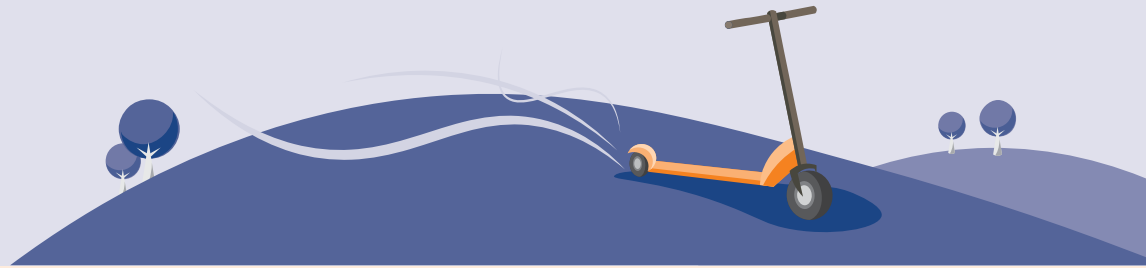
HOW IT WORKS: HSL CITY BIKES



Source: <https://kaupunkipyorat.hsl.fi/en>



ELECTRIC SCOOTERS



DESCRIPTION

A new generation of small, shared electric scooters (e-scooters) have recently become available for short-term, app-based rentals. E-scooters use an electric power source and feature a floorboard (and sometimes a seat) for the rider to stand on. They can allow people to connect to a transit stop that otherwise might be too far to reach by walking. E-scooters are not allowed to use sidewalks, but can use bikeways if riders travel at a reasonable speed, wear a fastened bicycle helmet, and yield to pedestrians.

Several cities are currently operating or have recently approved pilot programs for electric scooters. Typically, these pilot programs allow e-scooters to operate on city streets for a limited time period (from several months to a year), limit the number of e-scooter providers and the total number of vehicles, and require that scooter providers apply for permits and adhere to safety regulations. The National Association of City Transportation Officials (NACTO) Guidelines for the Regulation and Management of Shared Active Transportation provides minimum standards for cities operating pilots for shared transportation (including e-scooters) and identifies regulatory options for addressing common challenges, such as parking on sidewalks.

OBJECTIVE

Electric scooters offer a faster and less physically taxing mode of transportation compared to walking or biking.

CONTEXT

Urban areas and suburban town centers.

TRANSIT INTEGRATION

E-scooters can be a convenient way to connect to transit and can reduce the need for parking at transit stations.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Opportunities

In the near term, work with local jurisdictions and providers to pilot e-scooter services near light rail stations, using Portland's e-scooter pilot and NACTO's *Guidelines for the Regulation and Management of Shared Active Transportation* as guides for implementation. In the longer term, integrate fare payment and trip planning information.



Costs

Since providers are privately owned, the public investment for e-scooter pilot programs is primarily staff time.



Benefits

Initial data from e-scooter pilots indicate that scooters can enhance transit access.



Risks & Challenges

E-scooter systems can create sidewalk clutter when users park scooters haphazardly. This market remains volatile, with providers entering and exiting markets and no proven profit model. E-scooters present safety concerns, since most users are new to riding them, do not use helmets, and ride on sidewalks, making crashes both more likely and more severe. Some short-distance transit trips could be replaced by e-scooter trips, reducing transit ridership slightly.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit. Users may not comply with Oregon's law that requires helmets and prohibits scooters from operating on the sidewalk.



Equity Considerations

Explore providing low-income pricing and cash payment options. Require providers to offer service in areas with high access needs. To reduce sidewalk clutter that impairs wheelchair users, provide scooter parking corrals and require providers to offer easy reporting methods for nuisance parking.

CASE STUDIES / REAL-WORLD APPLICATION

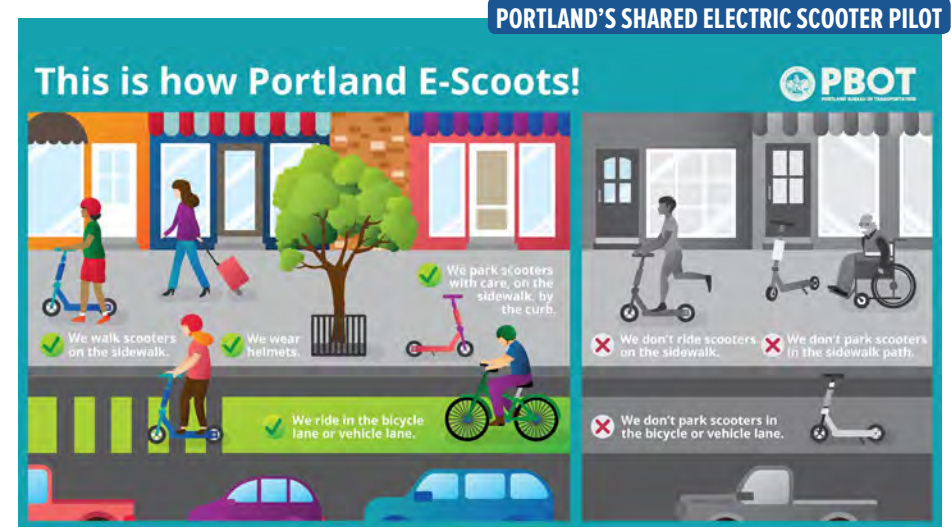
Shared Electric Scooter Pilot: Portland, Oregon

Currently, Portland is one of many cities across the United States that is allowing shared e-scooters under a pilot program to test their effects on travel behavior and to identify safety and operational challenges.

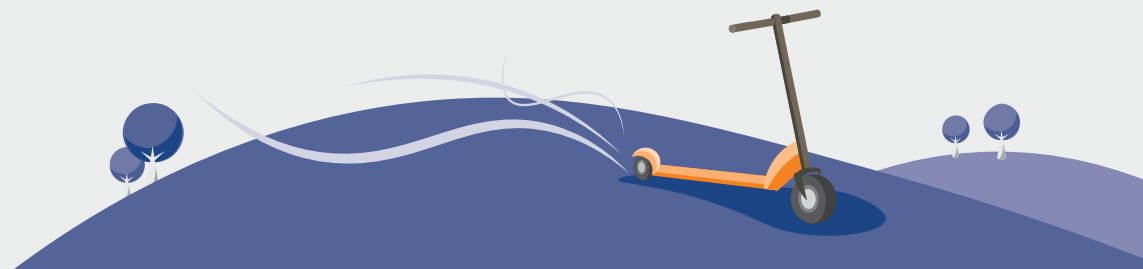
The City of Portland's Shared Electric Scooter Pilot is currently collecting data from its initial four-month trial to inform long term policies around e-scooters. The pilot program ends in November 2018, with findings anticipated in January 2019. Three e-scooter operators are participating in the pilot program, and the program has a citywide cap of 2,500 scooters. Scooter companies are required to provide usage data to the City, are required to provide low-income pricing options, and are required to provide at least 100 scooters or 20% of their

fleet within Portland's East Neighborhoods (generally between I-205 and Gresham).

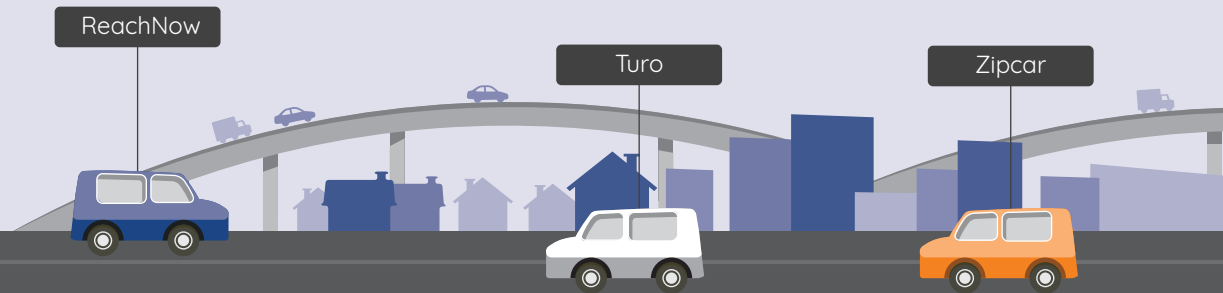
Midway through the pilot, the Portland Bureau of Transportation (PBOT) released results from a survey of nearly 75,000 riders. The survey indicates that about 6 percent of e-scooter riders use them to get to or from transit, and 17 percent use e-scooters for trips that are not served by transit. Twenty percent of riders state that they use transit less often since e-scooters became available. Taken together, these findings indicate that e-scooters can serve as a complement to transit, providing some first/last mile connectivity and providing connections between locations that are not currently well-served by transit. However, some trips that would have been taken by transit are now taken by scooter, presumably because it is more convenient or takes less time, providing a better overall mobility outcome for riders but less transit ridership.



Source: <https://www.portlandoregon.gov/transportation/77294>



CARSHARE



DESCRIPTION

Carsharing offers people a convenient way to make connections beyond the first and last mile of a public transit stop. Having carsharing available at public transit stations may also allow transit users to forgo having their own vehicle in exchange for using a carshare vehicle for trips on an as-needed basis.

Carshare services offer access to vehicles 24 hours a day, seven days a week. These cars can be found within a specified service area, at transit stations, and other locations, and people can find them by using a smartphone app. Users are typically charged according to how long they use the car or how far they drive. Fees cover car insurance, parking, emergency roadside service, and other car-related expenses. Carsharing companies operate under three different models: **round-trip** carshare services (e.g. Zipcar), **free-floating** services that allow cars to be returned to any parking spot within a service area, and **peer-to-peer** carshare services that allow individual car owners to rent out their vehicles. Carpooling (or sluglining) can provide access using private vehicles. Typically, pick-up and drop-off locations are located at transit stations and large parking lots near residential areas.

