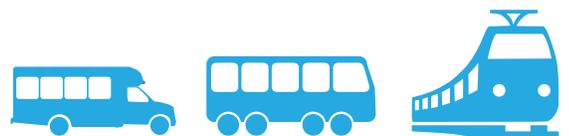


Oregon Public Transportation Plan

Interim Products Informing OPTP Development

Volume 2



The Oregon Public Transportation Plan and supporting materials can be found on the project website:
<https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx>

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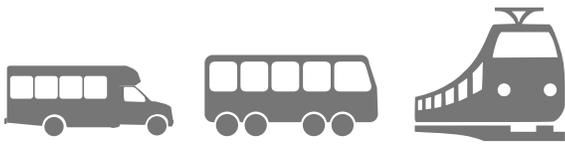
A copy of the final draft plan, as adopted by the Oregon Transportation Commission, is on file at the Oregon Department of Transportation.

Editorial changes for consistency and formatting have been made in this document.

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This plan was funded, in part, by the Federal Highway and Federal Transit Administrations, U.S. Department of Transportation.



Interim Products Informing Oregon Public Transportation Plan Development

Volume 2 of the 2018 Oregon Transportation Plan (OTTP) contains contributing research, documents, and studies that informed development of the OTTP. These background papers and technical documents were developed using the best information and sources available at the time of their creation. Information from these papers and documents may be used in whole or in part in the OTTP text, and the information used in the plan text may have been augmented or updated before inclusion.

This volume is published online separately from the OTTP. See ODOT’s Statewide Policy Plans webpage at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx> for the OTTP document, this Volume 2, and related information.

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Appendix 1
Oregon Public Transportation Plan
Existing Conditions Report



Existing Conditions Report

Oregon Public Transportation Plan

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- C Detailed Public Transportation Funding Information
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1 Introduction

1.1 Purpose of Existing Conditions Report

This report provides an overview of the public transportation system in Oregon. It is an introduction to the subject matter and a reference document to help inform the conversation around public transportation in the development of the Oregon Public Transportation Plan (OPTP). The wide array of existing public transportation services and providers (both public and private sector) in Oregon reflects the variety and uniqueness of communities across the state. From large urban providers to small county and rural community providers, and from demand response door-to-door service to airport shuttles, taxis, and commuter rail, the spectrum of services provided by many public transportation providers in all 36 counties work to serve the diverse communities of Oregon.

The OPTP will include policies and strategies that influence the work of the state and the Oregon Department of Transportation (ODOT), frame and impact the development of local plans, and influence the decisions of transit agencies, other state agencies, and regional and local governments. This review of the current state of public transportation in Oregon provides high level details related to public transportation services, providers and users of public transportation, and how public transportation is implemented today.

This information helps illustrate the trends, opportunities, and challenges affecting public transportation across the state. It is also foundational to the development of new policies and strategies supporting public transportation in Oregon.

This Existing Conditions Report is organized into the following sections:

- **Section 1, Introduction:** describes the purpose of this report and key findings.
- **Section 2, Public Transportation in Oregon:** describes the public transportation services offered in the state, existing riders of public transportation, and demographic trends affecting public transportation service and ridership in the state.
- **Section 3, Public Transportation Providers and Ridership:** provides information about the variety of public transportation providers in the state, including general characteristics of providers and descriptions of issues and challenges.
- **Section 4, Delivering Public Transportation Service:** reviews the roles of government and providers in delivering service, describes the different ways in which providers are organized, and examines public transportation funding and challenges.

Public transportation providers in Oregon are a diverse group:

- *Mass Transit Districts*
- *Transportation/Transit Districts*
- *Counties*
- *Cities*
- *Tribes*
- *Councils of Government*
- *Nonprofits*
- *Private firms (for example, Greyhound)*



1.2 What is Public Transportation?

Public transportation, in the broadest sense, can include many forms of transportation—from traditional buses, taxis, carpooling, and university shuttles, to passenger rail, demand response van service, and aerial trams. To focus the scope of the OPTP and the policies and strategies it will contain, this report primarily covers a network of services provided by public agencies, such as cities, counties, mass transit districts [Tri-County Metropolitan Transportation District of Oregon, (TriMet), and Lane Transit District (LTD)], for example, and others and private sector entities such as intercity transport contractors. This report discusses public transportation modes, including light rail, passenger rail, street car, bus rapid transit (BRT), conventional fixed route, and demand response service. The report addresses other services, like taxis, transportation network companies (such as Uber or Lyft), carsharing, carpooling, vanpooling, and others as they relate to public services, but they are not a focus of this report.

Public transportation in urban and rural areas in Oregon takes many forms, including:

- *Fixed route bus services*
- *Bus rapid transit*
- *Light rail*
- *Streetcar*
- *Demand response services*
- *Intercity rail and bus*

1.3 Key Findings

This report and its appendices cover a wide variety of topics. The information is useful to help understand and focus on opportunities or challenges that can be converted to potential actions. Key findings related to public transportation in the state include:

- **Oregon’s population is growing rapidly.** Oregon’s population has increased by about 1 million residents since the last OPTP was adopted in 1997. Population growth is increasing travel needs across all modes of transportation. Demographic changes are likely to affect public transportation in the future, with the baby boomer population aging and millennials now reaching adulthood; travel preferences and needs are likely to change as a result.
- **The Willamette Valley, Rogue Valley, Bend area and Columbia, Umatilla and Morrow Counties are growing most rapidly.** Other areas of the state are mixed, with some counties growing and others, mostly in Eastern Oregon, showing little population change. Increased urbanization in the rapidly growing areas is likely to create greater need for public transportation, while meeting rural transportation needs will continue to be a challenge, especially in sparsely populated areas.
- **More people are traveling via public transportation.** Public transportation trips in Oregon increased by over 90 percent since 1990. As a result, more Oregonians are using public transportation to meet a greater share of their travel needs.
- **Public transportation service, on average, has become more efficient.** Since 1990, total trips on public transportation have increased by about 90 percent, but the amount of service



provided has increased by only about half. Public transportation is now moving a greater number of people at a lower cost per passenger as a result.

- **Many households use public transportation.** Statewide survey data reveal that 20 percent of Oregon households have individuals who use public transportation at least once per week.¹ People who are older, students, youth, economically disadvantaged, minority, or living in urban areas are more likely to use transit than the general population. These ridership factors have implications for maintaining and improving service in all areas of Oregon.
- **Oregonians support public transportation.** Statewide survey data reveal that Oregonians strongly support having public transportation services within and between Oregon’s communities.² This support has positive implications for providers and local governments seeking to maintain existing service or expand service.
- **The types of public transportation services vary widely across the state.** The Portland metropolitan region has the highest concentration of public transportation, with relatively frequent levels of service and multiple modes available to a large portion of the community. Areas such as Eugene-Springfield or Salem-Keizer also have relatively high concentrations of public transportation available for certain areas. Rural areas in the state, where population is more dispersed and longer trips required, typically have the fewest public transportation options and less frequent service.
- **Public transportation funding is not always predictable.** Local providers vary widely in their organizational structure and rely on different funding sources to meet their operational and capital needs; operational funds are more limited than capital funding although the availability of funding overall is a concern. Some providers can generate their own tax revenue, while others are almost completely dependent on state and federal funds. Agencies that lack taxing authority or other secure local funding often find it difficult to plan for larger projects and increase operations, and may find it difficult to even find sufficient local funding match. This variation in funding leads to an uncertain future for funds available and requires staff time to develop grant applications for discretionary grants and efforts to raise local taxes or implement new ones.

¹ The Transportation Needs and Issues Survey is conducted approximately every 2 years to assess Oregonians’ perceptions of the transportation system, understand how the systems is used, and identify transportation-related concerns. The most recent surveys have been conducted via web and mail survey modes to over 5,000 households.

² Ibid.



Of Oregon’s approximately 2,000 transit vehicles, more than half will need replacement to bring the fleet to a “state of good repair” by 2020.³ Aging vehicles cost more to maintain and may affect service reliability and comfort. However, funds to replace vehicles may not be available when needed.

- **Roadway congestion is an operational concern for urban public transportation providers.** Most transit vehicles operate in mixed traffic with cars and trucks, making them subject to delay and reliability problems due to urban congestion. This delay is costly, both in time and money, for providers, customers, and other roadway users.
- **Providers are challenged to provide service in less densely populated areas with longer distances between origins and destinations.** Land use patterns, even in the largest cities, result in suburbs and outlying areas that are difficult to serve. In rural areas, this issue is compounded by constrained funding for public transportation, limiting the reach and quantity of service available.
- **Rising housing prices in some areas are causing people to move to find affordable housing, frequently to suburban or rural areas.** It is frequently more difficult to provide adequate services to suburban areas as the land use patterns are more disparate. In rural areas, disbursed housing in lower cost communities increases the challenge to provide daily commute trips.
- **The capacity of agencies to plan for the future and respond to changing public transportation needs is compromised by the need to manage the multiple demands and daily needs of providing service.** This affects many aspects of public transportation service provision including administration, planning for future services, and training. Smaller providers cited the ability to retain trained staff and access training for new staff as a significant concern.
- **Technology is changing how people travel and how public transportation operates.** Developing transit technologies, like “efare,” smart phone applications, traveler information, and operations improvements such as transit signal priority, represent major opportunities to improve the rider experience and improve services across the state.
- **There is increasing interest in developing and enhancing connections between public transportation options and services.** Intercity transportation connections are available via intercity bus and passenger rail for some areas of the state. These services can be improved through increased service coordination among intercity and local providers, and by improved coordination between local public transit services to improve connections within and between cities.

³ FTA is proposing to define state of good repair as “the condition in which an asset is able to operate at a full level of performance.” Source: FTA <https://www.transit.dot.gov/about/news/federal-transit-administration-issues-proposed-rule-transit-agencies-achieve-state-good>.



2 Public Transportation in Oregon

Public transportation is an essential component of Oregon’s overall transportation system. It provides mobility and accessibility for urban and rural residents and connectivity among places and people. In Oregon, public transportation meets the daily travel needs of thousands of residents. People in Oregon use public transportation to get to work, play, school, medical services, worship, shopping, and other places. Over 80 agencies receive grants from ODOT to serve communities in every county in the state. Different public transportation modes function better in different circumstances, and thus a wide variety of vehicles and service types are offered throughout Oregon. Nineteen transit agencies provide fixed route services; the remainder operate demand- response and commuter bus services. In addition to the grant-funded agencies, there are numerous private and nonprofit entities that provide transportation services to the public such as airport shuttles and taxis and nonprofit agencies like senior centers, churches, and social service agencies. This section describes types of public transportation services offered in the state, as well as ridership and demographic trends affecting public transportation service and ridership. Understanding the wide variety of public transportation services, ridership characteristics, and key demographic trends helps identify opportunities or challenges that can be addressed through the OTP. While the section includes examples, it does not provide a comprehensive review of every service in the state.

Public transportation provides mobility, accessibility, and connectivity for Oregon’s communities. These related terms are important to understanding the purpose of public transportation.

Mobility—ability to travel between destinations

Accessibility—ability to reach a wide variety of destinations

Connectivity—presence of useful, integrated transportation links that allow people to move between destinations

Note: There are many tools that will allow one to explore public transportation services and routes in the state. Map applications such as those from Google and Apple show many transit routes; ODOT’s TripCheck also has some transit information.⁴ ODOT hosts an online map application that allows for exploration of transit routes and stops with other transportation information, called TransGIS.⁵ (At the site, select Public Transit layers on the left and zoom in to see stops and routes from many Oregon providers.) A related tool is being developed by ODOT and Oregon State University, called the Transit Network Analysis tool.⁶ The Transit Network Analysis tool combines transit information with census data to help consider impacts of service.

Most information for all these applications comes from general transit feed specification (GTFS) data. GTFS is a national data standard that Oregon’s TriMet and others helped develop; it includes

⁴ ODOT’s Tripcheck tool is available at <https://www.tripcheck.com/>.

⁵ ODOT’s TransGIS tool is available at <https://gis.odot.state.or.us/transgis/>.

⁶ TNA tool is available at <https://oregon.tnext.io/?n=--&dbindex=12>.



route, schedule, and stop information for fixed route transit providers. This enables public agencies and private companies to share this basic data and enable access to developers of map applications. In Figure 2-1 below, TransGIS shows stops and routes for Eastern Oregon Public Oregon Intercity Transit (POINT) services, with parts of the Cascades and Southwest routes also shown.

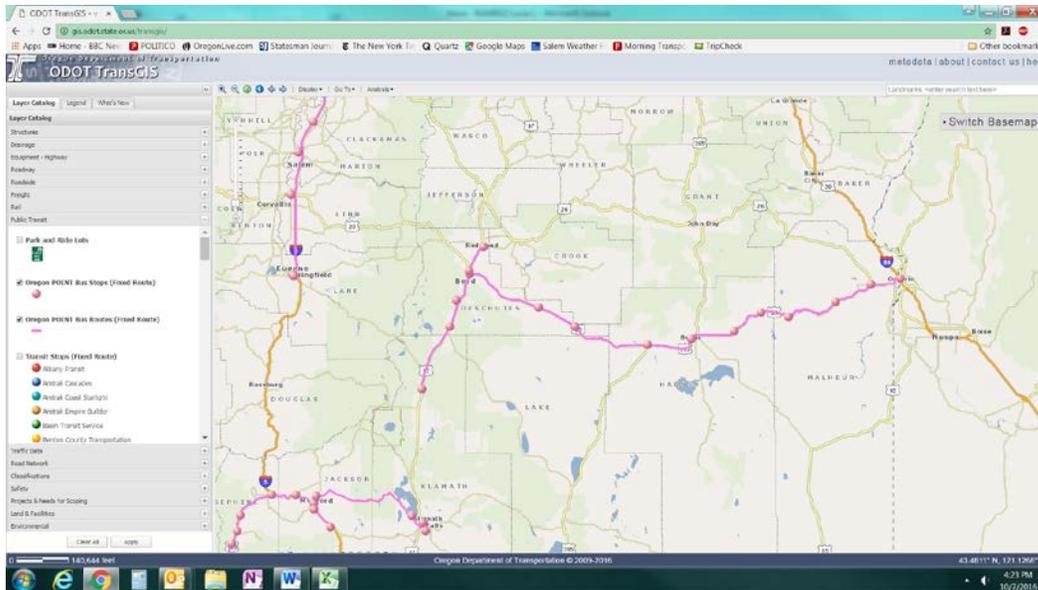


Figure 2-1. Eastern Oregon POINT Services

2.1 Public Transportation Services

For the context of a statewide plan, it is important to understand the breadth of public transportation services available to Oregon’s communities to ensure that future policy decisions represent the spectrum of modes and users. Oregon has fourteen public transportation districts in addition to city, county, nonprofit, and tribal public transportation service providers. The Oregon Department of Transportation does not directly provide public transportation services; however, it contracts to provide services like POINT bus service and Amtrak Cascades. The state also funds pupil transportation and transportation services provided to eligible individuals including non-emergency medical transportation; these are not the subject of this work.

The range and types of services offered statewide vary widely based on the needs of communities and constraints, such as community population, development patterns and funding. The Portland metro region has the greatest variety of services, while rural areas, (such as Gilliam County) tend to have shared ride, door-to-door, demand response service.

The following describes the major types of services offered in the state, identifies where and why they are offered, and reviews their major functions.





MAX light rail transit in Portland

2.1.1 Light Rail Transit

The Federal Transit Administration (FTA) defines light rail as an “electric railway with a light-volume traffic capacity as compared to heavy rail.”⁷ Light rail moves large numbers of people, often on exclusive guideways, allowing trains to have high-frequency service and avoid road congestion in highly urbanized areas. It is considered “high capacity transit” (HCT). Light rail operating costs are typically lower per passenger due to high numbers of riders and lower costs to operate vehicles. Because of the high capital costs associated with constructing light rail, it is typically only developed where there are large numbers of potential riders.

In Oregon, light rail is limited to the Portland metro region. The region’s first 15 mile light rail corridor—the Metropolitan Area Express (MAX) Blue Line—became operational in 1986. TriMet has since developed light rail throughout the region and is currently operating nearly 60 miles of light rail on five lines. Rail based transit services, because of their permanence and high service frequencies, are most suitable for high density, compact development and are strongly associated with “transit oriented development” (TOD), or mixed residential and commercial developments built adjacent to or near transit stations.

2.1.2 Commuter Rail

Commuter rail, which generally has higher per vehicle passenger capacity than light rail, is limited in Oregon to the Westside Express Service (WES), providing north-south service between Beaverton and Wilsonville. Commuter rail generally provides connections between central cities and suburbs, with service oriented toward commuting; WES operates in the mornings and the early evenings, but not the middle of the day.⁸ Amtrak Cascades, although designed to serve regional intercity travel, is also used by commuters in the Willamette Valley.

2.1.3 Streetcar

Streetcar is a rail transit mode that in Oregon usually operates on streets mixed in with traffic.⁹ While streetcars cannot deviate from the rails, the operator of the streetcar “drives” the streetcar along with vehicle traffic that may also operate in the same lane as the streetcar. Streetcar service typically operates in the densest parts of downtowns, on relatively short lines. Because streetcars

⁷ Federal Transit Administration. 2015. *National Transit Database Glossary: 2014 Reporting Year*. Available at <https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary>. U.S. Department of Transportation, Federal Transit Administration, Office of Budget and Policy. February.

⁸ Tri-County Metropolitan Transportation District of Oregon (TriMet). 2016. *WES Commuter Rail: Route Map and Stations*. Available at <https://trimet.org/wes/>.

⁹ Federal Transit Administration. 2015. *National Transit Database Glossary: 2014 Reporting Year*. Available at <https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary>. U.S. Department of Transportation, Federal Transit Administration, Office of Budget and Policy. February.



operate in mixed traffic, they can experience delay due to vehicle congestion. They are typically implemented in highly urbanized areas that have many trip origins and destinations in close proximity. Streetcar service in Oregon is only found in Portland. TriMet and the City of Portland, in conjunction with Portland Streetcar, Inc., a nonprofit corporation, run the streetcar, currently operating three routes.

2.1.4 Bus Rapid Transit

Bus Rapid Transit (BRT) is a bus mode “in which the majority of the line operates in separated right-of-way,” meaning it can avoid congestion on other roadways. BRT is considered HCT.¹⁰ The FTA typically requires that at least 50 percent of the BRT route is in its own dedicated guideway (and not mixed with vehicle traffic) to fund a project. BRT typically costs much less to implement than light rail. It is quicker than conventional bus service when operated in exclusive guideways, and provides the ability to move large numbers of people in urban areas. While light rail is a viable option in highly populated areas, BRT can be implemented effectively in medium-sized or lower density urban areas because of its lower costs and reduced barriers to implementation.

BRT is currently only offered in the Eugene-Springfield metro area, now accounting for about one quarter of LTD’s total ridership.¹¹ Currently, LTD operates 16 miles (round trip distance) of BRT and is constructing a 9.2 mile BRT extension that is scheduled to open in 2017.

2.1.5 Fixed Route Bus

Conventional fixed route buses run on set schedules and provide predictable service along specific travel routes. Fixed route bus service is offered in many communities throughout the state.



LTD was one of the first public transportation providers in the nation to develop a “true” BRT system, called EmX

¹⁰ Federal Transit Administration. 2015. *National Transit Database Glossary: 2014 Reporting Year*. Available at <https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary>. U.S. Department of Transportation, Federal Transit Administration, Office of Budget and Policy. February.

¹¹ Federal Transit Administration. 2015. *National Transit Database Glossary: 2014 Reporting Year*. Available at <https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary>. U.S. Department of Transportation, Federal Transit Administration, Office of Budget and Policy. February.



Fixed route bus services are diverse. Providers throughout the state offer varying number of routes and service frequencies depending on the community. Urban transit agencies, like TriMet, Cherriots (Salem Area Mass Transit District), and LTD offer multiple fixed route lines, many with frequent service (15 minutes or less depending on the time of day). Smaller agencies may operate one or a few fixed route lines. Woodburn Transit operates one fixed route line that serves most of the city with one-hour service frequencies. Another example, Basin Transit operates six fixed route lines (Figure 2-2) serving much of the City of Klamath Falls, including downtown and key community destinations.

