

**D E S T I N A T I O N**

**2040**

**Pierce Transit • Long Range Plan Update**

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**April 10, 2020**

## **Acknowledgements**

This Long Range Plan Update represents the involvement of many dedicated individuals. We thank them for their support in creating this updated vision.

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# Introduction

## WHAT DOES PIERCE TRANSIT HOPE TO ACHIEVE WITH THIS UPDATE?

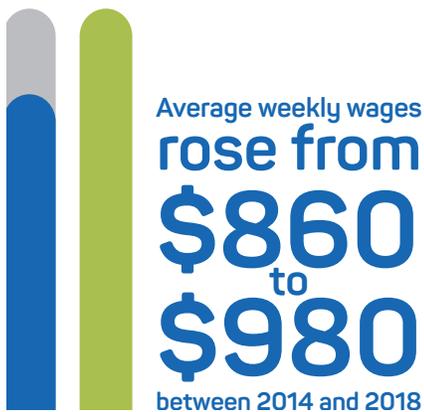
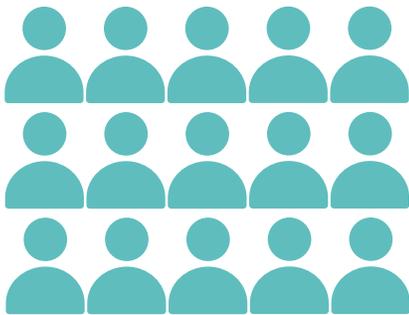
### Introduction, Purpose, Goals and Objectives

In 2016, Pierce Transit finalized and adopted its first Long Range Plan, Destination 2040. Its objective was to create “a comprehensive guiding document of the Agency’s vision for providing dependable, safe, efficient, and fully integrated public transportation services throughout the South Sound Region of today, tomorrow, and beyond.” Since that time, the agency has gone through many positive changes and feels the Long Range Plan is due for a minor update to refocus its goals and objectives. But unlike the inaugural document, this update offers a “fiscally constrained vision” that is more closely tied to realistic service-hour growth scenarios than the four annual growth rate scenarios (at 2.0%, 2.5%, and two versions at 3.0%; both within and beyond the current service area boundaries) proposed under the Destination 2040 Long Range Plan. To that end, this Update will show what fixed route services and coverage a full funding level (i.e., at a 0.9% sales tax rate within the service area boundaries of Pierce County) scenario would offer, based on a 735,000 annual service hours target or 47% increase over the 500,130 annual service hours in effect today. Since Pierce Transit is currently providing all the fixed route bus service it can at current funding levels, it is important to still have a plan in place for growth that could be rapidly implemented if additional operating revenues were to ever become available through taxation.

**Pierce County**  
**7.5%**  
**population increase**  
**between 2014 and 2018**



**15%**  
**of the region's**  
**new jobs**  
**are in Pierce County**



Over the lifetime of the Long Range Plan, Pierce Transit will need to create the capacity to carry more riders each year through the horizon year of 2040 and beyond. And capacity is only one element of meeting growing demand. Increasingly, the expectation is that the local transit agency will provide easy and fully integrated access to mainline or regional transit services. The new services must be provided effectively, in keeping with Pierce Transit's riders' increasingly high expectations.

Pierce County, Washington, continues to experience rapid growth, resulting in increased traffic congestion and ever longer commutes; locally and regionally. The Tacoma-Lakewood-Puyallup area is a rapidly changing landscape with new homes, businesses, and employment opportunities sprouting up much faster than the current surface transportation infrastructure can handle. That is one of the many reasons why the time is now for Pierce Transit to plan for an even more Frequent, Accessible, Intelligent, Reliable, and Safe transit system – think FAIRS!

According to data compiled by the Puget Sound Regional Council Metropolitan Planning Organization, Pierce County is indeed expanding its population and employment base, as demonstrated by the following statistics:

- From 2014 to 2018, the US Census estimates the county grew by 62,379 residents (a 7.5% increase).<sup>1</sup>
- In June of 2018 there were over 2.1 million jobs in the four-county region, an increase of almost 280,000 jobs (a 15.2% change). Of those, Pierce County added almost 42,000 jobs (15% of the regional increase).<sup>2</sup>
- Average weekly wages in Pierce County rose from \$860 to \$980 between June 2014 and June 2018 (a 13.2% change).

Pierce Transit is also one of the few transit agencies experiencing growth in fixed route ridership (8.65 million in 2018 compared to 8.54 million boardings in 2017). While that growth has been marginal, it held steady in 2019 and demonstrates a need to again reevaluate the system as we enter a new decade. As part of that work, the list of current and future (proposed) fixed routes has been revised and updated, as shown in Appendix A. Just as in 2015, the “vision” network was modeled by the Puget Sound Regional Council for ridership and the results are included in Appendix B.

1 Source: United States Census Bureau – American FactFinder data on Pierce County, Washington Population Projections: 2010-2018.

2 Source: Puget Sound Regional Council “Puget Sound Trends” presentation to Regional Staff Committee, April 18, 2019.

It is widely assumed that no other project will propel that growth in ridership than the agency's inaugural Bus Rapid Transit corridor, scheduled for opening for revenue service in September 2023. What was only a vision in 2016 for the majority of the current Route 1 (i.e., 14.4 out of 19.6 miles)—along Pacific Avenue/State Route 7 from downtown Tacoma to Spanaway—is now a reality. As part of the agency's vision for BRT, this Long Range Plan Update will introduce four additional corridors that will be evaluated for the feasibility of upgrading to high capacity transit over time. That information is provided in Section 7.

## Notable Changes Since 2016

As mentioned, much has happened within the region, Tacoma-Lakewood-Puyallup area and at Pierce Transit since 2016. There have also been major advances in technology and new business models, along with new local land use plans for transit supportive growth and infill development that did not exist as recently as four years ago when the inaugural LRP was being finalized. Those changes and their impacts to the agency—whether direct or indirect—are shown in the timeline below and further described throughout the document.

### A LOT HAS CHANGED SINCE DESTINATION 2040 LAID OUT A FUTURE FOR PIERCE TRANSIT...

2016	2017	2018	2019	2020
<ul style="list-style-type: none"> <li>Pierce Transit 2040 Long Range Plan <a href="#">April 2016</a></li> <li>Sound Transit 3 passed <a href="#">November 2016</a></li> </ul>	<ul style="list-style-type: none"> <li>New comprehensive fixed route network introduced <a href="#">March 2017</a></li> <li>Centers and corridors designated for mixed-use, transit supportive density</li> </ul>	<ul style="list-style-type: none"> <li>Emerging technologies: autonomous and driverless vehicles</li> <li>Maintenance and Operations Base Improvement projects budgeted and underway</li> </ul>	<ul style="list-style-type: none"> <li>Design starts on Pierce County's first Bus Rapid Transit project <a href="#">Fall 2019</a></li> <li>Lyft first- and last-mile contract ends <a href="#">December 2019</a></li> </ul>	<ul style="list-style-type: none"> <li>Draft update released for review at public open houses <a href="#">January 2020</a></li> <li>Long Range Plan Update finalized <a href="#">April 2020</a></li> </ul>

## Inaugural High Capacity Transit Route Feasibility Study Begins

In February 2017, the agency hired WSP-Parsons Brinckerhoff to conduct a High Capacity Transit Feasibility Study for the 14.4-mile Pacific Avenue/SR 7 corridor from downtown Tacoma to Spanaway. High Capacity Transit systems are designed to carry larger numbers of riders with greater speed, reliability, and frequency than a standard bus. HCT includes rail modes, such as light rail and streetcar, and Bus Rapid Transit (BRT), which emulates light rail using rubber-tired vehicles. Working in close partnership with the City of Tacoma, Pierce County, WSDOT, Puget Sound Regional Council, and Sound Transit, the multi-year study was intended to:

- Identify cost-effective enhancements that will increase transit ridership by improving the speed, reliability, and comfort of the service;
- Better connect the southern end of the Pierce Transit service area (Spanaway) to downtown Tacoma, a designated Regional Growth Center;
- Support local and regional goals of stimulating urban infill projects through compact land use, transit oriented development (TOD), plus targeted growth in employment throughout the corridor; and
- Improve safety for pedestrians, bicyclists, and other corridor users.

After soliciting comments from the public at two rounds of open houses, held at four locations in September and November 2017, the consultant completed a Mode Evaluation Report which compared four HCT modes to the “No Build” option and how they would best meet the 12 Purpose and Need statement goals, as shown in Figure 1–1.

Based on this analysis, as well as partnering agency, public, and stakeholder input, the project team recommended Bus Rapid Transit (BRT) as the high capacity transit mode that best meets the project goals. The BRT mode rated either a 5 or 4 for 11 out of the 12 goals, as shown in Figure 1-1. In addition, BRT had been previously assumed to be the best mode for this corridor and this analysis supports that assumption. BRT is the most appropriate mode given the current and expected level of ridership and best meets the nexus of existing land use and population distribution with the goals for improved transit speed and reliability, plus future investment along the corridor. Enhanced stations will improve the passenger experience and other corridor upgrades will improve transit speed and reliability as compared to the existing fixed route service. Additionally, while stop spacing will be increased from the existing service (to approximately ½-mile between stations), BRT still offers an access profile that fits the context of the existing land use and population distribution.

**Figure 1–1: Results of Modal Evaluation**

PURPOSE AND NEED GOALS		NO BUILD (CURRENT SERVICE)	ENHANCED BUS	BUS RAPID TRANSIT	STREETCAR	LIGHT RAIL TRANSIT
1	The project will increase transit ridership by reducing transit travel time, improving trip reliability, increasing service frequency, and enhancing transit’s comfort, convenience and image.	○	◐	◑	◒	◓
2	The project will provide cost-effective transit service in the Study Corridor.	◑	◒	◓	◔	○
3	The project will increase transit capacity to meet current and projected transit travel demand.	○	◐	◑	◒	◓
4	The transit service will be accessible to all populations, including minorities, people with low income levels, and those that are transit dependent.	◓	◔	◑	◒	◐
5	The project will promote environmental stewardship and sustainability by reducing greenhouse gas emissions and supporting smart growth.	○	◐	◑	◓	◓
6	The project will improve access to the Study Corridor transit service for pedestrians and bicyclists.	○	◐	◑	◒	◐
7	The project will provide improved connections with other local or regional travel modes.	○	◐	◓	◓	◑
8	The project will have a high likelihood of funding through identified grant programs and new funding sources.	○	◔	◑	◒	◔
9	Enhance safety and security for transit patrons and public health overall.	○	◐	◑	◒	◑
10	The project will support planned local and regional growth and corridor revitalization efforts	◔	◐	◑	◒	◓
11	The project will be consistent with adopted local and regional transportation plans.	○	◐	◓	○	○
12	The project will minimize adverse impacts to other travel modes and adjacent property.	◓	◓	◐	◔	◔
<b>Total Score</b>		<b>24</b>	<b>41</b>	<b>49</b>	<b>42</b>	<b>40</b>
<b>Average Score by Goal</b>		<b>2.1</b>	<b>3.4</b>	<b>4.1</b>	<b>3.5</b>	<b>3.3</b>

Average score calculated by assigning numerical values as follows: ○ = 1   ◔ = 2   ◐ = 3   ◑ = 4   ◓ = 5

←————— More Effective —————→  
Less Effective

While many noteworthy accomplishments were achieved under the consultant contract, the biggest milestone of 2018 was moving the proposed High Capacity Transit Feasibility Study for Pacific Avenue/State Route 7 into a reality as the agency's first 14.4-mile Bus Rapid Transit corridor project. In July 2018, Pierce Transit's Board of Commissioners adopted the mode (Bus Rapid Transit), alignment, and project termini as detailed below.

The route for the project is shown in Figure 1–2. The alignment is in a generally north/south orientation between Spanaway to the south and the Commerce Street Transit Center in downtown Tacoma to the north. A majority of the route is along Pacific Avenue/SR 7, which is a Washington State Route south of 38th Avenue. At the south end of downtown Tacoma, the BRT service will deviate to serve the Tacoma Dome Station, which is a major transit center with connections to other bus service and Sounder train service to Seattle. In the future, the Tacoma Dome Station will also include connections to Tacoma Dome Link Extension light rail, as it continues south from Angle Lake to Kent/Des Moines, Federal Way, Fife, and East Tacoma. Within downtown Tacoma, the BRT service will primarily operate on Market Street and Jefferson Avenue, terminating at the Commerce Street Transit Center, which provides connections to most of Pierce Transit's bus routes.

## **Bus Rapid Transit System Features**

The Pacific Avenue/State Route 7 project is a full-featured BRT service that will include the following elements:

- Enhanced stations with raised platforms for near-level boarding, shelters, lighting, security cameras, and other passenger amenities
- Off-board fare collection to allow for all-door boarding
- Real-time passenger information at all stations (e.g., “Next bus arriving in 3 minutes”)
- Transit Signal Prioritization
- Exclusive median running transit lanes and curbside Business Access and Transit (BAT) lanes located at key congested traffic areas
- Articulated buses with door ramps, rear-facing wheelchair bays, and on-board bicycle storage
- Unique branding and identification systemwide

The Preliminary Engineering/Design phase is underway with construction scheduled to begin in 2021. The project should be ready for revenue service as part of the September 2023 service change. Other current fixed route corridors under consideration for HCT or BRT are discussed in Section 6.

Figure 1–2: Pierce Transit's First Bus Rapid Transit Corridor



Source: Pierce Transit

**Figure 1–3: BRT Station Concept**

Source: PIVOT Architecture

## Fixed Route Network Restructured and Launched—March 2017

In 2016, Pierce Transit hired the consulting firm Nelson\Nygaard to conduct a Comprehensive Local Fixed Route Analysis. The work began in earnest in 2016 when The Board of Commissioners approved a plan to restore 59,000 annual service hours from September 2016 through September 2017. *2016 Route Analysis: Moving Forward* was the name of a public facing campaign for the agency's comprehensive study of its existing bus service, including gathering the public's ideas via open houses and an online interactive "Build your own system" comments or suggestions tool for where Pierce Transit should prioritize transit investments in the immediate future. There were 861 responses, of which the top three desired improvements were:

1. Provide more frequent service on weekdays (i.e., increase headways)
2. Provide earlier and later service on weekdays (i.e., increase span of service)
3. Introduce service to new areas

Figure 1–4 presents the full list of potential improvements available in the survey, as well as the percent of respondents who defined them as priorities.

Figure 1–4: 2016 Route Analysis: Moving Forward

# How did we get here? By taking your priorities into account.

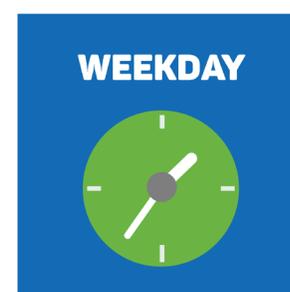
Strategy	Description	Y	N	Percent "Yes"*
<b>Provide more frequent service on weekdays</b>	Routes operate more frequently than they do today. For example, a route that currently runs every 30 minutes would run every 15 minutes.	591	270	<b>69%</b>
<b>Provide earlier and later service on weekdays</b>	Routes run earlier and later than they do today. For example, a route that currently runs between 6am-8pm would run between 5am-10pm.	568	293	<b>66%</b>
<b>Introduce service to new areas</b>	Expand service to areas or destinations that are currently unserved.	445	416	<b>52%</b>
<b>Provide more frequent service on weekends</b>	Routes operate more frequently on Saturdays and Sundays. For example, a route that currently runs every 60 minutes would run every 30 minutes.	422	439	<b>49%</b>
<b>Provide earlier and later service on weekends</b>	Route run earlier and later than they do today. For example, a route that currently runs between 9am-7pm would run between 8am-9pm.	411	450	<b>48%</b>
<b>Provide real-time info at bus stops</b>	Real-time bus arrival information signs would be provided to allow riders to see when the next bus is coming.	330	531	<b>38%</b>
<b>Provide more direct service to downtown Tacoma</b>	More service is added and routes are reconfigured to improve access and reduce the number of transfers to reach downtown Tacoma.	319	542	<b>37%</b>
<b>Reduce travel time by removing stops</b>	Routes have fewer stops, resulting in higher speeds and reduced travel time. Average walk distance to a transit stop would be increased.	312	549	<b>36%</b>
<b>Add more bus service to rail stations</b>	The number of bus trips to Sounder Stations for regional connectivity to Sounder trains and Sound Transit Express buses would be increased.	305	556	<b>35%</b>
<b>More shelters at bus stops</b>	More shade and shelter at bus stops improve conditions when waiting for the bus and attract new customers.	303	558	<b>35%</b>
<b>Improve lighting at bus stops</b>	Illuminated bus stops provide improved customer security and operational safety.	289	572	<b>34%</b>
<b>Provide more community-based circulator service</b>	Increase the number of local circulator services, for example the Puyallup Connector and Gig Harbor Trolley.	216	645	<b>25%</b>
<b>Wi-Fi on bus</b>	Offer free Wi-Fi internet service onboard to improve passenger experience.	199	662	<b>23%</b>
<b>More benches at bus stops</b>	More benches at bus stops improve conditions when waiting for the bus and attract new customers.	193	668	<b>22%</b>
<b>Install bike racks at bus stops</b>	Additional bike racks at stops to encourage ridership and free bike capacity on buses.	135	726	<b>16%</b>

\* As of 2016-08-16. Number of Build Your Own System responses = 861

## Priority 1



## Priority 2



**Buses that come more often during weekdays was the highest priority. Buses that run earlier and later on weekdays was the second priority.**

Source: Pierce Transit

Based on these results and information, the project team then created two alternatives for consideration and implementation under the March 2017 service change:

- **Alternative 1: Upgrade Existing Network**—This alternative focused on the directive to add back service to Pierce Transit’s existing fixed route network. The top priorities for additional investment under this alternative were to ensure that all urban routes had 30-minute peak service along with 30-minute midday service. Without any route consolidation, the addition of 35,000 annual service hours would have allowed for frequency improvements for 13 routes. Twenty-one urban routes (i.e., Routes 1 through 57) would also have been improved to frequencies of 30 minutes or better. However, no weekday evening or any weekend improvements in span or frequency were feasible in Alternative 1 as all resources would have been required for frequency improvements.
- **Alternative 2: Restructure Service**—This alternative combined a system structure that reduced route duplication with frequency and span improvements. Like Alternative 1, it would invest an additional 35,000 hours of service. While coverage would have been reduced in some areas, passengers would have benefited from all-day 30-minute frequencies, from 6:00 am to 6:00 pm, on all four trunk routes plus 17 urban routes, as well as a longer span of weekday service; until 10:00 pm.

After careful deliberation at their December 2016 meeting, the Board of Commissioners selected Alternative 2 with a few moderations. Figure 1–5 depicts each route analyzed, including any changes where applicable, as implemented on March 12, 2017.

Figure 1–5: Pierce Transit Fixed Routes Modified under Final Alternative 2 (March 2017)

ROUTE NO.	NAME	NO CHANGES	FREQUENCY, SPAN, OR RUN TIME IMPROVEMENTS	MODIFIED ALIGNMENT OR ROUTING	ELIMINATED
1	6th Avenue—Pacific Avenue		●		
2	S 19th Street—Bridgeport Way	●			
3	Lakewood—Tacoma			●	
4	Lakewood—South Hill		●	●	
10	Pearl Street		●	●	
11	Point Defiance		●	●	
13	N. 30th Street			●	
14	Proctor District				●
16	North End		●	●	
28	S 19th Street—Bridgeport Way W		●		
41	S 56th Street—Salishan		●	●	
42	McKinley Avenue		●		
45	Yakima		●		
48	Sheridan—M Street		●	●	
51	Union Avenue				●
52	Fircrest—Tacoma Community College		●		
53	University Place		●	●	
54	S 38th Street—Portland Avenue		●	●	
55	Tacoma Mall		●		
56	56th Street				●
57	Union Avenue—S 19th Street—Hilltop		●		
63	Northeast Tacoma Express	●			
100	Gig Harbor	●			
102	Gig Harbor—Tacoma Express	●			
202	S 72nd Street		●		
206	Pacific Highway—Tillicum—Madigan		●	●	
212	Steilacoom		●		
214	Washington		●		
300	S Tacoma Way				●
400	Puyallup—Downtown Tacoma		●		
402	Meridian		●		
409	Puyallup—S 72nd Street	●			
497	Lakeland Hills Express	●			
500	Federal Way		●		
501	Milton—Federal Way		●		

**Note** The two season trolley routes existing at the time (15 and 101) as well as the Puyallup Connector (425) are not included as there were no changes to any of the three.

## New, Emerging Technologies and Trends

### Autonomous vehicles

As in all other sectors of the economy, technology is quickly changing in the provision of transportation and mobility. One very promising example of a still-developing technology is the diverse area of autonomous or driverless vehicles. Autonomous buses have the potential to significantly reduce the cost of delivering bus service, opening the door for the savings to be invested in offering transit passengers even more service, such as additional routes and connections, and more frequency. In the same way, transportation network companies (e.g., mobility-on-demand providers, such as Uber and Lyft) with which Pierce Transit service connects, could economically put more driverless vehicles on the road, making transfers for the first- and last-mile or shorter segments of a trip easier.

Autonomous vehicles may transform Pierce County centers and the ways in which mobility users get around in them, resulting in regions with higher levels of mobility overall. Large-scale, successful deployment of driverless vehicles could dramatically reduce congestion, reduce emissions and accidents, and transform stressful peak hour commuting into more productive time.

There are many other examples of beneficial technologies developing now with the promise of delivering powerful new benefits to travelers. Evolving technologies over which Pierce Transit could have total or shared control appear in Figure 1–6.

### Environmental Responsibility and Stewardship

Looking to the future, Pierce Transit may wish to adopt more environmentally sustainable practices for the light and heavy maintenance of their transit fleets and non-revenue vehicles, as well as modifications that will render their operating base facilities more “green.” In addition to switching the fleet to zero emission vehicles, possible resource conservation and carbon mitigation changes that could be implemented include:

- Maximizing the area of solar power collection
- Replacing existing building systems with a biomass boiler
- Rainwater harvesting
- Natural daylighting
- Green roof area, or reflective “cool” roof
- Cleaning and refining lubricants for re-use

- Planning for bus bases' convertibility to an eventual "zero-emissions" fleet
- Utilizing sustainably-sourced mass timber for building renovations/additions

Pierce Transit's Commitment to utilizing green technologies and strategies, as adopted August 2018, is provided in Appendix G.

Some transit bases around the world have even constructed wind turbines on their property to provide power to offices, maintenance equipment, yard lighting, and vehicle battery charging. The results of these conservation and mitigation strategies can include significant beneficial changes in carbon emissions, water use, and consumption of all energy, regardless of source.

**Figure 1–6: New Technologies**

	<b>UNDER PIERCE TRANSIT'S DIRECT CONTROL</b>	<b>ACHIEVED THROUGH PARTNERSHIPS</b>
<b>CAPITAL IMPROVEMENTS</b>	Electric vehicle charging stations Electric/battery powered transit vehicles	Project capital funding Intelligent (predictive and responsive) systems <ul style="list-style-type: none"> <li>• Smart technology</li> <li>• Smart infrastructure</li> </ul> Integrated corridor management Mobility-as-a-Service
<b>PROGRAMS</b>	Demand-responsive mobility Transportation system management	Automated/remote fare payment Improved real-time trip planning information Operations funding Ride-hailing (at transit stations/stops) Shared vehicles Intelligent (predictive and responsive) systems <ul style="list-style-type: none"> <li>• Smart energy</li> <li>• Smart mobility</li> <li>• Smart logistics</li> </ul> Travel demand management Data utilization and management Integrated corridor management Mobility-as-a-Service
<b>POLICIES</b>	Policies affecting mode choice Policies affecting the cost of mobility Policies affecting equity	Carbon pricing Mobility pricing Mobility-as-a-Service

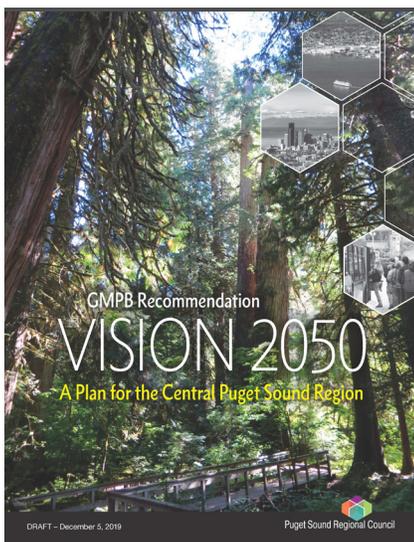
## Puget Sound Regional Council’s Vision 2050 Plan— Regional Growth Strategy: Transit Focused Growth Alternative <sup>3</sup>

The Puget Sound Regional Council Metropolitan Planning Organization’s VISION 2050 is a shared strategy for how and where the central Puget Sound region can grow to a forecast of 5.8 million people and 3.4 million jobs by the year 2050. The Regional Growth Strategy considers how the region can distribute the forecasted growth, primarily within the designated urban growth area, and support development near high capacity transit in the region. The strategy is a description of a preferred pattern of urban growth that has been designed to minimize environmental impacts, support economic prosperity, advance social equity, promote affordable housing choices, improve mobility, and make efficient use of new and existing infrastructure.