OBJECTIVE

Carsharing services can make it more attractive and feasible to reduce personal vehicle use and ownership.

CONTEXT

Urban and suburban areas; informal carpooling is also common in rural areas.

TRANSIT INTEGRATION

Carsharing can be available at transit stations as another form of first/last mile connection and can reduce the need for parking or for dropoff space at stations.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunities

Work with carshare providers, TriMet, and local jurisdictions, as needed, to designate dedicated carshare parking spaces near transit stations and to ensure that paid parking accommodates carshare vehicles and users. Include carshare as a strategy when providing recommendations to travel options to partners (employers, developers, and property owners).



Costs

Minimal cost to designate carshare spaces if a parking lot already exists; potential parking revenue loss if the carshare space replaces a paid parking space.



Benefits

Enabling carsharing near transit enables transit users to make occasional last mile trips to destinations that are not well-served by other last mile modes.



Risks & Challenges

The carshare space is still somewhat volatile, so operators and business models are likely to change over the next several years. Carshare operators also commonly shift their fleets to maximize revenues, even if that means relocating vehicles away from transit facilities.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit.



Equity Considerations

Encourage providers to locate vehicles in neighborhoods with high access needs and explore partnerships to low-income membership options. Explore carshare programs targeting low-income communities similar to the Community Electric Vehicle (CEV) Project developed by Hacienda CDC.

CASE STUDIES / REAL-WORLD APPLICATION

King County Metro, Seattle, Washington

King County Metro in Seattle began a carshare parking pilot at the Northgate park and ride in January 2018. Four parking stalls were designated for use by two free-floating carshare providers – car2go and ReachNow.

Before the pilot, the carshare companies showed an average of 2.6 trips per day with a start or end point at the Northgate Transit Center East Lot where the designated spots were added. After the program launch, trips per day grew from 7.4 in January to 14.0 in June (the last month of data in the initial assessment report). While stall utilization data was only available from one carsharing company, use of the designated parking stalls increased from 10 percent in January to 60 percent in June for that provider.

Usage was highest on weekends, and carshare vehicles were parked for a median of 2.42 hours, which is much shorter than the average estimated time parked for personal vehicles in the lot. Carshare use peaked in the evenings between 4 pm and 8 pm, possibly corresponding with non-routine after-work trips. The user survey found that over two thirds of respondents used the parking to access nearby amenities, while 39 percent used it to access transit. User surveys showed that three quarters of users thought that the designated parking spaces improved their travel experience and two thirds would not have driven a carshare vehicle had the spots not been available, suggesting that carshare increased the variety of mobility options for Northgate transit users. The initial findings report determined that the program was so far meeting King County goals, but it was unclear whether the carshare spots had any effect on ridership. The pilot has been extended to June 2019.

KING COUNTY METRO'S CARSHARE PARKING PILOT



Connecting TO a bus, vanpool or carpool:

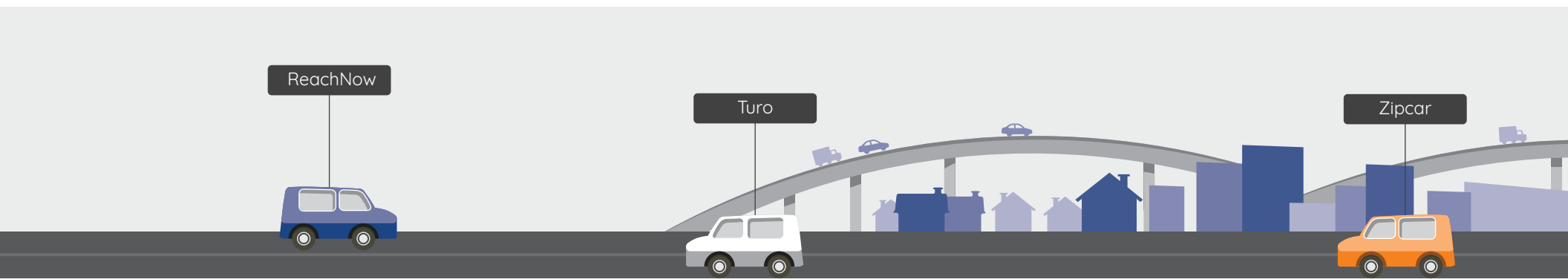
- 1 Drive your shared car to [Northgate Transit Center](#).
- 2 Park your shared car in the [designated space](#) at the transit center.
- 3 Board your bus, vanpool or carpool and continue your trip.



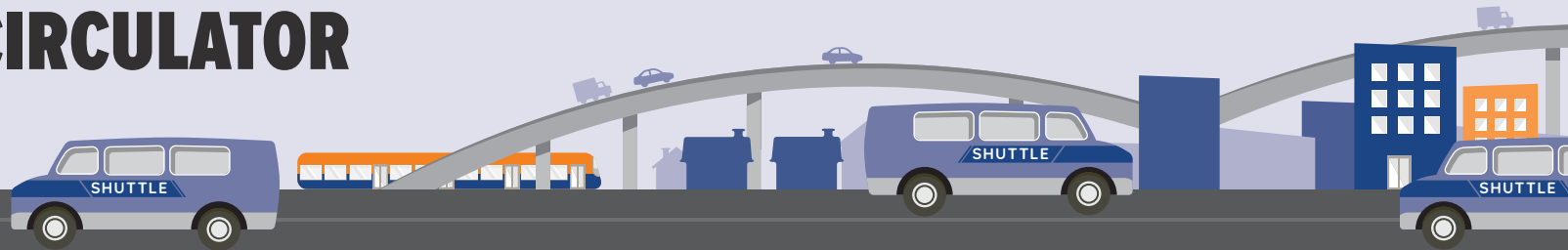
Connecting FROM a bus, vanpool or carpool:

- 1 Reserve (if available) a shared car via the [car2go](#) or [ReachNow](#) app in advance of arriving at Northgate Transit Center.
- 2 Go to the dedicated car share spaces at the transit center.
- 3 Find your shared car and off you go.

Source: <https://kingcounty.gov/depts/transportation/metro/programs-projects/transit-corridors-parking-and-facilities/car-share-parking-at-northgate.aspx>



EMPLOYER/CIRCULATOR SHUTTLES



DESCRIPTION

In places where workplaces are located further than a short walk from transit stations, including Washington County, some large employers may provide shuttles connecting their campuses with transit. Shuttles typically provide service only during the morning and afternoon peak commute hours and are timed to connect with transit. These shuttles can be privately operated for the exclusive use of a single company's employees or can be jointly funded by a consortium of employers and coordinated through a local chamber of commerce, government agency, and/or a Transportation Management Association (TMA). Shuttles operated by TMAs or public agencies are often open to members of the public, and may serve shopping and service destinations as well as workplaces.

In Washington County, Intel and Nike provide employee shuttles that connect their campuses to MAX stations. Several publicly-accessible circulator shuttles currently operate in Washington County, including Grovelink in Forest Grove, King City RideAbout, North Hillsboro Link, the Tualatin Shuttle, and westLink in Hillsboro, Banks, and North Plains.

OBJECTIVE

Connecting large employers with transit for commuting purposes.

CONTEXT

Urban and suburban areas with large employers and gaps in transit coverage.

TRANSIT INTEGRATION

Employers shuttles act like an extension of traditional fixed route transit service and cover gaps in fixed route coverage, making it more viable for employees to use transit for their daily commute.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunities

Work with major employers in Washington County to improve existing shuttle access to light rail, particularly by providing curbside pick-up and drop-off areas and wayfinding within and around transit stations. Identify opportunities to provide shuttles that serve commuters during peak hours and community members during off-peak hours.



Costs

Shuttle operating costs vary widely. Employers typically fund the cost of shuttle purchase and operation, although shuttles that are accessible to the public may be subsidized by public agencies or by transportation management associations.



Benefits

Shuttles can substantially increase transit mode share for specific employers, particularly when combined with transit subsidies for commuters.



Risks & Challenges

Commuters and community members tend to have different destinations and travel needs, making it challenging to serve both within the same system.



Policy Implications

Aligns with Washington County policies encouraging coordination with employers, business associations, and the Westside Transportation Alliance to reduce drive-alone mode share.



Equity Considerations

Pilot publicly-accessible shuttles funded through partnerships with employers. If private, non-publicly accessible shuttles use public bus stops, explore program to collect data and prevent interference with public service, similar to San Francisco MTA's Commuter Shuttle Program.