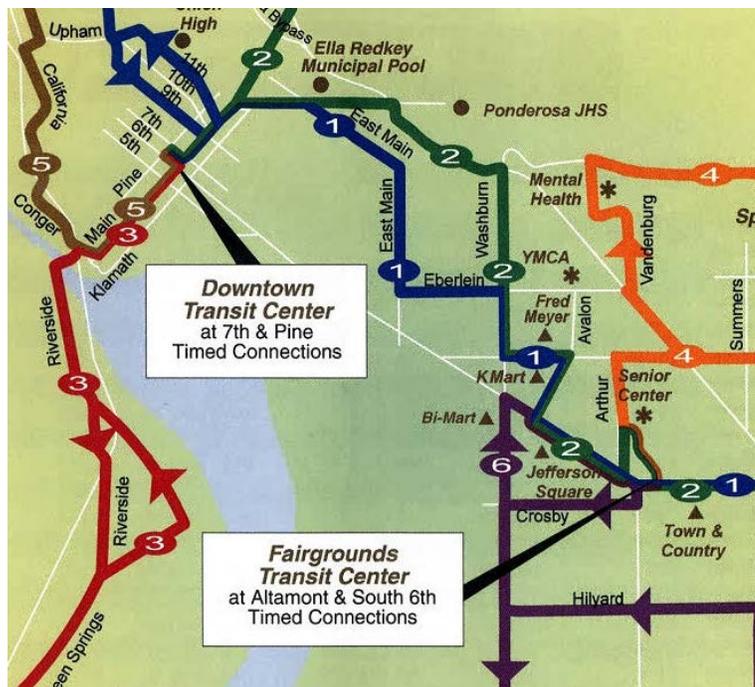


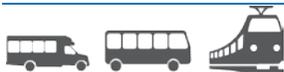
Figure 2-2. Basin Transit’s Fixed route System in Klamath Falls

Fixed route buses work well in communities with higher population densities, which have defined travel corridors with multiple origins or destinations along the route, as these conditions support higher ridership and cost-effective provision of service for the community. For this reason, fixed route service is less typical in very small communities or rural areas of Oregon because it is costly to provide where residents and destinations are dispersed. In addition, lack of adequate pedestrian infrastructure in many parts of both urban and rural Oregon, may be a physical barrier for people with disabilities and older adults that can limit their access to fixed route public transit bus stops. Thus, these riders may have to use demand responsive service, which have much higher operating costs than fixed route service.

2.1.6 Demand Response

Demand response is a type of public transportation service that provides shared ride, origin to destination, service. Typically, demand response picks up and drops off riders at or near the location of their choosing. Demand response does not follow a specific route but instead operates in a specific service area. A variety of vehicles may be used with this service, including passenger cars, vans, and small buses.

Demand response is designed to be flexible. Some agencies design their services to target the specific needs of people who are older and people with disabilities; others primarily serve the general public. Demand response service design includes “hybrids” that combine features from both fixed route and demand response. Some agencies provide deviated fixed route service on their regular routes which allows riders to request, through advanced reservations, minor route



variation for pick up or drop off (see Case Study 1).¹² Demand response generally has a much higher cost per trip than fixed route buses or rail service because it generally has lower ridership. Demand response trips tend to cost from two to ten times more than regular fixed route service. In 2008, research determined that fixed route service in Oregon urban areas tended to be about \$3 per trip; in rural areas such service had a median cost of over \$8 per trip while the cost to provide demand response trips varied from \$11 to \$26 per trip.¹³

However, each transit service has conditions where it works best. Demand response in rural communities can be more cost-efficient than fixed route service. Rural areas have fewer riders than populous urban areas and riders' homes and destinations tend to be more dispersed. The flexibility of demand response service allows riders to be picked up and dropped off at or near their preferred location and agencies can use smaller, less costly vehicles to transport riders. There are three main types of demand response services operating in Oregon:

- **General public demand response**—This service is open to anyone within the service area. General public demand response is offered in urban and rural areas alike and may be the only public transportation available in some small and rural communities.
- **Paratransit**—This service is available to certain community members, such as veterans, people who are older, or people who have disabilities. These services are often provided by nonprofits or other community organizations, such as senior centers.
- **Complementary paratransit**—Providers that offer fixed route service must also provide a comparable level of demand response service, called complementary paratransit, to qualified individuals with disabilities who cannot use the fixed route system, per the Americans with Disabilities Act.¹⁴



Book a Trip

Book a trip in advance on your smartphone, tablet or computer at book.cherriots.org. You can also call 503-361-7551.



Wait at Intersection

Arrive at the intersection of your chosen Connector point by the start of your 10 minute pickup window. When we're on our way, we'll notify you via text, call or email (your choice).



Share Your Ride

Rides are shared with your neighbors in West Salem. Other riders will be picked up and dropped off along your route.

Case Study 1— Cherriots West Salem Connector combines elements of fixed route service and demand response, with the goal of providing a more cost-effective service. The West Salem Connector replaced fixed route service that had low ridership and was expensive. With the Connector, riders book their trip in advance, and then wait at one of several designated pick-up points in the service area. Riders can travel directly to their destination if it is within the Connector service area, or they can connect to Cherriots regular fixed route service to complete their trips.

¹² Cherriots (Salem-Keizer Transit) at <https://cherriots.org/en/>, accessed June 2016.

¹³ Dill and Neal, 2008. "Needs, Costs, and Funding Alternatives for Transportation Services for Older Adults and People with Disabilities in Urban and Rural Oregon" page XV. Accessed at <https://digital.osl.state.or.us/islandora/object/osl%3A23643/datastream/OBJ/view>.

¹⁴See: <https://www.transit.dot.gov/regulations-and-guidance/civil-rights-ada/part-37-transportation-services-individuals-disabilities>.



2.1.7 Intercity Public Transportation

Intercity transit includes bus and passenger rail systems that link towns, cities, metropolitan regions, and rural areas throughout the state. It connects Oregon travelers within the state, to other states, and to national and international transportation options. ODOT maintains a Key Performance Measure related to intercity passenger service that measures the percent of Oregon communities of 2,500 or more people with intercity bus or rail passenger service. The target for this measure is 95 percent as stated in the Oregon Transportation Plan; as of 2015, 94 percent of such communities had intercity passenger service. This percentage has held steady since about 2012.¹⁵ See the Long-Distance Transportation Network map on the next page for the various services that make up Oregon’s long-distance transportation network.

The federal definition of intercity public transportation is specific and not always intuitive: “regularly scheduled bus service for the general public that operates with limited stops over fixed routes connecting two or more urban areas not in close proximity, that has the capacity for transporting baggage carried by passengers, and that makes meaningful connections with scheduled intercity bus service to more distant points, if such service is available”.¹⁶ For example, the federal definition does not include commuter bus service. Therefore, while most riders would think of services like the Wilsonville-Salem route as intercity, it is a commuter service and does not meet the federal definition of intercity service. Consequences of this fact are that this service and others like it do not qualify for federal intercity program funding and must be funded through other program funds in competition with other local services. Likewise, since the definition refers to bus service, federal intercity program funds cannot be used for passenger rail services like Cascades.

2.1.7.1 Intercity Bus

Intercity bus providers comprise a mix of public and private entities working separately, or in partnership, to deliver transit services. Examples include POINT, Central Oregon Breeze, Amtrak, and Valley Retriever Buslines, as well as intercity transit provided by

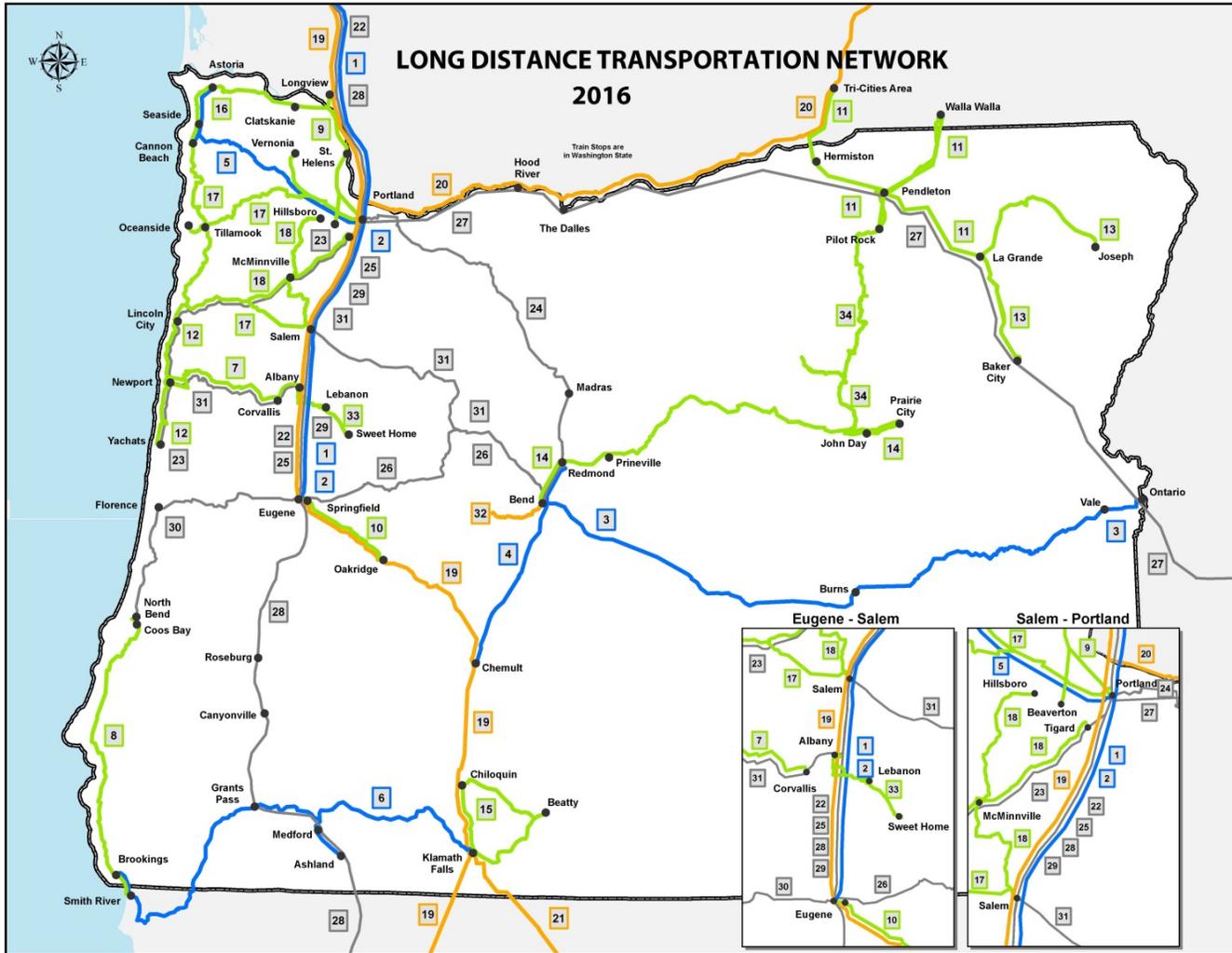


Case Study 2—SouthWest POINT is one of five intercity transit routes administered by ODOT. The POINT service is funded through federal dollars and service is intended to fill some of the intercity bus gaps between communities that exist across the state. Since federal deregulation in the early 1980s, private intercity bus carries, like Greyhound, have reduced the number of routes in Oregon and throughout the nation. SouthWest POINT helps to fill one of these intercity gaps, connecting Klamath Falls, Oregon, to Crescent City, California. Another key factor of the service is the connection to Amtrak in Klamath Falls. This service proves that intercity transit is not just important for interregional travel—it also supports the interstate travel needs of Oregonians.

¹⁵ ODOT Rail and Public Transit Division, “Intercity Passenger Service” August 2016.

¹⁶ FTA, 2014 from [FTA Circular 9040.1G, Chapter I\(4\)\(o\)](#).





- 1 AMTRAK CASCADES
Eugene -- Vancouver, BC
- 2 CASCADES POINT by MTR Western (Amtrak Thruway)
Eugene -- Portland
- 3 EASTERN POINT by TAC Transportation (Amtrak Thruway)
Bend -- Ontario
- 4 HIGHEDESERT POINT by TAC Transportation (Amtrak Thruway)
Chemult -- Redmond
- 5 NORTHWEST POINT by MTR Western (Amtrak Thruway)
Astoria -- Portland
- 6 SOUTHWEST POINT by Klamath Shuttle (Amtrak Thruway)
Klamath Falls -- Brookings
- 7 COAST TO VALLEY EXPRESS by Benton County
Corvallis -- Newport
- 8 COASTAL EXPRESS by Curry Public Transit
Smith River, CA -- North Bend
- 9 COLUMBIA COUNTY RIDER (CC RIDER) by Columbia County
Hillsboro -- Clatskanie and Longview, WA,
Vernonia -- Beaverton, St. Helens -- Portland
- 10 DIAMOND EXPRESS by Lane Transit District
Oakridge -- Eugene/Springfield
- 11 KAYAK PUBLIC TRANSIT
by Confederated Tribes of the Umatilla Indian Reservation
Pilot Rock -- Walla Walla, Pendleton -- La Grande,
Hermiston -- Tri-Cities, WA
- 12 LINCOLN COUNTY TRANSIT
Rose Lodge -- Yachats, Newport -- Siletz
- 13 NORTHEAST OREGON PUBLIC TRANSIT
by Community Connection of Northeast Oregon, Inc.
La Grande -- Baker City, Union, Joseph
- 14 PEOPLE MOVER by Grant County Transportation District
Prairie City -- Bend
- 15 QUAL TRAIL PUBLIC TRANSIT by Klamath Tribes
Chiloquin -- Klamath Falls -- Beatty
- 16 SUNSET EMPIRE TRANSPORTATION DISTRICT (SETD) by
Clatsop County
Manzanita -- Longview/Kelso, WA
- 17 THE WAVE by Tillamook County Transportation District
Cannon Beach -- Lincoln City -- Salem Amtrak Station,
Tillamook -- Oceanside and Portland
- 18 YAMHILL COUNTY TRANSIT AREA (YCTA) by Yamhill County
Grande Ronde -- Tigard Transit Center
Salem -- Hillsboro Transit Center
- 19 AMTRAK COAST STARLIGHT
Los Angeles -- Seattle
- 20 AMTRAK EMPIRE BUILDER
Portland -- Chicago
- 21 SAGE STAGE by Modoc Transportation Agency
Klamath Falls -- Alturas, CA -- Redding, CA and Reno, NV
- 22 BOLTBUS by Greyhound Lines
Eugene -- Seattle
- 23 CARAVAN AIRPORT TRANSPORTATION by VIP Airporter
Yachats -- Portland Int'l Airport
- 24 CENTRAL OREGON BREEZE by CAC Transportation, Inc.
Portland -- Bend
- 25 CITY 2 CITY SHUTTLE
Eugene -- Portland Int'l Airport
- 26 EUGENE TO BEND by TAC Transportation (Amtrak Thruway)
Eugene -- Bend
- 27 GREYHOUND LINES (Amtrak Thruway)
Portland -- Salt Lake City
- 28 GREYHOUND LINES
Sacramento -- Seattle
- 29 HUT AIRPORT SHUTTLE
Eugene -- Portland International Airport
- 30 PORTER STAGE LINES by Porter Stage Lines Bus Service
(Amtrak Thruway)
Coos Bay -- Eugene
- 31 VALLEY RETRIEVER (Amtrak Thruway)
Newport -- Bend and Portland
- 32 Cascades East Transit
Bend -- Mountain Service
- 33 Linn Shuttle
Albany -- Lebanon -- Sweet Home
- 34 Grant County People Mover
John Day -- Pendleton -- Walla Walla



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- For Profit



local agencies, like the NW Connector. These providers typically operate fixed route services that link rural areas to urban destinations and major transportation hubs around the state. Private national providers include Greyhound and Bolt Bus. The large national bus carriers serve the larger communities along Interstates 5 (I-5) and 84 (I-84) and tend to have more riders; thus, these routes are more profitable for private companies.

The POINT service contracted and funded by ODOT provides intercity connections to other areas of the state that are no longer served by national bus carriers (see Case Study 2), helping to fill the gaps in the state’s intercity bus system.¹⁷ Most POINT services (except for Cascades) have one or two departures per day. Therefore, these services do help to connect people in rural towns with larger markets and with other public transportation connections. However, it is very basic service that does not always work for medical appointments, for example, and with long distances to cover and minimal staff, coordinating connections between routes and services can be challenging. In addition, while some may try to ride these services to access employment, these are long-distance routes and not intended for commuting.

2.1.7.2 Intercity Passenger Rail

Amtrak provides three intercity passenger rail routes in Oregon as part of the national rail system. The Cascades is an intercity service with multiple trips per day that runs north-south along the Eugene to Vancouver, B.C. corridor. Then there are two long distance Amtrak routes that serve Oregon: Coast Starlight runs north-south through California, Oregon (approximately parallel to Highways 97 and 35, and I-5 through the northern part of the state), and Washington State and links Los Angeles with Seattle; and the Empire Builder runs east-west and links Portland and Chicago (its only Oregon stop is Portland). Amtrak bears full responsibility for operation of the Empire Builder and the Coast Starlight, with costs covered by a combination of fare revenues and federal support. The Cascades route is designated a high-speed rail corridor, and the federal government classifies it as shorter corridor train service (less than 750 miles in length). In 2013, Section 209 of Passenger Rail Investment and Improvement Act of 2008 fully shifted financial responsibility for shorter routes, such as the Cascades,

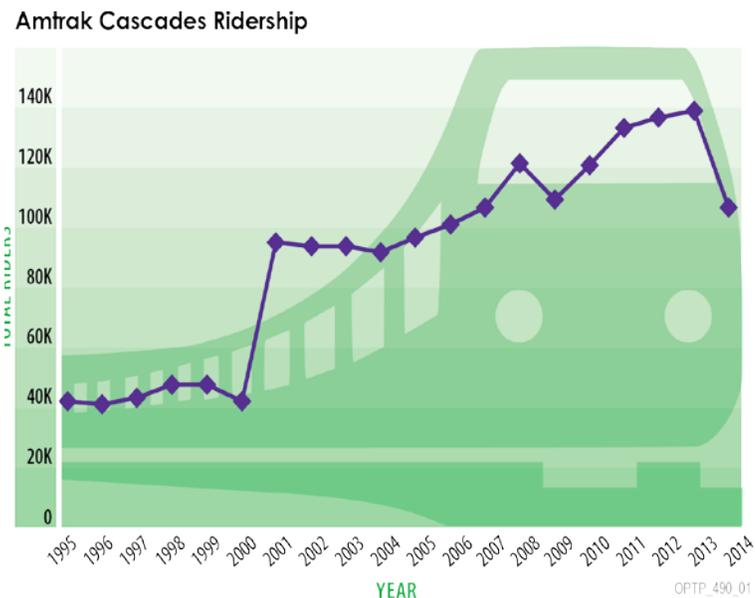


Figure 2-3. Amtrak Cascade Ridership

¹⁷ Oregon Department of Transportation at <https://oregon-point.com/southwest-point/>, accessed June 2016.



from the federal government to the states.¹⁸ It is now funded by the states of Washington and Oregon and by passenger fares. The Cascades service provides a critical link that serves the congested I-5 corridor. Figure 2-3 shows that while Cascade ridership generally grew throughout the 2000s, it has recently fallen due to lower gas prices, schedule changes, and service reliability issues (mainly stemming from shared rail tracks with freight trains which cause slower speeds in some segments of the track). Cascades ridership has recently improved again: January 2016 ridership is 6 percent higher than in January 2015 (10 percent higher in the Oregon segment).

Many Oregon public transportation providers are interested in improved connections between intercity and local transportation services as well as linking their local services with neighboring services to improve intercity regional transportation for riders.^{19, 20} For example, NW Connector is a consortium of five coastal and northwest Oregon transit agencies. Through collaboration, they coordinate transfers and offer a pass program (good on any of the five agencies' buses) to help make seamless transit connections between the Willamette Valley and coastal cities like Tillamook and Astoria.²¹ Improved coordination among local transit providers can improve intercity and regional connections for riders in all areas of the state.