VISION 2050 envisions a future where the region:

- Maintains stable urban growth areas.
- Focuses the great majority of new population and employment within urban growth areas.
- Maintains a variety of community types, densities, and sizes.
- Achieves a better balance of jobs and housing across the region.
- Within urban growth areas, focuses growth in cities.
- Within cities, creates and supports centers to serve as concentrations of jobs, housing, services, and other activities.
- Builds transit-oriented development around existing and planned infrastructure.
- Uses existing infrastructure and new investments efficiently.

### PSRC Vision 2050 Plan



Source: Puget Sound Regional Council

### Focusing Growth Near Transit and in Regional Centers

The emphasis on the development of centers throughout the region is at the heart of VISION 2050’s approach to growth management. Regional growth centers are locations characterized by compact, pedestrian-oriented development, with a mix of office, commercial, civic, entertainment, and residential uses. Regional growth centers are envisioned as major focal points of higher-density population and employment, served with efficient

<sup>3</sup> Source: Draft VISION 2050, Regional Growth Strategy, July 2019, pp. 23–46.

multimodal transportation infrastructure and services. The Regional Centers Framework establishes two types of regional growth centers—metro growth centers and urban growth centers—and sets criteria and growth expectations for them. Metro growth centers are the densest and most connected places in the region and are expected to accommodate higher levels of growth.

Mixed-use centers of different sizes and scales—including large designated regional growth centers, countywide centers, local downtowns, and other local centers—are envisioned for all of the region's cities. Concentrating growth in mixed-use centers of different scales allows cities and other urban service providers to maximize the use of existing infrastructure, make more efficient and less costly investments in new infrastructure, and minimize the environmental impacts of urban growth.

The region also contains manufacturing/industrial centers with two located in Pierce County; the Port of Tacoma and Frederickson. As shown in Figure 1-7, these are existing employment areas with intensive, concentrated manufacturing and industrial land uses that cannot be easily mixed with other activities. Manufacturing/industrial centers are intended to continue to accommodate a significant amount of regional employment. The Regional Centers Framework establishes two types of regional manufacturing/industrial centers—industrial employment centers and industrial growth centers—and establishes different criteria and growth expectations for these centers. Unlike regional growth centers, these areas are not appropriate for residential growth.

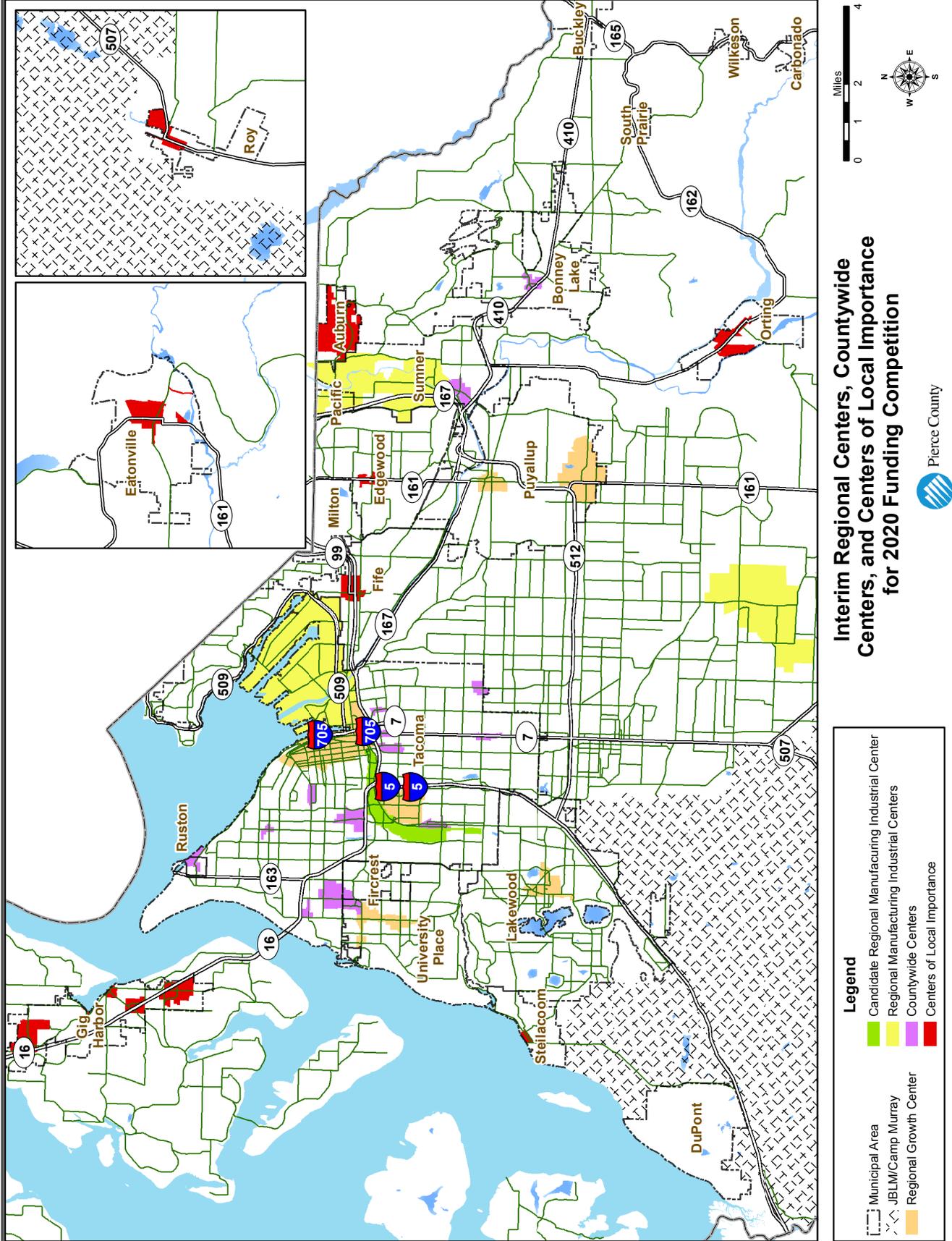
## Access to High Capacity Transit

The central Puget Sound region is investing heavily in its high capacity transit system, greatly expanding light rail, bus rapid transit, and passenger ferry service. Since the initial Regional Growth Strategy in VISION 2040 was adopted, the region's voters approved two major Sound Transit ballot measures, and other transit agencies have significantly expanded planning for high capacity transit. VISION 2050 incorporates a renewed focus on locating growth near current and future high capacity transit facilities. Rail, ferry, and bus rapid transit station areas are ideal for increased density, new residences, and businesses—referred to as transit-oriented development. Allowing for greater employment and population growth within walking distance to high capacity transit promotes the use of the region's transit systems and reduces the number of trips that require a personal vehicle. VISION 2050 includes a goal for 65% of the region's population growth and 75% of the region's employment growth to be located in regional growth centers and within walking distance of high capacity transit.



Puget Sound Regional Council

Figure 1-7: Interim Regional Centers, Countywide Centers, and Centers of Local Importance – Pierce County, Washington



## High Capacity Transit Communities

High Capacity Transit Communities include cities connected to existing or planned light rail, commuter rail, ferry, streetcar, and Bus Rapid Transit facilities. High Capacity Transit Communities also includes urban unincorporated areas planned for annexation or incorporation and with existing or planned access to high capacity transit. As the region's transit system grows, these 32 communities play an increasingly important role as hubs for employment and population growth. Targeting growth within these transit-rich communities helps to support mobility and reduces the number and length of vehicle trips.

The Regional Growth Strategy calls for the 32 High Capacity Transit Communities to accommodate 21% of the region's population growth and 13% of its employment growth by the year 2050. Policy MPP-RGS-7 is provided below. Of the 32, the five within Pierce County are: DuPont, Fife, Fircrest, Sumner, and Tacoma Potential Annexation Area (PAA). Potential Annexation Areas are those areas in urban unincorporated Pierce County that various cities have identified for future annexation. The PAA "status," combined with existing or planned HCT (including BRT) are the criteria for classifying those areas as "HCT Communities," which have higher growth allocations than "Urban Unincorporated" areas.

**Figure 1–8: Typical light rail car and platform**



*Image provided by Sound Transit*

**MPP-RGS-7**

Attract 65% of the region's residential and 75% of the region's employment growth to high capacity transit station areas to realize the multiple public benefits of compact growth around high capacity transit investments. As jurisdictions plan for growth targets, focus development near high capacity transit to achieve the regional goal.

## Regional Growth Strategy by the Numbers

The primary emphasis of the Regional Growth Strategy is on the shares of growth among regional geographies. The Regional Growth Strategy was developed using the PSRC macroeconomic forecasts for the year 2050 and Office of Financial Management assumptions about the relative shares of growth to each county. These numbers will change marginally in future rounds of regional forecasts, so, when looking at the numbers, the percentages of regional and county growth may be more useful for local planning than the specific numbers contained in the forecasts. Figure 1–9 depicts population and employment growth in Pierce County through 2050 under six of the nine types of geographies, based on their size, function, and access to high capacity transit.

**Metropolitan Cities and Core Cities** include cities that have designated regional growth centers. Most are connected to the region's high capacity transit system. These two groups of cities are and will be the most intensely urban places in the region.

**Figure 1–9: Pierce County Population and Employment Growth Allocations: 2017–2050**  
(Draft Preferred Alternative)

	METROPOLITAN CITIES	CORE CITIES	HCT COMMUNITIES	CITIES AND TOWNS	URBAN UNINCORP. AREAS	RURAL AREAS	<b>TOTALS</b>
<b>POPULATION GROWTH</b>	38% 137,000	23% 85,000	21% 77,000	7% 25,000	8% 29,000	3% 11,000	<b>364,000</b>
<b>EMPLOYMENT GROWTH</b>	48% 94,000	23% 44,000	15% 28,000	6% 13,000	6% 12,000	2% 3,000	<b>195,000</b>

Source: Draft VISION 2050, Regional Growth Strategy, July 2019

**High Capacity Transit Communities** are cities and unincorporated areas that are connected to a regional high capacity transit system. These urban unincorporated areas are also planned for annexation or incorporation.

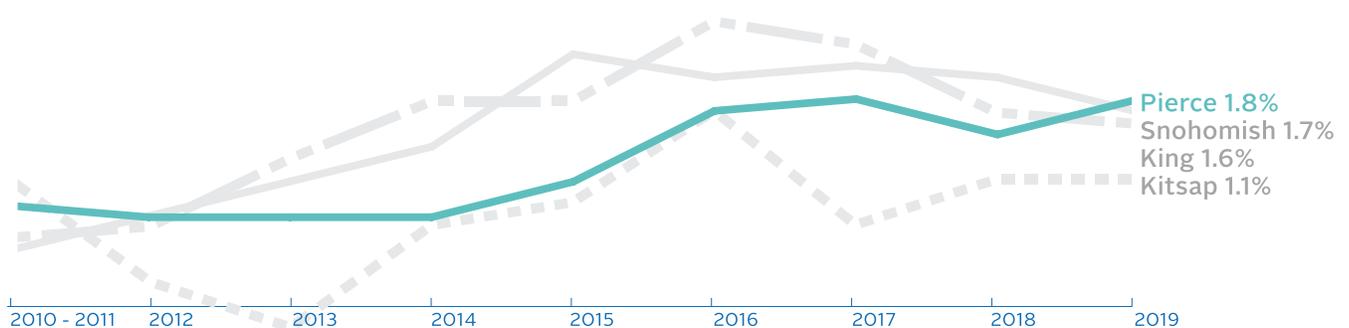
**Cities and Towns** have smaller downtown and local centers, which may be served by local transit.

**Urban Unincorporated Areas** capture a wide variety of urban lands, both lightly and heavily developed. These areas may be served by local transit but are not yet planned for annexation or incorporation and/or high capacity transit.

**Rural Areas** and **Natural Resources Lands** describe the different types of unincorporated areas outside the urban growth area and include very low-density housing, working landscapes, and open space.

In 2019 the four-county Puget Sound region grew by 68,740 over the previous year—that's an increase of 188 new residents per day!

**Figure 1–10: Population Growth Rate for Central Puget Sound Counties 2010–2019**



Source: Draft VISION 2050, Regional Growth Strategy, July 2019

# RISKS FACING PIERCE TRANSIT OVER THE NEXT 20 YEARS

## RISK OF DEMAND

Although travel demand generally, and transit demand specifically, have grown the previous 20 years, the rate of change on so many social dimensions make it difficult to predict how the public's demand for Pierce Transit's services—versus new and modified alternative modes of transport—will grow.

## RISKS OF DEMOGRAPHIC CHANGE

**AGING POPULATION** The inevitable aging of the population, already well underway, will change both the quantity and qualities of services that Pierce Transit riders will need.

**HOUSEHOLD SIZE** Smaller household sizes will change the density and location of new development. It will present challenges to meeting the needs of existing and new residential development, especially as the urbanized areas of Pierce County transition to much higher density land uses.

### POPULATION/EMPLOYMENT RATIO

**DIGITAL DIVIDE** between age, cultural, language, and income groups.

**INTELLECTUAL CAPITAL** Populations with skills, relationships, and potential productive/creative energy are attracted to regions with excellent, accessible public transport services and great mobility, overall.

**INCOME INEQUALITY** Inequality denies some citizens opportunities for advancement, partially excluding them from a socially and economically productive life. Public transport plays an important role in mitigating these challenges for lower income populations, providing them greater opportunities for social/public events, education, healthcare, and access to jobs or recreational activities.

## RISK OF CONSUMER BEHAVIOR

The rapid pace of change on micro- and macro-transport system hardware and software is likely to affect the behavior of transport consumers in unpredictable ways. As difficult as it will be to future-proof public transport investments, it will be immensely more difficult to mitigate the risk of evolving human attitudes and expectations. An example of a known-unknown is future access to a car. What will be the rate of car ownership versus car sharing versus ride hailing as multiple technologies evolve?

## RISK OF CLIMATE CHANGE AND THE NEED FOR RESILIENCE

The speed and extent of climate-related impacts on transportation infrastructure remain uncertain. What is certain is that new facilities and services must be sited and designed for resilience in the face of change from many directions. For Pierce Transit, resilience is the capacity to survive and

thrive when natural and human pressures are encountered. Resilience is both proactive and reactive; resilience planning must recognize the complex and interdependent effects of climate change. Facing the cost of ultimate resilience might prove a challenge.

## RISK OF OBSOLESCENCE AND THE RATE OF INNOVATION

Some recent technological innovations were obsolete in the time it took for transport providers to recognize their potential value and implement them. For Pierce Transit, this is a genuine program and cost risk. Pierce Transit must be convinced of the enduring benefit and longevity of new technologies before investing the millions of dollars that new systems and equipment often cost when introduced and implemented across an entire transit agency.

## RISK OF ENERGY SECURITY AND SUPPLY (RESILIENCE)

The availability of alternative fuels and power will impact the cost of transport and have the potential to fundamentally change transport economics. This risk must be considered for normal, scheduled operations, as well as during extraordinary events which might disrupt the delivery of fuel and power.

## RISK OF I-976 IMPACTS

Washington Initiative 976 (frequently called \$30 Motor Vehicle Tabs Initiative) was passed by the voters of Washington on November 5, 2019. By its passage, the Initiative does the following:

- Limits annual license fees to \$30 for vehicles less than 10,000 lbs.
- Bases vehicle taxes on the Kelley Blue Book value
- Repeals authorization for certain Regional Transit Authorities (such as Sound Transit) to impose motor vehicle excise taxes.

It is unknown how this initiative will effect Pierce Transit and its riders. WSDOT's transportation accounts, from which Pierce Transit receives both capital and operating funds, will experience a loss of \$451 million out of \$6.7 billion from the 2019-21 biennial budget. Following the November 2019 election, the Governor directed WSDOT to postpone the funding of projects not yet underway. The postponed projects included public transit projects. Currently, no Pierce Transit capital projects are among the State's postponed projects; however, WSDOT has been clear that additional projects may be affected by legislative amendments to the 2019-21 transportation budget to reflect passage of I-976. Additionally, all new grant-funded project solicitations will be on hold until the Legislature acts.

# 2

## Assessment of **CURRENT CONDITIONS**

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### **Facilities**

#### **Lakewood Headquarters**

After updating its Base Master Plan in 2017, Pierce Transit learned from the comprehensive analysis that its Lakewood, Washington, headquarters campus cannot accommodate the additional revenue vehicles and employees needed to expand its fixed route, regional express, paratransit, and Vanpool service options as it is currently configured. When it was designed back in the late 1980s, it didn't consider how to efficiently and safely accommodate 60-foot articulated coaches, such as what is used for Sound Transit Express currently plus Pierce Transit Bus Rapid Transit beginning in 2023. It is therefore undergoing a complete redesign.

Pierce Transit is moving forward with flexible, phased improvements to its Lakewood Maintenance and Operations Base. Funding for the early improvements has been phased in the 6-year capital budget, with a funding partnership with Sound Transit and additional funds being sought through grants. The Lakewood (headquarters) Base serves the entire bus fleet of Pierce Transit, as well as over 100 Sound Transit vehicles that are operated and maintained alongside Pierce Transit buses. The intent of both agencies is to continue this positive relationship for as long as it is feasible and beneficial to both transit agency partners. The plan's implementation includes phased expansion, reconfiguration, and refurbishment, intended to improve safety, vehicle circulation, and increase efficiency and capacity for the maintenance and operation of all vehicle types. This capital investment in the base will serve the agency well into the future by addressing capacity issues as the various revenue service fleets and diverse vehicle types are planned to grow over time.

Pierce Transit's 2020 Budget has \$88.3 million programmed for the Maintenance and Operations Base Improvements (MOBI) project from 2019 through 2024. The MOBI project will update the 30-year old base to provide safe operating space and facilities for the next 30 years. This is a multi-year project that will bring the older facilities up to current code requirements, install new and innovative bus maintenance solutions, and provide space for a changing fleet composition (e.g., adding electric buses to the fleet plus 60-foot articulated coaches for BRT) and growth into the foreseeable future.

Grant revenues of \$14.5 million will assist with implementation of the MOBI project, with additional grants or other funding sources needed to fully implement the capital needs for Pierce Transit's base facilities.

Pierce Transit's Maintenance and Operations Base Improvements (MOBI) project will generally provide additional capacity for projected fleet growth through 2040 and enable Pierce Transit to maximize building and land use by expanding and improving core functions of bus maintenance, building facilities, parking, safety, transit vehicle circulation, and service within the original 1988 maintenance base site. Peripheral parcels acquired by Pierce Transit since 1988 will be expanded or reconfigured to host other functions of the Base including parking, facilities maintenance, service supervision, and Vanpool.

The Base Improvements project site consists of four primary areas: Main Base, South Base, West Base, and Building 6 (9622 40th Avenue SW) sites in Lakewood, Washington. The four primary areas of the Base are described below along with descriptions of proposed improvements in each area.

#### **MAIN BASE**

Proposed improvements of the Main Base include:

- Restriping and expansion of bus parking;
- Reconfiguration of bus entries off 96th Street SW;
- Relocation of utility connection between facilities;
- Addition of maintenance bays, paint bays, a van repair bay, and reconfiguration of Building 1;
- Demolition and relocation of the functions in Building 2 (Facilities Maintenance and Bus Wash) and Building 3 (Fare Collection and Fueling);
- Construct a new Fuel and Wash Facility;
- Demolish employee parking and construct new parking for

SHUTTLE, fleet, and non-revenue vehicles;

- Construct new employee parking and expanded visitor parking adjacent to Building 4;
- Construct charging system and battery storage for Electric Bus Fleet;
- Construct new detail clean and quick fix area;
- Construct 96th Street SW frontage improvements as required by the City of Lakewood;
- Improved site / safety lighting

### **SOUTH BASE**

Proposed improvements of the South Base include:

- Restriping and expansion of parking;
- Addition of employee electric vehicle charging;
- Improved site / safety lighting

### **WEST BASE**

Proposed improvements of the West Base include:

- Demolition of existing Buildings 7 and 8 and other site features;
- Construct ramp between West Base and Main Base;
- Construct new facilities maintenance/IT storage/service supervisor building;
- Construct new employee and non-revenue vehicle circulation, parking, entrances, and new facilities maintenance service yard;
- Construct 39th Avenue Court SW frontage improvements to the extent required by the City of Lakewood

### **BUILDING 6**

Proposed functions of Building 6 include:

- Continued hosting of Vanpool program;
- Temporary hosting of groups displaced by construction elsewhere on Base;
- Permanent locations of other maintenance and operations functions— to be determined.

## Passenger-Facing Facilities

- Transit Centers
- Transit Stations
- Park-and-Ride Lots

Pierce Transit owns and operates six transit centers, where several routes connect with coordinated transfer points. Each facility offers sheltered waiting areas, and most are located near a major community activity center. While not offering timed transfers, the Commerce Street Transfer Facility in downtown Tacoma (between S. 9th and S. 11th Streets) provides a central focus for transit activity and includes layover space that is used by Pierce Transit, Sound Transit, and Intercity Transit vehicles.

Pierce Transit also operates a network of Park-and-Ride facilities that are located throughout Pierce County. There are currently 5,235 parking spaces available, a majority at facilities owned or operated by Pierce Transit, Sound Transit, or WSDOT. On average, 82% of the county's Park-and-Ride lots' parking stalls were occupied on any given weekday in 2018. However, transportation and transit planning professionals or academics all agree that parking supply for commuters in the future could be greatly reduced, not only due to car sharing programs but autonomous vehicles or AVs. As Urban & Regional Planning Professor Tim Chapin at Florida State University notes in the April 2017 edition of *Planning* magazine, "A major opportunity rests on what to do with the superfluous parking found in most cities and suburban areas. As far less parking is required once AVs have taken over, and because parking can be disconnected from almost all land uses, the form and location of parking will change. Downtown areas and high-density nodes (such as where Tacoma Dome Station is located) might construct off-site parking reserves, akin to those found in airports. The ubiquitous surface parking lots sitting outside typical office and retail developments will no longer be required, freeing much of this land up for other uses." Doctor Chapin posits, "This existing auto-dominated land can be redeveloped into a place that serves humans first and vehicles second." This is exactly what the City of Tacoma envisions for the area surrounding Tacoma Dome Station and the adjacent Puyallup Avenue corridor.

In July 2019, Pierce Transit launched a pilot program to sell parking permits for a reserved or guaranteed spot in one of the two Tacoma Dome Station garages, in order to encourage transit usage among its multiple options offered at the station. To hold a permit, commuters must ride a bus, vanpool, or Sounder train from the station at least 12 times per month. Permit holders must also reside within the Pierce Transit service area. Considering that Tacoma Dome Station regularly operates at well over 90% capacity

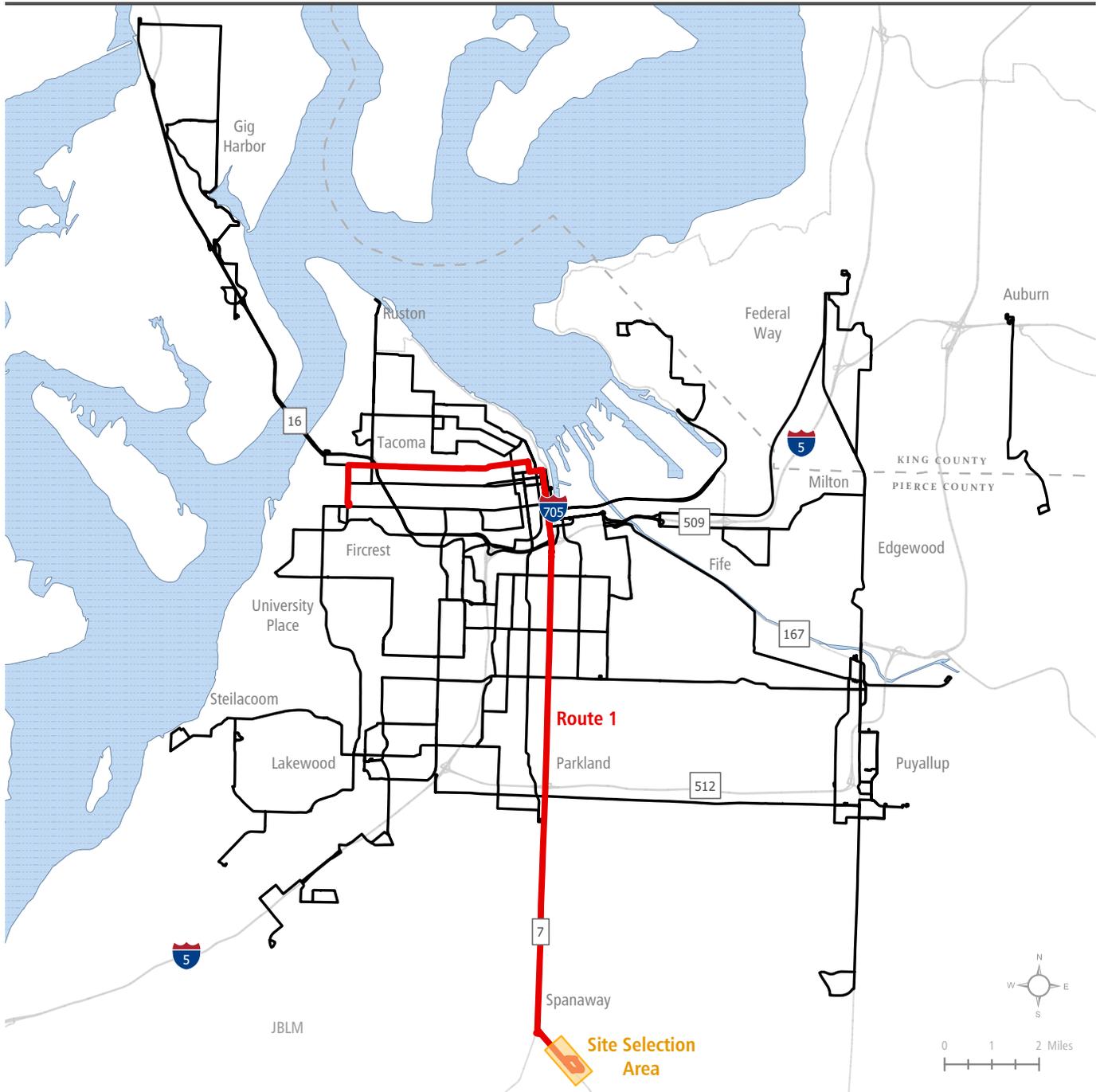
during the week, charging for parking at major commuter hubs or transit centers is likely to soon become the norm throughout the Central Puget Sound Region, especially those with Sound Transit's Sounder commuter rail or Link light rail service.