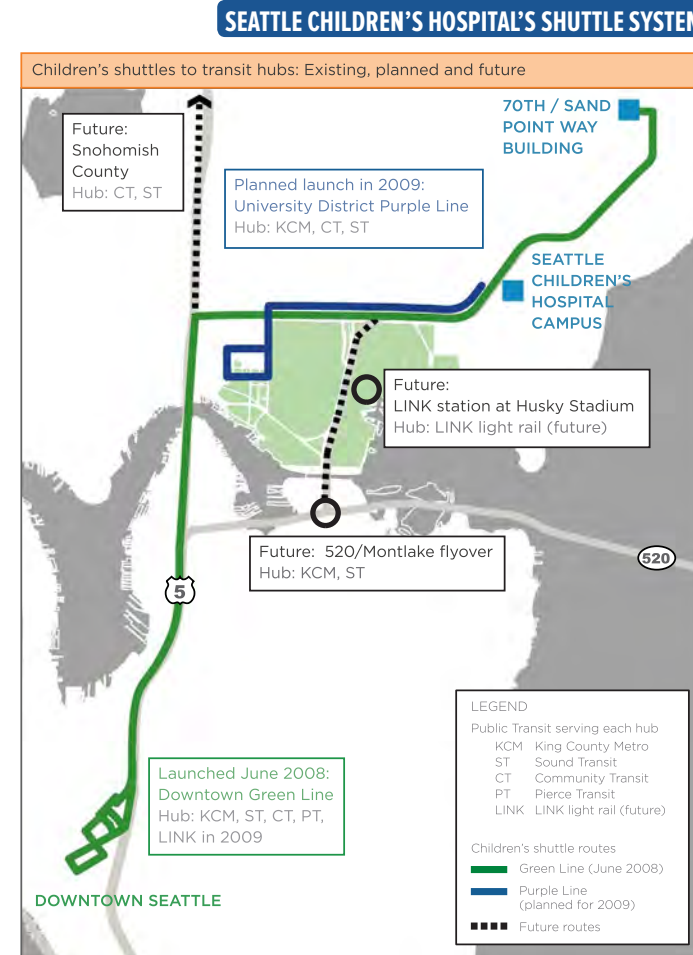
CASE STUDIES / REAL-WORLD APPLICATION

**Seattle Children’s Hospital:
Seattle, Washington**

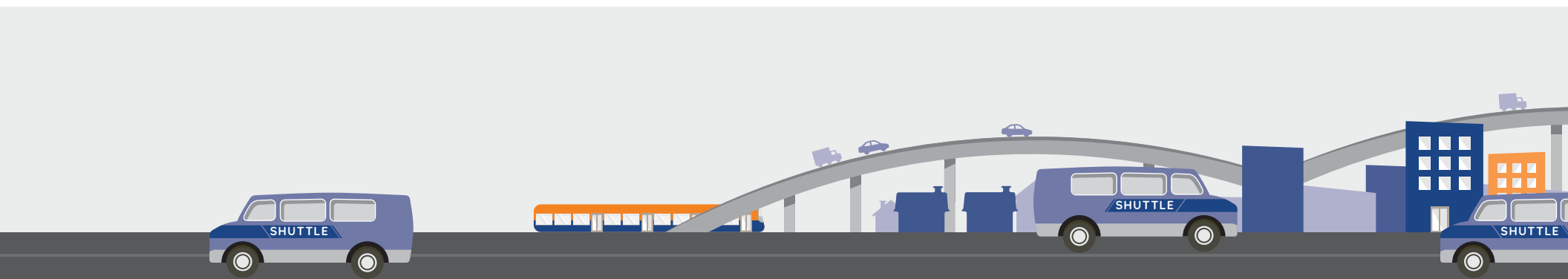
Seattle Children’ Hospital is a strong model for promoting alternative transportation modes, with the mode split to prove it.

The 2008 Master Plan laid out a target to reduce the share of commuters who arrive in a single occupancy vehicle to 30 percent by 2028. The hospital is working to reach this goal through both a carrots and sticks approach to travel behavior—making it less attractive to drive while also making other modes more attractive. The hospital runs 4 shuttle routes between its campuses, off-

campus lots and transit hubs. Shuttles range in frequency by time of day and route, varying from every 2-15 minutes to every 20-30 minutes. Seattle Children’s participated in a pilot program in 2017 where they partnered with the City of Seattle and King County Metro to share four public transit bus stops and include clear signage and branding. The hospital paid an annual fee of \$300 per vehicle in permit fees that go to the Transportation Operating Fund. This formalized relationship increases the ease of the transfer and first/last mile gap for employees. When Seattle Children’s created a shuttle stop near the Downtown Transit Tunnel in 2008, ridership increased from 340 to over 500 one way trips.



Source: http://masterplan.seattlechildrens.org/documents/CTP_booklet_final.pdf



ON-DEMAND SHUTTLES



DESCRIPTION

On-demand shuttle services use vehicles that carry between five and 15 passengers, and riders typically can order service through a mobile app that directs them to gather at common locations along the service route for pick-up. On-demand service can be provided by private companies that sometimes partner with public agencies (Chariot, Shot!) or by transit providers, such as the VTA Flex program in Santa Clara County, California, and Go OnDemand in the North Carolina Research Triangle.

Currently, RideConnection operates five shuttles in Washington County using a deviated route service, which allows riders to schedule pick-ups and drop-offs within ½ mile of shuttle routes: GroveLink in Forest Grove, King City RideAbout, North Hillsboro Link, the Tualatin Shuttle, and westLink in Hillsboro, Banks, and North Plains.

OBJECTIVE

On-demand shuttles can provide connections to long-distance transit in areas that are not well-served by local transit. It can also duplicate transit service in areas where traditional fixed-route transit options are at capacity or would not meet the level of ridership needed to be cost-effective.

CONTEXT

Suburban and urban areas where fixed-route transit service does not meet the transit needs of users.

TRANSIT INTEGRATION

On-demand shuttle service areas can be developed around transit stations to provide first/last mile service. Fare payment can be integrated with transit system farecards, and fares can be waived for riders accessing a transit station at one end of their trip.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunity

Develop a pilot program for on-demand shuttle service with deviated route service connecting transit with major destinations that are beyond walking distance and that are not currently served by fixed route transit.



Costs

Similar service in Colorado has estimated costs of \$250,000 per year, although shuttle operations costs differ widely by region.



Benefits

Connects transit riders with destinations more quickly than existing circulator shuttles.



Risks & Challenges

On-demand shuttles are a new type of transit service and may be difficult for riders to understand. Robust rider outreach is needed to ensure that riders can access the shuttle. Ridership has been low in some pilot programs, likely due to the friction of using a new service and the relative travel time of transit + shuttle trips versus driving.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit.



Equity Considerations

Integrate with existing RideConnection deviated route service to provide existing customers with more responsive service. Structure costs to allow for low income pricing.

CASE STUDIES / REAL-WORLD APPLICATION

Lone Tree Link: Lone Tree, Colorado

Lone Tree is a suburb about 20 miles to the southeast of Denver, Colorado. Lone Tree is on the rail line that connects to downtown Denver, but has many large employers that are not within a walking distance from the light rail station.

Lone Tree Link is a public private partnership that launched in September 2015 that provides two different shuttle services—an on-demand shuttle and a fixed route shuttle. Both services are fully subsidized and are intended for users traveling between the light rail station, restaurants, retail and key employment centers. The Link is provided through a collaborative public-private partnership with five Lone Tree organizations: Charles Schwab & Co., Inc., ParkRidge Corporate Center, Sky Ridge Medical Center, the City of Lone Tree, and the Denver South Transportation Management Association (TMA).

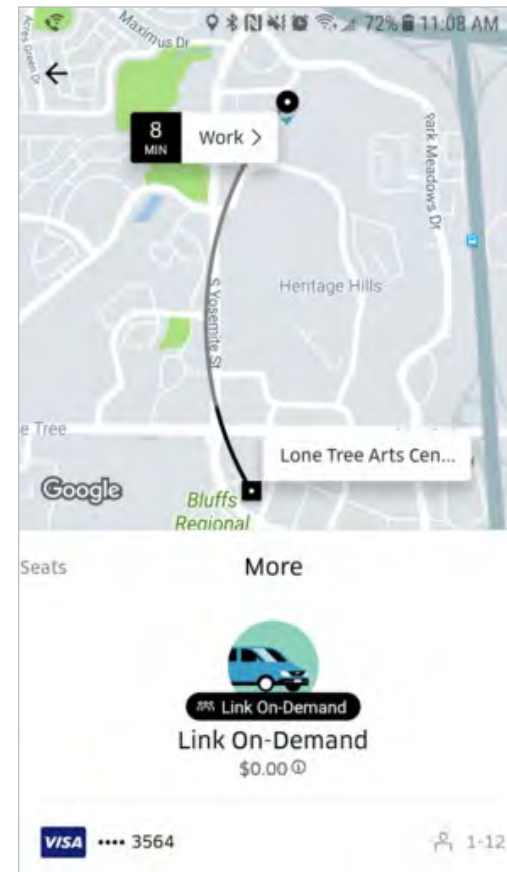
The fixed route shuttle, which has been running since the launch in 2015, runs every 10 minutes from 6 am to 7 pm on weekdays. The shuttles are 12-passenger vans that are wheelchair accessible and have bike racks on

the front. The annual budget for this service is \$550,000, shared amongst these funders. The second year of the service had a total of almost 81,000 boardings with an average of 306 riders per day

In August 2017, Lone Tree Link launched the on-demand service as a pilot with door to door service to complement the fixed route shuttle service—Link on Demand. This service is free to users wishing to travel to and from anywhere in the City of Lone Tree limits and operates 7 days a week. It applies Uber's ride-pooling technology and utilizes the same 12-passenger vans already in the system as a part of the fixed route shuttle service. This pilot re-assigned the fourth vehicle from the fixed route shuttle to operate in an on-demand capacity. Therefore, this service is operating at no additional cost. The on-demand service alone provided 13,000 rides in its first year.

When additional light rail service becomes available in Lone Tree in 2019, the fixed route shuttle will be phased out and the on-demand shuttle will be fully implemented. The full implementation will consist of two shuttle running from 7 am to 7 pm. The service will cost roughly \$250,000, which will be paid for mostly from the city's general fund, grants and sponsorships.

LONE TREE LINK APP



Source: <http://www.lonetreelink.com/link-on-demand>



RURAL VANPOOLS



DESCRIPTION

Vanpools serving farmworkers have been highly successful in the Central Valley of California, helping to address both the cost and safety concerns presented by private van operators. Outreach to farmworkers is critical for the success of these programs, offering the opportunity to partner with community organizations such as Washington County's Centro Cultural to conduct direct outreach at workplaces and community gathering places.

OBJECTIVE

Rural vanpools support the commute needs of agricultural workers and other workers in rural areas. Riders tend to be low income and may have limited access to reliable private transportation. Local agency-supported vanpools can provide a safe and affordable alternative to existing informal transportation operators (sometimes called "raiteros").

CONTEXT

Rural vanpools serve workers commuting from nearby suburban and urban areas.