2.2 Ridership and Service Trends

Though each mode is discussed separately above, it is important to note that these modes are all linked together, and with other transportation facilities, to function as a system. Safe, convenient, and well-connected pedestrian and bicycle facilities are integral to making public transportation work well for riders, in addition to park and rides and other facilities that ensure riders can easily and safely reach their transit station or stop. Other government-supported transportation services such as pupil transportation, non-emergency medical transportation, and transportation services offered by social service agencies are also part of a community's transportation system. It is important that public transportation providers and these agencies work together to coordinate services and resources, as feasible.

Ridership and service trends help show how Oregon transit usage and riders have changed over time. Based on analysis of data from the National Transit Database (NTD), use of public transportation in Oregon has increased steadily over the last 20 years.²² Most of the increase in ridership has occurred in urban areas, which account for 96 percent of all passenger trips statewide—urban transit passenger trips have increased 92 percent since 1990.

Information related to rural transit is more limited, although data indicate a 14 percent decrease in rural passenger trips for paratransit and fixed route bus trips combined between 2000 and 2013.

¹⁸See: <http://www.highspeed-rail.org/pages/priiasection209.aspx>.

¹⁹ Oregon Department of Transportation. 2015. *Oregon Public Transportation Plan Provider Survey*. October 2015.

²⁰ Oregon Public Transportation Association (OPTA). 2015. Oregon Public Transportation Plan Conference materials and feedback. Eugene, Oregon. October 15.

²¹ Connector Alliance. Undated. *North by Northwest Connector*. Available at <https://www.nworegontransit.org/>.

²² NTD is one of the most comprehensive available sources for information related to transit statistics, but rural NTD data are incomplete for the years 1990 and 2000 because of data gathering changes. Additionally, only those public transportation providers that receive federal funds are required to submit data to the NTD, meaning some services' statistics are not included in the database.



This decrease may be due to service cutbacks, changes in transportation preferences, or other factors.²³ Table 2-1 shows trip trends for major public transportation modes in urban areas.

Table 2-1. Unlinked Passenger Trips by Mode in Urban Areas

Mode	1990 (in millions)	2000 (in millions)	2013 (in millions)	Percent Change (1990 to 2013)
Light rail	6.4	24.4	39.2	513
Demand response	0.6	1.8	2.8	367
Bus rapid transit	--	--	2.7	--
Fixed route bus	57.7	77.2	76.2	32

Note: These counts represent the number of persons getting on and off transit vehicles. If a rider transferred buses to complete their trip, then this would be counted as two “unlinked” trips.

Source: Federal Transit Administration. 2013. National Transit Database. Available at <https://www.transit.dot.gov/ntd>.

Trips on fixed route service constitute the majority of trips on public transportation statewide. Fixed route bus service, as measured by revenue miles and revenue hours decreased slightly between 1990 and 2013, likely because of major investments in other public transportation services. In Portland and Eugene, some fixed route bus routes have been modified or replaced by high capacity transit such as light rail, streetcar, and BRT. Light rail trips have increased the most of any public transportation mode in the last two decades, growing by more than 500 percent between 1990 and 2013, largely because of major expansion to the Portland region’s light rail system. Since 1998, 44 miles of light rail have been added to the system.

Demand response service has also significantly increased since 1990. Complementary paratransit, which was required of agencies providing fixed route buses starting in the early 1990s, represents a significant share of this increase. Since 1990, total urban demand response trips have more than quadrupled to approximately three million trips per year.

Aerial tram and streetcar service, currently exclusive to Portland, together in 2013, provided more than 5.4 million trips. In 2013, the Portland Streetcar provided more than 3.8 million passenger trips and travelled more than 620,000 revenue miles.

According to available data, trips taken on public transportation have grown by more than 90 percent over the last 20 years, while revenue hours and revenue miles have grown by 54 percent and 36 percent, respectively.²⁴ During the same time period, Oregon’s population grew by about 40 percent,

Revenue miles are miles travelled by a public transportation vehicle when picking up and dropping off passengers

Revenue hours are the number of hours of service where public transportation vehicles are picking up and dropping off passengers

²³ Federal Transit Administration. 2013. National Transit Database. Available at <https://www.transit.dot.gov/ntd>.

²⁴ Ibid.



indicating more Oregonians are riding public transportation, and public transportation, overall, has become more efficient with more passengers per unit of service.

2.2.1 Riders

Many Oregonians choose public transportation to meet their travel needs, whether they ride the bus a few times per year or commute to work every day. Twenty percent of Oregon households have individuals who use transit at least once per week. Nearly 40 percent of households with an income of \$14,000 or less use public transportation weekly, while about 12 percent of those with an income greater than \$150,000 per year use public transportation weekly (Figure 2-4). These figures show that public transportation is an essential travel mode, regardless of income level. Importantly, public transportation provides a travel option for many; not everyone uses public transportation every day, but its presence in communities allows for choices for Oregonians. As an example, it is estimated that in 2013, 74 percent of adults in the Portland metro region rode TriMet at least once in the previous year.²⁵

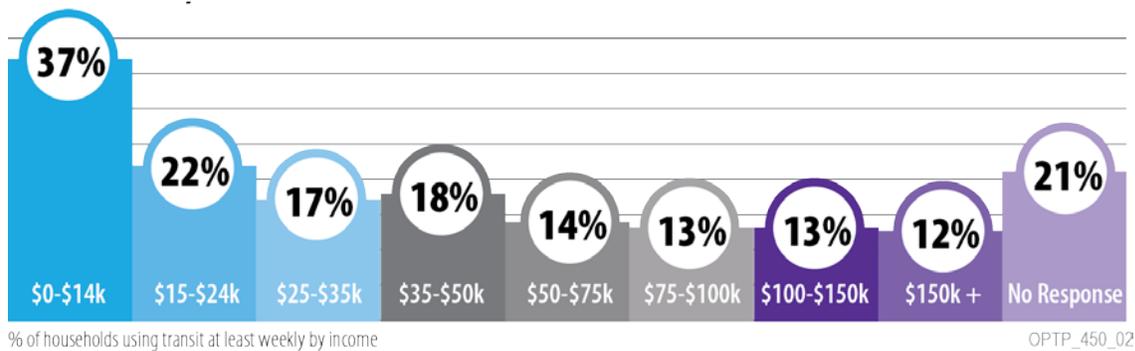


Figure 2-4. Income of Households Using Transit Weekly

Source: Oregon Department of Transportation (ODOT). 2012. *Oregon Travel and Activity Survey*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/OMIP.aspx>. Oregon Department of Transportation, Transportation Planning and Analysis Unit.

Some Oregonians use public transportation at greater rates than others:

- About 20 percent of adults over age 65 use transit regularly, compared to 5 percent of the population as a whole.
- About 30 percent of adults, who are students (age 25 to 44), use transit regularly.
- Minority individuals are also more likely to use public transportation. For example, African-American households represent 24 percent of all households that take public transportation weekly, but only about 2 percent of Oregon households.

²⁵ Tri-County Metropolitan Transportation District of Oregon (TriMet) and DMH Research, Inc. 2013. *Tri-County Metropolitan Transportation District of Oregon*. Available at <https://trimet.org/pdfs/publications/AA-2013-Board-Presentation.pdf>. November.



Oregonians make many trips by public transportation (see Case Study 3)—taking more than 120 million trips by the various transit modes in 2013—they also express support for public transportation services in their communities.²⁶ According to the ODOT 2013 *Oregon Transportation Needs and Issues Survey*, 85 percent of respondents indicated that having public transportation services within cities is important, 92 percent said that providing transportation services for people who are elderly and disadvantaged is important, and 80 percent stated that having bus services between cities is important.²⁷ A majority of Oregonians value public transportation service—whether they themselves use it every day, once a week, or not at all.



Photo: Clackamas County

Case Study 3—While public transportation is used by many to meet daily travel needs, visitors, tourists, and recreationalists are also using transit to get to the airport, head to the coast, or take their bikes up to the mountains. Mt. Hood Express (www.mthoodexpress.com) is one such service, helping to transport skiers and mountain-bikers to their destinations. The Mt. Hood Express features bicycle and ski trailers seasonally, while also serving the daily travel needs of communities along US 26 east of Sandy.

2.2.2 Demographic Trends Affecting Public Transportation Service and Ridership

Ridership on public transportation, as well as public transportation services, is influenced by a number of factors and trends. These trends are important to understand because they will affect Oregonians’ transportation choices and provision of transit service in the coming years, as well as help shape policy. This section reviews these major trends.

2.2.2.1 Population Growth in Urban and Rural Areas

Oregon has grown by about one million people since the last OPTP was adopted in 1997.²⁸ By 2040, the state’s population is forecast to increase by another 35 percent, resulting in a population of more than 5.2 million.²⁹ Most of this growth will be concentrated in the Willamette Valley, Bend and Medford areas, and Columbia, Umatilla, and Morrow Counties (Figure 2-5). Population growth is one of the most important factors affecting the need for all types of transportation, including public transportation. Census data show that population growth in Oregon’s urban areas, including

²⁶ Federal Transit Administration, 2013. *National Transit Database*. Available at <https://www.transit.dot.gov/ntd>.

²⁷ The Transportation Needs and Issues Survey is conducted approximately every 2 years to assess Oregonians’ perceptions of the transportation system, understand how the systems is used, and to identify transportation-related concerns. The most recent surveys have been conducted via web and mail survey modes to over 5,000 households.

Oregon Department of Transportation (ODOT). 2015. *FY 2015 Oregon Transportation Needs and Issues Survey: Summary of Statewide Results*. Final Report. PR-043. Available at https://www.oregon.gov/ODOT/Programs/ResearchDocuments/TNIS2015Final_v06.pdf. January.

²⁸ U.S. Census Bureau. 2013. *American Community Survey 5-Year Estimates, 2009 – 2013*.

²⁹ Oregon Office of Economic Analysis. 2015. *Demographic Forecast*. Available at <https://www.oregon.gov/das/OEA/Pages/forecastdemographic.aspx>. Oregon State Department of Administrative Services, Office of Economic Analysis.



the Portland, Corvallis, Bend, Eugene-Springfield, Medford, and Salem-Keizer metro areas outpaced growth in rural areas by more than 40 percent since 1990. Deschutes County, home to Bend, grew the most of any county since 1990, more than doubling in population to 157,000.³⁰

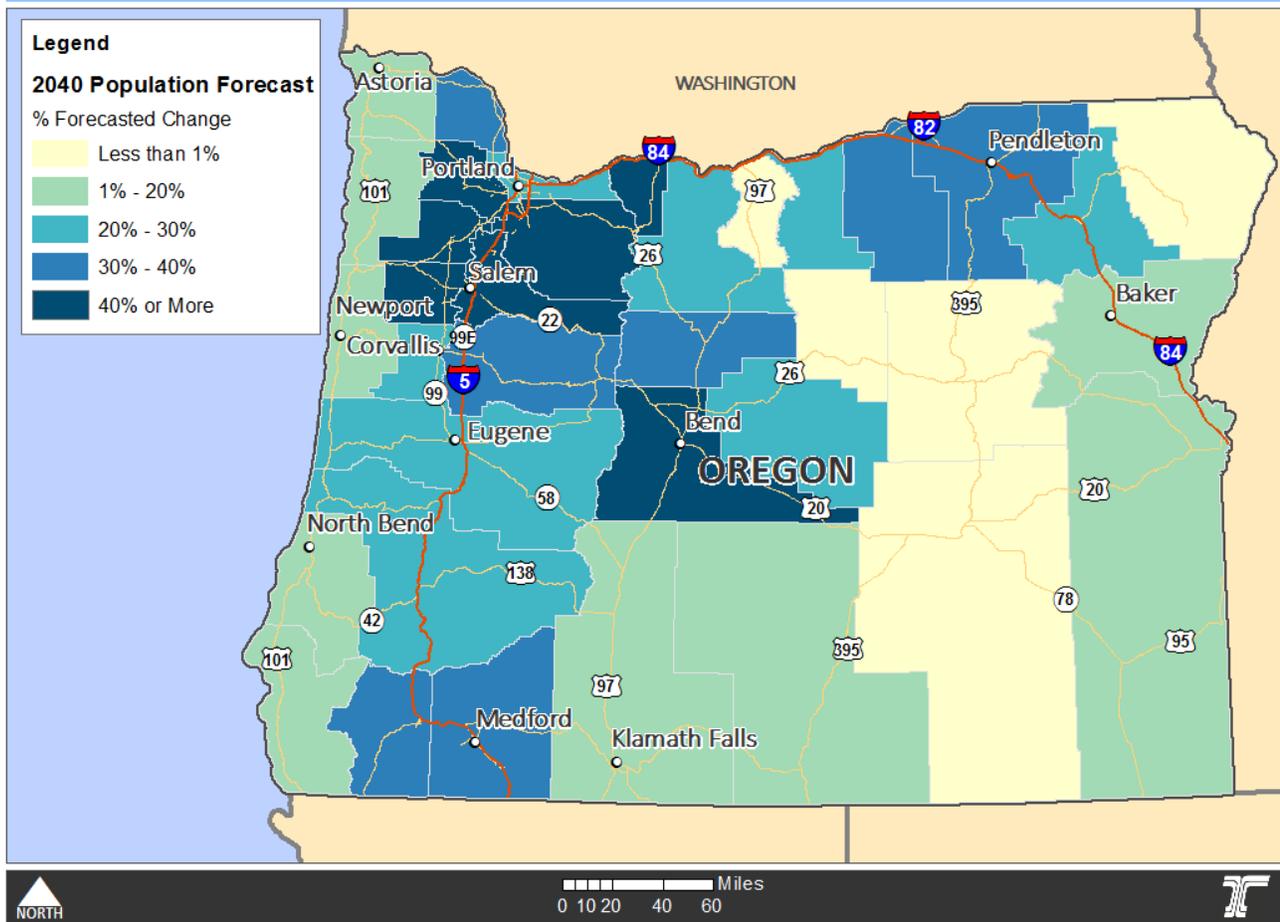


Figure 2-5. Population Forecast by County, 2013-2040

Source: U.S. Census Bureau. 2013. *American Community Survey 5-Year Estimates, 2009 – 2013*. Oregon Department of Administrative Services, Office of Economic Analysis.

As urban areas become more densely populated, the need for public transportation services is likely to increase—greater availability and frequency of service in urban areas, in addition to other factors like the cost of parking, can make it an attractive alternative to driving.³¹ While urban areas are anticipated to grow the most in terms of absolute population, most rural areas are also anticipated to grow, although at somewhat slower rates, and growth is anticipated to be in “urban clusters” within the rural areas; urban clusters are small cities and towns of 15,000 to 50,000 population.³² As in urban areas, rural population growth will increase the need for public

³⁰ U.S. Census Bureau. 2012. *Oregon 2010: Population and Housing Unit Counts*. 2010 Census of Population and Housing. Available at <https://www.census.gov/prod/cen2010/cph-2-39.pdf>. U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau. August.

³¹ Transportation Research Board. 2007. *Elements Needed to Create High Ridership Systems*. Transit Cooperative Research Program Report 111. Available at <https://www.trb.org/Publications/Blurbs/158910.aspx>. U.S. Department of Transportation, Federal Transit Administration, Transportation Research Board.

³² Transportation Research and Education Center, interim data for rural transit needs study (unpublished, 2016).



transportation services. According to survey data, rural riders use transit for the same reasons urban riders do—to get to work, shopping, or school, meaning public transportation services will be required to meet a variety of needs.³³

In addition, public transportation will continue to provide an essential transportation option and serve as a mobility lifeline for people who choose not to, or cannot, drive a car due to age, income, or disability; these Oregonians are disproportionately located in rural areas. For example, counties with fewer than 50,000 people make up just 10 percent of Oregon’s total population, but these same counties are home to thirteen percent of individuals with a physical disability that prevents them from driving, as well as 13 percent of the state’s 65-and-over population (Figure 2-6).³⁴ If these population growth trends in rural counties continue, it will likely increase the need for services for older Oregonians and people with disabilities.

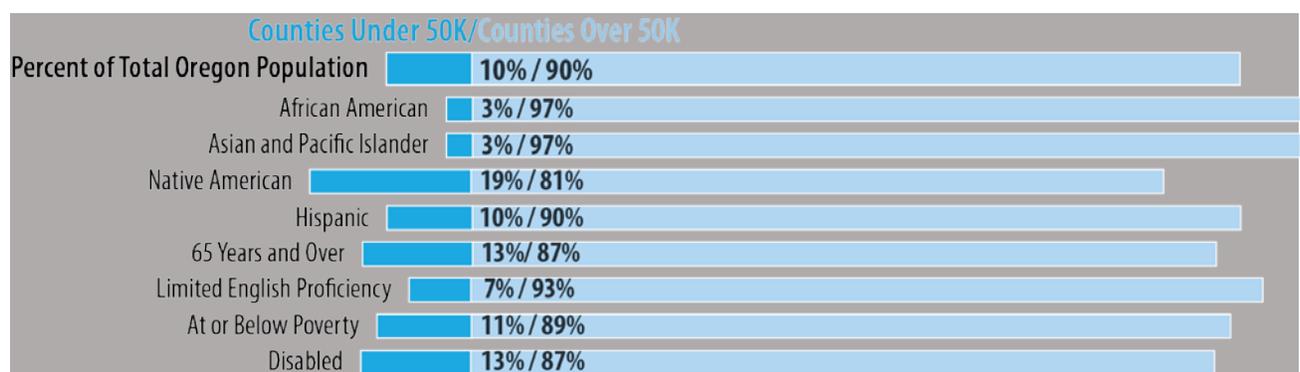


Figure 2-6. Share of Select Population Groups in Counties under 50,000 People versus Counties over 50,000 People

2.2.2.2 Shifting Travel Preferences

Nationally, millennials (individuals born between the early 1980s to the 2000s) appear to be multimodal, preferring to live in urban areas where transportation options are available. As the largest, single population group at 27 percent of the population, and with most now entering adulthood, the preferences of this generation may have an outsized influence on transportation into the future.³⁵ An American Public Transportation Association (APTA) survey of millennials in metro locations across the country, including Portland, showed that about 40 percent of millennials use public transit a few times a week or more, which is a higher rate than the general population.³⁶

Oregon’s aging population will also influence the need for public transportation and the types of services required. First, census data show that in 2014, 16 percent of Oregon’s population was

³³ Small Urban and Rural Transit Center. 2015. *Rural Transit Fact Book 2015*. Available at <https://www.surtc.org/transitfactbook/downloads/2015-rural-transit-fact-book.pdf>. Prepared by Jeremy Mattson, North Dakota State University, Upper Great Plains Transportation Institute, Small Urban and Rural Transit Center, Fargo, ND. June.

³⁴ Federal Highway Administration (FHWA). 2015. *Census Transportation Planning Package Profile 2015: Environmental Justice Profiles by County, 2009-2013 American Community Survey*. Available at https://www.fhwa.dot.gov/planning/census_issues/american_community_survey/. U.S. Department of Transportation, Federal Highway Administration, Office of Planning, Environmental, and Realty. Updated October 9.

³⁵ Oregon Office of Economic Analysis, 2015. “Population, demographics and Generations. Retrieved 2/1/2015. Accessed at <https://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/>.

³⁶ American Public Transportation Association (APTA). 2013. *Millennials & Mobility: Understanding the Millennial Mindset*. Available at https://www.apta.com/resources/reportsandpublications/Documents/TCRP_J11_Funding_Transit_Needs_of_Aging_Population.pdf. April.