As the areas around high capacity and frequent transit continue to densify, reevaluating the need for surface parking lots, especially those operating well below capacity, is something Pierce Transit will continue in the future. With many parts of the City of Tacoma and Pierce County being rezoned for high density, mixed use development, a better use of these surface parking lots could potentially be to convert them to residential or commercial infill projects—or both. In many cases, the transit is already in place, such as at Tacoma Community College where a major transit oriented infill development project is being planned on a currently underutilized 7-acre parcel directly across the street, known as the James Center North project. This project is highlighted in Section 4. Other high capacity transit supportive infill development opportunities will soon exist along the Pacific Avenue/SR 7 corridor, once Pierce County formally adopts its Centers and Corridors strategy for the Parkland-Spanaway-Midland Community. Meridian East/SR 161 in Puyallup is also ripe for higher density redevelopment, as noted in the South Hill Community Plan. This proposal was highlighted in Section 1.

## **New Spanaway Transit Center & Park-and-Ride**

Pierce Transit has a new transit center with a Park-and-Ride option coming to Spanaway in 2022 at the location shown in Figure 2–1. The Spanaway Transit Center facility will include passenger boarding areas, a bus turnaround, operator comfort station, enhanced security features, and up to 250 parking stalls for transit patrons. It will serve as the southern terminus of the current Route 1 and for the planned Pacific Avenue/SR 7 Bus Rapid Transit system when it begins operating in 2023. Both planning partners at Sound Transit and Pierce County agree that this facility could be a catalyst for transit-supportive growth and infill development in the entire corridor as well. The facility is planned to be built adjacent to the new Mountain Highway Towne Center. The transit center will complement the County's efforts to create this new Towne Center with its central gathering places for the community to access services and amenities, as well as additional multi-family housing options, such as apartments and townhomes. While negotiations for the parcel are still underway, the proposed location is shown in Figure 2–1.

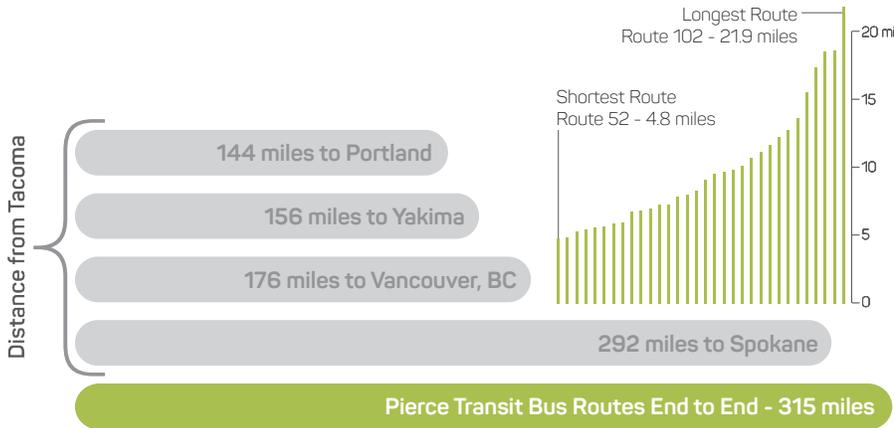
Figure 2-1: Site for New Spanaway Transit Center & Park-and-Ride



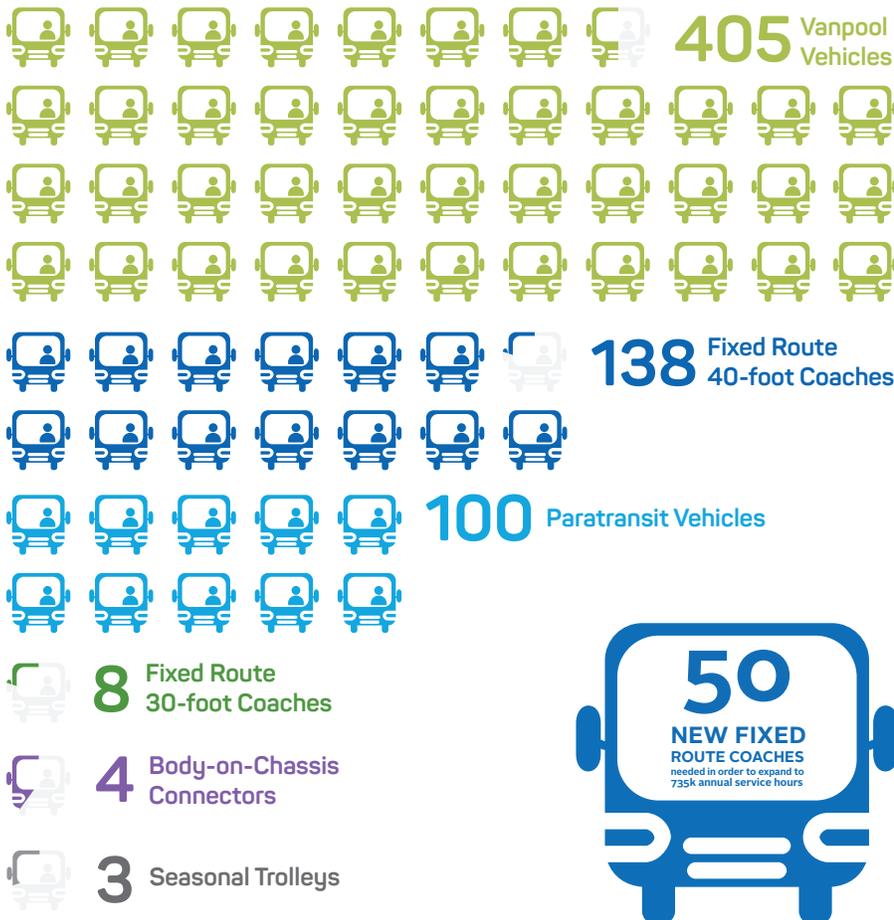
Source: Pierce Transit

# Operations

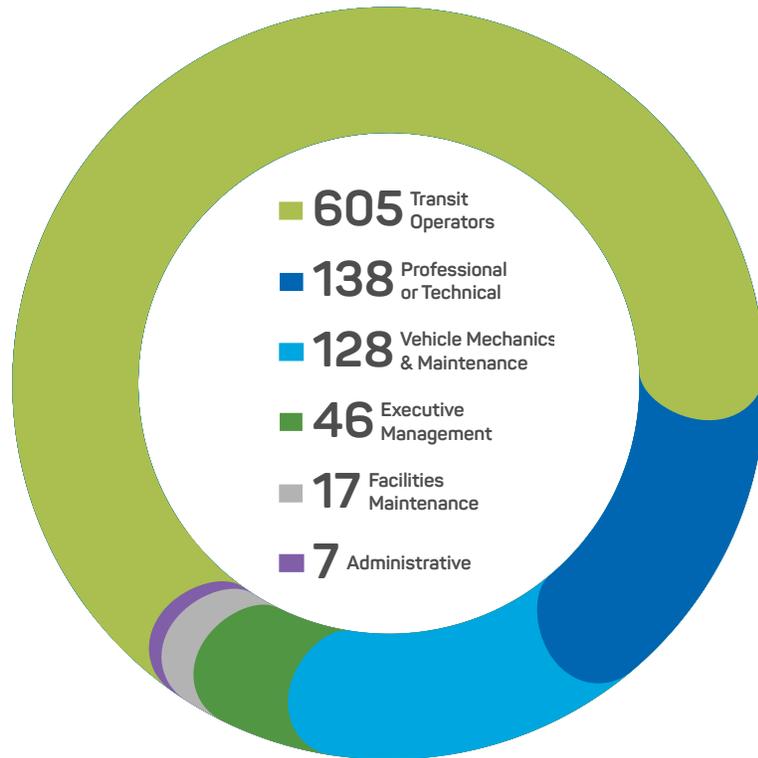
## The Fixed Route Network End-to-End



## Current Revenue Vehicles Fleet

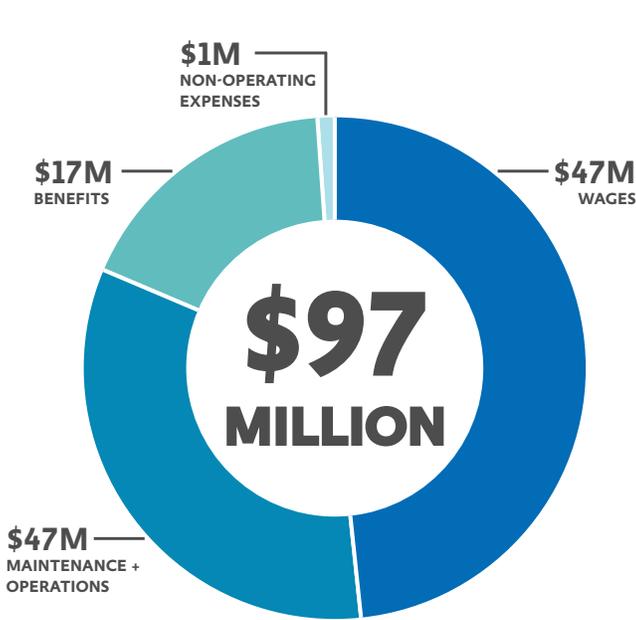


### Current Employees by Classification

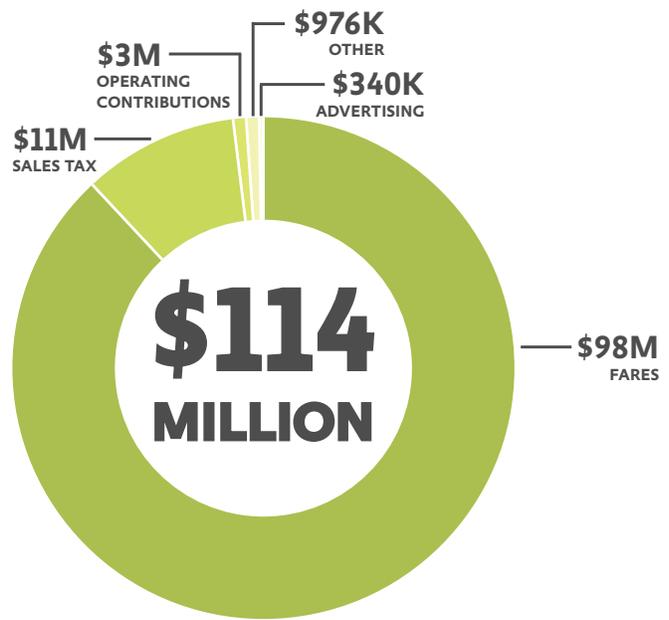


### System Performance and Finance

2019 Expenditures and Revenues (excluding Sound Transit)



**2019 OPERATING EXPENDITURES**



**2019 OPERATING REVENUES**

## Access and Coverage Gaps within Current System (PTBA) Boundaries

The agency recognizes that there are still access and coverage gaps within the current system area boundaries or Pierce County Public Transportation Benefit Area (PTBA). Bus stops and walking distances to them (i.e., ¼ to ½-mile) as of July 2019 are depicted in Figure 2–2. Darker shading indicates a quarter-mile and lighter shading indicates a half mile walk from the nearest bus stop. According to this analysis, nearly 73% of people living in the Pierce Transit service area (i.e., the area in white on the map) live within a half-mile walk from a bus stop.

While this visualization depicts a web of access to public transportation, it also exposes gaps within the system. Many areas and communities in Pierce County still lack direct access to bus stops and other transportation services. As the South Sound region continues to experience population growth, it is increasingly important to meet everyone's transportation needs, especially for those who may choose to not drive a car. In addition, public transit requires less land and produces fewer emissions than single-occupancy vehicles, and it enables people who cannot drive to participate in economic activities, such as education and employment. Filling the gaps in Pierce Transit's fixed route network is one way of supporting the region's environmental stewardship and economic prosperity goals.

**The majority of the population in the Pierce County service area live within walking distance of a bus stop.**

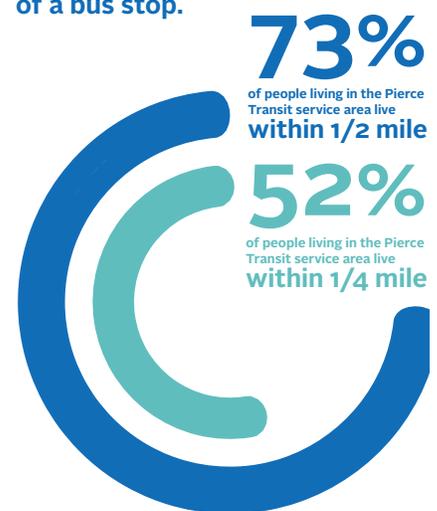
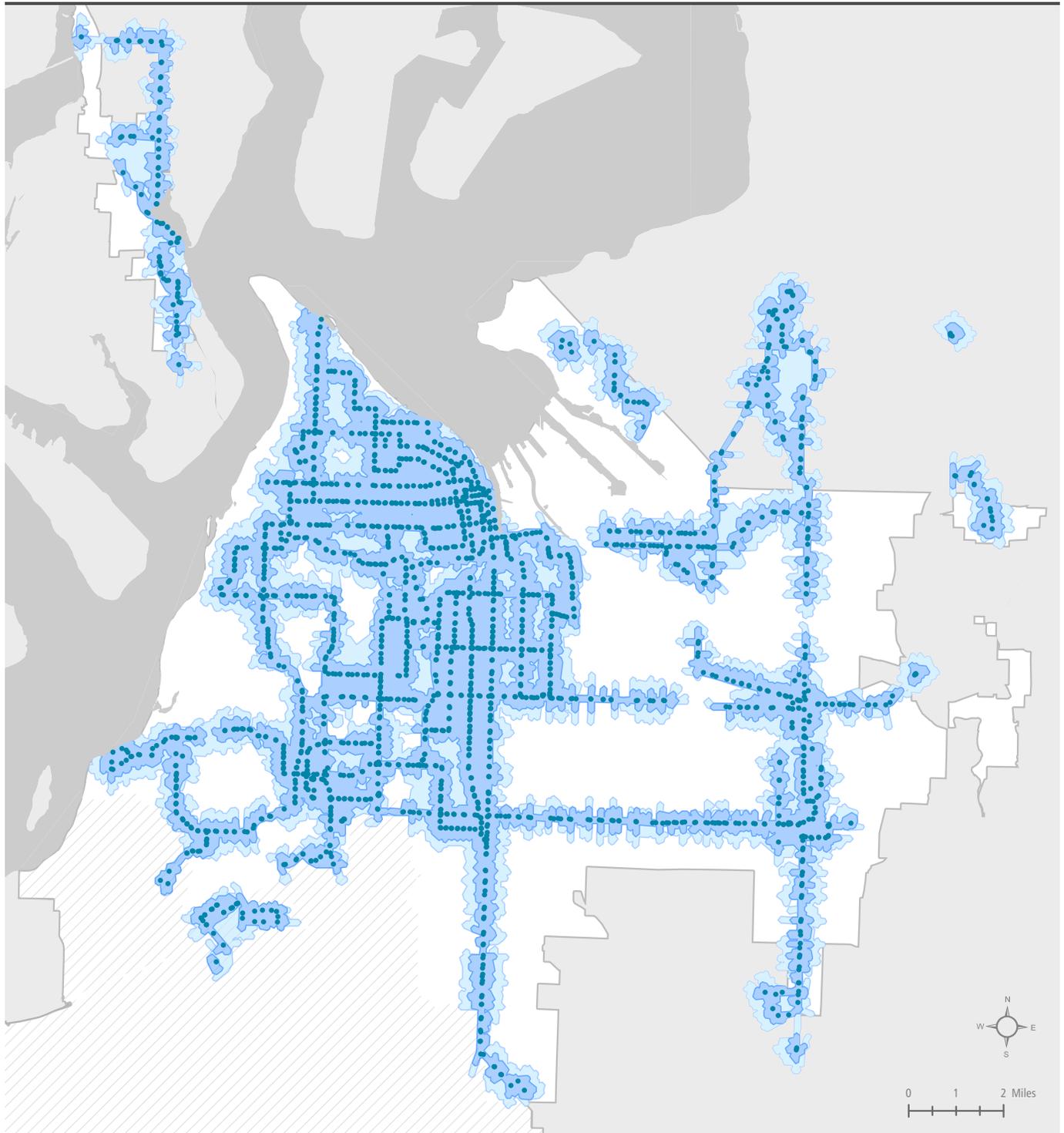


Figure 2–2: Fixed Route Bus Stop Service Area



# Bus Stop Service Area

This map illustrates areas within walking distance of Pierce Transit's bus stops. This covers approximately 30% of the Pierce County Public Transportation Benefit Area (PTBA).

- PTBA Boundary
- Bus Stops
- Walk Distance From Bus Stop
  - 0.5 mile
  - 0.25 mile

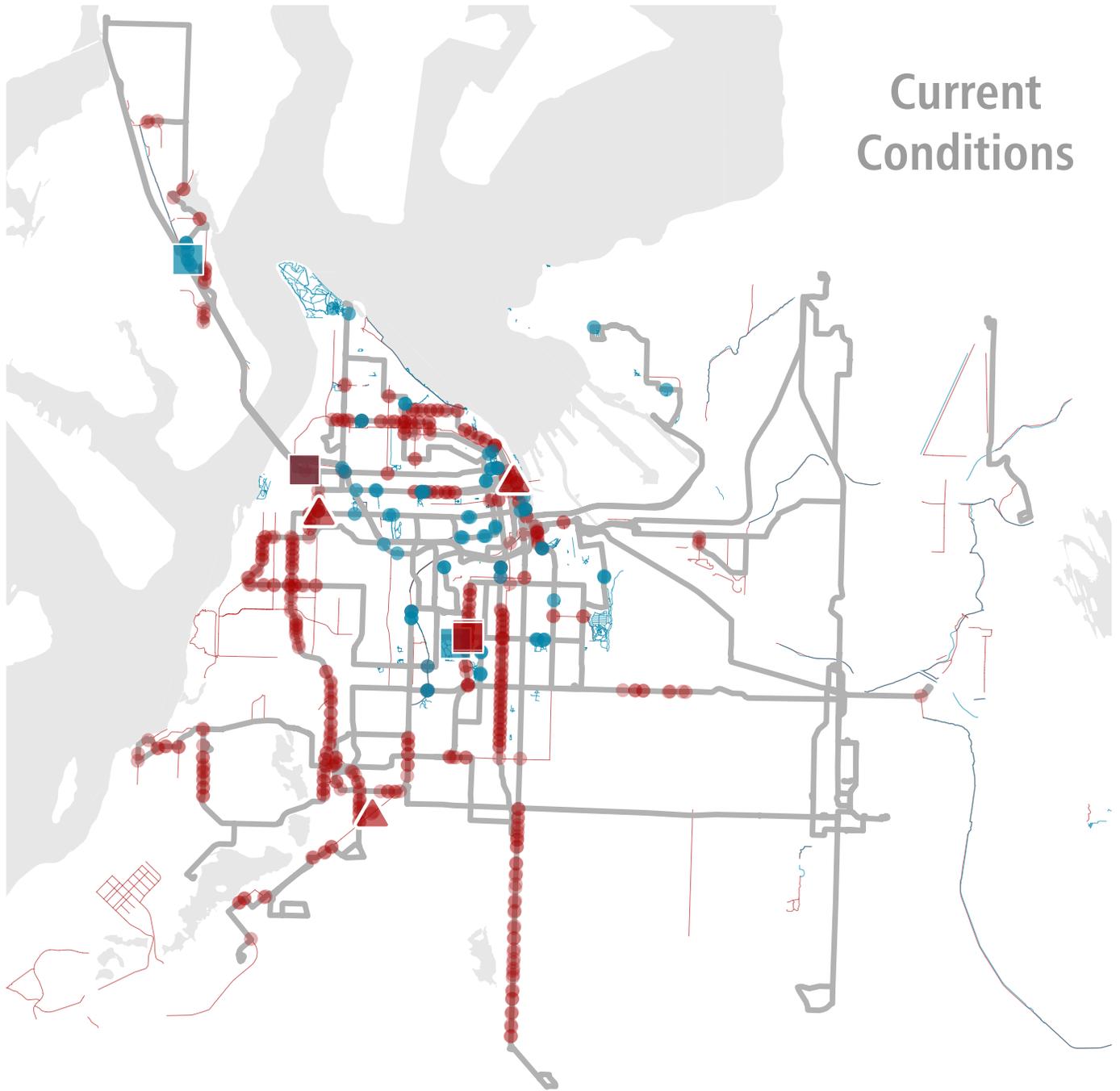
## Active Transportation Network and Non-Motorized Access to Transit

One idea for better integrating transit into the local surface transportation network would be to identify non-motorized or active transportation facilities, such as recreational trails and dedicated bicycle lanes, that directly connect to Pierce Transit bus routes, ideally at transit or transfer centers, stations, and Park-and-Ride lots. As younger generations consider moving to any metropolitan area in the nation, many are attracted to cities and counties where using transit along with non-motorized mobility options are realistic, safe, and seamlessly connected. Ideally, one could live there without relying solely on a privately-owned automobile to get around. Non-motorized and active transportation access points are depicted in Figures 2–3 and 2–4.

Non-motorized or active transportation refers to walking and smaller-wheeled transportation modes including bicycles, wheelchairs, and scooters. These modes play an important role in any transportation system. Among other benefits, non-motorized trips require less space, have lower infrastructure and operational costs, produce fewer emissions, and provide health benefits and a more affordable form of transportation to their users.

This map uses bikeways (i.e., bike lanes and paths) and pedestrian trails to depict non-motorized access to Pierce Transit facilities. Presently, only 3% of Pierce Transit bus stops are within 100 feet of a pedestrian trail and 20% are within 100 feet of a bikeway. However, with plans for route, bikeway, and pedestrian trail expansion, proportions may increase to 5% and 38% respectively. Park-and-Rides and transit centers with non-motorized transportation access also have the potential to increase from 33% to 40%. By connecting non-motorized paths and trails with public transportation, Pierce Transit's routes and facilities help to support a stronger network of regional transportation options overall.