TRANSIT INTEGRATION

Rural vanpools fill gaps in the transit system that cannot be efficiently met with traditional fixed-route service. Vanpools can stop at transit stops and stations to connect with riders using transit to get to the vanpool pick-up/drop-off areas.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunity

Work with agricultural employers and community organizations, such as Centro Cultural, to identify rural jobs access needs and address them using vanpools or shuttles.



Costs

Most costs are ongoing; potentially self-funding after initial capital outlay to purchase vehicles.



Benefits

Provides safe, affordable transit options to low-income workers.



Risks & Challenges

Require initial investment in outreach to potential riders.



Policy Implications

Aligns with Washington County policies promoting improved access for rural areas and underserved communities. Potential need to obtain policy exemptions and/or licenses for providers of farmworker transportation from the federal Department of Labor (under the Migrant and Seasonal Agricultural Worker Protection Act); potential need to work with the Oregon Bureau of Labor and Industries to meet bonding and insurance requirements for farmworker transportation.



Equity Considerations

Program targets low-income workers; outreach should include community partner organizations and address linguistic diversity needs in the target population.

CASE STUDIES

CalVans: California

CalVans, a vanpool program in the Central Valley of California, is a successful government-supported vanpool program.

The program is operated by the California Vanpool Authority, a Joint Powers Authority formed in 2012 with representatives from transportation commissions and councils of governments from areas served by the program.

CalVans serves 15 counties with 350 vanpools, and primarily serves agricultural workers and people who work at other remote jobsites. Agricultural workers typically pay between \$2-3 per ride, lower than typical prices charged by private van operators, and are able to ride in safe and insured vehicles. Operating funds are provided by passenger fees (based on mileage) and capital expansion is funded in part with grants from the state air resources board and other public agencies. As of 2018, the program served over 3 million passengers annually, or approximately 12,000 people per workday.

CalVans grew out of the Agricultural Industries Transportation Services (AITS), which was

launched as a pilot program in 2002 at a time when California's transportation agencies were seeking to address the hazardous and overcrowded vans that many agricultural workers commuted in. AITS was launched by Kings Area Rural Transit, which worked with Caltrans to win funding from the FTA Job Access and Reverse Commute program, matched by funds from the state public transportation account.

AITS initially faced regulatory and legal challenges as the vanpool program ran afoul of state and federal laws intended to protect farmworkers from exploitative labor practices. Despite this, the program expanded beyond the initial pilot, from serving 140 workers in Kings County, to serve over 1100 riders in four counties by 2004. The program gained ridership through direct outreach in the workplace (often at packing sheds during harvest time) and by contacting employers. After the initial start-up grant, AITS self-funded the purchase and maintenance of new equipment.

6 to Success: Waco, Texas

A number of organizations, municipalities and employers partnered with Waco Transit to

provide a job shuttle, known as 6 to Success, which provides access to jobs and school for rural residents.

This service had over 12,000 passenger trips in 2008, at the end of its first year. Founding community partners included Workforce Solutions for the Heart of Texas; Sanderson Farms; Falls Community Hospital & Clinic; and several community banks; Waco Transit; the cities served along the route; and McLennan Community and Texas State Technical Colleges.

The service brought riders from outlying rural areas into the City of Waco where they could then make free transfers to Waco Transit's fixed-route system. Sanderson Farms poultry plant, as the region's largest employer, was one of the most popular destinations, with over 500 passenger trips each month. This service particularly addressed late shift workers, who did not have a way home, since transit shut down at 7 pm. Sanderson reported that many qualified applicants had to turn down job offers after hearing that their shift ended after transit service hours ended at 7 pm. This service applies grants under the federal Job Access and Reverse Commute program in combination with a local match. Those living outside Waco pay \$70 for a

monthly bus pass, while those who take part in the late-night service will pay \$40 for a monthly pass.

Sanderson Farms continued their own service once the 6 to Success pilot ended. They currently provide a shuttle service in-line with the timing of the start and end of certain shifts.



WACO TRANSIT'S EVENING LINK

Need a ride home at night?

Looking for an affordable and reliable ride home at night? Waco Transit's NEW Evening LINK may be your solution. Service is available from 5:00 p.m. – 11:30 p.m., Monday - Saturday. Service is limited and reservations are required.

Who can ride the Evening LINK?
Evening LINK is an employment and training transportation service available to ANYONE who works or attends training and lives in the Greater Waco Area.

How does it work?
Evening LINK is a shared ride service. Waco Transit vehicles will pick up passengers with reservations and drop them off at their home. Reservations are required.

How much does it cost?
A ride home costs \$3.00 a night. Passengers may pay the exact fare or purchase tickets from the driver. Tickets can be purchased in books of 5 for \$15.00. Drivers do not make change.

How do I make my reservation?
Reservations can be made beginning Monday, December 31, 2012. Make your reservation at least one day in advance. You can make it for an entire week or for specific nights.

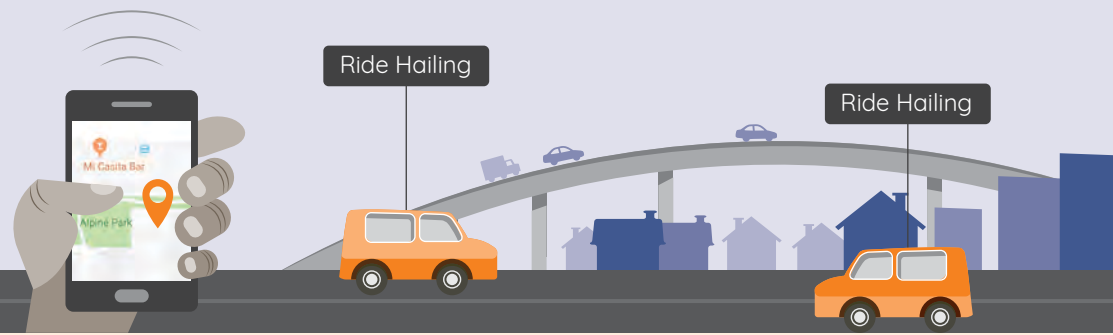
CALL (254) 750-1620 or (877) 875-7433

Waco Transit logo and World Solutions logo.

Source: <https://www.waco-texas.com/transit>



RIDE HAILING PARTNERSHIPS



DESCRIPTION

Ride hailing allows people to request rides in real-time from drivers who provide the ride in their personal vehicle in exchange for payment. These services have evolved to offer both pre-scheduled rides and ride-splitting, so that several passengers who are matched with the same driver may split the cost of the trip. Private companies that provide these services are classified as Transportation Network Companies (TNCs).

OBJECTIVE

Partnerships with ride hailing services can improve first/last mile access and promote carpooling to transit stations, which is especially beneficial for stations are experiencing a high demand for parking.

CONTEXT

Suburban areas with destinations outside easy walking distance of fixed-route transit stations.

TRANSIT INTEGRATION

Trip planning and booking of trips can be integrated into a single app. Payment for the ride hailing service can be integrated with transit payment using a stand-alone app. Transit fares can be waived for people dropped-off or picked-up at transit stations, and discounts can be provided for ride hailing users. Designated curb space for passenger loading and unloading can help make rideshare services more efficient and safer, while also reducing instances of double-parking or idling in red, blue, or other prohibitive curbside zones. Designated on-demand rideshare pick-up/drop-off areas should be accompanied by wayfinding signs to clearly communicate the location to both passengers and drivers.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunity

Work with TriMet and TNCs to pilot on-demand first/last mile service to light rail stations in Washington County. On County-operated facilities, designate curb space next to transit stations for ride hail services to pick-up and drop-off passengers, and work with TriMet and local jurisdictions to designate space on non-County facilities.



Costs

Pilots in Colorado and California cost the agency \$2.50 to \$5 per trip, varying based on the distances traveled and types of services offered to the user.



Benefits

TNC partnerships provide on-demand first/last mile service using a technology and service that many riders are already comfortable with.



Risks & Challenges

Given the quickly evolving nature of TNCs and the ride hailing market, there is near-term potential for prices to rise and for operators to change ownership or go out of business. Competition between TNCs makes many companies reluctant to share their data externally, making coordination with transit and long-term planning more difficult.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit.



Equity Considerations

Partner with providers to provide non-smartphone access options and pricing options for people with low incomes. Any pilot programs must provide wheelchair-accessible vehicles.

CASE STUDIES

**Go Centennial:
Centennial, Colorado**

The Go Centennial pilot program was in place from February to August 2016, as a part of the City of Centennial’s Bloomberg Philanthropies-funded Innovation Team (i-team).

This program, the first in the nation to provide fully subsidized first and last-mile ridesharing, was a public-private partnership between the City of Centennial, Lyft, Xerox (now Conduent), Via, CH2M, and Denver South Transportation Management Association (TMA). In addition to providing no-fee ridesharing service to users in Centennial, Go Centennial used a new platform for seamless and accessible door-to-door transit planning through the Go Denver app, powered by Xerox (now Conduent). The app streamlines payment, trip planning and systems integration. Users could also enter a Go Centennial promo code through the Lyft app to receive their free ride. In total, the 6-month pilot provided 1,302 trips for 127 riders. A sum of \$60,760 was spent on the service provision, with a per-trip Lyft Line cost of \$4.70. Roughly 75 percent of the service funding was spent to provide accessible service. Only 19 accessible trips were,

suggesting one accessible vehicle could serve a much larger service area, simultaneously increasing the range of mobility for users and allowing the fixed cost of the dedicated vehicle to be spread over more total trips. Although ridership was low, this program was generally seen as a successful experiment with public-private partnerships.

Go Dublin: Dublin, California

Go Dublin is an on-demand service in Dublin, California that is partially subsidized by Wheels—the transit agency in the San Joaquin Valley.

Wheels’ service area is 40 square miles with a low density land use and a population of 225,000. To make up for the cutting of service that was the result of a system-wide assessment and to provide transportation options and to attract choice riders, Go Dublin was launched.