65 years and older, with older adults set to represent a greater share of the population in years to come.³⁷ Second, older adults tend to use public transportation more frequently and many are also interested in “aging in place.” Older adults in Oregon are likely to live in rural areas (21 percent) compared to urban areas (14 percent) and many intend to stay in their homes as long as they are able.³⁸ Third, national census data show that 75 percent of baby boomers live in suburban or rural areas. These three conditions will likely lead to an increased need for demand response services and other public transportation services, often in suburban and rural areas, where it is more costly to provide public transportation. APTA concludes that transportation providers will need to expand paratransit and other general demand response services, modify system and vehicle design, and provide better information to older adults about transportation options to meet these needs.^{39,40}

2.2.2.3 Minority and Low-Income Populations

Low-income households, minorities, people with disabilities, and limited English proficiency (LEP) are groups that are more likely to use public transportation.⁴¹ The number of Oregonians who are racial or ethnic minorities is growing, likely resulting in increased use of public transportation if their rate of use remains similar to today.⁴² According to Census data, the number of minority residents has grown 35 percent between 1990 and 2013, with growth concentrated in the Portland metro area. In the 2014 Oregon Workforce Report, low wage work is defined as occupations that pay a median wage of \$12 per hour or \$25,000 annually or less.⁴³ The report also finds that over 400,000 Oregonians have low-wage work and workers outside the Portland metro area are more likely to work in low-wage jobs. At the same time, the Portland metro area’s population density means that it has the most transit services.

In addition, changes in housing prices and incomes also affect where low-wage and low-income households can live. As some Oregon cities or areas grow quickly, housing prices may also increase quickly, causing low wage workers to move to lower cost housing. This may mean that these workers are now farther from jobs and from the most thorough transit service in their area. For example, in Multnomah County, rising housing prices in Portland’s inner east side have caused low-income households to move to outer east Portland and to eastern suburbs. From 2000-2010 housing prices increased throughout Portland west of I-205 but stayed the same or declined east of the highway.⁴⁴ At the same time, in outer east Portland almost one quarter of residents are at or

³⁷ U.S. Census. <https://www.census.gov/quickfacts/fact/table/OR/PST045217>. Accessed 5/31/2015.

³⁸ DeGood, K. 2011, Aging in Place, Stuck without Options: Baby Boomer Generation. Accessed June 29, 2015.

³⁹ American Public Transportation Association (APTA). 2010. *Funding the Public Transportation Needs of an Aging Population*. Available at https://www.apta.com/resources/reportsandpublications/Documents/TCRP_J11_Funding_Transit_Needs_of_Aging_Population.pdf. March.

⁴⁰ Coughlin, J.F. 2009. “Longevity, Lifestyle, and Anticipating the New Demands of Aging on the Transportation System.” Available at <http://web.mit.edu/coughlin/Public/Publications/Coughlin,%20Longevity,%20Lifestyle%20&%20Future%20Transportation%20PWMP%20April%202009.pdf>. *Public Works and Policy* 13:4, pp. 301-311. April.

⁴¹ Lyons, W. Peckett, H., Moose, L. Khurana, M. & Nash, L. (October 12, 2012). Metropolitan Area Transportation Planning for Healthy communities. Retrieved June 29, 2015, from https://www.planning.dot.gov/documents/Volpe_FHWA_MPOHealth_12122012.pdf.

⁴² Office of Economic Analysis, State of Oregon. *Oregon’s Demographic Trends*. 2011, Accessed at <https://www.oregon.gov/das/OEA/Pages/forecastdemographic.aspx>.

⁴³ University of Oregon Labor Education and Research Center, 2014. “The High Cost of Low Wages in Oregon” page 4, accessed at <https://cpb-us-e1.wpmucdn.com/blogs.uoregon.edu/dist/a/13513/files/2017/03/High-Cost-of-Low-Wages-2014-2b332s0.pdf>.

⁴⁴ Multnomah County Department of County Human Services, 2014, “Poverty in Multnomah County” page 36, accessed at <https://multco.us/file/34343/download>.



below the federal poverty level whereas inner east Portland and north Portland have poverty rates of 17-18 percent.⁴⁵

While public transportation is provided for the benefit of all Oregonians, the propensity for individuals who are minorities or low-income to use public transportation at a greater rate is an important consideration for current and future service planning for all providers. At the same time the growth of these populations and their locations may add pressure to transit agencies to add or change services to address the growing need for transportation options.

⁴⁵ Ibid. Page 4.



3 Public Transportation Providers and Ridership

The public transportation system in Oregon is a complex network of services provided by a diverse group of providers from both the private and public sectors. Many transit agencies, local governments, nonprofits, and private sector providers such as Amtrak and Greyhound Bus provide public transportation services to the state's residents and visitors. Understanding the various types and nature of public transportation providers in the state can help illuminate similarities, differences, connections, and gaps in the provision of public transportation service. For the development of the OPTP it was decided to organize provider information into six categories as listed below based on the size of the community served. Not all providers fit precisely into one of these categories; some providers will be partially reflected in more than one category, but this general organization is useful in understanding how different providers deliver their service and what issues and challenges they face today.

- **Large urban providers**— serve areas with population of 200,000 or greater
- **Medium-sized urban area providers**—serve areas with population between 50,000 and 200,000
- **Small urban area providers**—serve areas with population between 10,000 and 50,000
- **Large county and regional system providers**—serve counties with population greater than 50,000 and public transportation systems that serve multiple counties
- **Small county and rural community providers**—serve counties with population under 50,000 and small communities with population less than 10,000
- **Statewide public transportation** – intercity bus and passenger rail serves statewide

Notable differences among these groups of providers are related to the population and form of the community they serve. The larger communities and urban providers offer the widest variety of services in the state, have implemented robust transit technologies, and must negotiate urban congestion and environments to deliver service. Small county providers face radically different circumstances. Many only have demand response service, sometimes operated by all-volunteer drivers that serve relatively few customers and requires travelling long distances to meet riders' travel needs. Intercity bus and passenger rail service connects the public transportation system across the state and links to areas outside the state. Larger providers typically implement a wide variety of transit technologies including vehicle-related, infrastructure-related, and computer based enhancements, while smaller providers use fewer technologies based on need and the lack of resources to implement them. Revenue sources widely differ, with some providers reliant on state and federal funds for more than half of their budgets, particularly in rural areas, larger providers relying more on fares and other local sources, while private resources are used for some intercity services.



3.1 Provider Categories

Understanding the general characteristics of each category (see Table 3-1) is important to understanding the issues and challenges faced by individual providers. Though each provider is unique, most have much in common with peer agencies serving similar communities and populations. The size of the public transportation provider (in terms of the number of people served or annual budget) and the size and form of the community served (metropolitan region, rural county, and others) strongly affects the types of services offered in each community and influences the challenges, issues, and opportunities that individual providers face.

3.1.1 Large Urban Transit Providers

Large urban transit providers serve areas of the state with urban area population greater than 200,000. Three providers in Oregon meet this definition: TriMet in the Portland metro area, Cherriots in the Salem-Keizer metro area, and Lane Transit District (LTD) in the Eugene-Springfield metro area. Together they provide about 95 percent of the transit trips in the state.⁴⁶ TriMet is the largest provider in the state, serving a population of about 1.5 million, while LTD and Cherriots each serve similar populations of about 350,000. The large urban providers also serve some rural areas and small communities beyond their urban service areas.

3.1.2 Medium-Sized Urban Providers

Within Oregon, there are three medium-sized urban providers serving communities of about 50,000 to 200,000 people: Rogue Valley Transportation District (RVT), Corvallis Transit System (CTS), and Albany Transit System (ATS). This is a diverse group, with RVT serving the Rogue Valley urban area, and CTS and ATS serving medium-sized cities. These providers offer a variety of transit services, including fixed route and demand response services. From 2011 to 2013, medium-sized urban transit entities provided an average of about 1.8 million fixed route bus trips per year, travelling more than 2.7 million revenue miles.⁴⁶

3.1.3 Small Urban Providers

Small urban providers serve city populations between about 10,000 and 50,000 and include the cities of Woodburn, Sandy, Cottage Grove, and Canby, as well as others. These providers typically operate services within their cities and offer connections with neighboring public transportation services. Sandy Area Metro, for example, provides local service to and within the City of Sandy in addition to connections to the neighboring cities including Gresham, where passengers may transfer to TriMet service.

⁴⁶ Oregon Department of Transportation. 2013. *OPTIS—Oregon Public Transit Information System*. Available at <https://www.oregon.gov/ODOT/RPTD/Pages/OPTIS.aspx>. Oregon Department of Transportation, Public Transit Division.



Table 3-1. General Characteristics of Public Transportation Providers in Oregon

Typology	Typical Population Size	Examples of Providers (not inclusive of all providers)	Types of Services Offered
Large urban	More than 200,000	<ul style="list-style-type: none"> • TriMet • Lane Transit District • Cherriots • WES 	<ul style="list-style-type: none"> • Aerial tram • Commuter rail • Commuter bus • Light rail • Vanpool • Intercity bus • Streetcar • Bus Rapid Transit • Fixed route service • Demand response (including paratransit, complementary paratransit) • Intercity rail
Medium sized urban	50,000 to 200,000	<ul style="list-style-type: none"> • Rogue Valley Transportation District (RVTD) • City of Corvallis Transit System (CTS) • Albany Transit System (ATS) 	<ul style="list-style-type: none"> • Intercity rail • Intercity bus • Fixed route service • Demand response (including paratransit, complementary paratransit, dial-a-ride)
Small urban	10,000 to 50,000	<ul style="list-style-type: none"> • City of Woodburn • City of Sandy • City of Cottage Grove • Others 	<ul style="list-style-type: none"> • Intercity bus • Fixed route service • Demand response (including paratransit, complementary paratransit, dial-a-ride)
Large county and regional	Counties with more than 50,000	<ul style="list-style-type: none"> • Yamhill Transportation Service Area • Confederated Tribes of Umatilla Indians • Cascade East Transit • Others 	<ul style="list-style-type: none"> • Intercity bus • Fixed route service • Demand response (including paratransit, complementary paratransit, dial-a-ride)
Small county and rural	Counties with less than 50,000, and cities less than 10,000	<ul style="list-style-type: none"> • Tillamook County Transportation District • Sunset Empire Transportation District • City of Silverton • Others 	<ul style="list-style-type: none"> • Intercity bus • Fixed route service • Demand response (including paratransit, complementary paratransit, dial-a-ride)
Statewide Transportation	Statewide	<ul style="list-style-type: none"> • Greyhound • Amtrak Cascades • POINT • Others 	<ul style="list-style-type: none"> • Intercity rail • Intercity bus



3.1.4 Large County and Regional Systems

Large county and regional system providers serve counties with populations greater than 50,000. Service areas are often rural and providers can serve multiple counties. For example, Yamhill County Transit Area provides public transportation for all of Yamhill County, and connects with TriMet, Tillamook County Transportation District, and Cherriots.⁴⁷ Similarly, the Central Oregon Intergovernmental Council operates Cascades East Transit, which serves the Bend urban area and three rural counties, connecting the communities of Redmond, Prineville, Madras, Sisters, La Pine, and Warm Springs.

3.1.5 Small County and Rural Community Systems

Small county and rural system providers serve counties with populations less than 50,000, and cities less than 10,000. They often serve much smaller populations, for example Wheeler County has a population of 1,400. Examples include Harney County, Grant County Transportation District, City of Silverton, and the Klamath Tribe's Quail Trail service. For many of these small county and rural communities, these agencies provide essential transportation services, as few transportation options, other than the personal car, are available. Combined, they provided more than one million passenger trips in 2013.⁴⁸

3.1.6 Statewide and Interstate Public Transportation

Intercity passenger bus service provided by national carriers as private, for-profit, businesses are concentrated along I-5 and I-84 corridors. These services travel long distances, connecting multiple states, and stop at relatively few Oregon communities. Several in-state private carriers, such as Valley Retriever Buslines, also provide valuable connections between, for example, coastal communities to the Willamette Valley and from central Oregon to Portland. To augment these private businesses' services, ODOT has entered into contracts with private sector operators to provide the POINT intercity bus network. The POINT services operate on major highways in rural areas of the state and along the I-5 corridor between Portland and Eugene.

As mentioned above, there are three intercity passenger rail routes serving Oregon. The long-distance Coast Starlight and shorter distance Cascades service provide north-south service, and the Empire Builder provides east-west service from Portland to Chicago.

3.2 Summary of Public Transportation Provider Characteristics

Transportation providers across Oregon vary in size and level of service, but often face similar challenges and opportunities. These range from issues dealing with the fleet and technology, managing budgets and funding sources, or measuring performance and coordination through partnerships. This section describes some of the characteristics of providers throughout the state, as well as opportunities and challenges related to vehicle fleets, operations, technology, and other issues.

⁴⁷ Yamhill County Transit Area. Undated. *Yamhill County Transit Area: The Stretch Limo for the Rest of Us*. Available at <http://www.yctransitarea.org/>.

⁴⁸ Federal Transit Administration, 2013. *National Transit Database*. Available at <https://www.transit.dot.gov/ntd>.



3.2.1 Fleet

A fleet of more than 2,000 publicly-owned transit vehicles serve Oregon. Approximately 800 vehicles serve the Portland metro area, 400 serve other urban systems, and 800 serve rural communities. From 2015 to 2020, more than half of the 2,000 public transit vehicles ODOT has helped invest in will need replacement to meet the ODOT’s standard for “state of good repair.”⁴⁹ FTA considers maintaining transit systems as one of its highest priorities in order to “help ensure safe, dependable, and accessible service.”⁵⁰

Most of the public transportation vehicles in the state are owned by the three largest transit providers—TriMet, Cherriots, and LTD. The average age of TriMet’s 40-foot bus fleet is 13 years. Many of TriMet’s vehicles may be at, or near, the end of their useful lives (generally 12 years or 500,000 miles for 40-foot buses). RVTD’s 40-foot bus fleet is an average of 12 years old and the average age of its demand response fleet, comprised of smaller vehicles, is 11.4 years. Fleet age is a particularly significant concern for all providers, given the large capital expense required to maintain and replace the vehicles.

Small urban providers typically operate a mix of smaller capacity vehicles for both fixed route and demand response services. Fleet replacement is an ongoing challenge—for many agencies as they must balance the cost of transit operations with vehicle replacement. Many agencies must choose to operate the vehicles beyond the defined standards in order to sustain funding for transit operations.

Large county and regional public transportation providers operate smaller fleet sizes between 5 and 30 vehicles, while small county and rural providers generally have between 2 and 24 vehicles. These providers’ fleets tend to include smaller vehicles used for fixed and demand response service and generally have a shorter useful life.

3.2.2 Technology

Integrating vehicle and mobile technology is a strategy providers use to improve operations, and rider comfort and experience. Transit technologies can also improve service efficiency and may save providers money. Most public transit providers use computer-aided dispatch and scheduling software and “automated passenger counter” systems to assist in improving bus routing and scheduling, resulting in increased number of rides, and providing significant improvements in data collection.

⁴⁹ ODOT’s standard is that 60 percent of transit vehicles in use that are invested in by ODOT are within their useful life in terms of age, miles, and condition.

⁵⁰ FTA “State of Good Repair” website, <https://www.transit.dot.gov/regulations-and-guidance/asset-management/state-good-repair>, accessed July 2016.⁵¹ Rogue Valley Transportation District (RVTD). 2015. *RVTD Launches Realtime Transit App (9/28/2015)*. Available at <https://www.rvtd.org/SectionIndex.asp?SectionID=10>. September 28.



Many providers have "automated vehicle location" systems on their bus fleets. These technologies help provide real-time tracking of bus locations and can update riders of delays and when the next bus or train will arrive. RVTD, for example, has a real-time transit information application named *OneBusAway*, and CTS has a similar mobile service called *Where's My Bus?* that provides riders with real-time transit information.^{51,52}

"Efare" refers to newer technologies that allow electronic payment of transit fares. Smart phone apps that allow payment are one example. TriMet is currently developing an efare system that will allow riders to pay fares with a smartcard – the system will make it easier for riders to pay their fare and will cap fares based on use for all riders.

New fare collection technologies are being implemented by TriMet that will allow for flexibility in how riders pay for their bus or train ticket. TriMet is the only agency to have mobile ticketing options and is presently developing a sophisticated efare system that will allow riders to more easily pay for their trip.⁵³ The system is based on "open architecture," meaning it can be easily adapted for other agencies.^{54,55} This open architecture presents an opportunity to share the technology with other providers, reducing the substantial upfront costs that individual providers would experience if they were to develop their own efare systems.

Automated and connected cars, buses, and trains are also being tested and may be a future way of delivering transit in a safe user-friendly and cost-efficient way. Technology trends present major opportunities for making the future of public transportation more efficient and easy to use.

According to results of the OPTP provider survey, most small urban transit providers would like to implement web and mobile transit technology enhancements, such as real-time transit scheduling information or efare systems. In the survey, several small urban providers indicated that they rely on telephone systems to communicate up-to-date route and scheduling information to transit users. Providers also indicated that real-time mobile and web technology would free up administrative capacity, as well as improve the overall transit system for users. The primary barrier to implementing these technologies is the cost to procure them and technical capacity to operate and maintain the new technologies.

3.2.3 Funding Sources

Providers rely on diverse funding sources, discussed further in Section 4 of this report, for operations and capital improvements. For example, TriMet and LTD each collect revenue through a payroll tax, while Cherriots has a property tax to fund transit; fare revenue provides a more significant share of total revenues for TriMet and LTD as compared with nearly all other providers

⁵¹ Rogue Valley Transportation District (RVTD). 2015. *RVTD Launches Realtime Transit App (9/28/2015)*. Available at <https://www.rvtd.org/SectionIndex.asp?SectionID=10>. September 28.

⁵² City of Corvallis. Undated. *CTS—Going Your Way: Welcome to Corvallis Transit System*. Bus/Transit System. Available at <https://www.corvallisoregon.gov/cts>.

⁵³ Tri-County Metropolitan Transportation District of Oregon (TriMet). Undated. *Mobile Ticketing*. Available at <https://trimet.org/app/index.htm>.

⁵⁴ Innovation in Traffic Systems AG (iNiT). 2014. *Innovative e-fare System for TriMet in Portland*. Available at http://media.cygnus.com/files/base/MASS/whitepaper/2014/11/Showcase_Portland_single.pdf. November.

⁵⁵ Tri-County Metropolitan Transportation District of Oregon (TriMet). Undated. *My Hopcard*. Available at <https://myhopcard.com/home/#/>.



in the state (Table 3-2). Smaller agencies tend to rely more heavily on federal funding. For example, nearly half of the City of Lebanon’s transit system’s operating budget is from federal formula funds.

Most transit agencies depend on discretionary grant funds for capital items such as facilities (bus barns and passenger shelters) and vehicles. Discretionary grants are offered periodically by U.S. Department of Transportation (USDOT) and by ODOT. The funds are welcome, but discretionary grants are not predictable and are not always flexible as the criteria frequently direct their use. Other sources of capital funds also include Oregon Transportation Infrastructure Bank and sales of bonds.

Medium-sized urban providers rely on locally-generated funding for most of their operations budgets, typically through a property tax. The property tax rate is set by community direction through elections, and the levy rate can vary significantly from community to community. Fare revenue in these communities usually provides less than ten percent of operating budgets.

Table 3-2. Example Sources of Operations Funding for Select Public Transportation Providers

Agency	Annual Trips (unlinked, millions)	Total Operations Expenditures (\$millions)	Sources of Operations Funding (percent)				
			Fares	Other Local	State	Federal	Other
TriMet	98.9	\$389.8	27	45	0	23	5
Cherriots	3.9	\$32.7	8	26	16	48	2
City of Lebanon	.04	\$.24	7	34	0	48	11
Hood River County Transportation Dist.	.036	\$.68	8	44	11	37	0

Source: Federal Transit Administration. 2013. National Transit Database. Available at <https://www.transit.dot.gov/ntd>.

In a few communities, public transportation is fare-free. Corvallis is one such community, with CTS receiving nearly all of its operational funding from local and federal sources in 2013—48 percent and 45 percent, respectively. CTS became a fareless public transportation service in 2011, made possible by new revenue generated by a Transit Operations Fee, which is a monthly fee collected from all Corvallis utility customers (residences, businesses, and industry). Since its first year of fareless operation in 2012, CTS ridership has increased by more than 37 percent.⁵⁶

Low farebox revenues and varying levels of local funding mean small county and rural providers, as well as large county and regional providers, often rely on federal dollars as their largest single source of funding. These providers are especially concerned about the long-term stability of federal funding, since they are so reliant on it for their operations. They tend to have extremely limited resources for new vehicles, services, and technologies and devote the great majority of their funds to operations.