Figure 2–3: Current Conditions for Bike Lanes, Paths, and Pedestrian Trails



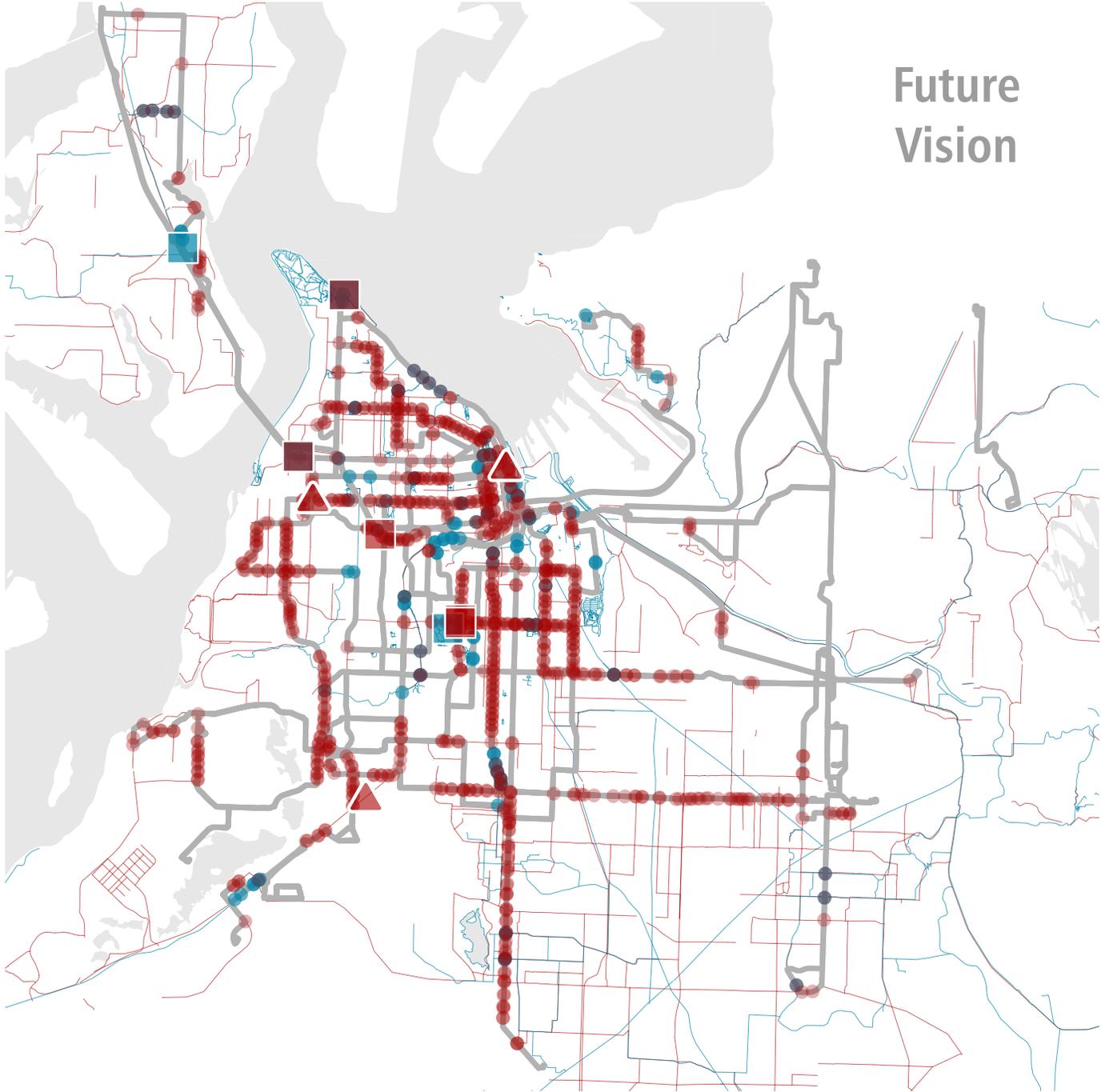
**Bike Lanes & Paths & Pedestrian Trails**  
**Connections to Pierce Transit**



Current and planned bikeway and trail data courtesy of City of Tacoma, Metro Parks Tacoma, and Pierce County.

- Bus Routes
- Connected:**
- Bus Stop
- Park and Ride
- ▲ Transit Center

Figure 2–4: Future Vision for Bike Lanes, Paths, and Pedestrian Trails



Future  
Vision



**Bike Lanes & Paths & Pedestrian Trails**  
Connections to Pierce Transit



Current and planned bikeway and trail data courtesy of City of Tacoma, Metro Parks Tacoma, and Pierce County.

- Bus Routes
- Connected:**
- Bus Stop
- Park and Ride
- ▲ Transit Center

## WSDOT Active Transportation Plan Update

### What is active transportation?

It is human-scale transportation. It is getting from one place to another using active means of travel such as walking, biking, and rolling. It includes use of motorized personal mobility devices such as skateboards, scooters, and electric-assist bicycles.

### What is the Active Transportation Plan?

WSDOT is updating its 2008 Washington State Bicycle Facilities and Pedestrian Walkways Plan, and expects to release the draft Active Transportation Plan Update (ATP) in 2020 for public review and comment.

### What will the Plan address?

- Analyzing connections, gaps and barriers: What enables people of all ages and abilities to get from here to there safely?
- Prioritizing changes to WSDOT right-of-way and important connections on local systems to work toward complete, comfortable connections for all.
- Connecting active transportation networks to transit, ferries, rail, air
- Managing Assets: What do we own and how well does it serve a safe, accessible, connected network?
- Understanding funding and policy: What do we need to make progress?
- Measuring performance: How do we track and report meaningful progress?

### Public Outreach

Through the fall and winter of 2019, WSDOT engaged the public and stakeholders across the state to provide vision, policy direction, and actionable strategies for WSDOT and partner agencies. The ATP will help guide and implement investments and policies for increased access, safety, and mobility to enable Washingtonians of all ages and abilities to walk, bike and roll. For more information, visit [www.wsdot.wa.gov/travel/commute-choices/bike/plan](http://www.wsdot.wa.gov/travel/commute-choices/bike/plan)

# 3

## A Coordinated TRANSIT SYSTEM

Pierce Transit faces big challenges over the next 20 years in coordinating their multimodal network with the diverse transportation system operators that interact with Pierce Transit services. These required interactions include:

- Automobiles and Trucks, Ferries, Passenger Rail, Planning, Programs, Policies, Funding, and Tolling
- Intercity Transit
- King County Metro
- Kitsap Transit
- Sound Transit
- Tacoma Dome Link Extension LRT, Tacoma Link streetcar, Regional Express bus, Sounder commuter rail, Stride BRT
- Transportation Network Companies
- Washington State Department of Transportation



## Interagency and Transit Systems Coordination

As the Puget Sound Regional Council recently noted, “the Central Puget Sound region is growing—and so is congestion. The four-county region added 188 people a day last year.” Transit providers in the Central Puget Sound region are investing in faster, more frequent and reliable services, and in order to realize those improvements and further benefit transit riders, all transit services must be fully integrated into one easy-to-use and seamless network that makes travel via transit as convenient and time-competitive as driving. Full transit service integration includes:

- Funding for operations and improvements
- Infrastructure planning and design
- Listening to communities to understand and define needs
- Providing real-time customer information
- Route planning
- Service provision
- Setting and collection of fares (e.g., ORCA)
- Sharing of physical space, when necessary

Fully integrating transit systems across multiple providers and services will require open and real-time sharing of vast amounts of traveler data. Pierce Transit will have to address the challenge of achieving seamless integration and a streamlined experience for riders, while protecting their data privacy.

## Next Generation ORCA Project

### Building on Success

Since 2009, “One Regional Card for All” or ORCA has created seamless fare payment, so people can travel easily on the region’s buses, trains, streetcars, and ferries. To date, ORCA has:

- Over 400,000 weekday boardings
- Over a million cards in circulation
- 1,800 accounts serving employers, schools, and other institutions
- Over 125 retail store locations and 100 ticket vending machines
- Improved regional mobility for customers
- One of the highest service attribute ratings across the region



Public transit agencies throughout Central Puget Sound are developing the next generation of ORCA. The new ORCA will improve the customer experience by offering new payment options, maintaining customer data security, and adapting to changing technologies.

In 2015, ORCA customers and transit riders were asked to comment on the ORCA system. Over 2,600 people responded. Customers confirmed that ORCA has made traveling throughout the region easier. Based on the survey feedback received, the ORCA project team will maintain the aspects that customers like and ensure the next generation ORCA:

- Offers a mobile app to manage transit passengers’ accounts and pay their fares
- Instantly loads value and products to an ORCA account
- Offers more retail locations to buy ORCA cards and add value
- Features an improved website that makes it easier to manage their account

### When will next generation ORCA launch?

- The new ORCA will come online in phases, beginning in 2021.
- Program phases include design, development, testing, installation, and operations.
- The project team will continue to procure other pieces of the system and identify new retail partners.

- Ensuring a smooth transition requires significant coordination between the seven Puget Sound transit agencies that make up the ORCA network, including Community Transit, Everett Transit, King County Metro, Kitsap Transit, Pierce Transit, Sound Transit, and Washington State Ferries.
- All seven agencies must transition to the new system while continuing to offer seamless travel throughout the region.

## Central Puget Sound Area Transit Network

### Sound Transit 3 Implications

The third phase of the central Puget Sound region's high capacity transit system, Sound Transit 3, as passed in the November 2016 general election, is in the early stages of implementation. The ST3 system enhancements that most directly and significantly affect Pierce Transit service include:

- The southward expansion of the Link light rail system to Federal Way, South Federal Way, and Tacoma Dome Station (opening 2030)
- The extension of Sounder commuter rail south to DuPont, including a station at Tillicum to serve Joint Base Lewis-McChord (opening 2036)
- The westward extension of the Tacoma Link streetcar system from the Hilltop District to Tacoma Community College (opening 2039)

These additions to the transit network in the Pierce Transit district create even more connections, options, and travel advantages to Pierce County residents, by adding and improving high capacity transit services within the South Sound.

The ST3 transit projects and services will prove a benefit to Pierce Transit riders because ST3 adds and improves high capacity transit services within the Pierce Transit service area, frequently in some of the highest ridership bus corridors. ST3 will support the Pierce Transit fixed route network through:

- Improved connections between frequent transit services;
- New connections to the multi-county, regional transit systems;
- Increased attractiveness of transit corridors, as places to live and for employers to locate, likely contributing to higher land values;

- Supporting higher-density and more pedestrian-friendly development, both of which contribute to higher transit ridership and efficiency; and
- Contribution to lower auto ownership rates and higher incomes throughout the county.

In 2024, just a few years after this Long Range Plan Update's adoption, and following the opening of the Link light rail extension south from Angle Lake to Federal Way, a Pierce Transit rider would have the option of continuing to choose express buses to reach central Seattle. But, because of the investments in the Pierce Transit network, additional travel choices would become available to riders making trips other than just one-seat rides to central Seattle. For example:

- Via transfers from bus to the very frequent, all day/evening Link light rail, riders will have direct access to all light rail stations north of Federal Way, serving major activity centers such as:
  - › Highline Community College
  - › Sea-Tac Airport
  - › The Stadium area in south downtown Seattle (SoDo)
  - › King Street Station (transfers to Amtrak, Sounder) and the International District
  - › The University of Washington campus (and University District surrounding it)
- Via cross-platform transfers to the East Link service, riders will have fast light rail connections to:
  - › Downtown Bellevue
  - › Redmond Technology Center
  - › Downtown Redmond
- Via transfer at 145th Street Station, access to the 145th Street/SR 522 Stride Bus Rapid Transit line
- Via transfer at Lynnwood Link Station, access to the I-405 Stride Bus Rapid Transit line

Nearly all the trips described above will be faster than relying on today's transit network as many areas of the central Puget Sound region will be far more accessible than they are currently.

Additionally, by 2040, with the full implementation of this Long Range Plan, and following the completion of the ST3 Regional Transit Plan, Pierce Transit riders gain an extraordinary degree of integration and coordination with transit systems in King and Snohomish counties. New regional mobility enhancements and connections include:

- Transfers from the bus network or Tacoma Link, to the very frequent, all day/evening Link light rail, riders will have direct access to all light rail stations north of Tacoma Dome Station, serving centers such as:
  - › West Seattle
  - › Ballard
  - › Paine Field/Boeing (Everett)
  - › Downtown Everett
- Direct access to the Sounder Commuter Rail extension to Tillicum and DuPont Stations in south Pierce County
- Increased access to the Tacoma Link streetcar line via the western extension to Tacoma Community College

Other implications for Pierce Transit of ST3 project development:

- Replacing some Pierce Transit investment of service hours, allowing reinvestment or a system integration dividend; and
- As the Link light rail system is extended south to Tacoma, Sound Transit may operate fewer Express bus hours in the I-5 corridor. As a result, it is likely that Sound Transit will contract with Pierce Transit for a somewhat reduced amount of purchased regional express bus service. Pierce Transit will then have an increase in available operator hours for reallocation to its own local or express routes; however, the cost of those operator hours will be drawn from Pierce Transit revenues and funding sources.
  - › Not operating as many Sound Transit routes and buses would make some maintenance base capacity available for Pierce Transit's own buses, delaying the timing at which expansion of the maintenance facility, or establishing a new satellite base, would become necessary.

## Existing versus Planned

When the Long Range Plan goals are achieved, the Pierce Transit operating environment will be a region with interagency connections between the following services:

	PIERCE TRANSIT	SOUND TRANSIT	KING COUNTY METRO	INTERCITY TRANSIT
Bus Rapid Transit (BRT)	○	○	●	
Light Rail		●		
Commuter Rail		●		
Express Bus	○	●		●
Local Bus	○	○	●	○
SHUTTLE (Paratransit)	○	○	○	○
Vanpool	○	●	○	○

○ Regional services available

● Direct connection with Pierce Transit services

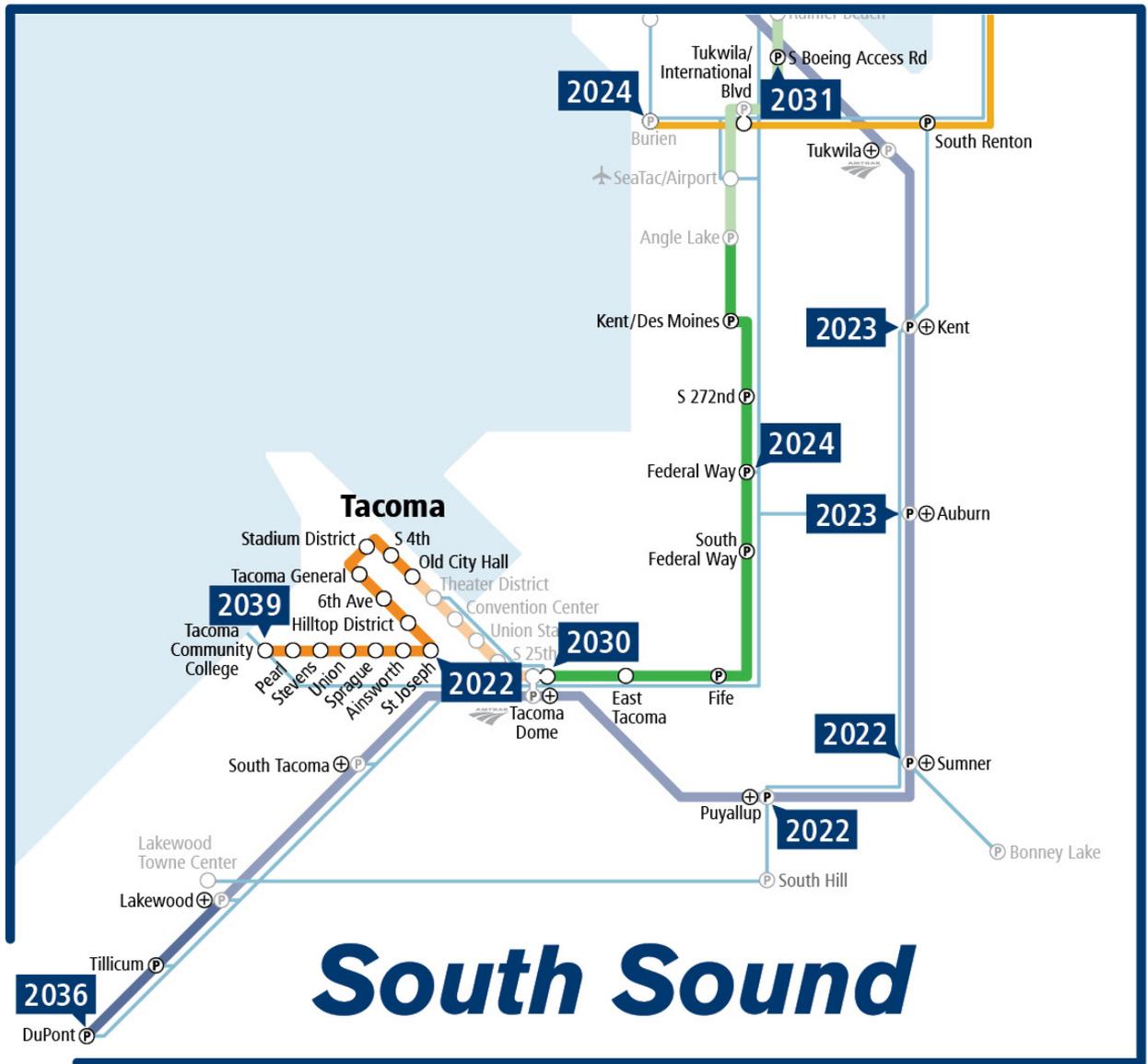
## Pierce Transit Connections to Sound Transit Link Light Rail

Providing efficient transfers between transit modes is crucial in creating equitable access to the regional transit system throughout the Pierce Transit service area. The rider experience will be especially important at the Sound Transit Link light rail stations, which will have larger travel sheds with a mix of express bus routes, BRT routes, and more local bus routes connecting to light rail service. Siting and configuring these stations in order to minimize busy street crossings and to maximize the intuitive access through visual cues and signage will enhance the rider experience, particularly for riders with limited English proficiency. Similarly, designing streets and allocating road space to support safe and pleasant walking and bicycling environments will enable more options for access to the stations and encourage ridership.

Sound Transit is planning the extension of the regional light rail system—Tacoma Dome Link Extension (TDLE)—from King County into Pierce County. When the extension is completed by 2030, this light rail line will provide daily, direct, frequent service between Tacoma, Sea-Tac International Airport, and Seattle. The line will have stations in Pierce County serving Tacoma (at Tacoma Dome and East Tacoma/Portland Avenue) and Fife.

Figure 3–1: Sound Transit's Plan to Expand Transit in South Puget Sound

# More transit options for a growing South Sound



- |   |  |  |
|---|--|--|
| <p><b>Link Light Rail</b></p> <p><b>Future service:</b></p> <ul style="list-style-type: none"> <li><span style="color: red;">—</span> Everett–Seattle–West Seattle</li> <li><span style="color: blue;">—</span> Redmond–Seattle–Mariner</li> <li><span style="color: green;">—</span> Ballard–Seattle–Tacoma</li> <li><span style="color: purple;">—</span> Issaquah–Bellevue–South Kirkland</li> <li><span style="color: orange;">—</span> Tacoma Dome–Tacoma Community College</li> </ul> <p><b>In service:</b></p> <ul style="list-style-type: none"> <li><span style="color: lightblue;">—</span> Univ. of Washington–Angle Lake</li> <li><span style="color: yellow;">—</span> Tacoma Dome–Theater District</li> </ul> | <p><b>Souder Commuter Rail</b></p> <p><b>Future service:</b></p> <ul style="list-style-type: none"> <li><span style="color: darkblue;">—</span> DuPont–Lakewood</li> </ul> <p><b>In service:</b></p> <ul style="list-style-type: none"> <li><span style="color: lightblue;">—</span> Souder North (Everett–Seattle)</li> <li><span style="color: blue;">—</span> Souder South (Lakewood–Seattle)</li> </ul> <ul style="list-style-type: none"> <li>○ New station or bus facility</li> <li>P Added parking</li> <li>⊕ Station improvements</li> <li>∞ Major transfer hub</li> </ul> | <p><b>Bus</b></p> <p><b>Future service:</b></p> <ul style="list-style-type: none"> <li><span style="color: orange;">—</span> Bus Rapid Transit (BRT)</li> </ul> <p><b>In service:</b></p> <ul style="list-style-type: none"> <li><span style="color: lightblue;">—</span> ST Express bus (service re-evaluated annually)</li> </ul> <ul style="list-style-type: none"> <li>○ Existing station or bus facility</li> <li>P Existing parking</li> <li>○ Provisional light rail station</li> </ul> |
|---|--|--|

Source: Sound Transit

**Figure 3–2: Potential Pierce Transit Route Modifications Supporting Sound Transit Regional Connections**

*Pierce Transit is engaged with Sound Transit on service integration efforts as new high capacity transit services and facilities come on line. This table outlines proposals to better integrate Pierce Transit local or express routes. Additional public outreach and engagement will occur prior to implementation of any of the proposals. By modifying Pierce Transit services along with the new Sound Transit services in the South Sound, Pierce Transit could potentially reinvest current bus service hours in order to provide more local bus trips throughout the service area.*

NEW SOUND TRANSIT TACOMA DOME LINK EXTENSION FACILITY	PIERCE TRANSIT ROUTE PROPOSAL	ESTIMATED TIMELINE
<b>FEDERAL WAY TRANSIT CENTER</b>	No route changes are proposed with the planned opening of this Sound Transit facility in 2024. Current services with Routes 402, 500 and 501 are estimated to remain.	2024
<b>SOUTH FEDERAL WAY STATION</b> <i>Link extended to this new station</i>	Route 500 – Pacific Avenue: Will connect to the new South Federal Way Station and no longer serve the Federal Way Transit Center. It is estimated this route will operate at 15 minute headways during peak hours.	2030
	Route 402 – Terminates at the South Federal Way Station. Would potentially operate at with increased headways during peak hours between South Hill and Federal Way.	
	Route 501 – Route will be adjusted to serve Fife (HWY 99) to the Sumner/Lakeland Hills area and terminate at Auburn Transit Center, with proposed alignment of current Route 497. Route 501 is estimated to no longer serve Federal Way Transit Center in order to increase service within Pierce County.	
<b>FIFE STATION</b> <i>Link extended to this new station</i>	Route 63 – Adjusts route and provides service from Northeast Tacoma to the Fife Station. Connections to Tacoma via Link. Potential route extension to also serve Downtown Puyallup.	2030
	Route 498 – Potential new route providing service from Downtown Tacoma to Auburn via Fife, Milton, and Lakeland Hills.	
	Route 500 – Would service Downtown Tacoma and Fife enroute to South Federal Way Station.	
<b>EAST TACOMA / PORTLAND AVENUE STATION</b>	Route 41 – Will serve this station with connections from Portland Avenue.	2030
	Route 400 – Will serve this station with connections from Puyallup.	
<b>TACOMA DOME STATION</b>	Pacific Avenue/SR 7 BRT – Pierce Transit's first Bus Rapid Transit Corridor will provide a direct connection to the Tacoma Dome Station.	2030
	Pierce Transit Fixed Local Routes will continue to operate out of the Tacoma Dome Station with potential adjustments expected to extend some routes that currently terminate at the Commerce Street Station to meet the needs of ridership.	

Also, and unique to light rail systems across the country, these stations will serve areas within the reservation of the Puyallup Tribe of Indians.

During this planning phase, Sound Transit and Pierce Transit, in coordination with the cities and the Puyallup Tribe, are developing assumptions for how the stations will be served by local and regional bus routes, along with the type and extent of facilities that will be needed at/around the stations to support these connecting services. This collaborative process will continue, with the incorporation of refinements to the transit integration assumptions, through the completion of environmental documentation and the development of specific station designs for the TDLE project.

Pierce Transit and Sound Transit have a long history of successful collaboration in planning and coordination between each agency's services. Pierce Transit expects an excellent ongoing relationship as they work together to make the two expanding transit networks function as one, where riders experience convenient, seamless, safe, and efficient travel throughout the transit system.

## Equity and Transit System Access Evaluation

As Pierce Transit provides its services, expanded or otherwise, it must be concerned with the equity of those services. In this case the term "equity" refers to the distribution of service and the resulting benefits to people that differ in their need for, and ability to access, mobility. These differences can be amplified by people's race, income, education level, and fluency in English. Pierce Transit's goal is to ensure that obstacles to equally accessing the transit services are removed, as much as possible, by the agency's planning and decision-making. Pierce Transit's Long Range Plans will promote equity in the transit service area to the extent that it provides advantages to economically and socially challenged people.

Long Range Plan decisions can help Pierce Transit create a more equitable transit system. Opportunities to improve geographic proximity and accessibility of new and expanded services to disadvantaged populations include:

- Distribution of service hours on existing routes
- Distribution of service hours in new routes
- Service quality (e.g., frequency, speed, reliability, safety, comfort)
- Distribution of new/improved passenger facilities (e.g., bus stops, transit stations, parking)

- Parking facility supply, location, regulation, price and design
- Planning and design of transportation facilities
- Allocation of new buses by route and area served
- Investments in pedestrian paths and bicycle trails
- Public transportation fares

While available demographic data indicate that the City of Tacoma is the primary area with communities of color and low income populations notably higher than the Pierce County average, there are minority and low-income individuals along many of Pierce Transit's busiest bus routes. Also, there are pockets within the unincorporated areas of Pierce County with concentrations of people of color, as well as low income households, especially in Parkland and Spanaway. People living in these areas would benefit from increased access to points along the entire system. The 2040 Long Range Plan expands mobility and access to employment, culture, health care services, and education-rich locations throughout Pierce County, such as:

- Downtown Tacoma
- MultiCare Tacoma General Hospital
- Pierce College at Fort Steilacoom
- Point Defiance
- South Hill Mall
- Tacoma Community College
- Tacoma Mall
- Tillicum/Madigan Hospital
- University of Washington Tacoma

## Service Innovations and Shared Use Vehicle Options

Pierce Transit will meet the challenge of being innovative in order to regularly improve the quality of transit services, control costs, and to operate more efficiently and effectively. Reimagining and establishing successful new services will depend upon meeting the mobility needs of riders. Innovations will be judged “successful” when they are adopted by the riders who use them to reach more destinations.