Users can go anywhere in the City of Dublin, with a subsidy of half the fare, up to \$5. On average, Go Dublin users pay \$3 per ride. Wheels has spent \$21,000 so far on this service, from a \$200,000 budget; the cost to the agency per ride is \$2.75 for Uber, and slightly more for Lyft.

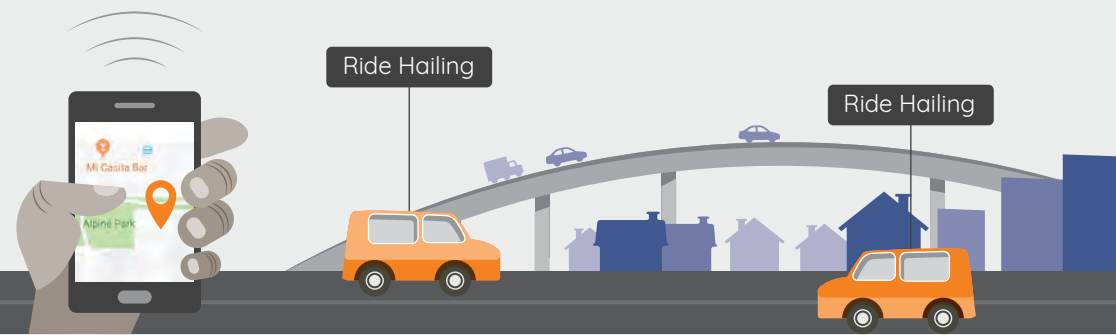
Go Dublin users have access to three different providers—Uber, Lyft and DeSoto Cab Company. Data is not available to determine exactly how many Go Dublin users are using the service for a first/last mile solution; however, Uber provided an origin-destination heat map revealing a concentration of trips at BART. Average weekday ridership on fixed route service and boardings and alightings on BART have gone up since the pilot launched;

however, there is no evidence that this is causation and not correlation. Wheels has integrated the customer service for Go Dublin into their typical customer service platform, with a specific drop down menu to call out Go Dublin complaints.

Wheels has integrated the customer service for Go Dublin into their typical customer service platform, with a specific drop down menu to call out Go Dublin complaints.



Source: <http://www.centennialco.gov/Government/go-centennial.aspx>



AUTONOMOUS VEHICLES



DESCRIPTION

Autonomous vehicles (AVs) are expected to be widely available within the next 10-20 years. AVs can provide first/last mile connectivity under several operational models, including privately-owned or rented AVs, AV shuttles and microtransit, and autonomous ride hailing. The on-demand ride hailing industry is expected to feature fleets of shared autonomous vehicles (SAVs) as autonomous vehicle technology becomes more prevalent. Driverless vehicles are expected to need efficient passenger loading areas, as well as parking or “resting” areas so they are readily available when not in use.

AV technology will reduce the burden and potentially the cost of using vehicles compared to travel by private non-autonomous vehicles and today’s ride hailing services and taxis. As a result, AVs have the potential to both expand mobility and to exacerbate existing problems in urban transportation, such as traffic congestion, sprawl, low vehicle occupancy, inefficient use of public roadway space, air pollution, greenhouse gas emissions, inefficient energy consumption, and conflicts between automobiles and people walking and bicycling.

OBJECTIVE

Expand transit access by reducing the costs of providing fixed-route and on-demand service; provide first/last mile access.

CONTEXT

Urban, rural, and suburban areas.

TRANSIT INTEGRATION

AVs can be used as transit vehicles and/or provide first/last mile on-demand connections to traditional fixed-route transit. Early tests with travel models indicate that AVs are likely to decrease ridership on transit that travels in mixed-flow traffic (most buses in Washington County) but may increase ridership on long-distance, grade-separated transit (light rail in Washington County).

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Long-Term Opportunities

Work with local and regional partners to regulate AV access to streets and high-demand curb space, prioritizing shared AVs that carry multiple passengers. Partner with TriMet and AV operators to provide demand-responsive AV microtransit shuttles and first/last mile AV connections in low-density areas that are currently inefficient to serve with fixed-route transit. Encourage TriMet to consider using AV transit fleets to reduce the labor cost of transit operations and allow for system expansion.



Costs

Automation has the potential to reduce the costs to provide transit, both by allowing transit agencies to right-size their fleets and by reducing the labor costs to provide transit (typically about 60 percent of a transit fleet’s operating cost).



Benefits

AVs will likely reduce the cost to provide fixed route transit, on-demand transit, and ride hailing, allowing transit to expand to serve areas with lower densities of population and destinations.



Risks & Challenges

AVs may will make transit less attractive, particularly for buses that travel in mixed traffic, where AVs are expected to increase traffic congestion. If AVs are deployed before they can safely mix with traffic they may also increase dangers for vulnerable road users.



Policy Implications

Oregon’s Task Force on Autonomous Vehicles recommends a state-level permitting process to manage AV technology testing. The potential effects of AV technology both support and conflict with Washington County’s transportation policy goals.



Equity Considerations

Require AV ride hailing operators to provide low-income pricing options. Promote the use of any cost savings from transit automation to subsidize fares for low-income riders.

CASE STUDIES

Since autonomous vehicles are new technology, information about existing implementations is limited. The following two case studies describe pilot programs currently in progress.

Mcity Driverless Shuttle, University of Michigan

The University of Michigan launched an on-campus driverless shuttle pilot program in June 2018, via a public-private partnership with technology company NAVYA, which built the shuttles.

Two vehicles, equipped with sensors, cameras, microphones, and GPS, make a one mile loop around the campus. The shuttles are available to University of Michigan students and employees, and were tested for a year before their recent deployment.

The project aims to use video and microphones to capture how people – both inside and outside the vehicle – interact with and feel about the driverless shuttles. The

shuttle is routed onto high traffic roadways with the potential for interaction with bicyclists and other vehicles. Considerations when launching the program included licensing and insurance, safety, and vehicle constraints such as battery life. The shuttles currently operate Monday through Friday from 9am to 3pm, and do not operate in heavy rain or snow. There is also an on-board safety conductor who oversees shuttle operations. The program is expected to run for one year with an estimated 7,500 vehicle miles and 10,000 riders.

Milo, Arlington, Texas

The City of Arlington piloted an off-street autonomous shuttle system from August 2017 to August 2018.

The Milo shuttle ran on off-street trails in the Entertainment District one hour before and after major events at AT&T Stadium and Globe Life Park. The shuttles were fareless and could hold up to 12 passengers (or 10 passengers plus one wheelchair user). An operator was onboard to take control of the vehicle if

necessary.

After the successful pilot of the Milo program, the city is now operating Drive.ai shuttles on city streets via an on-demand autonomous ride hailing service that started in October 2018. The vehicles are limited to the

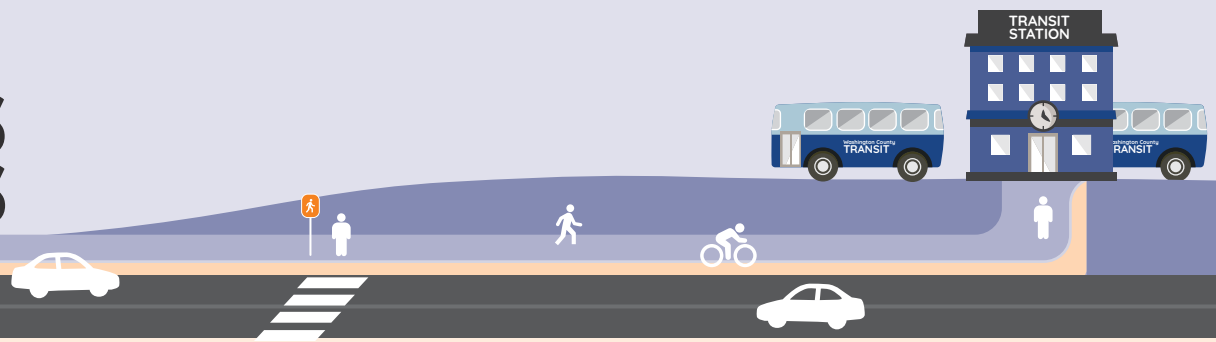
Entertainment District and surrounding areas. The service is currently free; users can hail a ride via kiosks in the service area or a mobile app. The shuttles have operators onboard and hold up to three passengers but are not accessible to wheelchair users. The service operates from 11am to 4pm Monday through



Source: <http://www.arlington-tx.gov/news/2018/04/10/schedule-free-ride-milo-arlingtons-autonomous-shuttle-friday/>



MULTIMODAL ACCESS TO TRANSIT STATIONS



DESCRIPTION

Providing adequate infrastructure for walking and biking to transit stations makes multimodal transit easier and more convenient. Walking is the most common way to get to and from transit stops and stations and is more attractive if pedestrian connections are safe and easy to use. Bicycling as a first/last mile mode is likewise dependent on access to bicycle facilities. As the lead agency for many major streets that provide access to transit, Washington County has the opportunity to invest directly in critical first/last mile infrastructure.

OBJECTIVE

Multimodal infrastructure provides safe and comfortable access to transit stops and stations, making transit use more attractive to potential riders.

CONTEXT

Urban and suburban areas where pedestrian and bicycle infrastructure are incomplete or do not meet user needs (for example, transit stops on opposite sides of a street where no marked or stop-controlled crossing is available).

TRANSIT INTEGRATION

Multimodal access infrastructure provides direct access to transit and is the backbone of any first/last mile transit access program.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunities

Identify and fund bicycle and pedestrian network improvements, including lighting and wayfinding, to areas where transit access is limited by poor infrastructure.



Costs

Vary based on type of infrastructure. Capital costs are lower for signing and striping, such as bicycle lanes, marked pedestrian crossings, and wayfinding signage.