⁵⁶ Federal Transit Administration, 2013. *National Transit Database*. Available at <https://www.transit.dot.gov/ntd>.



3.2.4 Near- and Long-Term Planning

Transit providers engage in planning to different degrees. This is partially dictated by the number and training of staff and the ability to fund and participate in planning exercises. Near- and long-term planning activities are necessary to manage operations and capital investments and create service plans that address anticipated service and financial requirements.

ODOT supports, through policy and funding, planning such as long-range (twenty plus years) city and county transportation system plans and metropolitan planning organizations' regional transportation plans which include a transit element. ODOT also supports transit development plans that are ten- to twenty-year transit service delivery plans; and five-year Coordinated Public Transit Human Services Transportation Plans which identify gaps and opportunities for improvements in the delivery of human service transportation, in coordination with public transportation, in a county or region.

In Oregon, local governments, cities, counties and MPOs develop long-range TSPs which are multimodal transportation and land use plans. Local jurisdictions address public transportation services as part of the transit element in their local TSP; public transportation providers are included in the planning process. However, there are major disparities in how public transportation is currently included in TSPs, with varying degrees of provider involvement. Larger jurisdictions are generally more successful in ensuring transit provider participation; smaller jurisdictions working with smaller transit agencies are not as successful. Lack of participation is frequently driven by the lack of staff time or planning experience to take part in the process.

Service planning is generally short-term and undertaken by all providers. It includes efforts to maintain or improve operations and rider experience such as adjusting transit frequencies, adding more connections, and encouraging the construction of sidewalks and pedestrian amenities to improve access to public transportation facilities.

Transit agencies of all sizes are increasingly engaged in transit development planning, which provides guidance regarding service changes in anticipation of population changes, purchasing bus fleets, and investment in transit facilities. In Oregon's largest communities, transit agencies planning efforts include preparing for future high capacity transit corridors, local service enhancement planning, and coordinating with local and regional planning efforts to support the link between land use and transportation. Cherriots, for example, completed a long-range, regional transit plan in 2013 that identified opportunities to coordinate with other transit systems to reduce duplicative service and make connections easier for riders.⁵⁷

Transit development planning in urban areas is coordinated with regional transportation plans (RTP). RTPs are multimodal long-range transportation plans that consider existing and future conditions and assess the services required to meet future projections of a region's transportation system. RTPs are conducted by a metropolitan planning organizations every four or five years, in

⁵⁷ Cherriots (Salem-Keizer Transit). 2013. *Long-Range Regional Transit Plan*. Available at <http://cherriots.org/en/regional-plan>. October.



consultation with public transit agencies, local officials, and the public and are plans for twenty plus years into the future. The plans create a framework for project priorities, including for transit projects. RTPs are required for any urban area with a population of greater than 50,000.

RTPs and transit development plans include performance measures that help assess the progress toward goals or simply year-to-year performance. Detailed information about performance measures can be found in Attachment A.

3.2.5 Local and Statewide Goals

Local governments and agency partners frequently look to public transportation as a tool to accomplish or contribute to a number of local and state goals including environmental health, energy conservation, reducing transportation-related greenhouse gas emissions and supporting increased freight mobility. Often, local and regional long-range plans cite public transit as a means of reducing overall vehicle emissions to meet air quality goals and improve water quality. Public transportation can add capacity to congested corridors to reduce freight delay and the need for new or expanded roads. Public transportation supports compact land uses patterns and is an efficient means of meeting the travel needs of growing communities. As public transportation almost always requires that users walk or bike to and from their station or stop, it can increase physical activity for users and in turn improve public health. It supports the economy by providing transportation options and helping to manage congestion through the carrying capacity of a single bus or train car.

3.2.6 Service Coordination

Throughout the state, staff at large and small agencies alike note the importance of service coordination to provide connections both within and outside of their service areas and are making efforts to provide links. Coordination efforts can improve the rider experience by making connections seamless and allow riders to complete their trips more quickly; it also benefits providers where facilities can be shared or duplicative services can be modified to reduce costs.

Typically, providers coordinate with regard to linking to neighboring services and scheduling, but coordinating information and simplified trip planning is an opportunity, especially in smaller communities and rural areas. Collaboration with other transportation providers, such as social services, is important to ensure improved client services. For example, Ride Connection is a nonprofit community service organization that coordinates scheduling to find rides among more than thirty providers and administers several fixed route services in addition to providing individual and group travel training for seniors and people with disabilities to help community members use transit.

Given the large service areas in rural counties, coordination is an important tool for covering the geography and improving intercity connections. Innovative examples include Douglas County's Douglas Rides Community Transportation, a countywide program that consists of seven individual service providers that work in unison under county direction. Douglas County also works to coordinate intercity transit service with Umpqua Transit (U-Trans) to the north.



Transit providers coordinate services with neighboring transit agencies through synchronizing transfers to eliminate long passenger waits, and in some cases, share infrastructure facilities and staff capacity. For example, Salem-Keizer Transit coordinates closely with TriMet and Wilsonville’s SMART services to provide quality connections between Salem and the Portland metro region. Within the Portland metro area, TriMet coordinates its service with neighboring transit agencies, sharing some facilities and coordinating transfers with services such as C-TRAN in Clark County, Washington and WES, the commuter rail line serving Beaverton, Tigard, Tualatin, and Wilsonville. TriMet provides a link on its website to neighboring transit agencies, including other public transportation services in the Portland metro region.⁵⁸

Another aspect of coordination is between transit providers and other government funded services such as pupil transportation, non-emergency medical transportation and social service agencies that also provide transportation services. A goal of coordination with these agencies is to reduce cost and increase access to community members. It is possible, through collaboration, to develop opportunities to share resources, such as using school buses for after school public transit. Human service agencies, such as veteran’s volunteer driver programs, may also take non-veterans to medical appointments, especially if the appointment is at the same facility.

Coordination between public transit agencies and between other transportation providers such as schools, health care providers, and human service agencies supports an integrated and interconnected system which can support greater access to and increased use of public transportation services. This integration can be challenging because of constrained budgets and staffing. To realize the further benefits of coordination to both riders and providers, additional resources are likely needed.

3.2.7 Operational Issues and Gaps

Public transportation providers are challenged with meeting the many expectations of system users, constituents, transportation stakeholders, leadership, and the general public. This is further complicated by the various services required to respond to the evolving needs of transportation users across the various geographies and populations of Oregon.

Where and How to Serve

Not one transit agency in Oregon is able to meet all of the transportation needs in their community; hard choices must be made. The capacity to plan for and respond to changing transportation needs is compromised by the need to manage the multiple demands and daily considerations of transit providers. All providers must balance their allocation of staff and financial resources to serve disparate needs.

Some expectations and needs of transit users and stakeholders may be in conflict: For example, should the provider focus the majority of effort on service where ridership is high and cost-per-ride

⁵⁸ Tri-County Metropolitan Transportation District of Oregon (TriMet). Undated. *Other Local Transit Agencies*. Available at <https://trimet.org/schedules/othertransit.htm>.



is low? If so, that decision may mean that there is less coverage in other areas. Similarly, many transit agencies may focus the majority of their service on peak times when ridership is high, resulting in much less service available to people whose travel needs are at other times of day. Likewise, services designed to meet the needs of people with disabilities and seniors have a high cost-per-ride, and low usage rates, which impacts budget available for service for the general public.

Providers in urban areas with high property values and escalating housing costs face a difficult issue around serving lower-income households, who may need to move away from more expensive areas better-served by transit. This presents an evolving challenge for the agency, which is tasked with serving those who have few transportation options, even as they move farther from core service areas.

A significant challenge for rural transit providers is delivering adequate service in vast, sparsely populated areas. Douglas County, for example, is a large rural county covering more than 5,000 square miles. The population is spread throughout the county, which makes it difficult to serve efficiently. At the same time, there is growing interest from riders Douglas County in commuter and intercity links to metro areas like Portland and Eugene. Evolving and growing need for services in these areas, coupled with competing needs for limited resources leads to unmet needs.

Roadways and Facilities

Providers must be concerned about the physical environment in which transit operates. The majority of transit trips start and end with a walk to or from the bus stop. However, in many Oregon communities or areas within them, walking facilities are either not available or not useable, due to condition or lack of curb ramps and other features that make the path of travel safe and accessible. Lack of sidewalks or other accessible pathways can be a significant barrier to using transit. Demand response transit can bridge the accessibility gap while communities address the lack of pedestrian infrastructure. Improvements to the sidewalk system can reduce dependence on demand response service, which is estimated by the U.S. Government Accountability Office to cost about \$29.30 per trip, an estimated three and a half times more expensive than the average cost of \$8.15 for a fixed route trip, annually, about \$15,000 per individual.⁵⁹ In the long-term, sidewalk, street crossing, and bus stop improvements can lower this continuous operational cost through infrastructure investments targeted to locations adjacent to transit stops.

The roads and street on which transit buses are operated have a large effect on the quality and cost of service. Most transit vehicles operate in mixed traffic: congestion decreases transit reliability, increases travel time, and increases costs just as it does for drivers. Transit planners want the buses to operate using a route that is the most direct path, which are most often the major streets in most communities. Major streets generally have wider lanes, higher speeds, and may have more sidewalks and pedestrian crossings than are found in neighborhoods. A direct path

⁵⁹ <https://www.gao.gov/products/GAO-13-17> Accessed August 2, 2016.



between bus stops costs less as it is more efficient, is usually more reliable, and makes the service more attractive to passengers.

Major streets are the same ones that are also likely to experience traffic congestion. Buses operated on major streets are also subject to congestion, which can be partially mitigated by technology and street design, such as location of the bus stop. Another consideration for location of routes is safety: Buses operated on streets with wider lanes (>11 feet) have fewer vehicle maintenance costs associated with sideswipe and mirror crashes than narrower side streets.⁶⁰ Additionally, locating bus stop near places where natural surveillance is available, for example in front of a grocery store, is effective in increasing the passenger's perception of safety.⁶¹

Funds Available

In the face of limited funds available for public transportation, many providers are challenged with meeting the growing needs of their communities. Given that labor costs (salaries) are about 80 percent of operations costs, it is difficult to expand services even when there are adequate numbers of vehicles to do so. Budget issues also result in delaying vehicle replacements, which results in higher mileage vehicles which are more costly to maintain. When vehicles are replaced, they are also often "right-sized" to meet the capacity requirements of the service.

Some providers are only able to offer service during limited times of the day or week; for example, Cherriots does not currently offer weekend service due to limited budgets. In the City of Woodburn, transit services are only available on weekdays with one route with hourly service between 7:00 a.m. and 7:00 p.m., which is what the City can afford to provide.⁶² Both of these examples illustrate the lack of options for individuals needing to make trips during weekends, or for anyone travelling outside of service hours on weekdays.⁶³

When asked to describe the greatest challenge (other than funding) facing their organizations in the delivery of transit services, most small county and rural providers responded that hiring sufficient qualified drivers, accessing driver training, and driver retention are significant concerns. In some areas, staffing shortages as a result of insufficient funds for driver salaries requires several rural transit entities to rely on volunteer labor. Gilliam County Transit (GCT) is notable because its nine vehicle fleet is operated by volunteer drivers, a value of about \$100,000 per year.^{64,65}

Some of these providers have even more limited resources. For instance, the Burns/Paiute Tribe has one bus route that runs from tribal land to the City of Burns. The route is served by a single high-mileage vehicle and no back-up vehicle is available. The tribe must then rely on Harney County to lend them a vehicle, which is a great example of collaboration between two rural agencies.

⁶⁰ <http://www.fdot.gov/transit/Pages/LaneWidthonBusSafety.pdf>. Accessed August 2, 2016.

⁶¹ Transit in Small Cities; published by Transportation and Growth Management Program, 2013, page 38.

⁶² City of Woodburn. 2010. *Transit Plan Update*. Approved Final Report. Available at https://www.ci.woodburn.or.us/sites/default/files/TPU%20FINAL%20APPROVED%20REPORT_8NOV10%20-%20Copy.pdf. November 8.

⁶³ The City of Woodburn *Transit Plan Update* (2010) reports that 60 percent of trips are shopping trips, while 40 percent are for medical purposes.

⁶⁴ Source: ODOT RPTD OPTIS.

⁶⁵ See: http://www.co.gilliam.or.us/government/transportation_services/index.php.



4 Delivering Public Transportation Service

Public transportation services are offered by many public and private providers. The OPTP is focused on those services provided by public transportation agencies, public and private, large and small, across the state. However, planning, developing, funding, and implementing public transportation services are accomplished through coordination and cooperation among multiple agencies at many levels of government. Local providers, private sector businesses, regional governments, and state and federal governments all play important roles. The interactions of this complex system offer both challenges and opportunities. The federal government is influential in the development and provision of public transportation services through their critical role in funding, as well as shaping public transit services through policy and regulations. Local agencies, as the primary providers of public transportation in Oregon, are chiefly responsible for delivering the majority of service statewide. Local governments provide funds. The state is an important partner, distributing state and federal funds, providing technical assistance, and funding and contracting for services like POINT and Amtrak Cascades. The federal and state governments regulate intercity bus transportation; municipal governments regulate taxis and transportation network companies such as Uber.

The state's POINT intercity bus system is an example of the sometimes complex interaction between agencies to deliver public transportation services. POINT is funded through federal dollars and administered by the state. The bus routes themselves are contracted to private companies who then provide the service.

4.1 Roles and Responsibilities

Federal, state, regional, and local agencies are each responsible for determining policy and direction by which transit programs and services are developed and funded. The federal government plays a crucial role in funding public transportation operations and capital improvements, as well as setting policy and regulations that help shape service. Many of the federal funds are allocated to the state for distribution to local agencies. FTA also distributes funds directly to some of the larger transit agencies and MPOs.

The state, primarily through ODOT's Rail and Public Transit Division (RPTD), manages the distribution of many of the federal funds to the local level and ensures state and federal policy is carried out. Larger transit providers receive federal funding directly from FTA. The state also provides state funding and develops policy and regulations. The state is directly responsible for public transportation services, for example, ODOT RPTD pays for Oregon's share of the Amtrak Cascades, with legislatively allocated funds, and contracts for intercity bus services to help link the public transportation system across the state. An FTA requirement obligates ODOT to seek engagement with other state agencies that also receive federal funds, such as Departments of Human Services and Veterans' Affairs, to coordinate transportation services and programs. ODOT



will soon be developing and implementing a new bus safety program. For more information about state and federal involvement in public transportation, see Attachment B.

Public transit agencies provide individuals with access to work, essential services, school, shopping, appointments, worship, and other services. They provide basic mobility for those who have limited transportation options because of age, income, or disability. The primary role of local transportation agencies is to operate and develop public transportation services tailored to the travel needs of their communities. In their day-to-day work, local providers operate and maintain services, plan for new capital projects, coordinate with governmental and human service partners, apply for grants, and address customer needs and issues. Increasingly, local transit agencies are tackling their mission from a “mobility management” perspective, as demonstrated by the more than 20 mobility management projects statewide.⁶⁶ Mobility management is a strategic approach to service planning that focuses on coordination of services and facilities and includes an emphasis on customer service.⁶⁷

Local providers coordinate with other local transportation entities to provide a range of options for individuals, coordinate with local government partners to ensure that adequate “first and last mile” facilities are available. Sidewalks and bike lanes, for example, are crucial pieces of the transportation system without which public transportation would be difficult or impossible to use. Mobility management strategies also attend to the discrete travel needs of individual customers, for example travel training and targeted travel planning.

4.2 Local Provider Organization

Providers of public transportation in Oregon are organized in several ways and by different statutory authorities. The organization and governance of public transportation organizations has important implications for an organization’s ability to levy taxes, collect local revenue, receive federal funding, and operate and administer public transportation. Table 4-1 shows common types of organizations, their powers and governance structure, and example agencies.

Table 4-1. Provider Organization

Public Transportation Entity	Powers and Organization	Example Agencies
Mass transit district (Oregon Revised Statute [ORS] 267)	<ul style="list-style-type: none"> • May be formed in any metropolitan statistical area as defined by the U.S. Census • May levy taxes, charge fares, levy vehicle registration fees, issue bonds, and borrow funds • Governed by a board of directors (TriMet’s and Lane’s boards are appointed by the governor; Cherriots’ board is elected) 	TriMet, Lane Transit District, Cherriots (Salem Area Mass Transit District)

⁶⁶ Source: ODOT RPTD.

⁶⁷ APTA: <https://www.apta.com/resources/mobility/Pages/default.aspx>. Accessed May 31, 2016.



Table 4-1. Provider Organization

Public Transportation Entity	Powers and Organization	Example Agencies
Transportation districts (ORS 267)	<ul style="list-style-type: none"> • May be formed anywhere in Oregon, subject to vote • Can levy property taxes, charge fares, levy vehicle registration fees, and issue bonds • Governed by an elected seven member board 	RVTD, Hood River County Transportation District
County transit service districts (ORS 451)	<ul style="list-style-type: none"> • May provide public transportation services by forming a service district • Can levy property taxes in the district to pay for services and may charge fares 	Yamhill County Transit Area, Lincoln County Transit Service District
Cities, counties, and other governments, such as councils of government (ORS 190)	<ul style="list-style-type: none"> • May operate public transportation services • May use tax revenue for services and charge fares and can levy taxes (COGs are limited in ability to levy taxes) • County Commission or City Council typically governs services 	Wilsonville, Columbia County, Central Oregon Intergovernmental Council, Mid-Columbia Council of Governments
Indian tribes (recognized by federal law)	<ul style="list-style-type: none"> • Governance by Tribal Commission • Operate service with local, state, or federal support • May operate across state lines and other jurisdictional boundaries and may charge fares 	Confederated Tribes of the Umatilla Indian Reservation, Klamath Tribes
Nonprofits	<ul style="list-style-type: none"> • Governed by volunteer board of directors • Rely on donations, earned revenues, grants or partnerships with government agencies to provide service and may charge fares 	Sweet Home Senior Center, Ride Connection

A provider’s organizational structure confers both responsibilities and potential issues and can include the following:

- **Ability to generate revenue**—Mass transit districts and transportation districts have statutory authority to raise different kinds of tax revenues and other fees to fund service. Nonprofits do not have taxing authority. City and county providers, without dedicated transit tax revenue, must compete with other city and county services for limited tax revenues, particularly property taxes.
- **Grant funding**— Agencies that receive state and federal grant funds for operations or capital improvements must adhere to state and federal law, which may have implications for how the agency operates. Different grant and fund types are frequently inflexible, often targeted for specific services or must meet the particular grant requirement. Nonprofits may have difficulties raising the required non-federal match.
- **Cooperation**—Transit and transportation districts can encompass multiple jurisdictions within a region. The districts may have different goals and objectives of the jurisdictions they serve,



which require a high level of collaboration and cooperation between the agency and jurisdictions.

4.3 Funding Types and Availability

Funding is an essential for all providers; funds for operations and capital improvements come from a wide variety of sources. Table 4-2 shows some of the major funding sources available for public transportation in the state. For more detailed information on funding, see Attachment C.

Table 4-2. Major Sources of Public Transportation Funds in Oregon

Source	Funding
Federal government (USDOT)	<ul style="list-style-type: none"> • Fixing America’s Surface Transportation Act (FAST Act, the federal transportation bill)—FAST Act establishes many programs, including discretionary and formula grants, that fund a wide variety of public transportation operations and capital improvements for urban and rural providers. FTA awards discretionary grants based on grant program objectives; formula grants are distributed based on a population formula. Major capital grant programs include New Starts and Small Starts programs.
State of Oregon	<ul style="list-style-type: none"> • Special Transportation Fund—Fund is used to support public transportation services benefitting seniors and people with disabilities. • Mass Transit Payroll Assessment—Special payroll tax fund is distributed by Department of Administrative Services to public transportation districts that levy a tax and have state employees within their taxing district. • ConnectOregon—Grant program is legislatively allocated funds backed by lottery bonds intended to support non-highway modes of transportation, including transit capital projects through a competitive grant process. • Oregon Transportation Infrastructure Bank—Statewide revolving loan fund is designed to promote innovative financing solutions for transportation needs. • Direct funding from Oregon Legislature
Local government	<ul style="list-style-type: none"> • Passenger fares, and other earned revenues —Revenue generated from operations of public transit typically covers between 5 to 25 percent of the operating cost of transit service. • Payroll taxes—Taxes are levied on employers based on a percentage of gross payroll (only available to certain providers). • Property taxes—Taxes on real property and available to many providers. • System Development charges/improvement fees Developer fees can support pedestrian and bicycle facilities that connect riders to their transit station or stop. Developers are sometimes required to construct these facilities as part of a project, also enhancing essential “first and last mile” connections • Other fees – local governments may also choose to develop local fees to support public transportation. For example, Corvallis charges a fee that is collected via utility bills and uses it to support fare-free transit in the city.