To explore potential improvements in access to transit systems, the U.S. Department of Transportation developed a discretionary grant program called Sandbox, to address first-mile/last mile challenges via smartphone apps and open data platforms designed to better connect riders to all the transportation options available to them, such as:

- Scoop carpooling application (Bay Area Rapid Transit—San Francisco/Oakland, California)
  - › Night-before travel check-in to a recognized carpool
  - › Incentive for carpooling, and removing a car from the road, is a guaranteed parking space at a BART station
- Statewide online trip planner (Vermont Agency of Transportation)
  - › An “app,” Integrating all transport providers, across the State, with a single menu trip planner and scheduler (a Mobility-as-a-Service demonstration)

Increasingly, mobility “consumers” exhibit a willingness—and even the preference—to share all the transportation services that can be combined to make up a complete trip. They can include:

- Car-sharing
- Bus ridership
- Ride-sharing, including shuttles
- Ride hailing
- Microtransit
  - › Smaller vehicles generally offering coverage to underserved, disadvantaged, lower density communities often having fewer connections to the rest of the transit network
- Bike-sharing

For example, the Chicago Transit Authority is partnering with a bikeshare service (Ddivy) to combine trip-making into a single, seamless app. The potential for this kind of sharing is tremendous. Divvy has served 6.5 million trips to and from CTA stations prior to the new app going into service.

As described previously, the achievement of Mobility-As-a-Service will mean that the automated planning of a door-to-door trip can schedule, reserve and pay for every component of the trip in one interaction on the part of the traveler. Components of the system that will be provided by Pierce Transit include:

- Frequent transit
- Express transit, including high capacity and Bus Rapid Transit
- Local transit
- Flexible transit (non-fixed route, deviated fixed-route, demand responsive, Vanpool, paratransit, access shuttles)

## Microtransit Pilot Program

Building upon experiences from Limited Access Connections, as described at the end of this section, Pierce Transit will test a new microtransit service along Ruston Way in Tacoma, an area that is home to several residential developments, a destination entertainment and shopping district (Point Ruston) and several waterfront parks. This service will link riders to two major transit centers with regional connections, as well as to two local routes near Point Defiance Park in Tacoma's North End. Microtransit will allow smaller, more nimble vehicles to pick up and drop off riders in parking lots and pullouts along the corridor. The on-demand nature of this approach means it will be more economical than fixed route service.

Based upon performance over time, Pierce Transit may elect to expand microtransit to other parts of our service area that have little to no traditional transit service but would benefit from quick, reliable, and direct connections to fixed routes.

## Private-Public Partnerships and Naming Rights

Becoming rather common in the North American transit industry, the practice of selling branding or naming rights of transit services, stations, and vehicles can be a judicious and reasonable means of capitalizing on the value of the agency's assets. Significant, supplementary non-farebox revenue can be generated through this practice, becoming available to fund additional agency priorities. For example:



- Quicken Loans purchased the right to name the Detroit area's M-1 Line; ten years for \$5 million.
- San Diego Metropolitan Transit System successfully sold naming rights to the Blue Line and three stations to University of California -San Diego Health; 30-years for \$30 million.
- Southeastern Pennsylvania Transportation Authority approved a five-year, \$5 million naming rights agreement with AT&T, renaming Pattison Station "AT&T Station."

Pierce Transit might select to pursue this practice and find previously undiscovered value as it expands its own system and becomes more connected to the broader Puget Sound transit network.

### Tacoma-Seattle Fast Ferry<sup>4</sup>

In December 2018, Pierce Transit, in partnership with the City of Tacoma and Port of Tacoma, conducted a Fast Ferry Feasibility Study that would provide Passenger Only Ferry (POF) service from Tacoma (at three potential landing sites in the North End plus one downtown) to Seattle's Pier 50, including routing either east or west of Vashon Island. Figure 3-3 compares POF travel times and potential fares with existing Sound Transit services embarking from Tacoma Dome Station, as well as commuting by car. The report cautions that first/mile last mile connections can be both variable and challenging for waterfront transportation, due to its non-centralized location outside of transit, development hubs, and downtown cores. However, trip time reliability would be a major selling point when compared to the unpredictability and variability of vehicular transportation along the Interstate 5 corridor connecting Tacoma to Seattle. By 2040, daily ridership is forecasted to range from 1,876 (at the \$11.00 premium one-way fare) to 2,073 (at the \$5.25 standard fare). When compared to current average daily boardings on the Sound Transit 590 Route (2,794) and 594 Route (2,129) serving that same commuter market, the ferry would seem to only minimally relieve traffic congestion on Interstate 5. On the other hand, offering a unique and high quality nautical transit system like this may reveal a hidden demand, especially as the areas around the proposed landing sites continue to develop as high density and upper income housing markets.

According to the study, carbon emissions per passenger trip were calculated for a diesel/electric vessel. The larger 250-passenger ferry would emit 15.5 pounds of carbon per passenger trip, while the smaller 150-passenger vessel would emit 22 pounds of carbon per passenger trip, which is equal



Source: Kitsap Transit

4 Source: KPFF Marine Transit Group Team. Tacoma Fast Ferry Feasibility Study, 2018.

**Figure 3–3: Tacoma-Seattle Fast Ferry Travel Time Comparison**

	ORIGIN—DESTINATION	TIME (min)	FARE
<b>Passenger Only Ferry</b>	Point Defiance—Pier 50	43	\$5.25 / \$11.00
	Ruston—Pier 50	45	\$5.25 / \$11.00
	Old Town—Pier 50	47	\$5.25 / \$11.00
	Seaport/Maritime Museum—Pier 50	50	\$5.25 / \$11.00
	11th Street—Pier 50	56	\$5.25 / \$11.00
<b>Sounder Train</b>	Tacoma Dome Station—King Street Station	62	\$5.25
<b>Express Bus</b>	Tacoma Dome Station—King Street Station	65–80	\$3.75
<b>Car</b>	Tacoma Dome Station—King Street Station	55–120	\$33.44

Source: KPFF Marine Transit Group, *Tacoma Fast Ferry Feasibility Study, 2018*

to a single-occupancy automobile. Yet ferry travel, even if using hybrid-electric propulsion, cannot compete with bus carbon output at 6.7 pounds per passenger trip, nor the limited emissions of rail at 1.6 pounds per passenger mile.

A Fast Ferry could make the trip from Tacoma to Seattle in under an hour; significantly less time than required by other modes, including current and future transit services. If a Fast Ferry becomes a reality, Seattle-bound commuters in northwest Pierce County would have a bounty of travel choices, each catering to specific needs, such a travel schedules, origins, or destinations.

Detailed cost estimates for both capital and operating are provided in the study, along with POF ridership forecasts from beginning of revenue service in 2020 through 2040.

The Port of Tacoma, City of Tacoma, and Pierce Transit will continue working together to investigate the feasibility and funding of a fast, pedestrian-only (“walk-on”) ferry between Tacoma and Seattle. The initial study concluded that such service is feasible, though much additional work is needed to select physical locations, finalize vehicle types, refine estimated costs and other planning. The Washington State Legislature has provided \$350,000 for a detailed study to be conducted by the Puget Sound Regional Council.

## Limited Access Connections Pilot Project and the Role of Transportation Network Companies

Around the country, transit agencies like Pierce Transit have formed mobility partnerships with ridesharing services, otherwise known as Transportation Network Companies (TNCs) to provide for their riders better mobility options and easier access to new technologies. These partnerships most commonly make it easier for transit riders to get to and from the transit routes that they use for the majority of their trip, by focusing on a connection with a TNC between their transit stop and the beginning or end of their journey. The service provided by the TNC in this kind of partnership is often referred to as first mile/last mile connections. These connections are important, and can greatly benefit transit riders in areas where conventional fixed-route transit service does not operate.

In 2016, Pierce Transit received \$206,000 through the Federal Transit Administration's Mobility on Demand Sandbox program. One of eleven transit agencies nationwide to be selected, the agency proposed a first mile/last mile project to connect users to and from fixed route service across the entire service area. As part of the grant, a TNC was selected as primary partner. Pierce Transit also partnered with Sound Transit, the regional transit agency, and Pierce College Puyallup; both were invited to participate due to select zones specifically serving their passengers or students. The name of the pilot project was "Limited Access Connections." The goal of the project was to provide first mile/last mile connections to transit hubs and bus stops in geographic areas or times of day when service is limited.

During 2019, Pierce Transit experimented with a first mile/last mile TNC partnership with Lyft. The Limited Access Connections pilot project ended December 31, 2019. Here is some of what was learned:

- The most common trip using Lyft had a duration of just over 10 minutes and covered a distance between 2 and 4 miles.
- The longest trips served by Lyft went between northeast Tacoma and Tacoma Dome Station.
- The most utilization of the Lyft connections occurred in the Fife-Puyallup zone. Service focused on connections to local and regional bus routes and Sounder commuter rail (Puyallup Station)

During 2020, Pierce Transit will carefully analyze the results of the pilot program and make decisions about its future in the Pierce Transit system.

## EQUITY OF USE

Equity was an important consideration in project design as required by the FTA; making sure that the service is compatible with public transit's mission to provide service to everyone equally. As such, Pierce Transit had to assure that those without access to smart phones or who did not have a credit card could call in to use a Concierge service, and a customer service representative would schedule the trip for them with Lyft. About 3% of trips came through a Concierge system reservation.

The program also provided wheelchair accessible vehicle (WAV) service upon request. However, since TNCs in the Pierce County area did not have WAVs available, the agency had to find another way to make sure the project was accessible for those with mobility issues. They therefore put out a Request for Information (RFI) for a contracted vendor to provide this aspect of service, albeit without any responses. In order to still meet the need, Pierce Transit decided to use its own paratransit service and drivers to respond to WAV requests through the Concierge tool.

Because Limited Access Connections users must connect to or from fixed route transit as part of this project, those who use mobility devices must be able to also use fixed route service without any barriers. This means a very small pool of people would need the WAV service under the auspices of Limited Access Connections: that is, those who use a mobility device that cannot fit into a typical automobile but can use fixed route service at the start or end of their journey. The assumption was that those with mobility devices who need fixed route are already connecting to fixed route, either under their own power or by using eligible paratransit service, so would not need the Lyft trip as well. Those who are paratransit eligible would not be able to use the fixed route portion of the trip so couldn't use Limited Access Connections. Another consideration was that promotion and communication about the project did not reach this small pool of users, or it was not made clear that a WAV option was available. These considerations may explain why no one requested a WAV as part of the Limited Access Connections project.

## ZONE DESCRIPTIONS

The project consisted of six zones that were selected, based upon population density, longer walking distance to transit, limited frequency and span of fixed route service, and unique needs. Each zone had designated transit connection points that must be used as the starting or ending point of each Lyft trip. The zones are described in Figure 3-4.

Based upon usage and changes to fixed route services, Pierce Transit adjusted several zones. For example, Midland was expanded to include a larger geographic area and one additional transit connection point. Then

**The American Public Transportation Association's advice to transit operators, regarding partnerships with TNCs, includes**

### Use TNCs to

- Provide first mile/last mile service
- Offer an alternative to paratransit
- Serve low-density mobility needs
- Improve service at off-peak times
- Offer "guaranteed" mobility

### Ensure that

- Riders' privacy will be protected
- Any increased congestion around transit stops is mitigated
- Benefits are distributed equitably
- Long-term use of transit is not deterred
- Transit is benefited rather than undermined

Browns Point/Northeast Tacoma had its span of service expanded to buffer the loss of a fixed route extension once provided by King County Metro in partnership with Pierce Transit.

**Figure 3–4: TNC Zone Descriptions**

DESCRIPTION	DAYS	TIMES	FOCUS
<b>East Puyallup Commuter/ Fife Commuter</b>	Weekdays	5:00 am to 7:00 pm	In East Puyallup, to/from the Puyallup Sounder Station; in Fife, provides connection to specific time points along Route 501 or Puyallup Sounder Station to those customers who cannot otherwise reach transit
<b>Guaranteed Ride Home</b>	Weekdays	8:30 pm to 10:30 pm	From Pierce College–Puyallup to destinations within the East Puyallup zone and South Hill Mall Transit Center
<b>Browns Point/ Northeast Tacoma Connection</b>	7 days	9:00 am to 4:00 pm (Changed: 6:00 am to 7:00 pm)	When Route 63 is not operating, it provided a connection to and from the Tacoma Dome Station multimodal facility
<b>Parkland/ Spanaway, Midland and University Place Connections</b>	7 days	5:00 am to 10:30 pm	Provided a connection to time points along a route to riders in Parkland/Spanaway, Midland and University Place who cannot otherwise reach transit

**ZONE CHARACTERISTICS**

The zones in which the project was tested represented a variety of possible use scenarios. Parkland and Spanaway are bisected by Route 1, which has the highest ridership and the longest span in the entire system. The surrounding neighborhoods are suburban in the northern end of the zone transitioning to rural in the southern end. There is little to no connective fixed route service in these areas and the walkshed for residents to reach Route 1 can be excessive. Infrastructure in these neighborhoods is often a safety concern for pedestrians: no sidewalks, poor lighting, and side streets with speed limits in excess of 35 miles per hour in places. Midland is a large rural pocket with trunk route service on its periphery to the north, south and west, but no service in between and, like Parkland/Spanaway, poor pedestrian infrastructure. University Place is largely residential, with some neighborhoods designed around culs-de-sac, so without convenient and direct pedestrian access, including a lack of sidewalks and streetlights. Fixed route service is good along main thoroughfares, but schedules have limited span and walkability is

challenging due to steep grades and missing sidewalk connections. Limited Access Connections was designed to allow those living in these areas to connect to and from frequent bus service into the downtown core.

Northeast Tacoma is a geographically isolated, hillside residential area with very limited fixed route service. Many residents need to get into downtown Tacoma for school and work. Limited Access Connections provides trips to and from Tacoma Dome Station, a local and regional transit hub. This zone was only active when the fixed route service was not running (mid-day) but was expanded to all-day to fill in transportation gaps after a fixed route connection from King County was removed (i.e., the former Route 903, as noted previously).

The most utilized zone provides connections from Fife and Puyallup into the Puyallup Station, where Sounder commuter rail service plus local and regional bus service are available. The majority of users rode the train. This zone was selected in partnership with Sound Transit due to parking congestion at the Park-and-Ride lots around the Station. In addition to this connection, Fife residents could use the service to connect to local routes in their area, which provided greater flexibility in accessing the downtown core as well as the Sounder train station.

The Guaranteed Ride Home zone was designed for students at Pierce College Puyallup, a community college located in East Puyallup served by Pierce Transit Route 4 until the evening hours. This partnership was embraced by college leadership because of increasing transportation challenges on campus. Access and parking congestion on the campus are mounting concerns because enrollment is growing, and many students come from areas in which there is no local transit service. The subsidized trips in this zone occur between 8:30 pm and 10:30 pm on weeknights from the campus to any address in the zone and to a transit center with local connection. In this way, students could use transit or carpool to campus during the day, then use Limited Access Connections to return home at night, either directly if they live in the zone, or by transferring to a bus at the transit center. This zone saw low usage; about half of the student population live outside the Pierce Transit service area so could not use it, nor could they use fixed route service.

### **MOVING FORWARD: CONTINUING THE PROGRAM**

Based on pilot phase performance and user feedback concerning lack of connections after the pilot ended in December 2019, Pierce Transit is considering continuing the program in specific high-performing zones. The upcoming inaugural Bus Rapid Transit service along the Pacific Avenue/SR 7 corridor would benefit from connective service in the surrounding Parkland and Spanaway area.



# 4

## Keeping Pace WITH OUR CHANGING LANDSCAPE

### Demographic and Population Projections

According to the Puget Sound Regional Council, the central Puget Sound region (i.e., King, Kitsap, Pierce, and Snohomish Counties) is expected to increase by 1.8 million residents between 2019 and 2050. Population within the Pierce County Public Transportation Benefit Area alone (i.e., Pierce Transit's service area) is projected to grow by over 220,000 residents before 2040.<sup>5</sup>

As the region grows, it is becoming older and more diverse. By 2030, nearly one in five residents will be seniors. The number of Millennial-headed households (i.e., those born between 1981 and 1996) is expected to triple nationally by 2035. This proportion is expected to be higher in the central Puget Sound as workers are attracted to the region's robust, diversified economy. The region will also experience an increase in minority households and first and second-generation immigrant households. With these predicted demographic changes come changes in employment and housing trends.

### Job Growth

As the Baby Boomer generation (i.e., those born between 1946 and 1964) reaches retirement, the economy will continue to need workers. Between

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<sup>5</sup> These are based on data from the Puget Sound Regional Council's LUV-LODES dataset – projections between 2014 and 2040. Much of this text is adapted from the PSRC's VISION 2050 Housing Background paper.

2019 and 2040, the Pierce County PTBA is expected to add nearly 143,000 jobs. Key drivers of job growth across the central Puget Sound are predicted to be technology and a nationally competitive regional economy. In response, there is an expected increase in the number of working age adults migrating to the region.

## Housing Trends

Between 2019 and 2040, the Pierce County PTBA is expected to increase by 127,000 households. Regional average household size is forecasted to decrease to 2.36 people by 2050 largely due to the aging Baby Boomer population. Fewer persons per household means greater demand for housing.

With this surge in demand for housing and increasing incomes, the region is experiencing an affordability crisis not seen since the Second World War. Many middle- and lower-income households struggle to find housing that fits their income in an increasingly competitive and expensive housing market. As affordable housing options become scarce, households are forced to move farther from their jobs and communities, resulting in increased traffic congestion, and fragmentation of communities. With more people commuting further distances, accessible and reliable public transit remains key to supporting the region's social, environmental, and economic prosperity.

## Pierce County Centers and Corridors Proposal

The Pierce County Comprehensive Plan and four Community Plans are being amended to include a “Centers and Corridors” strategy of increased development intensity in certain unincorporated urban areas. This strategy is included in the updated Communities Plans for Frederickson, Mid-County, Parkland-Spanaway-Midland, and South Hill.

Historically, the Pierce County Comprehensive Plan and the four Community Plans have designated commercial, industrial, and high-density residential along five major roads in the central urban growth area (UGA): Pacific Avenue South (SR 7), Canyon Road East, Meridian Avenue East (SR 161), 112th Street East, and 176th Street East. These roads connect the four Community Plan areas and provide commercial services and employment industries. The Centers and Corridors proposal builds on the historic land use pattern and supports the desired development patterns described in the four Community Plans.

The proposal expands the area where mixed use development is allowed, as well as allowing increased building heights and residential densities in some areas. Key components to enhancing these areas include:

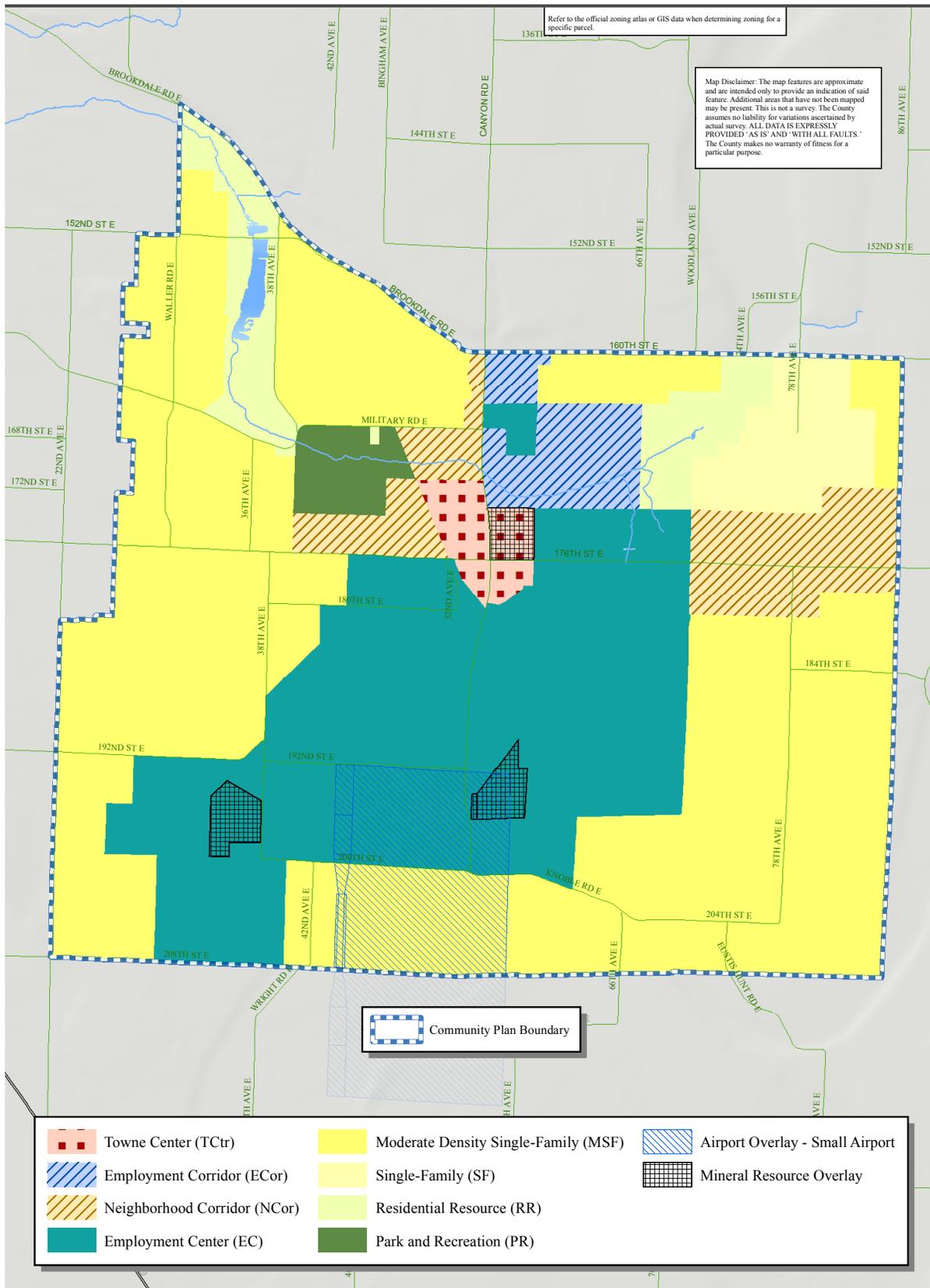
- **Compact, high-density communities:** Establish centers along major transportation corridors that will develop into compact communities. Between centers, allow transit supportive densities within a quarter-mile walking radius.
- **Access to transit:** Seek ways to serve the corridors with express service to regional connections, such as the Puyallup and Tacoma Dome stations and Lakewood transit center.
- **Pedestrian and bicycle connectivity:** Develop pedestrian and bicycle facilities throughout the corridor connecting to centers. Focus on ensuring connections from residential areas to goods and services for everyday needs.
- **Prioritize infrastructure investments:** Focus infrastructure expenditures to support increased density and transit services. Centers should be the primary recipient of investments, while corridors would be improved with support infrastructure.

Each of the four Community Plan Advisory Commissions approved the Centers and Corridors proposal along with amendments to the Community Plans in summer 2019. The updates are being reviewed by the Pierce County Planning Commission into 2020, at which time they will be transmitted to the Pierce County Council. Approval by the County Council will likely result in the proposal being effective in mid to late 2020. Proposed rezoning for the four areas are shown in Figures 4-1 through 4-4.

These plans clearly demonstrate that growth in the county's urban centers is density focused. But single-family homes are still the norm in the suburban areas, especially to the east, south, and southeast. This presents an ongoing challenge for Pierce Transit, when the desire for fixed route services is much greater than the actual demand.