Benefits

Multimodal infrastructure provides safe and comfortable access to transit stops and stations, making transit use more attractive to potential riders.



Risks & Challenges

Providing multimodal improvements often requires reallocating existing right of way on streets that access transit.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit and improve bicycle and pedestrian safety around transit stations.



Equity Considerations

Prioritize improvements in areas with limited access, high traffic exposure, and residents and workers with low incomes.

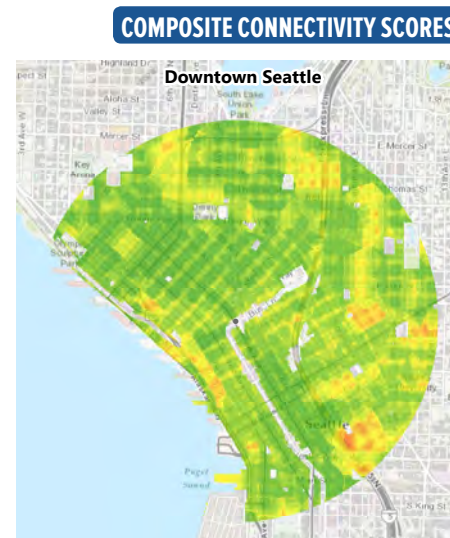
CASE STUDIES

Non-Motorized Connectivity Study: King County, Washington

King County Metro and Sound Transit partnered on a study to quantify the ridership benefits of different types of non-motorized access improvements to major transit facilities (e.g., light rail stations, transit centers, RapidRide bus lines).

The purpose of the analysis was to give the agencies more insight about the types of access improvement projects that could result in additional transit riders. Additionally, this study provided the agency with data and information they could share with local jurisdictions who may be looking for ways to increase transit usage or for partnership funding to implement their bicycle and pedestrian master plans. Ultimately, the study identified that providing signalized crossings at major arterials and reducing the walking distance to transit were the most effective ways to increase ridership. A smaller street grid and bicycle improvements were also important, but to a lesser degree.

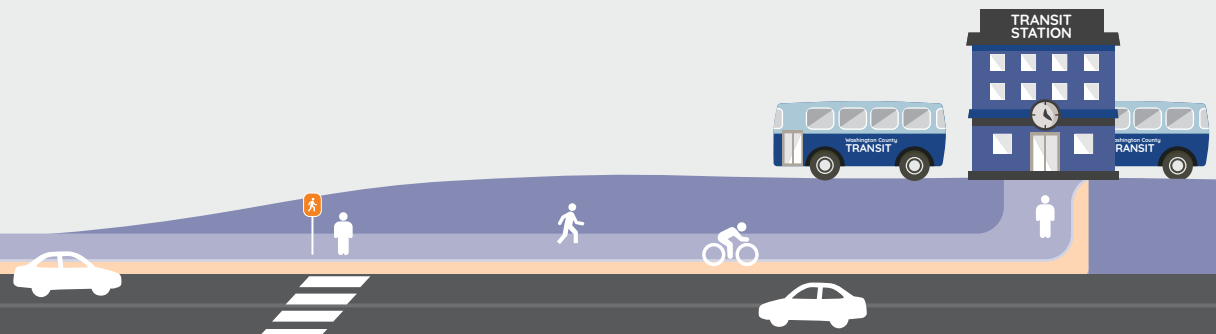
Through this study, the transit agencies are both implementing system access improvements in partnership with local communities and major employers to build the infrastructure that increases transit ridership while meeting other community objectives as well. To date, the tools developed as part of this analysis have been applied at more than 5 new and upcoming light rail stations and are now being integrated into Sound Transit's System Access Strategy.



Source: Fehr & Peers

A range of multimodal infrastructure can be used to improve access to transit stops and stations in Washington County:

- **Marked pedestrian crossings**, which include elements such as high-visibility zebra- and ladder-style crosswalks, high-visibility “Pedestrian Crossing” signs, make pedestrians more visible and increase the likelihood that drivers will stop for them.
- **Curb extensions**: Extending the curb with curb bulbs slow turning traffic, make people walking more visible to people driving, and reduce crossing distances.
- **Pedestrian beacons**, including pedestrian hybrid beacons and rectangular rapid flash beacons, are designed to stop vehicle traffic for pedestrians crossing high-speed and high-volume streets.
- **Pedestrian-scale lighting** (stand-alone or attached to existing fixtures) enhance pedestrian safety and security.
- **Median refuge islands** offer people walking and biking safe places to wait as they cross multi-lane streets and can include curbs, bollards, landscaping, and signage.
- **Bike boxes** are green-colored spaces at intersections located between vehicle stop bars and pedestrian crossings; they allow bike riders to stop in front of queued vehicles, making them more visible at intersections.
- **Bike signals** can help avoid right-turn conflicts with autos by giving bicyclists a head start during a green phase.
- **Wayfinding improvements**, including both active wayfinding elements, such as signs and maps, and passive wayfinding elements (paths, landscaping, etc.) help to orient users toward destinations.



TRANSIT STATION AMENITIES



DESCRIPTION

Providing on-site amenities, secure bicycle and automobile parking, and pick-up/drop-off zone at transit stops and stations improves multimodal access and connections to transit. Designated pick-up and drop-off areas provide first/last mile access for people using shuttles, ride hailing/taxis, and private autos to connect to transit. Park and ride facilities allows people who need to drive to and from their destination to use transit for part of their trips. Stop and station amenities, such as lighting, seating, shelters, trash receptacles, and waste bins, have many benefits: they improve the overall transit riding experience, encourage new riders to try transit, and increase passenger sense of security.

OBJECTIVE

Stop and station amenities, including parking and pick-up/drop-off areas, improve multimodal access to transit and make using transit more convenient and comfortable.

CONTEXT

Transit stations and stops that lack comfortable waiting areas and/or where passenger loading and unloading is frequent enough to interfere with through traffic and the movements of other passengers.

TRANSIT INTEGRATION

Stop and station amenities make passengers feel more comfortable and secure while waiting for transit. Parking and pick-up/drop-off facilities support multimodal trips that include transit.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Opportunities

Near-term: Identify potential leased parking arrangements around overcrowded park-and-ride lots. Also see curb space recommendations under Ride Hailing Partnerships and Carshare strategies.

Medium-term: Work with TriMet to expand curb space available for drop-off and pick-up at new and existing transit stations to meet increased demand driven by ride hailing (and eventually AVs).



Costs

Vary based on type of infrastructure. Capital costs are lower for signing, striping, and modular installed features, such as designated curbside drop-off/pick-up areas, benches and waste bins at bus stops, and bicycle lockers at transit stations. Custom features at stops and stations, such as public art, may add to maintenance costs.



Benefits

Stop and station amenities make using transit more convenient and comfortable. Parking and dedicated pick-up/drop-off space support the use of bicycling, driving, ride-hailing, and shuttles.



Risks & Challenges

Constructing parking garages is costly and may not be cost effective, particularly as the use of ride hailing and eventually AVs will reduce parking demand.



Policy Implications

Aligns with Washington County, Metro, and TriMet policies to improve multimodal access to transit and improve bicycle and pedestrian safety around transit stations.



Equity Considerations

Prioritize improvements in areas where transit riders are likely to have low incomes (based on neighborhood demographics and wages at nearby jobs). Ensure that secure bike parking is free or low-cost and does not require the use of a credit card or smartphone.

CASE STUDIES

Spring Street Bus Stop, Los Angeles, California

The Spring Street bus station across the street from Los Angeles City Hall is a “smart shelter” that provides LED lighting, USB charging ports, complimentary WiFi, real-time arrival information, and a push-to-talk button for the visually impaired. This station is part of the City’s public-private partnership program with Outfront Media and JCDecaux North America. Advertising media panels generate revenue for the program, and a portion is shared with the city annually.

Caltrain Station Passenger Loading Zones and BikeHub, San Francisco, California

The 4th and King Caltrain Station is one of San Francisco’s busiest hubs for inter-city and crosstown transit, taxis, ride hailing services, and employer shuttles. The station has designated passenger loading zones that feature signs, curb treatments, and in-app prompts that instruct riders and drivers to use designated areas for pick-up and drop-off. The station also has a 24-hour keycard accessed bike parking room that provides secure bike parking for up to 72 hours.



Source: <https://bikehub.com/caltrain>

- **Enhanced transit waiting areas:** Waiting areas provide a safe and comfortable place for passengers to wait for their transit or shared mobility ride. Enhancements may include seating, landscaping, lighting, shade and rain cover, trash receptacles, complimentary WiFi, real-time transit arrival alerts, and daily schedule information. These amenities are common at light rail stations in Washington County but rare at bus stops.
- **Placemaking features at stops and stations:** Integrating placemaking elements into transit stop design to integrate transit service into the surrounding community. Public art, listings of upcoming neighborhood events, and local business highlights can help personalize a transit waiting area. Other features such as swings, gardens, and interactive games can make waiting more enjoyable.
- **Secure bike parking,** including lockers, secure bike rooms, and sturdy racks in well-trafficked and well-lit areas; where station space is at a premium, bike corrals can be installed in converted auto parking spaces.
- **Designated pick-up and drop-off areas** for shuttles, ride hailing, and private vehicles; located at curbside where space allows.
- **Curbside “flex zones”:** Designating flexible areas, or “flex zones,” near transit stops and stations can accommodate different right-of-way functions, including bus stops, shuttle pick-up and drop-off, ride hailing pick-up and drop-off, and off-peak auto parking.
- **Automobile parking** at transit stations accommodates auto owners who choose to commute by transit but live too far from the station to use other first/last mile modes; leasing adjacent underutilized commercial parking could be a better solution than constructing new parking given the uncertainties of future parking demand that could result from autonomous vehicles.