4.4 Funding Challenges

Stakeholder interviews and the OPTP provider survey reveal that stable, adequate funding is one of the top concerns of all providers.⁶⁸ Providers face many funding challenges, including funding stability as funding sources can be legislatively redirected or eliminated when government priorities change and the funds are vulnerable to changes in the economy. For example, local payroll tax revenues go up and down based on how the local or regional economy performs. Additionally, local property tax revenues in Oregon, relied on by many providers, are growth-limited due to several measures passed in the 1990s.

Competitive federal capital funding programs have been an important source of funds for some of the largest and most complex public transportation projects in the state. Federal funds have been under periodic threat due to declining federal gas tax receipts, political uncertainties, and potential priorities shifts as new transportation programs are authorized. However, in the newest federal authorizing legislation (FAST Act) the immediate outlook has improved. This is subject to change as the legislation is regularly reconsidered and there is continuing concern about the solvency of the Highway Trust Fund. Adequate local “match” is needed to access federal funding and is an ongoing issue for some. Many federal sources require about 20 percent in matching funds, but this can vary from about 10 to about 50 percent match depending on the grant program funding requirements. Raising the local revenue needed to meet match requirements was identified as a concern by providers and fares cannot be used.

The state has several important, although limited, funding sources for public transportation (Table 4-3). State funding generally provides a lesser share of most transit agencies’ revenues as compared to federal funding. However, smaller agencies are dependent on state funds. Oregon lacks some of the funding sources available in other states for transportation. Two of the more common transit funding sources in other states, sales and fuel taxes, are not available in Oregon. Currently, Oregon has no sales tax, and the state constitution does not allow fuel taxes to be used for transit, which also precludes a local option fuel tax for transit funding. Previous efforts to revise the state constitution to allow gas tax revenue to be used for non-auto purposes (1980, 1990, 1991, and twice in 1992) have been unsuccessful.⁶⁹

At the state level, funds for public transportation funds have been fairly consistent. However, current state programs often fund fairly specific services, capital projects or benefit specific agencies. Some larger projects receive special funding by direct legislative allocation on a singular basis. The transportation grant program, *ConnectOregon* is open to all providers for capital and planning projects that are not eligible for the State Highway Fund. *ConnectOregon* funds are

⁶⁸ Oregon Department of Transportation, 2015. Oregon Public Transportation Plan Provider Survey. October 2015.

⁶⁹ Association of Oregon Rail and Transit Advocates (AORTA). 2015. *Please Support SJR 16 To Provide Wise Use of Oregon’s Motor Vehicle Revenue*. Available at http://www.aortarail.org/images/uploads/SJR_16_for_Transportation_Choice.pdf. February.



discretionary funds that require continuing legislative allocation. Figure 4-1 depicts 2014 estimated public transportation funds.

2014 Estimated Public Transportation Funds

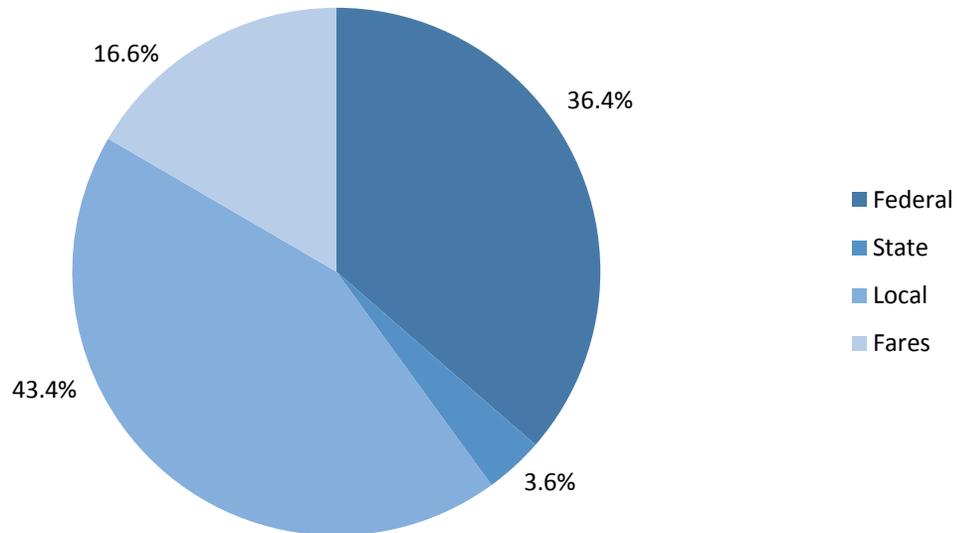


Figure 4-1. 2014 Estimated Public Transportation Fund Sources

Source: Estimates calculated from internal ODOT expenditure information and Secretary of State Audits. ODOT Planning.

Local communities often cannot respond to increasing demand for service due to the volatility of local funding sources. There are three primary sources of local funding for public transportation in Oregon: passenger fares, payroll taxes, and property taxes. It is difficult to increase revenues from existing resources or implement new ones. Some local governments can, at their discretion, use such revenues as general funds, transportation impact fees, system development charges, special assessments, and transportation utility fees. In local government budget processes, public transportation services compete for funds with many other infrastructure and service needs.

Despite these challenges, recognizing that many states do not have any state level programs for funding public transportation is important. Oregon is fortunate to have the Mass Transit Payroll Assessment, and the Special Transportation Fund as well as the ability to compete for special grant programs. However, Oregon public transportation services funding would benefit by having reliable, flexible, sustainable funding as the foundation for an integrated and interconnected system.



Additional Provider Profile Information

This attachment contains information about planning efforts and performance measures developed by local providers, as well as detailed information about intercity public transportation in Oregon.

A.1 Planning and Performance Measures

Knowing the range of planning efforts undertaken and performance measures used by local providers is important to understanding how different providers plan for future service and investments, and in how they assess performance of their systems. Larger providers typically have more resources to engage in planning and performance measure development. Smaller agencies, usually because they lack staff or funds, engage in more limited planning; long-range planning, in particular, is not typical for smaller providers. In Oregon, local transportation system plans (TSPs) are required by state rule to include a transit element. However, TSPs vary widely in how they address transit, with some only providing limited discussions of transit and others having more robust plans.

A.1.1 Large Urban Providers

There are three large urban providers in the state. Tri-County Metropolitan Transportation District of Oregon (TriMet) engages in many near- and long-term planning activities, and the long-term planning activities are often performed in conjunction with the Portland-area Metropolitan Planning Organization. Planning efforts include planning for future high-capacity transit corridors, local service enhancement planning, and planning efforts at the local and regional level around land use and transportation. TriMet is also involved in comprehensive near-term service-planning efforts throughout its system, developing plans like the Westside Enhancement Plan, which envisions increasing transit frequencies, adding more connections, and encouraging neighboring jurisdictions to construct more sidewalks and pedestrian amenities.⁷⁰

TriMet collects data in support of four indicators of system performance:

- *Ridership* – the number of rides by mode
- *Efficiency* – operating cost per boarding ride by mode, on-time performance, and vehicle service miles per service interruption
- *Budget* – performance with respect to budget goals for tax revenue and passenger revenue
- *Safety* – collisions per 100,000 miles by mode⁷¹

⁷⁰ Tri-County Metropolitan Transportation District of Oregon (TriMet). 2013. *Westside Service Enhancement Plan*. Available at https://trimet.org/pdfs/wse/wse_report.pdf. September.

⁷¹ Tri-County Metropolitan Transportation District of Oregon (TriMet). 2016. TriMet Performance Dashboard: A snapshot of ridership, cost per ride, revenue, collisions, on-time performance and other measures. Available at <https://trimet.org/about/dashboard/index.htm#ridership>.



These performance measures are published on TriMet’s website, meaning agency performance can be easily reviewed by the public.

The Lane Transit District (LTD) engages in long-term system planning and short-term service planning. LTD’s long-range plan details the goals, policies, and strategies that will guide investments. Specifically, Chapter 4 details 11 performance measures, listed below, that help LTD assess progress toward the six plan goals:⁷²

- On-time departures
- Percent of planned ‘frequent transit network’ miles in operation
- Passenger miles per revenue hour
- Passenger miles per capita
- Percent of employees with access to transit
- Percent of employers with access to transit
- Preventable vehicle collisions
- Sense of safety while riding with others
- Operating cost per revenue mile
- Operating cost per boarding
- General rider satisfaction

Salem-Keizer Transit, like the other two large urban agencies, engages in long-term and short-term planning efforts. Salem-Keizer Transit completed a long-range, regional transit plan in 2013, detailing plans for changing service on some routes, expanding routes elsewhere, and opportunities to coordinate with other transit systems to reduce duplicative service and make easier connections for riders.⁷³

A.1.2 Medium-Sized Urban Providers

Similar to their large urban counterparts, medium-sized urban providers engage in several long- and short-term planning processes. Rogue Valley Transit District (RVTD) engages in multiple planning activities, including medium- and long-range planning.⁷⁴ The agency’s long-range (10-year) plan lays out a suite of goals covering social, organizational, economic, and environmental subject areas; potential revenue scenarios to accommodate future growth; and a list of tiered service enhancements throughout Jackson County. Performance measures are also provided under each goal. The following list of performance measures is not complete but provides a sample of the performance measures RVTD has adopted:⁷⁵

- Goal 1: Social—Objective 1: Support Equitable Access to Transportation

⁷² Lane Transit District (LTD). 2014. *Long-Range Transit Plan*. Available at <https://www.ltd.org/long-term-planning/>.

⁷³ Salem-Keizer Transit. 2013. *Long-Range Regional Transit Plan*. Available at <https://cherriots.org/>. October.

⁷⁴ Rogue Valley Transit District (RVTD). 2007. *Ten-Year Long Range Plan 2007-2017: Providing and Promoting Efficient Transportation since 1975*. <https://www.rvtd.org/index.asp>. December.

⁷⁵ Rogue Valley Transit District (RVTD). 2007. *RVTD Goals, Objectives, and Performance Measures*. Appendix N of *Ten-Year Long Range Plan 2007-2017: Providing and Promoting Efficient Transportation since 1975*. Available at <https://www.rvtd.org/index.asp>.



- Performance Measure—Ensure service is provided within 0.25 of a mile to all densely populated neighborhoods that consist primarily of low-income, aged, and disabled demographics.
- Goal 2: Organizational—Objective 1: Ensure the Efficient use of Transit Investments
 - Performance Measure—Install automatic passenger counting system and automatic vehicle locator system on 90 percent of bus fleet by 2012.
- Goal 3: Economic—Objective 1: Support Economic Vitality
 - Performance Measure—Provide service within 0.25 of a mile of all major shopping destinations with 15 or more congruent commercial businesses to support consumer activity.
- Goal 4: Environmental—Objective 2: Reduce Sprawl
 - Performance Measure—Prioritize service so that established areas meeting density requirements receive service prior to any new development.

City of Wilsonville’s South Metro Area Regional Transit (SMART) has a *Transit Master Plan* that is frequently updated.⁷⁶ Individual routes are assessed using a short list of performance measures:

- Revenue hours
- Number of buses
- Overall cost
- Ridership (passenger trip)
- Cost per ride

The Albany Transit System also engages in both short and long-range planning activities. The *Albany Transit Plan* (2011) is the most recent plan, and outlines anticipated transit investments as well as operational, capital, fare system, customer, and marketing improvement recommendations. The Albany Transit Plan describes several performance standards to judge the existing conditions of the transit system:

- Average daily ridership
- Level of service (including frequency or minutes, hours of service, and service coverage)⁷⁷
- Average fare
- Access for people with disabilities
- Demand-to-capacity ratio⁷⁸

⁷⁶ City of Wilsonville. 2015. *Transit Master Plan*. Available at <https://www.ridesmart.com/transit/page/transit-master-plan>.

⁷⁷ City of Albany. 2011. *Albany Public Transit Plan*. Prepared by Kittelson and Associates, Portland, Oregon. Available at https://www.cityofalbany.net/images/stories/publicworks/engineering/tsp/final_albanytransit_plan_jan2011.pdf. January.

⁷⁸ City of Albany. 2010. *Albany Transportation System Plan*. Figure 7-3. Prepared by Kittelson and Associates, Portland, Oregon. Available at https://www.cityofalbany.net/images/stories/publicworks/engineering/tsp/albanytsp_022410.pdf. February.



A.1.3 Small Urban Providers

Small urban transit providers generally engage in planning activities as part of the transit element in their local TSPs. There are several small urban providers in the state. An example of efforts to keep TSP transit planning elements up-to-date is the City of Pendleton's *Pedestrian, Bicycle, and Transit Update* (2015). Although Pendleton's most recent TSP was adopted in 2007, the City intends to identify infrastructure, policy, and programming actions that will improve the overall transportation system for bicyclists, pedestrians, and transit users alike.

Few small urban providers have performance measures. The City of Woodburn, however, includes the following performance measures⁷⁹ in its 2010 *Transit Plan Update*:

- Operating cost per revenue hour
- Operating cost per passenger
- Farebox recovery ratio
- Average fare per passenger
- Average subsidy per passenger
- Passengers per revenue hour
- Passengers per revenue mile

A.1.4 Large County and Regional Systems

There are many large county and regional systems in the state. Some of these providers engage in planning processes. For example, Yamhill County Transit Area has previously engaged in several planning processes and Community Connection of Northeast Oregon, Inc. (CCNO) is notable for its planning activities. Formed as a 501(c)(3) status community development organization, CCNO operates transit services across Baker, Union, and Wallowa Counties.⁸⁰ CCNO works with each county it serves to produce operations, asset management, and policy plans. For example, the Union County Paratransit Policy Plan was published in 2015, which proposed an implementation plan for enhancing paratransit services in Union County.

Coordinating among counties and linking regional transit resources emerge as important parts of these plans. While planning efforts are clearly important for these agencies, some large county and regional providers do not engage in long-range planning, likely because of a lack of financial or staff resources.

A.1.5 Small County and Rural Community Systems

There are many small county and rural community systems in the state. Small county and rural providers typically do not have the financial and staff capacity to conduct long-range planning. However, some of the larger providers such as Tillamook County Transportation District do engage in short- and long-range planning processes as a way of enhancing transit delivery to their

⁷⁹ These performance measures are specific to *total service performance*, which includes both fixed-route and on-demand performance. A set of performance measures specific to fixed-route bus service is available in the City of Woodburn's November 8, 2010 *Transit Plan Update—Approved Final Report*, Chapter 4-24, available at <https://www.woodburn-or.gov/?q=transit>.

⁸⁰ Northeast Oregon Public Transit. Undated. *News and Events*. Available at <http://www.neotransit.org/>.



passengers. Examples include the *Tillamook County Transportation District 2011-2015 Business Plan*, which lays out strategies to bolster system planning, regional coordination, and strategies for better acquiring state and federal funding.⁸¹ The agency is also working on a 20-year transit plan. Given the major fiscal and staffing restraints these providers operate under, resources are focused on maintaining existing service levels.⁸²

A.2 Intercity Public Transportation

This section contains additional information about intercity public transportation in Oregon. Intercity public transportation providers include bus and rail systems that serve large areas of the state or otherwise provide statewide intercity service. Intercity public transportation serves a variety of transportation needs in Oregon, including linking cities and metropolitan regions in the state, linking rural areas to cities, and connecting Oregon travelers to national and international transport. Although performance data is limited, the National Transit Database (NTD) reported that public, statewide, intercity transit providers served about 250,000 trips in 2013 and traveled over 1 million revenue miles.⁸³

A.2.1 Intercity Bus

A.2.1.1 Description of Services

Intercity bus transportation is defined as regularly scheduled bus service for the general public that operates with limited stops over fixed routes connecting two or more communities that makes meaningful connections with other scheduled intercity bus services (and rail) to more distant points. People use intercity bus for many types of personal business. Intercity bus services are not scheduled for routine work trips, although in some situations, work trips are possible.

Because of deregulation of the intercity bus industry in 1982, Greyhound has discontinued many routes and stops nationwide and in Oregon. As of 2012, the national carriers in Oregon were serving only larger communities along Interstates 5 (I-5) and 84 (I-84) in the state.

In response to the declining intercity services, the Federal Transit Administration (FTA) created the FTA Intercity Bus Program, a subsection of the Rural Program (§5311), designed to invest in intercity bus service. Funds available for intercity bus investment are 15 percent of the annual §5311 federal appropriation. FTA objectives for the Intercity Bus Program are to sustain the viability of existing rural routes and support connections between rural areas to larger regional or national intercity bus services. Oregon Department of Transportation (ODOT) created a program for distribution of the funds. Initially, the ODOT Intercity Bus Program was designed to provide incentive to public and private agencies to fill the gaps in service abandoned by Greyhound and others. Currently, the grant program allows providers to apply for grants that support the intercity

⁸¹ Tillamook County Transportation District. 2013. *Tillamook County Transportation District 2013-2015 Business Plan Draft*. Available at document available at: <https://www.nworegontransit.org/>.

⁸² Oregon Public Transportation Association (OPTA). 2015. Oregon Public Transportation Plan Conference materials and feedback. Eugene, Oregon. October 15.

⁸³ Federal Transit Administration. 2013. *National Transit Database*. Available at <https://www.transit.dot.gov/ntd>.



network. The program funds transit operations, physical infrastructure and the supportive technologies, and public sector agencies are eligible to apply for operations support. The current focus in funding is on preservation of critical links and “filling gaps” in the network, with the recognition that gaps are geographic, temporal, etc.

A.2.1.2 Recent Developments in Intercity Bus Service

In Oregon, as of 2015, the amount of intercity bus service is increasing. However, the level of service in both geographic coverage and frequency is still lower than in 1982. This recent improvement is partially a result of targeted grant investments and involvement of the public sector in filling many of the critical gaps. For example, Grant and Tillamook County Transportation Districts were formed in the mid-1990s primarily to address the need for regional connectivity for their citizens. Other transit districts, Tribes, cities, and counties have stepped up to provide regional connections to the national networks, where possible. National carriers now include Bolt Bus serving the I-5 corridor and specialized bus services traveling between Mexico and Canada. Remaining Greyhound services are now supported by linkages from a variety of local and regional connectors.

The Public Oregon Intercity Transit (POINT) service (Figure A-1) fills gaps in Oregon’s statewide transit network, brings intercity bus routes to rural communities and other parts of the state that are underserved, and helps strengthen the transit network where there is already established service. Intercity bus gaps remain and rural communities continue to have limited transit options. For example, a gap in intercity service continues to exist on the Oregon coast between the cities of Yachats and Florence, and east-west service connecting John Day/Prairie City to the cities of Ontario and Boise is lacking.

Since 2013, the ODOT Rail and Public Transit Division (RPTD) has been moving toward an intercity program that is defined as an interconnected network, called the Long-Distance Transit Network. Defining the program as a network rather than on individual links focuses the state’s investment in activities and services that enhance the ability of people to travel seamlessly throughout Oregon and beyond. The Long-Distance Transit Network includes local transit service as an integral part of the larger interconnected statewide system. An interconnected system would include technology to provide traveler information and ticketing, a network throughout the state, and marketing and public information.