Figure 4-1: Frederickson Area Zoning Map





**Figure 4-3: Parkland-Spanaway-Midland Zoning Map**

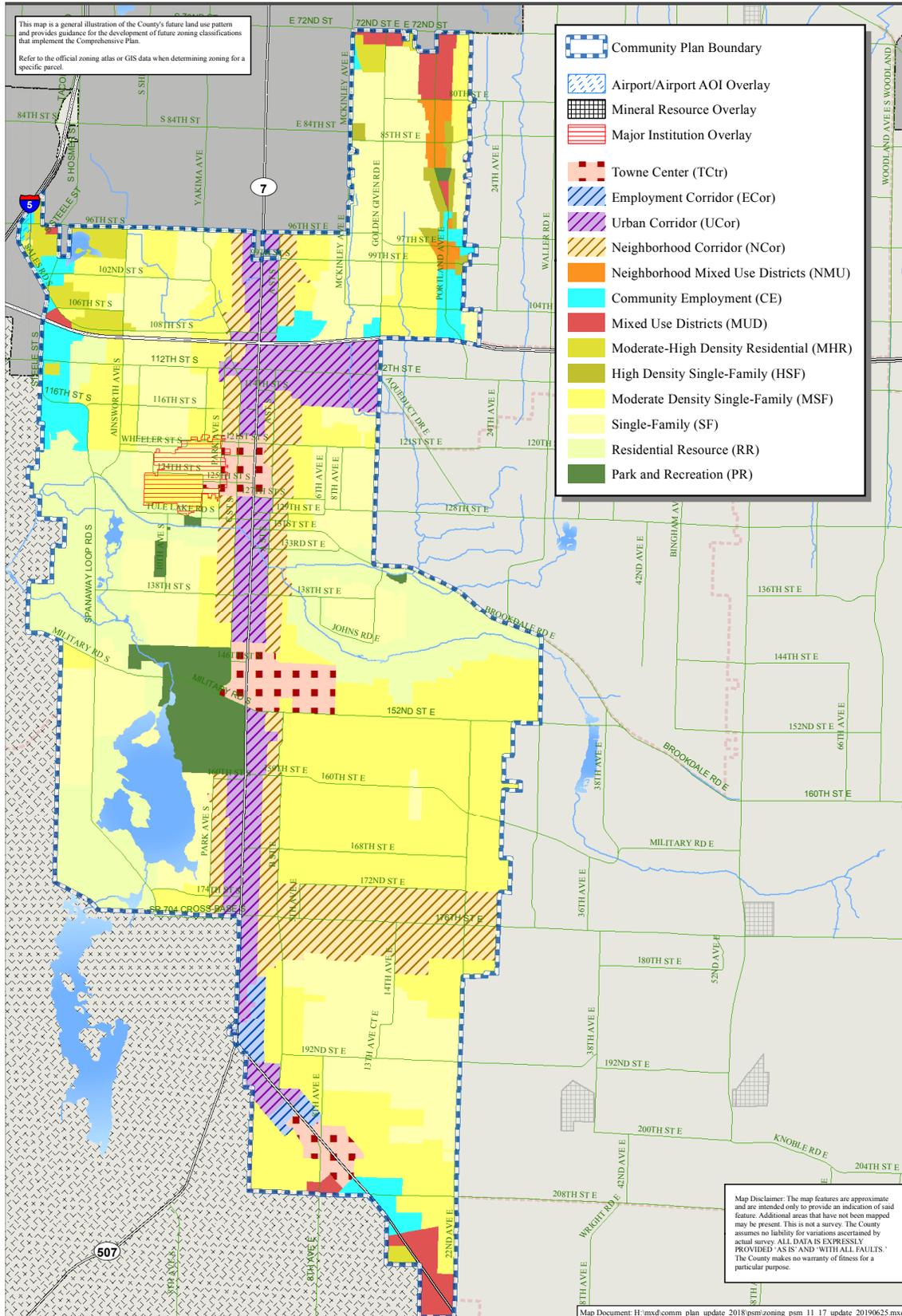
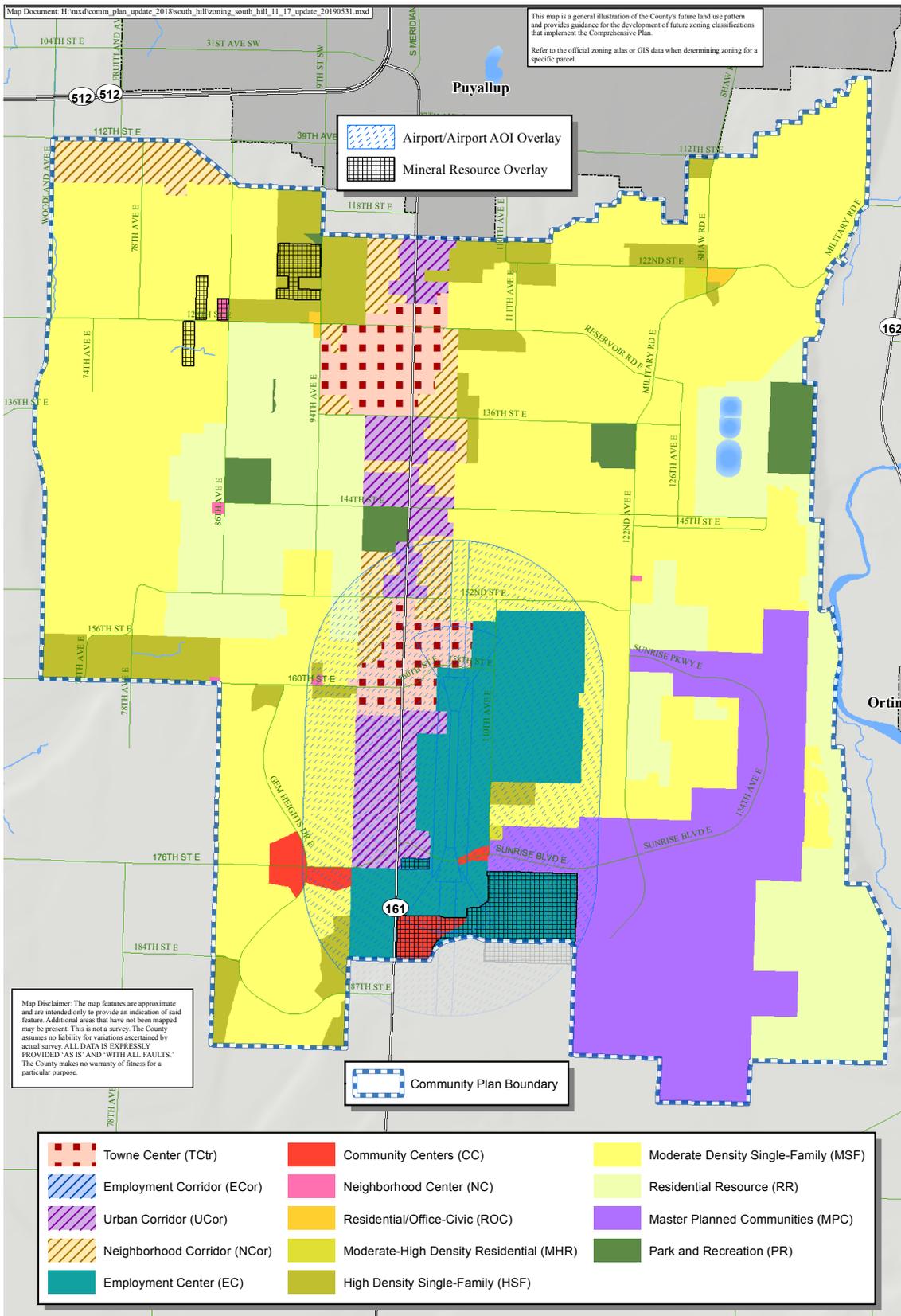


Figure 4-4: South Hill Area Zoning Map



## New Transit Oriented and Infill Development Projects

### Brewery Blocks

This \$65 million development south of the University of Washington campus in downtown Tacoma, between 21st and 23rd Streets, facing South C and Commerce Streets, will be served by the Jefferson Avenue BRT with stations less than a quarter mile away at S. 21st Street. Once completed, the project will include 209 “Brewery Loft” apartments, 25,000 square feet of retail and office space, a 75,000-square foot Class A office building, two restaurants, a tavern focusing on draft ciders, and a microbrewery.

Figure 4–5: Brewery Blocks Rendering



*Brewery Blocks, being developed south of the University of Washington-Tacoma between 21st and 23rd streets, will be a mix of businesses, residential lofts and restaurants.*

*Rendering by Horizon Partners Northwest*

## TRAX

A long-awaited mixed use redevelopment project at 415 E. 25th Street, adjacent to the Tacoma Dome Station and across from Freighthouse Square, will be built on property formerly owned by Pierce Transit. The seven-story structure will include 115 market rate apartments over 15,000 square feet of retail space, plus an indoor farmers' market. Because of the minimal amount of parking provided (i.e., just one-half stall per housing unit), an ORCA pass will be provided to every resident. The building will emphasize bicycle and car-share parking instead. Construction costs are estimated at \$35 million. The site also has an eight-year multifamily property tax exemption from the City of Tacoma.

**Figure 4–6: TRAX mixed-use development across from Freighthouse Square**



*Rendering by IHB Architects*

## James Center North

The Tacoma Housing Authority (THA) is a public housing authority focused on providing high quality, affordable housing and supportive services to persons and families in need. THA owns 6.92 acres of the James Center North development and will be exploring the opportunity to provide mixed-income, mixed use, transit-supported redevelopment for the existing five parcels of land on the west side of S. Mildred Street, between S. 12th and S. 19th Streets in Tacoma's west end. The site is occupied by four retail/commercial buildings, including a Fred Meyer supermarket, casual dining, medical support, a hair salon, and a Buddhist temple.

The intent of the project is to develop a model for a compact, pedestrian-oriented development pattern in West Tacoma. This will incorporate transit-oriented development standards, mixed-use strategies, and mixed-income housing opportunities through public-private partnerships. The site will eventually be served by the Tacoma Link Streetcar extension from the Hilltop District when it reaches Tacoma Community College in 2039.

**Figure 4–7: James Center North, a mixed-income, mixed use, transit-supported redevelopment**



*Source: Tacoma Housing Authority*

## City of University Place Proposes Adopting a Form-Based Code



In March 2019, University Place hired a team of architects and urban designers to develop a form-based code (FBC) for the City. FBCs foster predictable built results and a high quality public realm by using physical form, scale and character, rather than separation of uses, as the organizing principle for the code. An FBC is a regulation—not a mere guideline—adopted into City, Town or County law. A form-based code offers a powerful alternative to conventional zoning regulation. Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in form-based codes are presented in both words and clearly drawn diagrams, along with other visuals.<sup>6</sup>

For University Place, it would apply to properties and streets within the designated Regional Growth Center, including the high-density Town Center, 27th Street Business District, and Northeast Mixed Use District. The FBC will address preferred building types and placements, along with building, frontage, street, public space, landscape, and signage standards, architectural guidelines, and transit provisions. The work assessed “opportunity sites” that are ripe for redevelopment, illustrate project potentials, and develop a regulation plan that will identify suggested street grids for areas that would benefit from the establishment of a finer street grid that creates more blocks, intersections, and corner parcels. As Pierce Transit plans for additional service or high capacity transit routes in downtown Tacoma, west Tacoma, and University Place, having these corridors transition early from an automobile dominant, “drive by” land use pattern to one with a rich and diverse mix of uses at a pedestrian scale, including much higher densities, could provide the demand for these upgraded fixed route services to succeed as soon as they begin operating.

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<sup>6</sup> Source: Form-Based Codes Institute at Smart Growth America website. “Form-Based Codes Defined” [www.formbasedcodes.org/definition/](http://www.formbasedcodes.org/definition/)

## Complete/Living Streets and Smart Growth Alternatives

Working with Pierce County and communities to think smartly about how best to design and use local roads for pedestrians and transit riders would require that Pierce Transit apply a user-hierarchy whenever new or refurbished streets are designed. For safety, Pierce Transit would place pedestrians at the top of the hierarchy, and then design to ensure quick and reliable mobility for buses because of the high number of people carried. Putting pedestrians first means providing for people of all ages and abilities and making transit easier to reach and access. The benefits of Complete/Living Streets include a platform from which to survey mobility objectives for Pierce Transit communities. These can include:

- Climate impacts
- Community heritage
- Future development
- Landscaping (Green infrastructure, in a network of contiguous living green spaces, provides a range of benefits to the built environment)
- Other impacts to the natural environment
- Redevelopment or infill development
- Support of higher density development
- Sustainability

Appropriate street design and operation for all modes can encourage a shift away from private car trips and toward walking and other healthy options.

Environments of Complete/Living Streets facilitate reliable transit movement and thereby grant higher mobility. In these environments, people also find the first mile/last mile stages of their travel are easier to complete. Pierce Transit could perhaps include the principles of Complete/Living Streets into renovated or new facilities to the extent practical throughout implementation of the Destination 2040 Long Range Plan and this Update.

# 5

## Emerging TECHNOLOGIES

### Intelligent Mobility

Technology is enabling rapid evolution in urban and regional mobility. For example, mobility services, micro-mobility, low or zero emission vehicles, and e-commerce are changing how people and goods travel. Looking forward, the pace of change will continue to increase, with Autonomous Vehicles (AVs) and Mobility as a Service (MaaS) on the horizon. Intelligent mobility (IM) creates fantastic new opportunities, and risks, for Pierce Transit in the coming years – with the potential for massive social, environmental, physical, economic, and cost implications. IM consists of many systems and applications that can be interconnected to maximize benefits to transit riders. Systems most likely to require reaction on Pierce Transit’s part, include:

#### **ELECTRIFICATION OF TRANSPORT**

- Electric Vehicle
- Charging Stations
- Electric Transit Vehicles
  - › Battery powered
  - › Catenary (overhead wire) powered

#### **CONNECTED/AUTONOMOUS VEHICLES**

- Infrastructure Implications
- Policy Implications
- Regulation

### **INTELLIGENT TRANSPORT SYSTEMS (ITS)**

- Traffic and Lane Management
- Integrated Corridor Management
  - › Transport networks are increasingly congested. To increase the speed and reliability of its services, Pierce Transit needs to influence County and State road departments to grant transit the priority it deserves, given the number of riders carried.
- Smart Parking
  - › Pierce Transit will always have a body of potential customers that, if they are to be converted into transit riders for the majority of their journey, must be provided with a parking space, because:
    - › There is not a bus route within walking distance of their residence,
    - › They have unpredictable departure and arrival times, perhaps outside the span of service for connecting services, and/or
    - › They have complicated paths between home and transit service, often requiring that they drop or pick-up dependents at numerous or varying locations.

### **PRICING AND PAYMENTS**

- Time of Day and Zonal Charging
- Fare Collection
- Policy and Equity

### **MOBILITY SERVICES**

- Demand Responsive Transit
- Ride Hailing
- Ride Sharing
- Shared Vehicles
- Mobility-as-a-Service (Please see call-out at end of Section 5)

### **DATA ANALYTICS**

- Data Compilation
- Access
- Security

## Sustainable Development

At the 2015 United Nations General Assembly, 193 UN member states unanimously adopted the 2030 Agenda for Sustainable Development, a global development agenda that lays out 17 Sustainable Development Goals (SDGs) to be achieved by 2030. The SDGs are a global set of goals, targets, and indicators that detail quantitative objectives for sustainable development. Addressing critical sustainability issues such as poverty, climate change, inequality, economic development, and ecosystem protection, achievement of the SDGs will benefit everyone living in the Pierce Transit service area and throughout the Seattle-Bellevue-Tacoma metropolitan area.

Rapidly developing cities and counties will be key to achieving the global SDGs. The imperatives of SDG 11 (as shown in the diagram on the following page) provides a tremendous opportunity for Pierce Transit to build robust partnerships and gain additional resources for advancing sustainable development within its service area and throughout Pierce County.

## Zero Emissions Vehicles and Electrified Transport

The State of California requires all new public buses to be electric in 2029, and the complete fleets must be converted by 2040. This has vast implications for transit operators, from service planning, to fleet procurement to the function of maintenance yards and repair shops. Similar requirements are likely to be seen at a national level within a few years, so it benefits Pierce Transit to anticipate these changes during the implementation of this Long Range Plan Update.

Specific to Washington State, RCW 43.19.648 requires public state agencies to operate only electric or biofuel vehicles to the extent practicable. Pierce Transit's CNG fleet is exempt from this requirement, but this law applies to the remainder of Pierce Transit's revenue and non-revenue vehicles fleet. Against this regulatory backdrop, and those of other forward-thinking regions such as California, an increasing number of electric vehicles is becoming available from US manufacturers.

**Figure 5–1: Battery-Electric Bus**

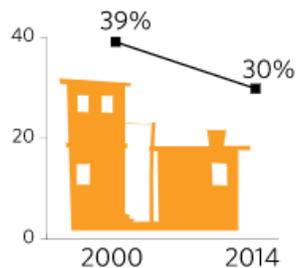


*Source: Pierce Transit*

**Figure 5–2: Driverless Shuttle**



*Photo credit: Khalid Baba  
The New Paper – Singapore*

**Figure 5–3: United Nations’ Sustainable Development Goal No. 11****Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable**

**Proportion of global urban population living in slums**



**Almost half** the global urban population is exposed to ambient air pollution levels at least 2.5 times the maximum recommended level

Goal 11 aims to renew and plan cities and other human settlements in a way that fosters community cohesion and personal security while stimulating innovation and employment.

- ▶ In 2014, 880 million people lived in urban slums, or 30 per cent of the global urban population, compared to 39 per cent in 2000.
- ▶ In many burgeoning cities around the world, populations are moving outwards, far beyond administrative boundaries.
- ▶ In 2014, about half the urban population globally was exposed to air pollution levels at least 2.5 times above the standard of safety set by the World Health Organization.
- ▶ As of 2015, 142 countries were developing national-level urban policies; of these, 82 countries were already in the process of implementation and 23 had reached the monitoring and evaluation stage.

*SDG #11, Target 2 states: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons*

**A paraphrasing of the UN’s guidance suggests that Target 2 could best be measured in the following way:**

Pierce Transit could measure success toward meeting SDG #11 by calculating, by select time periods over the 20-year Long Range Plan horizon, the proportion of the service area population that has convenient access to Pierce Transit services by sex, age, and persons with disabilities.

Pierce Transit has been following through on a formal commitment to using green technologies and strategies that respond to climate change and foster energy independence. Pierce Transit's environmental framework requires that:

- Purchase of buses and other vehicles reflect the bio-fuel and electric power requirements in RCW 43.19.648
- 20% of the bus fleet be electrically powered by 2030

## Autonomous Vehicles

### Automobiles

Experts say that self-guided, driverless (autonomous) cars are almost upon us. However, most experts agree that without appropriate regulation, rooted in both experience and foresight, autonomous vehicles (AVs) and fleets are susceptible to all the foibles that have afflicted traditional cars for over a hundred years since they were mass marketed and became affordable. AVs could lead to:

- More roadway congestion from ever-circulating fleets
- Less walking as passengers expect door-to-door pick-up and drop-off service
- Public spaces used extensively as “holding pens” for vehicles awaiting “use”
- Demand soaring for local travel as prices plunge because the labor component has been eliminated

However, there seems to be consensus that if the potential benefits of AVs are fully realized, these could include:

- More equitable mobility, especially for those who cannot use mass transit, due to their age or a disability
- Safer and more secure travel
- More attractive street side environment, especially as the need for on-street or parallel parking, surface parking lots or structures are all greatly reduced in the urban core
- Substantial benefits to Pierce Transit in the form of faster and easier access to/from its stations and services (also known as first mile/last mile trips)

**Figure 5–4: Autonomous Vehicle**



*Courtesy RTD - Denver*

To pursue these benefits for its system and its riders, Pierce Transit should follow developments in the autonomous car market, take advantage of AVs' best attributes and course correct, as necessary, to minimize any unintended consequences of those new technologies.

## Transit

Autonomous (driverless) transit vehicles hold great promise as a means of offering service at a reduced operating cost while providing a service “dividend” of operating dollars that can be reinvested to provide more service within the same budget. Though experimentation and testing are underway now in many locales, by the fulfillment of this Long Range Plan in horizon year 2040, the expectation is that autonomous operation will be routine in certain transit applications, such as long distance express routes operating on freeways or in dedicated transit-only lanes. In addition, as mass transit agencies nationally are struggling to find and hire new operators, this technological breakthrough could be one solution to a steadily increasing problem. Autonomous vehicles may also benefit from IT-enhanced “smart” dispatching, predicting the need for vehicles and sending them as needed to origins and destinations. Pierce Transit will carefully watch the development of this technological change and make decisions about its potential deployment at the appropriate time.

## Microtransit

“Microtransit is IT-enabled private multi-passenger transportation services, that serve passengers using dynamically generated routes, and may expect passengers to make their way to and from common pick-up or drop-off points. Vehicles can range from large SUVs to vans to shuttle buses. Because they provide transit-like service but on a smaller, more flexible scale, these new services have been referred to as microtransit.” TCRP Research Report 188, FTA.

**Figure 5–5: EmGo Microtransit**



Source: Lane Transit District,  
Eugene, Oregon

Regions and transit authorities around the world are experimenting with Microtransit as a possible solution to service and budgetary challenges. The public sector is attempting to take advantage of new mobility to provide a transit-like service that is more efficient, more fiscally feasible, and more attractive to riders. When well-connected with Mobility-as-a-Service efforts, the promise and benefits of Microtransit can be fully realized as greatly improved mobility becomes a reality for all the communities served by transit.

## Car Sharing Innovations

Car sharing is a model of car rental service, whereby customers rent cars for short periods of time, often by the hour, in order to perform tasks that do not require a lengthy rental. This model allows individuals to gain the benefit of private cars without the costs and responsibilities of ownership. Instead of a household owning one or more cars, they can have access to a fleet of them on an as-needed basis through car sharing. This new system of car renting generally attracts customers who make only occasional use of a vehicle, as well as others who would like occasional access to a vehicle of a different type (such as a van) than what they use on a daily basis. Car sharing may be thought of as an organized short-term car rental system. Variations of a carsharing approach include;



### Classic Car Share

Classic car sharing is similar to the familiar ZipCar where clients can simply make a reservation for a specific vehicle and pick up or drop off the vehicle back in the same location. This model is perfect for clients who require few hours of rental to do shopping or to run errands.

### Free-Floating Sharing—Car2Go Model

Free-floating car sharing allows users to take and leave vehicles at any point within the city limits or zone and those locations are specified by the company. Opposed to classic car-sharing, there is no fixed parking and one-way trips of any length are possible without a booking requirement. By reaching a greater share of citizens than classic car share, typically at a somewhat higher price, the free-floating car- or van-sharing model could contribute to reducing vehicle ownership in cities.

### Peer-to-Peer (P2P)

Peer-to-peer car sharing is a form of person-to-person lending or joint usage. The business model is closely aligned to classic car sharing models but replaces a typical fleet with a “virtual” fleet made up of vehicles from joining owners. With peer-to-peer car sharing, car or van owners are able to make money by renting out their vehicle when they are not using it. Renters can access nearby and affordable vehicles and pay only for the time they need to use them.

## Condo Car-Sharing

Residential real estate developers are finding new opportunities to capitalize on their condominium projects, building more units on less land by incorporating car-sharing into their building amenities. Pierce County, especially the City of Tacoma, is experiencing rapid growth in condominium and townhouse development. The reduction and replacement of parking spaces with car-sharing is providing added value for condominium owners and an increased number of buildable units for developers. This increase in density can translate into the demand for frequent, fast, and reliable transit services. Development of new technologies and the constantly growing purchasing power of Millennials (persons born between 1981 and 1996), whose attitudes lean toward practicality, flexibility, and aversion to long-term commitments, decreases a desire for their own car. Car sharing services, especially located at their residence, perfectly match these trends.

These innovations and new business models all beg the question, “How should Pierce Transit shape or even accelerate its response to the disruptive changes going on in the transportation environment?” Some steps along the way could include:

- Admit that many changes and innovations are going to occur over the next two decades, whether Pierce Transit supports them or not. Others can do the hard work of testing and implementing new technologies. The agency can then join in or adopt the changes after many upfront costs and risks have been carried by other, larger transit agencies or private sector firms.
- Narrow the focus: Pierce Transit may be cautious or selective regarding which new technologies to champion, develop, and directly influence. However, the agency should invest early on in technologies that would help it achieve critical or time-sensitive business priorities.
- Continue to invest in new technology education and training for its employees: The agency owes it to its customers to ensure that new initiatives, hardware, or software programs deliver on everything they promise, especially as they are designed to improve or augment the end-user experience.

## MOBILITY-AS-A-SERVICE

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Around the world, the combining of transportation services and all the supporting systems (e.g., trip planning, wayfinding, scheduling, coordinating transfers between modes, and paying) into a single and seamless experience is widely becoming known as Mobility-as-a-Service (MaaS), and this is redefining how customers conceive of mobility, along with the methods to navigate around the region.

MaaS, at its full achievement, is the completely seamless multimodal planning, coordinating, scheduling and paying for trips from door-to-door—and then, making the actual trip.

The benefits of full MaaS integration are the return of value to the traveler in the form of less time, less cost, less uncertainty, and less stress.