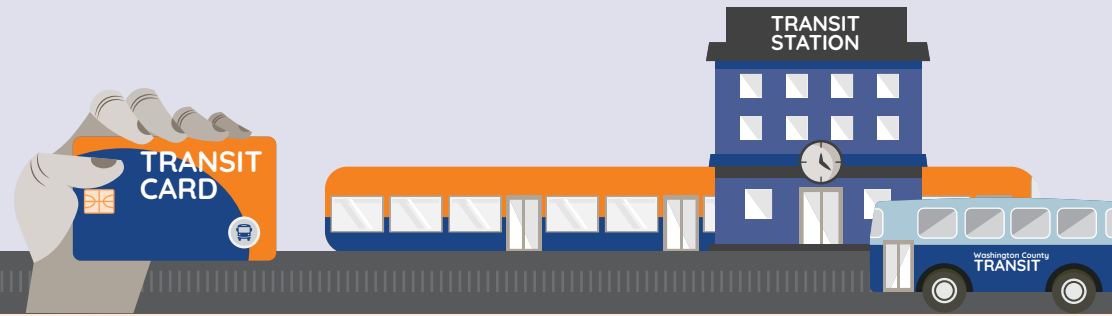


APPENDIX



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INTEGRATED FARE PAYMENT



DESCRIPTION

Washington County transit users are already able to purchase integrated transit fare payment cards (HopCards) which allows them to pay fares on TriMet and other transit providers in the region (Portland Streetcar, C-TRAN). Integrating fare payment with payment for first/last mile modes, such as bikeshare, ride hailing, local shuttles, and e-scooters, could further improve transit access. Barriers to implementation include data sharing, pricing structures, lack of a common contactless payment technology, and the complexity in allocating revenues.

OBJECTIVE

Integrated fare payment makes it more convenient for transit riders to use nonmotorized and shared modes to access the transit system. Not having to juggle multiple payment cards/apps reduces the effort to transfer between modes.

CONTEXT

Urban, suburban, rural areas with other first/last mile modes available.

TRANSIT INTEGRATION

Transit fare is one piece of a shared payment system.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Medium-Term Opportunity

Work with TriMet and first/last mile service operators to develop integrated fare payment for transit and first/last mile modes.



Risks & Challenges

Since Washington County is not a transit operator, it has limited ability to promote integration of transit fares and payment for first/last mile modes. Barriers to implementation include data sharing, the need to establish equitable pricing structures, and the complexity in allocating revenues from transit and first/last mile users.



Benefits

Integrated fare payment allows seamless connections between first/last mile modes and transit, particularly for on-demand first/last mile modes such as scooters, bikeshare, TNCs, and demand responsive shuttles. It allows commute subsidies and other transit benefits to be more easily shared with first/last mile modes. HopCards already use common NFC readers that are also compatible with mobile wallets on smartphones. A virtual HopCard using the HopCard mobile phone app (currently available for Android devices) could be a common platform for integrated payment.



Costs

The cost of integrating fare payment across platforms is highly variable depending on the technologies selected. For integration that includes subsidies or fare waivers for first/last mile service and/or transit service, costs will be ongoing, although this may be offset by increased ridership.



Policy Implications

Potential need for policy requiring new mobility service providers to work with TriMet and each other to integrate fare payment.

CASE STUDIES / REAL-WORLD APPLICATION

**Ride2 Eastgate:
Bellevue, Washington**

In October 2018, King County Metro began a partner-program with Chariot to provide first/last-mile service to the Eastgate Park-and-Ride, which is a major transit hub in Bellevue, located just east of Seattle.

Eastgate shares similarities with many Washington County transit hubs: it is a freeway park-and-ride station (with more than 1,600 parking stalls), it is surrounded by suburban office complexes with thousands of employees, it is proximate to many single-family neighborhoods and multifamily apartment complexes, and a major community college is nearby.

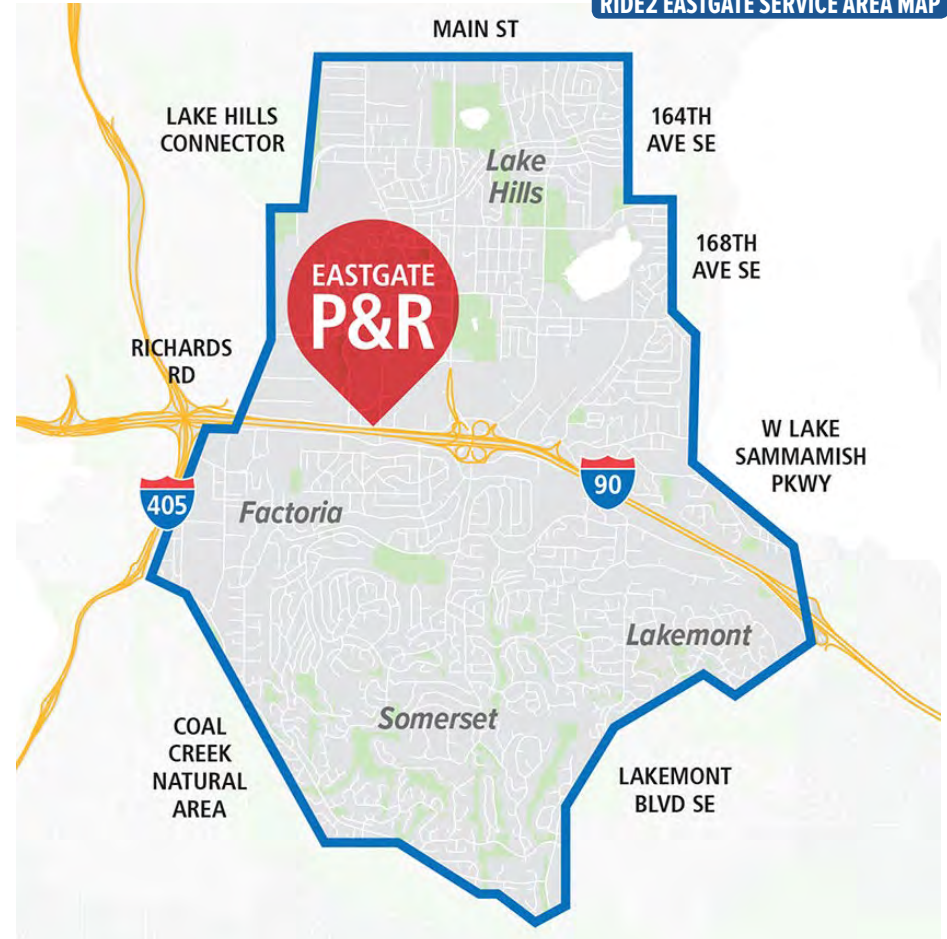
Despite these features, Eastgate is decidedly auto-oriented--it is bisected by a major freeway (I-90), terrain and mid-century planning resulted in a disconnected street network, and there is substantial peak period traffic congestion near freeway ramps. These features, combined with the fact that the park-and-ride fills to capacity by 9 am every weekday, makes taking transit to and from Eastgate a challenge. Therefore, King County

Metro chose this location as the pilot for the Chariot first/last mile service.

This service is integrated with the ORCA fare payment system and for the pilot period, the service is free. Ultimately, the service could operate under the same terms as all other transit in the Puget Sound region. Namely, if you tap on with your ORCA card, you get a free transfer to any other transit service within 2 hours. The ORCA card number is embedded in the Ride2 app and so riders are automatically accounted for when entering a shuttle. Because the shuttle operates with same transfer rules as other Metro and Sound Transit buses, there is no additional cost for the Ride2 Eastgate service at this time.

Ride2 Eastgate operates from 6-10 am and 4-8 pm on weekdays. Wait times are targeted at no more than 15 minutes, but there may be an up to five minute walk from the origin/destination to the shuttle stop. Rides can be booked on a smartphone or via a call in and can be booked 12 hours in advance. Assisted service is available for eligible disabled passengers, but bikes are not accommodated at this time. Given that the service just began, there are no statistics on how well the service is working or any ridership data at this period.

RIDE2 EASTGATE SERVICE AREA MAP



Source: <https://kingcounty.gov/depts/transportation/metro/programs-projects/innovation-technology/innovative-mobility/first-last-mile/ride2/eastgate.aspx>



INTEGRATED TRIP PLANNING



DESCRIPTION

Integrated trip planning apps combine real-time transit arrival information with information on alternative mobility options, such as bikeshare and Transportation Network Companies (TNCs). These apps can also include information on cost, multimodal connections, travel time, wait time, parking costs/availability, and (occasionally) greenhouse gas emissions. These applications help riders make informed decisions about their trips and save time, but are still uncommon in the United States. One key reason for this is that many shared mobility modes (dockless bikeshare, e-scooters, ride hailing) are provided by private corporations that are reluctant to share their usage and operational data with potential competitors.

TriMet is currently developing an open trip planning platform for transit and first/last mile modes. The project is supported by a grant from the Federal Transit Administration and includes trip planning options for ride hailing, carshare, and bikeshare.

OBJECTIVE

Integrated trip planning helps users make more informed trip mode decisions and save time and money.

CONTEXT

Urban and suburban areas with other mobility options available.

TRANSIT INTEGRATION

Trip planning apps include transit as one of the modes available for a given trip and offer other mobility options for getting to and from transit.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Medium-Term Opportunities

Work with regional partners to pass legislation requiring open data from first/last mile service providers and other private mobility companies to enable integrated, multimodal trip planning. Encourage new first/last mile mobility providers to make their services available on TriMet's open trip planner platform.



Costs

Software for the Go LA pilot was provided at no cost to the city by Xerox (now Conduent); however, the pilot program required the commitment of City of Los Angeles Department of Transportation (LADOT) staff hours. A similar app developed at public cost would require ongoing staff and app developer time to maintain it as well as the initial cost to design.