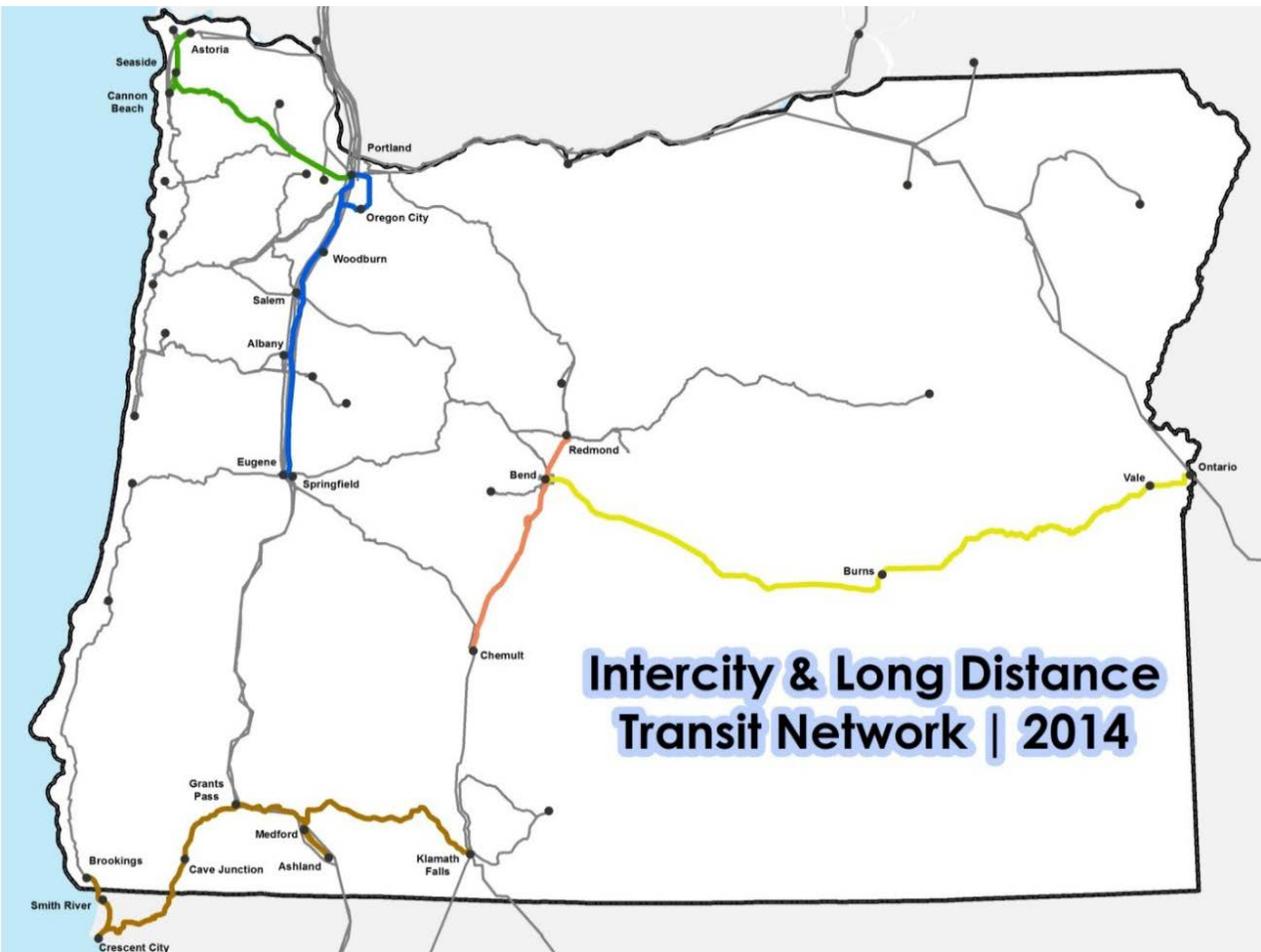


Figure A-1. Intercity and Long Distance Transit Network, 2014. Different colors denote different POINT routes.

Many intercity bus services allow fare “interlining,” where an interline ticket allows a traveler to use the same ticket for their entire transit journey, even if it includes multiple carriers. For example, an interline ticket purchased from Greyhound would allow a traveler to begin a trip on Greyhound and finish on a local carrier, while paying only once and using the same ticket throughout. Oregon local carriers and transit agencies such as LTD are similarly able to enter into interline agreements with Amtrak. Intercity bus services interlining with Amtrak are referred to as “Thruway Bus.” These agreements enable service to extend further in the Willamette Valley corridor and allows passengers make easier connections with Amtrak trains and other transit services.

Passenger information and communication is a critical element to a viable program. ODOT hired a technology consulting firm to create data showing the location of all routes and stops by time of day and day of week on behalf of the many Oregon agencies that make up this network. The data are used to show transit routes and schedule information in mapping applications like Google Maps. The availability of real-time location data, and the ability to easily create it, is intended to change how the public understands and uses public transportation and has implications for bus mapping, ticketing, safety, and security.



ODOT is supporting discussions with TriMet and other stakeholders considering a single, regional ticketing system, starting with transit in the Portland-Vancouver area. If successful, this concept potentially could be implemented statewide.

A.2.2 Intercity Passenger Rail Service

The intercity passenger rail system in Oregon provides an opportunity for residents and visitors to travel between cities and long distances without driving. The intercity passenger rail system links cities and regions within the state and provides connections to locations outside Oregon, serving travel needs and supporting economic growth. Intercity passenger rail service in Oregon operates on tracks owned by major freight railroads. This results in passenger rail service competing with freight rail service for use of the limited right-of-way available.

A.2.2.1 Amtrak Cascades Line

Amtrak operates the Cascades line, an intercity rail service that extends 467 miles from Eugene to Vancouver, B.C. In Oregon, the Cascades operates on part of the same corridor as the Coast Starlight line, which extends from Los Angeles to Seattle. The Portland station is the busiest in terms of passengers on the Oregon portion of the Cascades route, followed by Eugene and Albany (Figure A-2).

Beginning in 2013, under the federal Passenger Rail Improvement and Investment Act (PRIIA), the 20 percent of federal funding for the Cascades corridor through Amtrak was removed and full funding responsibility for the short corridor service fell to the states. Ticket revenues currently provide approximately 60 percent of Amtrak Cascades' operating costs.⁸⁴ The operating costs of the Cascades line are shared by the states of Washington and Oregon through agreements between their state departments of transportation. From 2011 to 2013, Washington paid approximately 50 percent, Oregon contributed approximately 30 percent, and Amtrak contributed approximately 20 percent of the needed operating costs from federal subsidies. For continued operation, each state legislature must assign funds. Consequently, without a dedicated funding source, the future operation of the Cascades line will be revisited in each state budget cycle.

A.2.2.2 Amtrak Empire Builder and Coast Starlight Lines

Amtrak also operates the Empire Builder, a long-distance route that extends from Chicago and splits in Spokane, where the trains take either a northern route to Seattle or a southern route through southeastern Washington and the Columbia River Gorge to Portland, which is the route's only stop in Oregon. However, stops along the Columbia River provide access to nearby Oregon cities. The Empire Builder route extends 2,255 miles. Each day, one westbound Empire Builder train arrives in Portland in the morning, and one eastbound train departs Portland in the early evening.

⁸⁴ Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT). 2013. *Cascades Rail Corridor Management Workplan*. Available at <https://www.wsdot.wa.gov/NR/rdonlyres/A5B68628-65A8-49C3-B98B-5AD1E557AD0E/0/EndorsedCRCWorkplan13113.pdf>. January.



Amtrak also operates the Coast Starlight, a long-distance intercity route that extends 1,377 miles from Los Angeles to Seattle and is Amtrak’s second-most popular intercity service nationwide. ODOT does not play a role in funding this service. Service includes one daily round-trip train, and the route serves six stations in Oregon, including Klamath Falls, Chemult, Eugene, Albany, Salem, and Portland. Travel time along the Oregon portion of this route is approximately 8 hours.

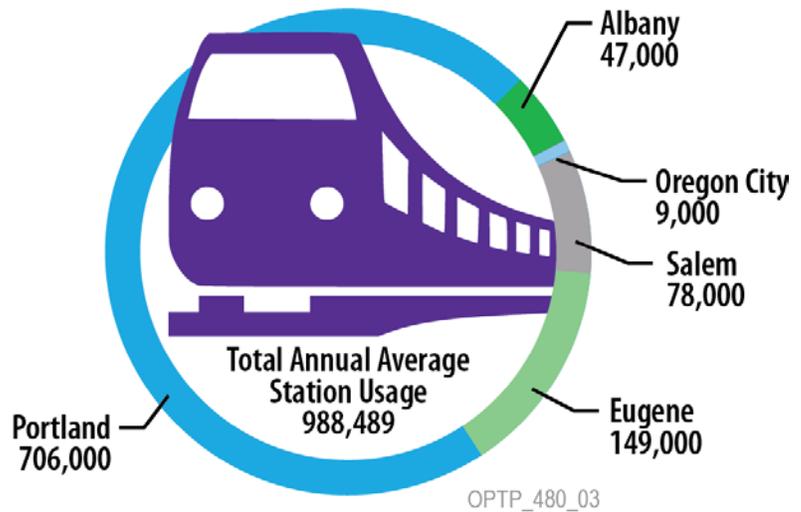


Figure A-2. Cascade Corridor Average Annual Station Usage, 2004-2011

A.2.2.3 Rail Station Facilities

Amtrak’s Cascades, Empire Builder, and Coast Starlight serve several stations in Oregon, all of which generally have parking, dedicated intercity bus connections, and local public transit connections. Portland Union Station forms the hub for Oregon’s intercity passenger rail services, with the Cascades, Empire Builder, and Coast Starlight all stopping at the station.

The Cascades corridor, located in the Willamette Valley, contains the most heavily utilized stations, serving an average of nearly 1 million riders each year. Figure A-2 represents the average number of yearly passengers boarding and alighting at each stop in the Cascades corridor. These numbers include the long-distance Empire Builder and Coast Starlight trains, as well as the Cascade POINT buses augmenting the Cascades trains and the bus that connects the Eugene Amtrak station to the University of Oregon campus.

A.2.2.4 Intercity Passenger Rail Ridership

Cascades Ridership

Cascades ridership generally has experienced increases since the service first began in 1995. A large increase in ridership occurred in 2000 when the train schedules were expanded with more trips. Recently, from 2013 to 2014, Cascades experienced a slight decrease in ridership because of changes in the schedule that made the service less convenient to use, in addition to interactions with freight rail traffic that caused delay.

Empire Builder and Coast Starlight Ridership

Ridership trends for both Empire Builder and Coast Starlight have varied over the years. Empire Builder’s ridership peaked in 2008, with approximately 555,000 passengers. The Coast Starlight’s ridership peaked in 1990, with approximately 607,000 passengers.



Variations in ridership of all passenger rail line in Oregon can be attributed to a number of factors, including general macroeconomic conditions (including the recent recession), demographic trends, as well as other factors along the corridors that influence ridership, including the following:

- Gas prices and the costs of competing transportation modes
- Weather-related delays and suspensions, such as mudslides, flooding, and extreme cold
- Host railroad operational reliability (for example, Empire Builder often experiences delay due to host railroad operational complications, and Coast Starlight ranked among the worst Amtrak trains for on-time performance prior to the 2008 recession)
- Changes in schedules and frequency that reduce passenger reliability
- Changes to passenger capacity, which is driven by equipment availability



Policy Context and State Involvement in Public Transportation

This attachment provides more detailed information about state policy and involvement in public transportation, describes the state-level policy framework under which the Oregon Public Transportation Plan (OPTP) will be developed, and also provides additional details on the activities of the state as they relate to the development and provision of public transportation in Oregon.

B.1 Policy Context

Oregon provides a transportation policy foundation for the state via the *Oregon Transportation Plan* (OTP),⁸⁵ developed by ODOT as the state-level Transportation System Plan in accordance with the Transportation Planning Rule (TPR). The OTP sets a vision and foundation for the state that guides progress towards goals, while providing flexibility for local communities. The OTP consists of the OTP document itself, a broad plan to address the full transportation system, and several mode and topic plans that refine and apply OTP policy to aspects of the transportation system. The OTP, and mode and topic plans, work together to shape planning, investment, project design, constructions, and operations and maintenance in Oregon. The new OPTP will replace the 1997 version as one of these modal plans when it is adopted by the Oregon Transportation Commission. The OTP document and some of its recent modal and topic plans contain policy particularly relevant for public transportation. These include the *Oregon Transportation Options Plan* (OTOP), *Oregon State Rail Plan* (OSRP), and draft *Oregon Bicycle and Pedestrian Plan* (OBPP). Additionally, the Statewide Transportation Strategy (STS) provides policy to guide the state in reducing greenhouse gas (GHG) emissions and is relevant to the OPTP.

At the state level, missions and goals translate into the plans and activities of ODOT and its Rail and Public Transit Division (RPTD), which lists a statement reflective of goals and themes on its website:⁸⁶

[RPTD] supports mobility options for Oregonians through advocacy, collaborative partnerships, and grant programs. These transportation choices help create social equity, access to jobs and critical needs, connectivity, and a robust state economy. They also reduce our carbon footprint, increase energy independence, and help create a sustainable future.

⁸⁵ Oregon Department of Transportation (ODOT). 2006. *Oregon Transportation Plan*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx>. Oregon Department of Transportation, Transportation Development Division, Planning Section. September 20.

⁸⁶ Oregon Department of Transportation (ODOT). Undated. *About Us*. Available at <https://www.oregon.gov/ODOT/RPTD/pages/index.aspx>. Oregon Department of Transportation, Rail and Public Transit Division.



B.2 Oregon Transportation Plan and Mode and Topic Plan Policies

Several OTP goals and policies are particularly applicable for public transportation. These are then expanded on and refined by policies in the mode and topic plans. OTP⁸⁵ goals and policies related to public transportation address:

- Mobility and accessibility for all transportation system users
- Efficient use of the transportation system and preservation of its capacity
- Economic vitality
- Safety and security
- Sustainability and the environment
- Coordination and cooperation in pursuit of a seamless transportation system

B.2.1 Mobility and Accessibility

OTP Goal 1, Mobility and Accessibility, refers to an “efficient, cost-effective, and integrated multimodal transportation system,” with “appropriate access to all areas of the state,” and with “connectivity among modes and places.”⁸⁵ The OTOP and OBPP reinforce these ideas. The OTOP Goal 3, Accessibility,⁸⁷) refers to “improving access to employment, daily needs, services, education, and social and recreational activities.” In the draft OBPP,⁸⁸ accessibility and connectivity are referred to together in a goal (Goal 3) that discusses reliable and easy connections to destinations and other modes.

Throughout the OTP and its mode and topic elements, equity and achieving mobility and accessibility for all users is emphasized, as in the OTP’s Policy 1.2 to “promote equity and efficiency among a range of travel choices for all potential users.”⁸⁵ This concept is advanced in the OSRP with Policy 2.2 that encourages a passenger rail system that is reliable, affordable, and promotes access and connectivity for all potential users including people who are transportation disadvantaged.⁸⁹ The OTOP and draft OBPP each have an equity goal. OTOP Goal 9 refers to supporting the “diverse transportation needs of people of all ages, abilities, income levels, and ethnicities throughout Oregon.”⁸⁷ The draft OBPP’s Goal 5 refers to providing “opportunities and choices for people of all ages, abilities, and incomes” throughout the state.⁸⁸

B.2.2 Efficiency and Preservation

The OTP and its modal and topic plans emphasize efficiently using resources, including the transportation system itself, and preserving its ability to serve travelers. For the roadway system,

⁸⁷ Oregon Department of Transportation (ODOT). 2015. *Oregon Transportation Options Plan*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OTOP>. Oregon Department of Transportation, Transportation Development Division, Rail and Public Transit Division. April 16.

⁸⁸ Oregon Department of Transportation (ODOT). 2015. *Oregon Bicycle and Pedestrian Plan Public Review Draft*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OBPP>. Oregon Department of Transportation, Transportation Development Division, Planning Section. November.

⁸⁹ Oregon Department of Transportation (ODOT). 2014. *Oregon State Rail Plan: An Element of the Oregon Transportation Plan*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OSRP>. Oregon Department of Transportation, Transportation Development Division, Planning Section. September 18.



that also means preserving capacity on the roadways for freight and those who drive personal cars. Public transportation can contribute to this goal in many ways, such as moving many people in one vehicle, lessening the need for resources to be spent on parking for cars, and reducing fuel usage.

The Oregon Highway Plan⁹⁰ (OHP) discusses efficiency and system preservation in many places throughout its goals and policies. OHP Goal 2 addresses these along with mobility, accessibility, and other goals when it discusses creating a seamless transportation system that “safeguards the state highway system’s functionality and integrity, meets local mobility and accessibility needs, and enhances system efficiency and safety.” Goal 4 in the OHP then discusses optimizing the “overall efficiency and utility of the state highway system through the use of alternative modes and travel demand management strategies.” In the OTOP, mobility and system efficiency are together in Goal 4 that discusses improving the “mobility of people and goods and the efficiency of the transportation system by managing congestion, enhancing transportation reliability, and optimizing investments.”⁸⁷

B.2.3 Economic Vitality

Economic vitality is an important goal throughout the state. Economics is sometimes linked with community vitality, and both refer to an active, diverse economy for communities and the state as a whole, with job and economic opportunities for residents and businesses. Public transportation contributes to economic vitality by providing an efficient transportation choice for residents commuting to jobs or traveling for shopping, services or other reasons and by providing essential transportation service for residents who cannot or do not drive, enabling their participation in the community and economy.

OTP Goal 3 is about economic vitality and efficiency together, and includes the following:

“...promote the expansion and diversification of Oregon’s economy through the efficient and effective movement of people, goods, services and information in a safe, energy efficient, and environmentally sound manner.”⁸⁵ OHP Goal 1 strives to “maintain and improve the safe and efficient movement of people and goods and contribute to the health of Oregon’s local, regional, and statewide economies and livability of its communities.”⁹⁰ OTOP Goal 5 strives to “enhance vitality by supporting job creation/retention, decreasing household spending on transportation, supporting vibrant local businesses, and helping goods move reliably.”⁸⁷ The draft OBPP’s Goal 4 puts community and economic vitality together and includes “enhance vitality through biking and walking networks that improve access to jobs, businesses, and other destinations, attract visitors, new residents, and new businesses to the state.”⁸⁸

⁹⁰ Oregon Department of Transportation (ODOT). 1999. *Oregon Highway Plan: An Element of the Oregon Transportation Plan*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OHP>. Oregon Department of Transportation, Transportation Development Division, Planning Section. Originally adopted March 18.



B.2.4 Safety and Security

Safety and security are often named together in federal, state, and local goals and policies. Safety usually refers to physical or mechanical safety, such as numbers of injuries, crashes, or equipment failures. Security can refer to securing transportation facilities themselves or to the feeling or perception of personal safety, as well as transportation as it relates to emergency management, homeland security, and interactions with law enforcement. For public transportation, safety refers more to accidents, vehicle and other equipment failures, and issues such as whether a stop location is physically safe from traffic. Security refers both to securing facilities and vehicles from incidents and also what can be done to help riders feel secure accessing or waiting at stops and stations, and while riding transit vehicles.

OTP Policy 5.1 states the following: “...improve safety and security of all modes and facilities for system users.” OHP mentions safety in many of its goals and policies, including Policy 2F: “...improve safety for all users of the highway system via engineering, education, enforcement, and emergency medical services solutions.”⁸⁵ Safety and security is addressed in OSRP Goal 5, Policy 5.1, as follows: “...improve the safety and security of the rail transportation system for users including operators and employees, passengers, recipients of goods and services, users of other transportation modes, communities, and property owners.”⁸⁹ OTOP Goal 1 states the following: “...provide a safe transportation system through investments in education and training for roadway designers, operators, and users of all modes.”⁸⁷

ODOT’s *Transportation Safety Action Plan*⁹¹ (TSAP) is currently being updated. In the 2011 version, one of its broad emphasis areas included an action to “develop a plan or series of plans and policy changes designed to improve the likelihood that when construction or repair decisions are made, safety is the highest weighted consideration.”