MaaS requires increased integration of the transport network components:

- Infrastructure (facilities, equipment, hardware),
- Service operators, including Pierce Transit
- Programs (planning, scheduling, operations, demand management strategies), and
- Policies (requirements, restrictions, granting of access).

MaaS replaces numerous unconnected systems which are generally more expensive to operate than the unified system that replaces them.



# 6

## Service Expansion

### **BENEFITS**

To establish and monitor the benefits passengers will gain from implementation of the Long Range Plan, Pierce Transit could rely on these measures. Over time, a clear picture of the benefits would come into focus.

- Transfer rate
- Daily transit trips served
- Average daily boardings
- Average transit travel time
- Percent of daily/peak period trips (origins and destinations) starting or ending within ¼-mile of a transit stop or station
- Percent of population and employment within ½-mile of transit a transit stop or station
- Households within a 30-minute transit ride of major employment centers
- Percentage of work and education trips accessible in less than 45 minutes (including wait) transit travel time
- Percentage of workforce that can reach their workplace or other regional destinations by transit within one hour (including wait) with no more than one transfer

The above measures are intended to measure, as directly as possible, benefits to Pierce Transit riders that result from investment in new and expanded transit service, and the denser development and redevelopment that occur along these corridors or routes.



## Mobility

The world of transport and mobility is evolving, with the access to higher service levels and productivity highlighting region-wide mobility benefits. These include:

### ACCESSIBILITY

- Ability to reach more places within economic budgets and time constraints
- A citizenry less burdened by their commute, freed-up to spend more time on self-actualization, improvement, progress, and innovation



### CONVENIENCE

- Greater transit frequency and coverage grant more convenience to the rider, along with allowing more opportunity for Pierce Transit to seamlessly integrate service with other transportation providers



### FLEXIBILITY AND FREEDOM

- Increased options about how to pair-up residential and job locations; and how to most efficiently travel between them

### REDUCTION IN PRIVATE AUTOMOBILE OWNERSHIP

## Environmental Responsibility and Stewardship

Looking to the future, Pierce Transit should adopt more environmentally sustainable practices for the light and heavy maintenance of their transit fleets and non-revenue vehicles as well as modifications that will render their operating base facilities more “green” or carbon neutral. The kinds of environmentally beneficial conservation and greenhouse gas (GHG) mitigation strategies could include:

- Curtailing waste by maximizing reuse and recycle efforts
- Green roof area or reflective “cool” roof
- Maximizing solar power collection and use
- Natural daylighting
- Rainwater harvesting

- Reducing electricity and water use
- Strictly enforcing the policy regarding limiting idling when using agency vehicles and on all agency properties
- Utilizing sustainably sourced mass timber for building renovations or additions

## Economy

The economic benefits that mass transit districts or providers have found result from investments in new and expanded public services, including:

- Reduced car ownership: More money in people's pockets means more discretionary household income
- Reduced traffic congestion: More free time in people's workdays at either end
- Higher employment, attributable to more access to jobs
  - › A 2015 study by Harvard University found that travel time—particularly commute time—is the single-biggest factor in the struggle to escape poverty and avoid homelessness.
  - › With better transit integration, businesses gain access to larger employment pools with more diverse skill sets.
  - › Good mobility through excellent transit helps attract and retain employees, especially the younger generation who place little value on automobile ownership.
- Increased transit ridership and farebox revenue
- Lowered fare collection costs per ride taken
- Home and business values increase in more livable communities. Mass transit contributes greatly to livable communities because the connections it provides directly and positively affect how the neighborhoods they serve develop over time. It can also effect:
  - › Amount of development
  - › Type of development
  - › Arrangement between the types of development
  - › Relationship and compatibility of development

**“Individuals who use public transportation get over three times the amount of physical activity per day of those who don’t.”**

— TransLoc.com, a Ford Mobility company

## Public Health and Quality of Life

The connection between public transit and health is now well-documented. Among numerous other benefits, using transit helps increase overall physical activity since, ideally, each transit trip begins and ends with a walking trip. A report by the Victoria Transport Policy Institute established that communities defined by their high quality public transportation tend to have:

- Higher reliance on non-car modes (e.g., walking, bicycling, and public transport)
- Residents and employees with greater physical fitness and mental health
- Lower rates of driving, per trip and per capita
- Lower GHG or carbon emissions
- Fewer traffic accidents and lower severity or bodily injury
- Improved access to medical care and fresh, healthy foods

Regular transit usage is directly related to walking more. Many transit riders can get their full recommended amount of daily physical activity simply by walking to their transit stop or station and from transit to their job or other regular destination—then reversing that trip at the end of the day. Getting the recommended amount of daily physical activity contributes to a reduction in many health risk factors that have become epidemic in America, such as heart disease, diabetes, obesity, and joint- or muscle-related conditions.

Across North America, consumer behavior reveals that more people are relying less on a private car for their travel. Trends for younger urban people and seniors indicate a preference for living in more accessible, connected, higher density, mixed use and multi-modal communities, in order to capitalize on the higher levels of mobility and convenience. Meeting these transportation demands provide measurable health benefits to transit riders throughout all communities within the Pierce Transit service area.



## Opportunity Costs of Pursuing a Certain Transit Future

Studies have long shown that the actual cost of creating new or improving existing transit service is significantly less than the cost per mile of surface transportation alternatives. In fact, in many travel corridors, transit service is the only feasible option for adding capacity, given the practical constraints

facing roadway expansion when done in an environmentally sensitive manner. The question of opportunity costs can be thought of in the following way:

- Cost of the Long Range Plan: \$43M investment in service improvements
- Opportunity costs of not implementing the Long Range Plan: Failure to almost triple ridership by 2040 with 40% more Pierce Transit sales tax revenues

Another way of expressing this idea is that, rather than experiencing the cost of improving Pierce Transit’s fixed route system, the benefits of the Long Range Plan (e.g., ridership, speed, reliability, more equitable mobility,

**Figure 6–1: Strategies, Actions and Benefits of the Destination 2040 Long Range Plan Update System Expansion and Improvement**

	INCREASED MOBILITY	TRANSIT FRIENDLY LAND USE	INCREASED INTER-CONNECTIVITY	GREATER EFFICIENCY	LOWER EMISSION/ GHGS	EQUITY
<b>FREQUENCY + SPAN OF SERVICE</b>						
Shorter headways on weekdays	●					
Earlier and later service on weekdays	●		●			
Shorter headways on weekends	●					●
Earlier and later service on weekends	●					●
Fleet expansion	●		●	●		
<b>COVERAGE</b>						
New routes	●	●	●			
Routes extended to bring service to new areas	●	●	●			●
Fleet expansion	●			●		
<b>ENVIRONMENT</b>						
Transition to zero emissions revenue vehicles					●	
Transition to zero emissions non-revenue vehicles					●	
Conversion of yard and maintenance shops to a zero-emission power/fuel					●	
<b>SPEED + RELIABILITY</b>						
Expanded/improved bus zones	●					
Conversion of route(s) to Bus Rapid Transit		●	●	●		
Road improvements specifically intended to speed bus travel; Greater separation/exclusivity, priority or signal preemption for transit (TSP)	●			●	●	

support to local Land Use and redevelopment goals, etc.) that would be lost through a failure to act. The benefits that will be foregone if the Long Range Plan's objectives are not achieved appear in Figure 6-1.

## **Frequency and Span of Service**

Shorter headways (i.e., more frequent service) require more vehicles, more transit operators, more fuel, larger maintenance bases, more parking, more maintenance, and more agency staff.

Shorter headways on weekends require more operators, more fuel, more maintenance, and (perhaps) more agency administrative or management staff.

Earlier and later service requires more operators, more fuel, and more maintenance.

## **Coverage**

New or extended routes, along with improving service in underserved areas, require more vehicles, more operators, more fuel, larger maintenance bases, more vehicle and bicycle parking, improved access, and more agency staff.

## **Environment**

The conversion of the revenue vehicles (buses) and non-revenue (e.g., administration, supervisor, service and support) vehicles from polluting to zero emission vehicles (e.g., battery-electric or hydrogen fuel-cell) requires new equipment at the Lakewood maintenance base, potentially some extra non-revenue hours (depending on how and where batteries are charged), staff training for new skills, and less maintenance. While battery-electric technology is in early development, most US transit providers who have tested these vehicles have found that their per-mile cost of fuel/power have increased, although this will vary considerably with geography, power generation source, local utility company (provider), regulations, and contractual relationships.

## **Speed and Reliability**

Bus zone improvements require design and construction funding and will incur slightly increased maintenance costs. Conversion of existing routes to BRT require more 60-foot articulated buses, more operators, the capital cost of speed and reliability improvements along the new corridor, and a potentially larger maintenance base or the addition of satellite bases in strategic parts of the county.



# Future Transit Networks and

## FINANCIAL REQUIREMENTS

The focus of this Long Range Plan Update is to highlight service improvements Pierce Transit could offer under a 0.3% increase, from the current 0.6% to the full 0.9% sales taxing authority allowed within the Pierce County Public Transportation Benefit Area (i.e., the Pierce Transit service area). That system, including new fixed routes, another BRT or HCT route (either the current Route 2 or 3) and especially more frequent and reliable service, plus expanded weekend service, is shown in a menu of options within this section, including the Annual Service hours and cost estimates required for each. All proposals allocate 70% of any new sales tax revenue to service or operations and 30% to capital improvements, including new revenue vehicles.

### **The 0.9% Scenario: Proposed Service Expansions and Improvements**

In 2019, the Pierce Transit Board of Commissioners, along with the agency's Executive Team, convened to begin discussions on developing an outline for a package of major service improvements that would bring levels above and beyond their 2008 peak of 660,000 service hours, but with one major difference. Ten years later, the Pierce Transit service area is but 55% of its original, county-wide boundary while reaching about 70% of its total population currently (based on a 530-square mile service area in 2012 and 291.5-square mile area in 2019. Note that the original service area size calculation includes large bodies of water, especially in the northwest section of Pierce County). That said, putting another 235,000 annual service hours into the system (a 47% increase) within a smaller and constrained

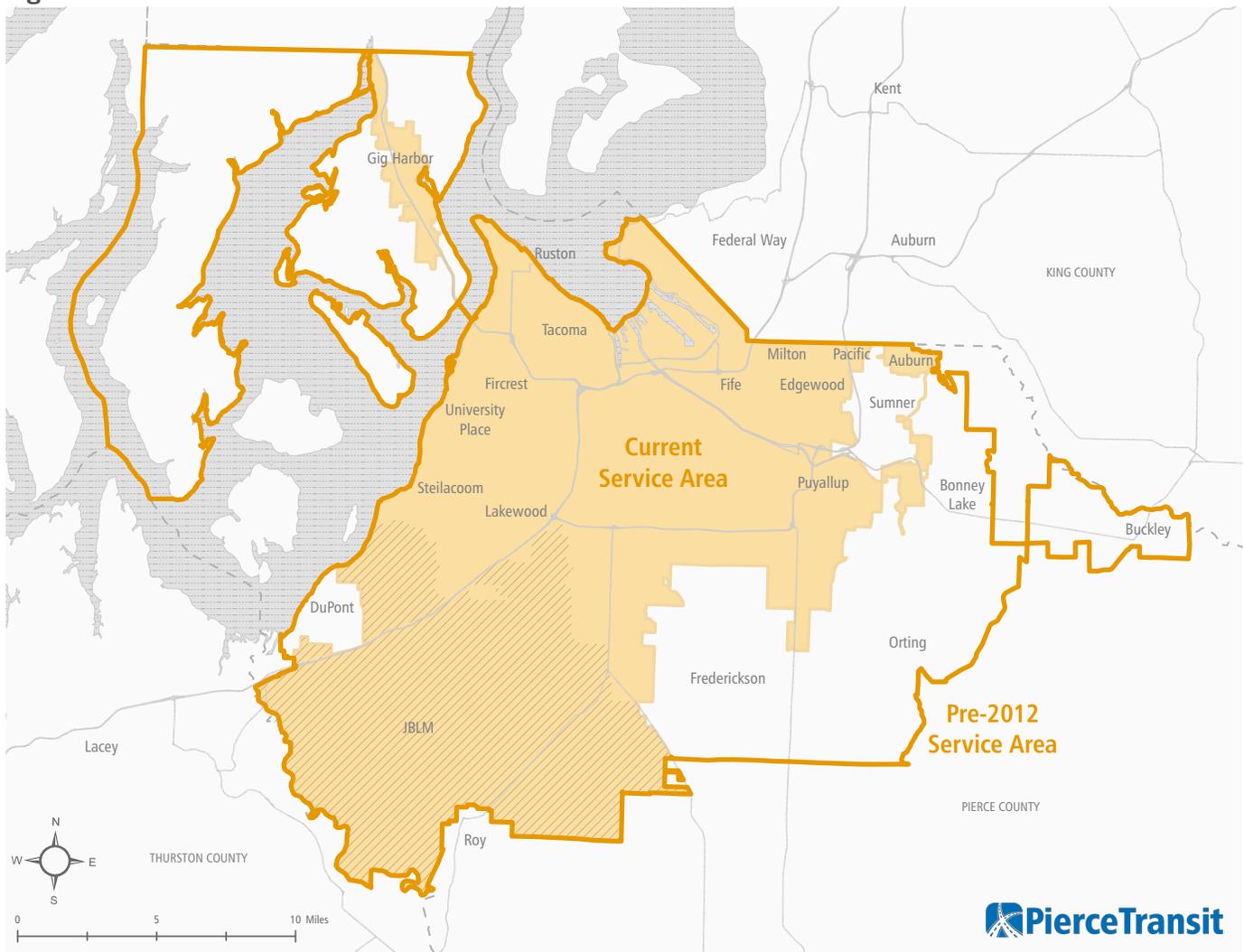
geographic area—once 414 square miles but 292 square miles today—will result in a robust, easy to use, and reliable fixed route network. Previous and current service area boundaries are shown in Figure 7–1. As part of this exercise, three goals were agreed upon:

- Maintaining what Pierce Transit owns and operates in a State of Good Repair;
- Increasing or improving service offerings; and
- Expanding the system to new markets or into areas that may be lacking today.

Other proposed system enhancements or changes were:

- Students and senior citizens riding fare-free
- Improved access to the Port of Tacoma area

**Figure 7–1: Pierce Transit Previous and Current Service Areas**



- Additional zone service connections to the fixed route network (as detailed in Section 3)
- Improved paratransit access (through more fixed route service)
- Greater east-west connections
- Bus Rapid Transit system buildout and integration
- Expanded service area boundaries (with voter approval)

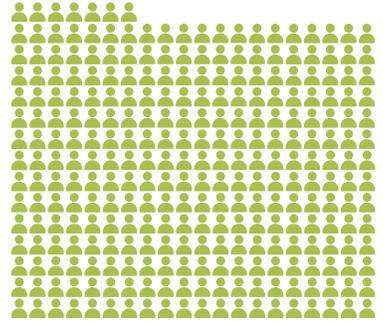
The expanded fixed route motorbus network, based on 735,000 annual Service Hours, was then created by using the public transit planning software program platform “Remix.” This network, including mid-day frequencies by route, is depicted on the maps in Figure 7-2. The network was then modeled by the Puget Sound Regional Council Metropolitan Planning Organization for 2040 ridership (i.e., total daily boardings by existing and new or improved route), and their modeling results and analysis are provided as Appendix B.

Highlights of the improved and expanded Horizon Year 2040 fixed route network include:

- Average Daily Boardings systemwide tripling from 28,700 in 2018 (actual) to 85,700 in 2040 (forecast), according to the PSRC’s modeling output
- Three Bus Rapid Transit Routes (i.e., the current 1, 2, and 3 all upgraded to BRT or HCT)
- Seven new fixed routes introduced (5, 15, 17, 49, 51, 58, and 498)
- Greater frequencies (shorter headways) on 16 existing routes
  - › Two Trunk routes at 15-minute headways
  - › Eight Urban routes at 20-minute headways
  - › Six additional routes double their current frequency at 30-minute headways

Pierce Transit recognizes the need for speed and reliability improvements along key bus routes and corridors with strong ridership. These improvements could include signal prioritization for buses and, added or reserved lanes permitting buses to avoid the traffic line approaching congested intersections. Pierce Transit will also consider more comfortable, better-equipped bus zones or shelters with amenities like real-time next bus arrival information (dynamic signage) and off-board fare collection equipment (e.g., ticket vending machines, ORCA readers) for passenger convenience. These additional types of improvements will be investigated throughout the implementation of the improved and expanded Horizon Year 2040 fixed route network, but they have yet to be defined fully, the locations where they are most needed identified, or reliable cost estimates developed.

**2018 Ridership**  
**28,700**  
 average daily weekday boardings



**0.9% Vision Scenario**  
**85,700**  
 average daily weekday boardings

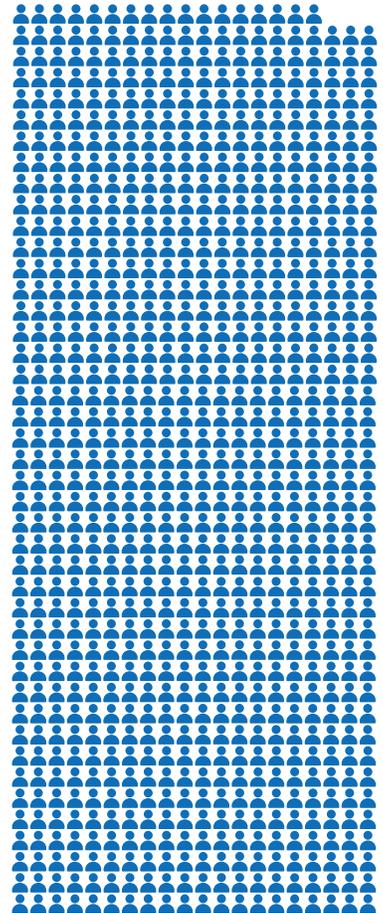
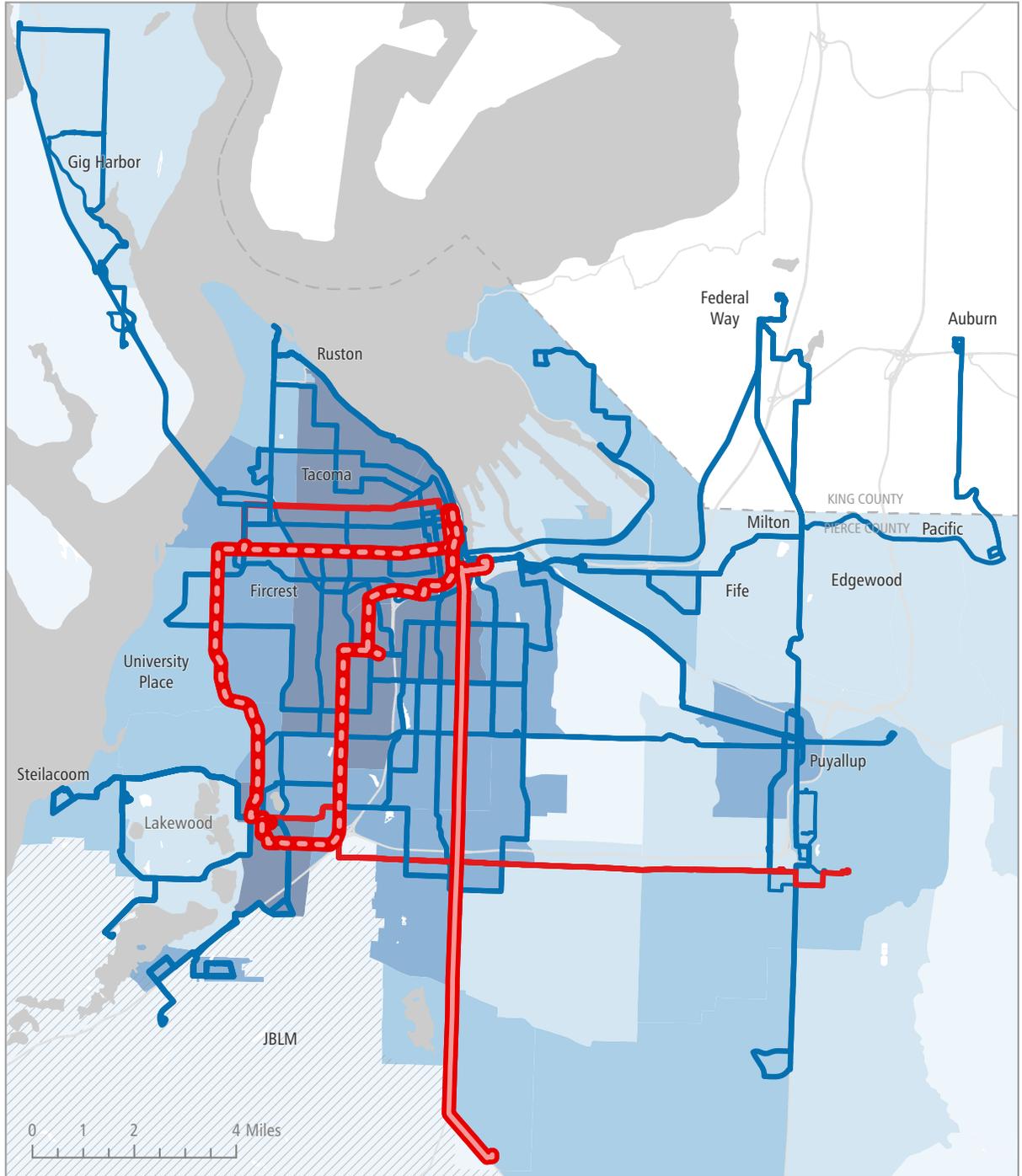
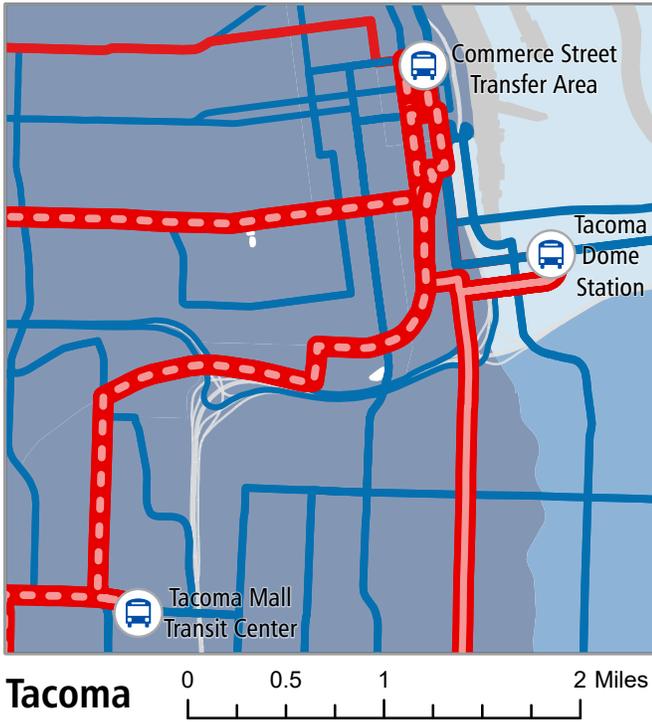


Figure 7–2: 2040 Population and Employment along Pierce Transit Routes

## PIERCE TRANSIT ROUTES AND FREQUENCIES

735,000 Annual Service Hours



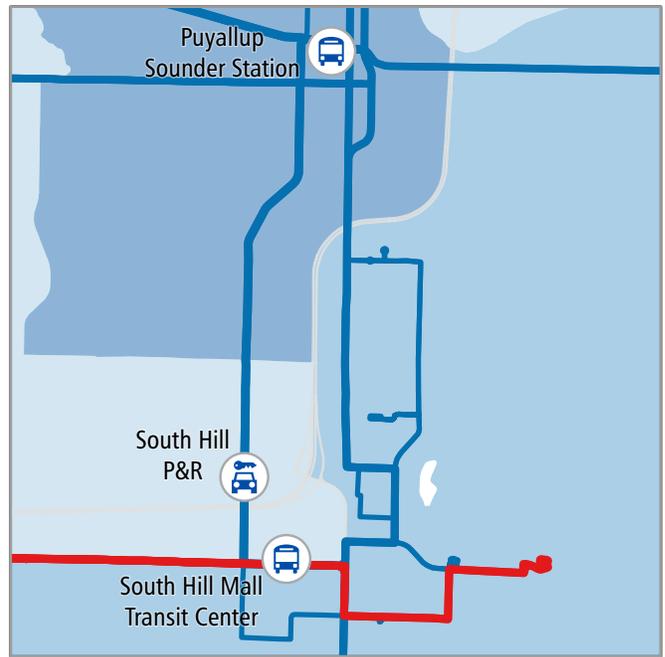
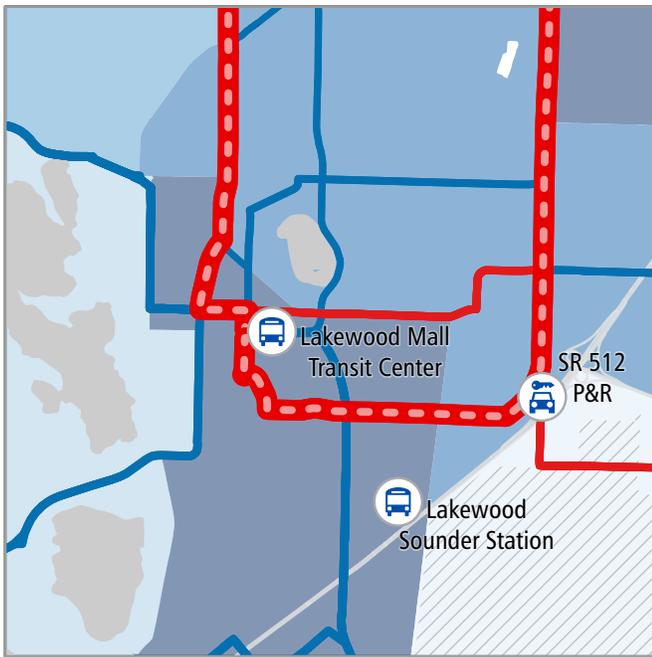


**Peak Frequency**

- 10 - 15 minutes
- 16 - 30 minutes
- BRT
- Proposed BRT

**2040 Population & Employment Density  
(Residents + Jobs) / Square Mile**

- 2,000 or Fewer
- ≤ 4,000
- ≤ 6,000
- ≤ 8,000
- More than 8,000



## Additional Revenue Projections and Service Expansion Scenario

Pierce Transit's Budget Office completed an estimation of additional sales tax revenue if the rate were to increase from the current 0.6% to 0.9% beginning in April 2021. Those five-year income projections are depicted in the Pierce County Sales Tax Revenue table below. For comparison, Pierce Transit's CY 2020 revenue projection is provided as well.