Benefits

Integrated trip planning apps reduce uncertainty around travel time and identify time-saving multimodal trip options. These apps can also provide more insight into the real cost and time associated with driving, which in combination with a more seamless transit experience, makes transit a more appealing option to users.



Risks & Challenges

Private first/last mile operators have an incentive to keep their data private since they are frequently competing against one another.



Policy Implications

Aligns with Metro's draft policies on access to emerging technologies and data sharing and with TriMet's policies promoting expanded real-time transit access information. Likely need for policy requiring new mobility service providers to share their data with public agencies and/or app developers.

CASE STUDIES / REAL-WORLD APPLICATION

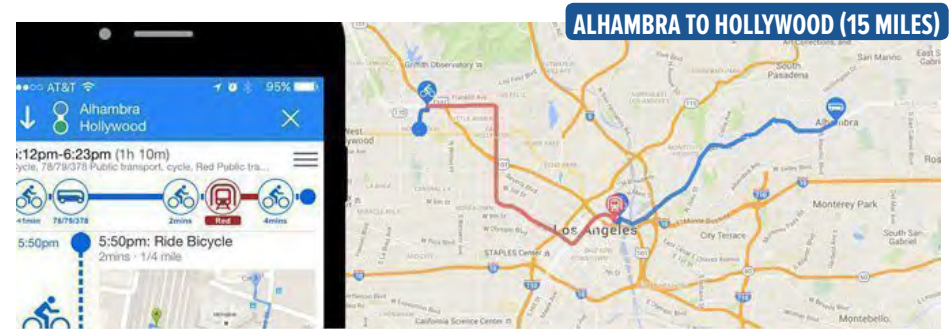
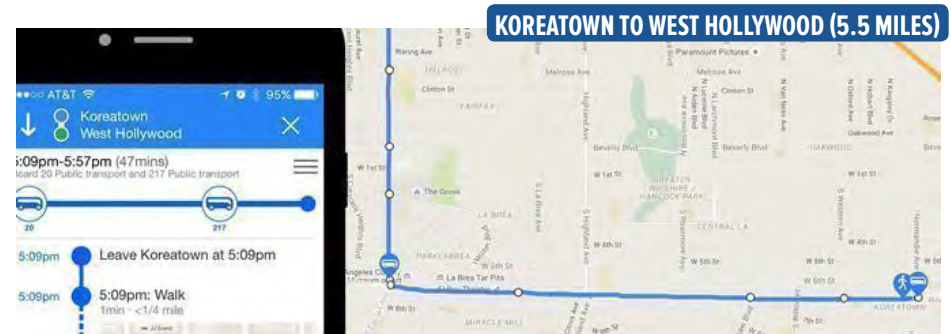
Go LA: Los Angeles, California

Go LA was a multimodal transportation planning smartphone application (app) covering Los Angeles County, California that was available from January 2016 to January 2018.

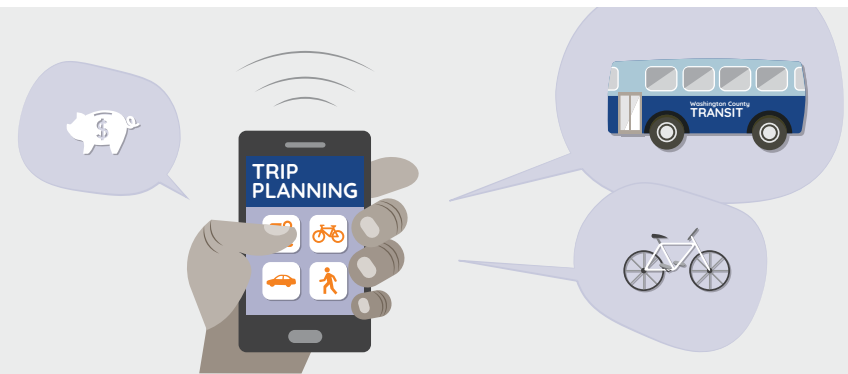
The app was developed by Xerox (now Conduent) through its Mobility Marketplace program and offered in a pilot with the City of Los Angeles. The app provided trip planning for transit, bicycling, walking, carshare, and ride hailing, allowing users to view alternative trips using one or more first/last mile modes. Users were able to rank different trip options according to their priorities for a given trip, such as time savings, cost savings, or minimizing carbon emissions from their travel.

Since there was no requirement that first/last mile and other private mobility service companies provide access to data about the availability of their products, the app was not able to include all options for each mode. For example, a transit user would be able to see Lyft, but not Uber, as an option to get to and from a transit station. Users were not able to reserve or pay for rides or shared vehicles within the Go LA app, instead they had to open stand-alone apps from individual service providers.

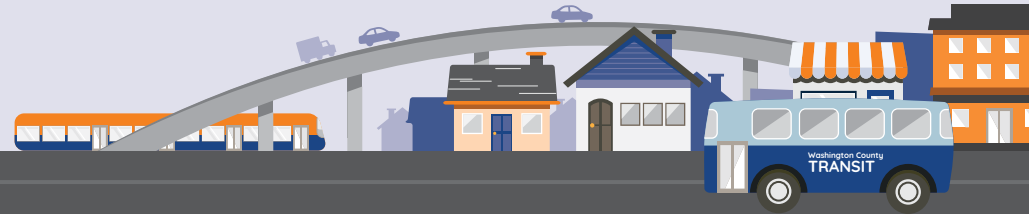
To address the data-sharing challenges that were identified in the course of the Go LA pilot, the City of Los Angeles Department of Transportation (LADOT) recently released a draft *Mobility Data Specification and Mobility Data Handling Guidelines*.



Source: <https://insights.conduent.com/conduent/go-la-commute-smarter-in-los-angeles>



TRANSIT AGENCY/EMPLOYER COORDINATION



DESCRIPTION

There are several examples of employers working closely with transit agencies to improve service to their employment centers. Perhaps the most common form of coordination comes from major institutions like colleges and universities, which frequently partner with transit agencies to buy additional transit service, provide capital improvements to increase speed, user comfort, headway/on-time reliability, or drive ridership by bundling transit fares with college tuition to provide unlimited transit passes. These types of programs build transit ridership and a culture of transit usage amongst the college community. More relevant examples for Washington County include large employers that partner with transit agencies to expand transit service and facilities for both their staff and members of the public.

OBJECTIVE

Reduce risk and cost for the transit agency while increasing access to transit and ridership. Reduce the cost and impact of commuting to employment locations.

CONTEXT

Any locations with large employers or institutions.

TRANSIT INTEGRATION

Large employers or institutions help to improve transit service and access to transit near their campuses.

IMPLEMENTATION CONSIDERATIONS FOR WASHINGTON COUNTY



Near-Term Opportunities

Work with TriMet and private employers to provide synchronized shuttle service, bike share, bike infrastructure, and other improvements to better connect transit hubs and employment centers. See opportunities under Employer/Circulator Shuttles and Rural Vanpools.



Costs

Costs of this strategy vary substantially based on the specific type of coordination and level of effort required. Some employers shoulder the costs of integrated shuttles or bikeshare systems alone. Typically, employers partner with public agencies to offset the costs of shared investments like improvements to the roadway or increased bus service to an employment location.



Benefits

Coordination between employers, transit operators, and other public agencies allows for targeted investments that serve commuters and have high potential to shift commute travel to transit.



Risks & Challenges

Employers need a clear business reason to invest in public transit. As a result, interest in this strategy varies between employers. Employee dissatisfaction with congested and unpredictable commutes and the high cost of employer-provided parking can drive interest in this strategy. Autonomous vehicles could undermine this benefit, unless there are other policy/pricing mechanisms to continue to incentivize transit.



Policy Implications

Aligns with Washington County's policies encouraging coordination with employers and business groups. Future policies to manage the use of autonomous vehicles may be needed if long vehicle commutes are less of a discouragement in the future.

CASE STUDIES / REAL-WORLD APPLICATION

**Seaway Transit Center:
Everett, Washington**

Boeing is the largest employer in Snohomish County, with more than 30,000 people at its Everett assembly plant and with a similar number of employees working in the surrounding industrial/office areas.

Boeing, like many manufacturers operates on a three-shift schedule to enable around the clock production. This shift schedule places unusual demands on the transit system since shifts do not start during traditional commute times when high frequency transit is generally available.

Over the years, Boeing has worked with the two local transit agencies – Everett Transit and Community Transit, to provide shift-coordinated transit service to the plant. The most recent collaboration was a joint-project between Boeing, WSDOT, and Community Transit to build a new transit center at the campus’ main entrance gate. The Seaway Transit Center will allow closer coordination between Community Transit and Everett

Transit buses and Boeing’s internal shuttle system. The new transit center will make it easier for employees to transfer to/from public transit to the internal shuttle system.

**King County Metro and Amazon.com:
Seattle, Washington**

Another notable example is between Amazon.com and King County Metro.

Amazon has been building out its campus in the South Lake Union neighborhood just north of Downtown Seattle. Amazon, along with many other major employers and new residential buildings, have transformed South Lake Union from auto dealers, warehouses, and light industrial uses into a new high-density mixed use neighborhood over the course of just 10 years. This explosive growth has caused growing pains related to traffic congestion and delayed/overcrowded buses.

Amazon recently partnered with Metro to purchase an additional 12,000 annual hours of bus service on the routes that most directly serve the campus to not only serve Amazon



Source: <https://www.communitytransit.org/seaway>

employees, but to provide benefits to the surrounding community as well. In addition, Amazon has partnered with Metro to study how to proactively add and modify service in anticipation of new development. Working with Metro, the City of Seattle, and local transportation consultants, a near-term and parcel-based transit ridership growth model

was developed to understand how new office, residential, and retail projects in South Lake Union will put pressure on overcrowded transit lines. Armed with this information, Metro (using funding from Amazon) can strategically and proactively target the routes that need additional service the most.