2020: PROJECTED AT 0.6%	
Budget	\$291.0 million
Sales Tax Revenues	\$97.5 million (5% increase over 2019 YE estimate)

*Sales tax represents 86% of the operating budget revenue excluding Sound Transit*

2021–2025: ADDITIONAL PIERCE COUNTY SALES TAX REVENUE PROJECTIONS AT 0.9% (MILLIONS)					
2021	2022	2023	2024	2025	Total
\$38.04	\$52.76	\$54.87	\$57.06	\$59.34	\$262.09

A cafeteria style menu of service options was then introduced. That system includes two new fixed routes (15 and 51), another BRT or HCT corridor (the current Route 2) and much more frequent and reliable service, including expanded weekend service. Figure 7–3 details improvement type by category, plus new Mobility on Demand zones, providing first-mile/last-mile connections to the system or regional transit hubs. Annual service hour allocations and cost assumptions required for each improvement type are also provided.

The additional revenue would be used to immediately address the State of Good Repair (SGR) backlog, as determined by the October 2018 Transit Asset Management Plan (TAMP) and prepared for the Federal Transit Administration (FTA). The table below compares investment expenditures (needs) by asset category under three funding scenarios (i.e., one unconstrained and two constrained) developed for the TAMP over a 20-year planning horizon. All funding is shown in millions of dollars.

**Figure 7–3: Proposed Service Expansion & Improvements**  
**Scenario A: 0.9% Sales Tax Rate Scenario or 735,000 Annual Service Hours**

<b>IMPROVEMENT</b>	<b>SERVICE HOURS ALLOCATED</b>	<b>COST ESTIMATE</b>	<b>NOTES/COMMENTS</b> Only listed if changed from September 22, 2019 schedule
<b>INCREASE FREQUENCY</b>			
Every local route to 30-minute daytime frequency (weekdays)	19,838	\$3,094,785	Routes 13, 62/63 (Express), 100, 212, 409, 501
Six most productive local routes get 20-minute daytime frequency (weekdays)	22,166	\$3,457,939	Routes 41, 48, 52, 54, 57, 202
Every trunk route to 15-minute daytime frequency (weekdays)	39,876	\$6,220,595	Routes 1, 2, 3, 4
Every local route to 30-minute daytime frequency (weekends)	27,934	\$4,357,659	Routes 10, 11, 16, 28, 41, 42, 45, 48, 52, 53, 54, 55, 57, 100, 202, 206, 212, 214, 402, 409, 500, 501
Every trunk route to 20-minute daytime frequency or better (Saturdays)	3,743	\$507,693	Routes 1, 2, 3, 4
Every trunk route to 30-minute daytime frequency or better (Sundays)	2,733	\$426,334	
<b>INCREASE SPAN</b>			
Every local route runs until 10:00 pm (weekdays)	4,437	\$601,874	Routes 16, 28, 42, 45, 52, 54, 57, 100, 202, 206, 212, 400, 402, 409, 501
Every local route runs until 10:00 pm (Saturdays)	4,284	\$668,325	Routes 10, 11, 16, 28, 41, 42, 45, 48, 52, 53, 54, 55, 57, 100, 202, 206, 212, 214, 402, 409, 500, 501
Every local route runs until 8:00 pm (Sundays)	2,896	\$451,789	
Every trunk route runs until 10:00 pm (Saturdays)	3,565	\$556,168	Routes 1, 2, 3, 4
Every trunk route runs until 10:00 pm (Sundays)	2,014	\$314,222	
Express Route 63 increases to all day, bi-directional service (Operates weekdays only)	7,849	\$1,408,111	Also improves to 30-minute headways
<b>NEW ROUTES</b>			
Route 2 Bus Rapid Transit (Downtown-TCC-Lakewood)	TBD	\$9,120,000	Estimated capital costs only. Service hours need to be verified (i.e., depends on overlay or replacement).
Unify/combine routes with similar profiles (e.g., 11+41, 52+55) and improve to 20-minute headways		—	Would not incur additional costs if four existing routes merged into two
Portland Avenue between Parkland and 72nd Street Transit Centers	13,469	\$2,416,339	Extended Route 54 south and improves to 20-minute headways
North-south between, Lakewood, University Place, and Tacoma (e.g., Tyler Road-Bridgeport Way W)	19,454	\$3,490,048	Proposed Route 51
Ruston Way	11,981	\$1,869,036	Proposed Route 15 Express
<b>FIRST-LAST MILE CONNECTIONS</b>			
Three zones for nine vehicles in service at 3,000 hours per vehicle per year	27,000	\$4,212,000	Proposed zones: Ruston, Port of Tacoma, Midland- Parkland-Spanaway
<b>TOTALS</b>	<b>213,189</b>	<b>\$43,172,917</b>	

Evaluating the agency's SGR backlog through the FTA's TERM Lite database, the software program showed at least \$19 million was recommended to commit to achieving SGR within ten years under both existing and expansion asset categories (where  $\Delta = \$5.5M$ ). Based on the 193 assets in the TERM Lite database, the 2018 or current SGR Backlog was determined to be:

**Vehicles: \$38.51 million + Facilities: \$13.55 million + Systems: \$1.20 million = \$53.26 million** (For more information, please see Section 13, "Project-based Prioritization of Investments," Pierce Transit—Transit Asset Management Plan (2018), pp. 95-106.)

COMPARISON OF INVESTMENT EXPENDITURES (NEEDS) UNDER THREE FUNDING SCENARIOS <i>in millions of dollars</i>						
Asset Category	SCENARIO 1 Unconstrained Funding		SCENARIO 2 Constrained Funding (Maintaining Current Spending)		SCENARIO 3 Constrained Funding (Maintaining SGR Backlog)	
	Current Needs	2038 Needs	Current Needs	2038 Needs	Current Needs	2038 Needs
<b>Facilities</b>	\$39.45	\$0.14	\$23.73	\$1.23	\$18.01	\$0.14
<b>Stations</b>	\$0	\$0	\$0	\$0	\$0	\$0
<b>Systems</b>	\$5.33	\$52.62	\$1.20	\$0	\$0.69	\$0
<b>Vehicles</b>	\$44.75	\$14.49	\$44.75	\$14.49	\$20.29	\$17.04
<b>Totals</b>	<b>\$89.53</b>	<b>\$67.25</b>	<b>\$69.68</b>	<b>\$15.72</b>	<b>\$38.99</b>	<b>\$17.18</b>

Source: Pierce Transit—Transit Asset Management Plan (2018), p. 102

Therefore, Pierce Transit should program funding from the additional sales tax revenue stream that would address SGR annually and therefore reduce the backlog, such as a fixed amount (set-aside) from the 30% allocated to capital improvements. Keeping capital assets operating at their peak not only maximizes efficiency and safety, it is a great way to grow ridership as it demonstrates the agency is consistently reinvesting in the system and its many integral parts.

## An Expansion Vision for Bus Rapid Transit

One of the more exciting aspects of the proposed systemwide expansion would be including another Bus Rapid Transit Corridor to the mix. That is, upgrading one of the next highest ridership routes—likely the 2 or 3—to high capacity transit. While there are arguments for both routes as to which is the better candidate, meaning which would show the greatest potential ridership gains if propelled to the next level of rubber-tired transit mode, they both continue to show promise since they serve multiple Regional Growth Centers and travel through areas of the cities they serve with continuously strong demand. Pierce Transit will therefore commence with a High Capacity Transit Feasibility Study in the near future, including a determination of the remaining routes that should be considered conversion to HCT or BRT (e.g., Routes 4 and 402). Following are descriptions of the five routes in development and for consideration, plus a map of their locations.

### 1 Pacific Avenue/State Route 7 Corridor

**LOCATION:** Downtown Tacoma to Tacoma Dome Station to Spanaway—Current Route 1 but will terminate downtown and not extend west the 5.2 miles to Tacoma Community College. This inaugural BRT route will directly serve Tacoma Dome Station as well.

- Total Fixed Route Boardings (2018) and Systemwide Rank: 1.65 million (#1)
- Includes six Census Tracts designated as Opportunity Zones: 53053061601, 53053061602, 53053062400, 53053071503, 53053071408, 53053071409
- BRT Route Length: 14.4 miles
- Estimated Construction Cost per Mile: \$10.0 million
- Projected Number of 60-foot Articulated Vehicles Needed: 17
- Planned Opening for Revenue Service: September 2023

**WHY WAS THIS CORRIDOR SELECTED FOR BRT?** Based on continuously high ridership when compared to the rest of the fixed route system, a feasibility study was started in February 2017 to evaluate the various High Capacity Transit modes that could best serve this highly productive but congested transit corridor. BRT was selected since it best meets the project's "Purpose and Need Statement" for transit speed and reliability, as well as more frequent service that most closely emulates Light Rail Transit systems, albeit at a significantly reduced cost to construct and operate. Major milestones were reached in 2018 when the project was formally accepted into Project Development by the FTA over the summer with a Small Starts

Capital Investments Grant (CIG) application successfully submitted that fall. Subsequently, a favorable “Medium-High” project rating was received from the FTA in March 2019 with the allocation of construction funding expected in Federal Fiscal Year 2020. The project began its Preliminary Engineering/Design phase in fall 2019. Construction is scheduled to begin in the spring of 2021 with revenue service planned for the fall of 2023.

## 2 Downtown Tacoma to Lakewood

**LOCATION:** Downtown Tacoma to the Lakewood Towne Center Transit Center via South Tacoma Way—Current Route 3. This second BRT route would serve the Tacoma Mall Transit Center too.

- Total Fixed Route Boardings (2018) and Systemwide Rank: 517,255 (#3)
- Includes four Census Tracts designated as Opportunity Zones: 53053061601, 53053061602, 53053062600, 53053071805
- Proposed BRT Route Length: 11.3 miles
- Estimated Construction Cost per Mile: \$12.2 million (Assumes a 2.5% annual inflation rate)
- Projected Number of Additional 60-foot Articulated Vehicles Needed: 17
- Planned Opening for Revenue Service: 2026

**WHY CONSIDER THIS CORRIDOR FOR BRT?** Demonstrated by steady gains in ridership since the route was redesigned with the March 2017 service change, which shifted service west to cover more businesses along South Tacoma Way. In addition, the City of Tacoma’s recently adopted Tacoma Mall Neighborhood Subarea Plan (EIS) calls for higher density mixed use redevelopment, which would provide even greater demand for a high capacity rapid transit service. The route would serve three Pierce County Regional Growth Centers too (Downtown Tacoma, the Tacoma Mall, and Lakewood), meaning a likely candidate for discretionary PSRC funding. Other key destination points in the corridor include Pierce Transit headquarters and Lakewood City Hall. This proposed BRT corridor was added to the Regional Capacity Projects List, as adopted in the Regional Transportation Plan by the PSRC in May 2018. Based on these and other criteria, the current Route 3 is an ideal candidate for BRT.

## 3 S. 19th Street and Bridgeport Way West Corridors

**LOCATION:** Downtown Tacoma to Tacoma Community College via S. 19th Street. TCC to the Lakewood Towne Center Transit Center via Bridgeport Way - Current Route 2. This third BRT route is the least refined concept to date and could be split into two discrete projects, such as an east-west BRT and a north-south enhanced, limited stop bus or “BRT Lite.”

- Total Fixed Route Boardings (2018) and Systemwide Rank: 739,468 (#2)
- Includes three Census Tracts designated as Opportunity Zones: 53053061400, 53053061601, 53053061602
- Proposed BRT Route Length: 11.9 miles
- Estimated Construction Cost per Mile: \$760,000 (Assumes a 2.5% annual inflation rate)
- Projected Number of Additional 60-foot Articulated Vehicles Needed: 16
- Planned Opening for Revenue Service: 2030 - 2035

**WHY CONSIDER THIS CORRIDOR FOR BRT?** Demonstrated by steady gains in ridership over the past two years, the current Route 2 is also a candidate for an upgrade to BRT, as depicted in the agency's Destination 2040 Long Range Plan. The east-west segment from downtown Tacoma to Tacoma Community College is being considered as a higher capacity transit corridor in anticipation of the Tacoma Link Light Rail extension project opening in 2039. Pierce Transit believes that offering a rubber-tired rapid transit alternative in the 2030s could help stimulate mixed use economic development in a corridor the City of Tacoma has identified as a high priority. This could, in turn, help to increase the required transit demand for the planned westerly streetcar extension from the Hilltop District to succeed.

Another area being considered for BRT is the current north-south segment of the Route 2 corridor from Tacoma Community College to the Lakewood Towne Center via University Place; connecting two Regional Growth Centers. However, Bridgeport Way W has recently been completed and does not offer the additional ROW required for a dedicated bus lane. Instead, this corridor could benefit from more frequent service using articulated coaches operating in mixed traffic, perhaps as a limited stop overlay service to complement the existing Route 2. In order to better guide this decision, a High Capacity Transit Feasibility Study is recommended to determine the most effective alternatives for both S. 19th Street and Bridgeport Way W at the lowest capital costs.

## 4 South Meridian/State Route 161 Corridor

**LOCATION:** 176th Street E (vicinity of Pierce County Airport – Thun Field) to downtown Puyallup and Sounder (commuter rail) Station – Current Route 402. This fourth BRT route would serve the South Hill Mall Transit Center too.

- Total Fixed Route Boardings (2017) and Systemwide Rank: 329,437 (#7)
- Includes no Census Tracts designated as Opportunity Zones
- Proposed BRT Route Length: 8.0 miles
- Estimated Construction Cost per Mile: \$13.5 million (Assumes a 2.5% annual inflation rate)

- Projected Number of Additional 60-foot Articulated Vehicles Needed: 12
- Planned Opening for Revenue Service: 2030

**WHY CONSIDER THIS CORRIDOR FOR BRT?** The project's genesis was the Meridian Corridor Bus Rapid Transit Area (EZRA) Engineering Study, initiated by the City of Puyallup in 2009. As with other BRT proposals, the initial goals and objectives were to reduce traffic congestion by shifting SOV trips to high capacity transit trips, especially since fixed route ridership in this high-density urban corridor is growing. This proposed BRT corridor was added to the Regional Capacity Projects List, as adopted in the Regional Transportation Plan by the PSRC in May 2018. The corridor was also identified in the Puyallup Comprehensive Plan - Transportation Element as an integral part of the City's Transit Priority Network, where transit stop amenities and pedestrian access improvements are recommended. Once constructed, the BRT route will connect two Regional Growth Centers (Puyallup Downtown and Puyallup South).

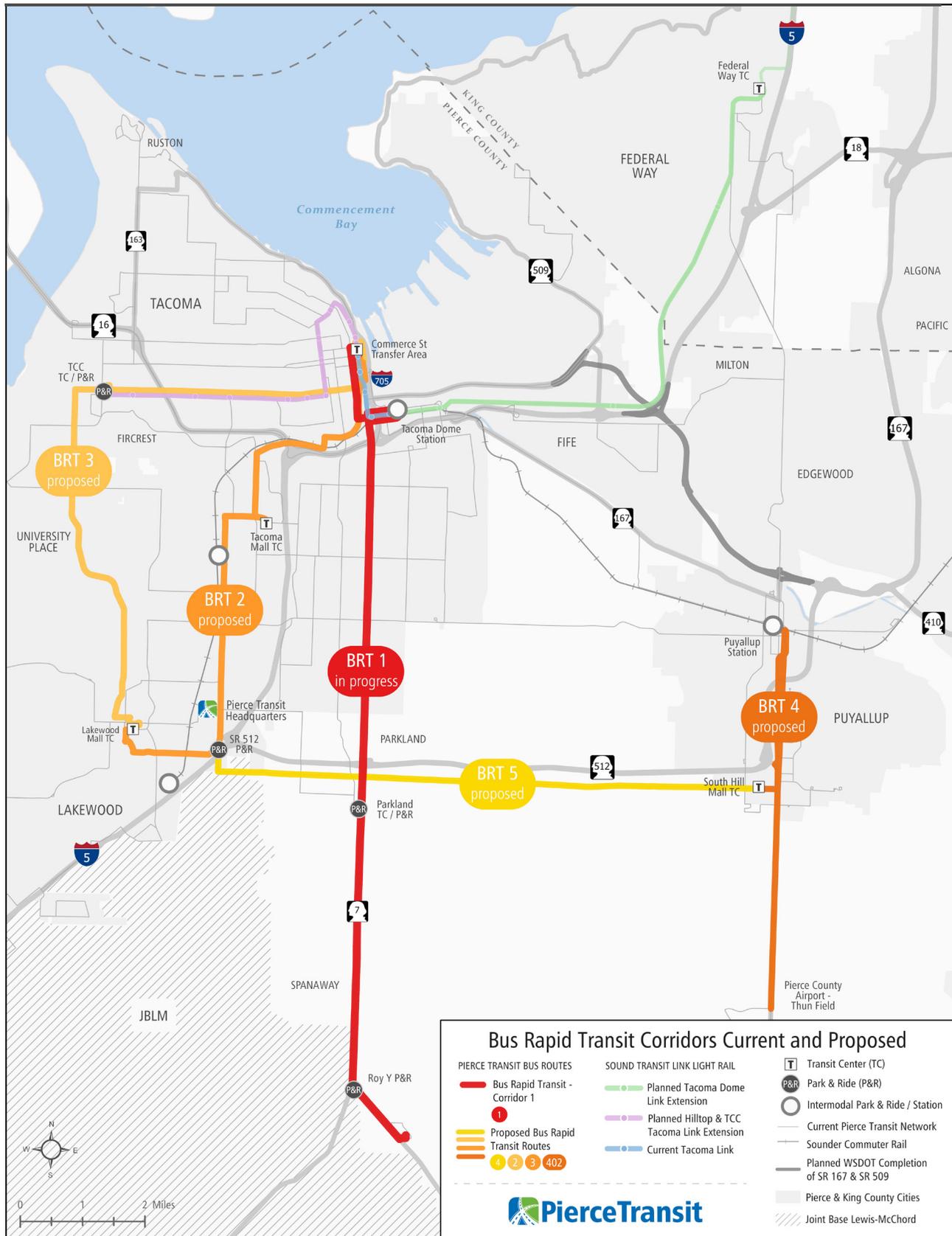
## 5 Lakewood to South Hill

**LOCATION:** SR 512 Park-and-Ride (Lakewood) to South Hill Mall Transit Center (Puyallup) - Current Route 4 with different termini.

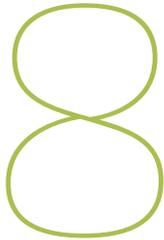
- Total Fixed Route Boardings (2018) and Systemwide Rank: 400,402 (#4)
- Includes no Census Tracts designated as Opportunity Zones
- Proposed BRT Route Length: 11.0 miles
- Estimated Construction Cost per Mile: \$14.5 million (Assumes a 2.5% annual inflation rate)
- Projected Number of Additional 60-foot Articulated Vehicles Needed: 17
- Planned Opening for Revenue Service: 2030

**WHY CONSIDER THIS CORRIDOR FOR BRT?** The Route 4 went into service in June 2015 when the Routes 204 and 410 were combined into one. Since that time, Route 4 continues to be one of Pierce Transit's most productive. The proposed project, once constructed, would finalize the agency's vision of upgrading all four trunk routes to Bus Rapid Transit within the next 10 to 15 years. However, since this BRT corridor as proposed is not shown in the Regional Capacity Projects List, as adopted in the Regional Transportation Plan by the PSRC in 2018, it would need to be added once the Transportation 2050 call for projects begins in 2021-2022. Once constructed, the BRT route will connect two Regional Growth Centers (Lakewood and Puyallup South Hill).

Figure 7-4: Bus Rapid Transit Corridors—Current and Proposed







# Closing Statement:

## **NEXT STEPS THROUGH 2040**

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Pierce Transit, Pierce County and Washington state are uniquely situated as they enter a new decade. The county is rapidly growing as new residents to the Central Puget Sound area are finding housing prices prohibitively expensive in Seattle and Bellevue, along with cities to the east, west, and north. Mixed use infill development projects and new businesses are springing up throughout Pierce County, many of which are in neighborhoods already served by local and regional transit providers such as Sound Transit, Intercity Transit, and the Washington State Ferries. The next phase of this movement is toward land use patterns that are more conducive to walking, bicycling, and transit than the post-World War II automobile-oriented “drive everywhere” pattern still prevalent throughout the county. Transit works best when it operates in cities that proactively and aggressively support it, along with a built environment that creates the density and demand for transit to thrive.

Population and employment projections for the Pierce Transit service area and central Puget Sound support the necessity for fast and reliable regional transit. Today, we experience heavy traffic congestion day and night on Pierce County’s avenues and Washington’s interstate highways—traffic used to be limited to weekday peak commute times. Ask anyone who has lived in Pierce County more than a few years, and they will agree that traffic congestion continues to increase as more people move into the area. So, is transit the solution? Yes, though not in its current form.

This Long Range Plan Update offers excitement as Pierce Transit celebrates its 40th birthday. The Update introduces a method for improving and expanding the transit system within a few years, in order to meet latent demand and to grow ridership. Bus transit is the most common mass transit mode worldwide because implementation is nimble and operation is economical. Yet it must be fast, dependable, and safe to compete with real-time, on demand, door-to-door service offered by automobiles and trucks.



As Pierce Transit designs its inaugural Bus Rapid Transit corridor project, it must embrace new tools and technologies that enhance the ridership experience, and that prove to its customers and the communities it serves that it is a viable transportation option well into the mid-21st Century. The foundation has been built. The expectation is that our local and regional elected officials and our customers will support this Update and its vision for a systemwide network that connects Pierce County to Sound Transit's regional rail and express bus networks. The Update envisions a world class bus transit system Pierce County residents can support, regularly use, and be proud of.

Perhaps nothing is of greater concern to citizens of western Washington than immediately reducing carbon emissions and avoiding a worldwide climate catastrophe. As scientists continuously warn us, we have only until 2030 of limiting global warming to 1.5° Celsius (about 2.7° Fahrenheit). Beyond that, all living things on Earth will suffer and our quality of life and expectancy will sharply decline. It is widely agreed that transportation emissions are the main, human-induced global warming factor. According to the Union of Concerned Scientists, in total, the US transportation sector – which includes cars, truck airplanes, trains ships, and freight – produces nearly 30% of all US global warming emissions, more than almost any other sector. And this brings transit back to the forefront as one solution. Just as Pierce Transit was forward thinking when it began converting its fixed route bus fleet to run on compressed natural gas back in 1986, improving and expanding the entire fixed route system, along with introducing microtransit and short first mile/last mile options, could bring additional benefits to the natural world as vehicle trips continually shift to transit trips, along with more walking and bicycling in the transit-rich and pedestrian-oriented communities planned throughout Tacoma and Pierce County.

Many of the communities served by Pierce Transit are wonderful places to call home. Yet in these times of financial challenges and rapid change, to remain passive will be to fall behind. The solution to falling behind other communities in Seattle and throughout King County, in terms of equity, value, and rewarding employment and education opportunities, is a substantial investment in mobility. This will provide even greater access to all the culture has to offer, and true connectedness to the central Puget Sound, the magnificent Pacific Northwest, the State of Washington, and the world.