B.2.5 Sustainability and Environment

The industry-accepted Brundtland Commission definition of sustainable development refers to the ability to meet the needs of current generations without compromising the ability of future generations to meet their own needs. In the context of state transportation, sustainability is often a part of livability and environment goals that encourage healthy communities and a healthy natural environment.

Public transportation contributes to sustainability goals by providing efficient travel choices, using less fuel, and producing less pollution, while moving greater numbers of people the same distance. Affordability can also be part of sustainability; a comfortable, livable community and allows people to participate and remain in the community.

⁹¹ Oregon Department of Transportation (ODOT). 2011. *Transportation Safety Action Plan: An Element of the Oregon Transportation Plan*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#TSAP>. Adopted October 20.



OTP Goal 4, Sustainability, states the following: “...provide a transportation system that meets present needs without compromising the ability of future generations to meet their needs from the joint perspective of environmental, economic, and community objectives.”⁸⁵ The STS,⁹² developed to provide a roadmap towards transportation related GHG reduction, includes strategies for using public transportation to reduce GHG pollution. STS Strategy 8 focuses on transport between cities: “...promote investment in intercity passenger public transportation infrastructure and operations to provide more transportation options that are performance and cost competitive.” STS Strategy 9 focuses on intra-city transportation including: “investing in public transportation infrastructure and operations to provide more transportation options and help reduce single-occupant vehicle travel.”

B.2.6 Coordination and Cooperation

Coordination and cooperation are frequently goal and policy topics (and policy requirements), because all levels of government, neighboring jurisdictions, and private-sector partners need to work together to provide a well-functioning transportation system, as well as communicate with system riders and users. Coordination is important for making efficiency and seamless connections work, so that users and riders see one easy-to-use system that provides them mobility, accessibility, and options. Coordination and cooperation are extremely important for public transportation in Oregon because there are many providers, types of providers, and jurisdictions that they travel through, and all need to work with their communities, each other, ODOT, and the Federal Transit Administration (FTA).

The OTP has a broad Goal 7 that articulates these ideas, including as follows:⁸⁵

Pursue coordination, communication, and cooperation among transportation users, providers, and those most affected by transportation activities to align interests, remove barriers, and bring innovative solutions so the transportation system functions as one system.

The OTOP addresses coordination in Goal 8, including the following: “work collaboratively with public and private partners to integrate TO into local, regional, and state planning processes, operations and management, and investment decisions.”⁸⁵

B.3 State Involvement in Public Transportation

At the state-government level, ODOT is the primary agency involved in public transportation. ODOT funds public transportation services and infrastructure with monies it receives from state and federal agencies. ODOT sometimes contracts for public transportation services that are provided by others. In addition, ODOT has various assistance, regulatory, and guidance roles as described below. Other state agencies may fund or purchase public transportation services for their clients, but they do not provide transit services directly.

⁹² Oregon Department of Transportation (ODOT). 2013. *Statewide Transportation Strategy: A 2050 Vision for Greenhouse Gas Emissions Reduction*. Available at <https://www.oregon.gov/ODOT/Planning/Pages/STS.aspx>. Adopted March 13.



ODOT's participation in public transportation is largely provided through the activities of the RPTD. Other ODOT sections are now playing expanded roles, including its region staff, Office of Civil Rights, and Transportation Development Division.

ODOT public transportation activities have two primary purposes: (1) stewardship of public transportation funds received by ODOT and the agency's public transportation programs (including bus and rail) and policies, and (2) regulatory oversight of passenger and freight rail safety, with a new bus safety program expected. The two purposes result in several roles and activities, listed and described below.

ODOT is responsible for the following activities related to public transportation:

- Develops state public transportation policy
- Acts as the contact to federal rail and transit agencies and state-level advocacy groups
- Consults with other state agencies
- Liaison with other agencies
- Distributes and administers grant and formula funds, and oversees compliance with rules and other requirements
- Provides training and technical assistance for planning and operations of public transportation
- Operates Oregon's portion of the Amtrak Cascades passenger rail program and Public Oregon Intercity Transit (POINT) intercity bus system
- Provides safety oversight of transit agencies with rail-fixed guideway systems, including street cars and trolleys operated by other government agencies and private organizations

B.3.1 Oregon Department of Transportation Policy, Funding, and Compliance Roles

ODOT develops and implements policy through the OTP and its component modal plans, including modal plans for rail and public transportation. ODOT assists with regional planning done by metropolitan planning organizations (MPOs) and local and regional public transportation plans by providing funding and technical support. In addition, ODOT supports strategic initiatives, such as development of public transit human services transportation coordination plans that coordinate efforts of human service agencies and the needs of their clients with transit service planning.

ODOT receives funds from state and federal sources and distributes the funds through various grant programs. As part of grant management, ODOT establishes program policies, manages the grant agreements and payments, and assures state and federal grant compliance by grant recipients. ODOT is designated as the State Safety Oversight agency by FTA. Currently, the safety program includes providing oversight of transit agencies' safety programs and procedures for rail-fixed guideway systems, including light rail, street cars, and trolleys in the state.

B.3.2 Liaison with Other Agencies

As part of all of its activities, ODOT works closely with Oregon's local public transportation providers. ODOT maintains staff in each of its five regions to help facilitate grant management and



technical assistance. Regional staff are the main contacts for local transit agencies providing information and training, and bringing local information back to ODOT.

ODOT is the primary liaison with FTA and Federal Rail Administration for federal funding and compliance. ODOT works with advisory groups including the Passenger Rail Leadership Council, appointed by the governor, and the Public Transportation Advisory Committee, appointed by the Oregon Transportation Commission.

ODOT oversees the operation of the Oregon portion of the Amtrak Cascades passenger rail service. ODOT also works closely with Washington Department of Transportation and British Columbia agencies to operate this service.

As part of its program for public transportation, ODOT consults with other state agencies including Oregon Health Authority (OHA), Oregon Department of Human Services (DHS), and Oregon Department of Veterans Affairs (ODVA), to develop appropriate policies and programs to meet the needs of people with low incomes, seniors, and people with disabilities.

B.3.2.1 Training and Technical Assistance

ODOT offers training and technical assistance program for agencies that provide public transit and transportation options services. Training generally is provided to agency staff on innovative practices, safety, defensive driving, drug and alcohol program management, Title VI (laws prohibiting discrimination in any program that receives federal funding), and transit service planning. Technical assistance topics include compliance, transit management, service design, and long-range plans. RPTD supplements technical assistance through a website, technology support such as the DriveLessConnect software, timely information distributed via email, and periodic webinars. Scholarships are provided to agencies enabling their staff to attend transit-related educational events and an annual Oregon Public Transportation Conference. Additional training is provided to agencies on an individual, as-needed basis. Examples include one-on-one training on using grant management software and grant management for new transit agency staff.

B.3.2.2 Oregon Department of Transportation Coordination with Human Service Agencies

To improve transportation coordination, and to assist in developing program policy, ODOT has developed relationships with other state agencies with related interests: OHA, DHS, and ODVA. These state agencies may participate in funding public transportation services through grants, contracts, and other means. Many different clients of these agencies' programs need access to various services, and one typical barrier is transportation. Partial solutions have been developed, especially those designed to serve particular client groups such as Oregon Health Plan participants. Finding ways to coordinate these services to reduce redundancy and to leverage resources and funding for efficient outcomes that meet the various needs is a continuing effort among the various state and local agencies affected.



B.3.2.3 Oregon Department of Human Services

DHS provides services to seniors, people with disabilities, and people with low incomes. DHS does not generally provide transportation services, however, it does sponsor a volunteer program in support of its various programs that includes volunteer drivers. DHS also provides transportation supports to eligible clients enrolled in federal and state programs that provide a transportation benefit. For example, clients of DHS Vocational Rehabilitation may be eligible for a bus pass to get to their work or educational program.

The Aging and People with Disabilities Program (APD) of DHS oversees programs for seniors and people with developmental and intellectual disabilities. APD works with ODOT to coordinate resources for transportation services for their clients.

ODOT assisted in the development of two transportation programs managed by APD that are federally funded through Medicaid waivers. These programs provide qualifying seniors and people with disabilities access to transportation services to enable them to remain living in the community rather than in long-term care or other institutional settings. APD contracts with local agencies, often transit districts, cities, and counties to provide the transportation services. The local agencies contribute matching funds from the state Special Transportation Fund (STF) monies received or other local, nonfederal sources.

APD published a study in February 2015 entitled Senate Bill 21 – Final Report⁹³ that identified strategies to improve and strengthen the long-term care system. The report finds that maintaining people’s ability to live longer in their own homes is an important strategy, noting that transportation is one of three primary supports needed (along with caregiving and housing). ODOT works with APD to identify needs and opportunities to develop appropriate community-based programs.

B.3.2.4 Oregon Health Authority

Although OHA does not provide public transportation, ODOT coordinates with the agency on issues affecting public transportation and public health. ODOT has entered into a Memorandum of Understanding with OHA’s Public Health Division to improve communication between the two agencies to work together to increase the safety and physical activity of Oregonians, collaborate on research, and to leverage resources when appropriate.

A shared concern of both OHA and ODOT is facilitating and improving people’s access to health care, particularly for those who qualify for the Oregon Health Plan. Means of access to health care for those individuals without other options is by nonemergency medical transportation (NEMT). In the past, ODOT invested in developing transportation brokers for NEMT and participated in a multiagency working group to develop policies and procedures for coordinated NEMT service.

⁹³ Oregon Department of Human Services. 2015. *Senate Bill 21 – Final Report*. Available at https://www.oregonlegislature.gov/citizen_engagement/Reports/SB21ReportFinal2015.pdf. Oregon Department of Human Services, Aging and People with Disabilities Program. February 1.



These working groups were usually transit agencies or councils of governments. Law and rules governing this process changed in 2009, and since then community care organizations (CCOs) have been responsible for this function, and ODOT has been participating in a working group to help manage this transfer of responsibility.

B.3.2.5 Oregon and Federal Departments of Veterans Affairs

Several ODVA recent initiatives are designed to improve veterans' ability to access health care and other community services. ODOT participates in these initiatives as part of ongoing efforts to find coordination and improvement opportunities.

In 2015, ODOT worked with ODVA in a pilot program to address perceived gaps in medical transportation resources for veterans. The project is in response to a report published by ODVA in 2010⁹⁴ that identified lack of accessible transportation as a barrier to access to medical services. The project is being conducted in three regions of the state: central Oregon, Linn and Benton Counties, and Rogue Valley area. The project is designed specifically to fill gaps in veteran transportation programs that provide access to federal Department of Veterans Affairs-sponsored health care services. The project is managed by three transit agencies that match individual veteran transportation needs with available resources. The goal is to first use available resources, such as a transit bus service, before providing a more costly taxi trip.

Second, ODVA applied for and was awarded an FTA grant called "Highly Rural Grant Program," which will support transportation services for veterans to get to medical appointments, typically long-distance trips in highly rural areas of eastern Oregon. This program is a one-time grant intended to find creative solutions to improve service.

FTA awarded funds to TriMet, Ride Connection, LTD, and RVTD through a one-time grant program aimed at meeting the transportation needs of veterans. The Veterans' Transportation Community Living Incentive Program establishes "One-Click, One-Call" call centers to aid veterans and other community member to access information regarding options for public transportation. This particular grant program is being implemented in cooperation with federal Department of Veterans Affairs, Veterans Health Administration. ODOT participates in a working group that oversees project implementation and coordination.

⁹⁴ Oregon Department of Transportation. 2010. *Legislative Task Force on Veteran's Transportation—Final Report*. Available at <https://digital.osl.state.or.us/islandora/object/osl:4474>. Prepared by the Legislative Task Force on Veteran's Transportation.



Detailed Public Transportation Funding Information

This attachment provides details on sources and eligibility for state and federal funds and identifies sources and opportunities for funds available to local governments and other transit agencies.

C.1 Federal Funds

Federal funds are authorized and appropriated by Congress, usually to the U.S. Department of Transportation's (USDOT) budget. USDOT agencies, primarily Federal Transit Administration (FTA), and Federal Highway Administration (FHWA), which then send funds to the states, often reimbursing the states for eligible expenses. The Oregon Department of Transportation (ODOT) often receives these funds for the state and then grants, allocates, or passes through funds for eligible entities and programs throughout the state. Some entities such as large transit districts or metropolitan planning organizations (MPOs) directly receive federal funds.

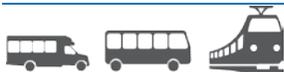
Congress establishes the legal authority for FTA programs by authorizing legislation that often covers several years. The most recent legislation is called the Fixing America's Surface Transportation Act, or FAST Act, which authorizes FTA and amends federal transit and funding programs and requirements. (Federal transit laws are included in U.S. Code (USC), Title 49, Chapter 53.)

FTA directs appropriated federal funds for transit through various programs.^{95,96} Funds are allocated by FTA to recipients defined as eligible by each individual program; each program has a different purpose and different eligibility requirements. ODOT is the designated state recipient of funds targeted to rural areas of less than 50,000 population and funds for special needs programs. ODOT manages grant programs and distributes the funds to eligible subrecipients. Some entities, including large and small urban agencies, and Indian Tribes, receive funds directly from FTA and also from ODOT. Large and small urban agencies receive most of their federal funds directly from FTA. Indian Tribes receive some of their funds directly from FTA via the Tribal Transit Program. All of these entities also receive federal funds from ODOT.

ODOT estimates that the state and federal grant funds allocated to the eligible transit agencies typically compose about 20 to 50 percent of their operations budgets. Most vehicles and other capital items purchased to support public transit services are obtained from federal and state sources through grants.

⁹⁵ Federal Transit Administration (FTA). Undated. *Funding and Finance*. Available at <https://www.transit.dot.gov/funding>. U.S. Department of Transportation, Federal Transit Administration (FTA).

⁹⁶ Federal Transit Administration (FTA). Undated. *Funding by State, Fiscal Years 1998-2014*. Available at <https://www.transit.dot.gov/funding/apportionments/funding-state>. U.S. Department of Transportation, Federal Transit Administration (FTA).



C.1.1 Federal Fund Transit Grants Awarded by Oregon Department of Transportation

Federal funds for grants in support of public transportation are categorized as transit operations, administration, and capital. Most funds are used for preservation of existing services.

C.1.2 Federal Transit Administration Fund Sources

Primary sources of federal funding used in Oregon are described below; the fund amounts shown are for fiscal year 2013. Figure C-1 describes additional funds available to Oregon that are targeted to specific purposes or specific agencies or are discretionary. Discretionary funds are available for eligible entities to apply for fund-specific projects or activities; therefore, these funds are not a regular distribution that states can expect to receive.

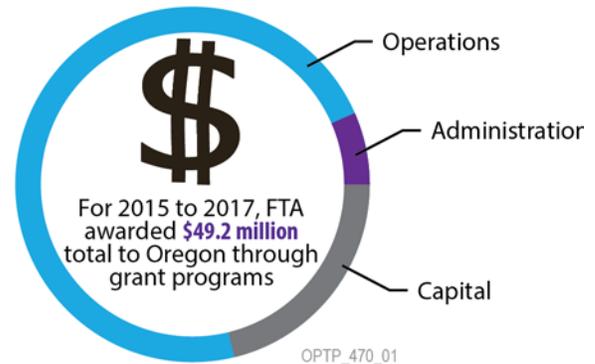


Figure C-1. How Federal Grant Funds for Transit are Spent in Oregon

C.1.2.1 Enhanced Mobility for Older Adults and People with Disabilities (49 USC §5310)⁹⁷

This program supports transit for seniors and people with disabilities. Funds may be used for transit operations, mobility management, and capital. In Oregon, the large urban agencies received approximately \$2 million per year; ODOT receives funds for the small urban agencies (\$750,000) and rural areas, including Indian Tribes (\$865,000). ODOT distributes the funds through a biennial discretionary grant program. Eligibility for the funds includes cities, counties, transit districts, nonprofit agencies, Indian Tribes, and councils of governments; private for-profit agencies are excluded by ODOT policy.

C.1.2.2 Urbanized Area Formula (49 USC §5307) and Small Transit Intensive City Performance Award (49 USC §5340)

This program provides grants for public transportation projects to urban areas with greater than 50,000 population. Funds are allocated directly by FTA to each recipient and are distributed based on a formula. The formula considers density for areas with population between 50,000 to 199,999, and a combination of bus service factors for area over 200,000. FTA allows transit providers serving urban communities with populations between 50,000 and 200,000 to use the FTA Section 5307 49 (49 Title USC §5340) formula funds for operations, whereas those funds are generally restricted to capital expenditures for transit providers serving communities with more than 200,000 people.⁹⁸

Oregon urban transit agencies received approximately \$53.6 million, of which Tri-County Metropolitan Transportation District of Oregon (TriMet) and City of Wilsonville South Metro Area Regional Transit (SMART) received \$35.3 million, Lane Transit District (LTD) received \$6 million;

⁹⁷ FTA programs are most frequently referred to by their section number, for example §5310, and not by their title.

⁹⁸ Federal Transit Administration (FTA). Undated. *Urbanized Area Formula Program (5307)*. Available at https://www.transit.dot.gov/grants/13093_3561.html. U.S. Department of Transportation. Federal Transit Administration.



Salem-Keizer Transit received \$5.2 million, and the remaining \$7 million was distributed to the six small urban agencies. Corvallis Transit System has high ridership in comparison with other small urban systems in the United States and was awarded an additional \$541,382 from the Small Transit Intensive Cities Performance Program.

C.1.2.3 Nonurbanized Area Formula (49 USC §5311)

This program supports public transportation in rural areas with populations less than 50,000. Funds may be used for capital, planning, and operations. ODOT is the recipient of the funds and offers a formula program to prequalified rural transit agencies offering transit services to the general public. Eligible recipients of the funds includes cities, counties, transit districts, nonprofit agencies, Indian Tribes, and councils of governments; private for-profit companies are excluded by ODOT policy. The annual apportionment is approximately \$11.8 million.

49 USC §5311 includes two associated programs: Intercity Bus and Rural Transit Assistance Programs. FTA requires that at least 10 percent of the §5311 appropriation be used for intercity bus support. ODOT offers discretionary grants to meet unmet intercity connectivity needs; in this program, private for-profit intercity bus operators are eligible, along with cities, counties, transit districts, nonprofit agencies, Indian Tribes, and councils of governments.

ODOT supports intercity bus services that connect rural Oregon to the Amtrak system; services are operated by vendors under contract with ODOT. The Rural Transit Assistance Program (RTAP) provides financial support for technical assistance specifically to meet the needs of rural transit agencies. ODOT offers RTAP-financed scholarships to a variety of transit-related educational events, provides training seminars of topics related to public transportation, and supports an annual conference in partnership with Oregon Transit Association and the Transportation Options Group of Oregon.

C.1.2.4 Indian Reservation Formula (49 USC §5311[c][1]) and Indian Reservation Discretionary (49 USC §5311[j])

This formula program is available to Indian Tribes that offer public transportation. The FTA also offers a discretionary program for Tribes who are just starting to provide public transit and those who may want additional funds for special projects. Oregon Tribes received approximately \$1 million. Funds may be used for capital, planning, and operations. The FTA awards the funds directly to the Tribes.

C.1.2.5 Bus and Bus Facilities Formula (49 USC §5339)

The 5339 program supports replacing, rehabilitating, and purchasing buses and related equipment and can be used to construct bus-related facilities. TriMet, LTD, and Salem Area Mass Transit District (SAMTD) were allocated approximately \$4.5 million; small urban facilities received \$702,371; and rural facilities received \$1.3 million.



C.1.2.6 Additional Federal Transit Administration Grant and Discretionary Programs

Other FTA grant and discretionary programs are described in Table C-1. These programs generally provide fewer dollars to Oregon as compared with the programs described above but are nonetheless important public transportation agencies statewide.

Table C-1. Additional FTA Grant and Discretionary Programs

Program	Title	Program Purpose	2013 Approximate Amount to Oregon
Sections 5303, 5304, 5305	Metropolitan and Statewide Planning	Provide funding for multimodal transportation planning in metropolitan areas and states for long-range and short-range plans.	\$1.6 million for MPO planning and \$225,000 for state planning
Section 5309	Fixed Guideway Capital Investment Grants	Provides discretionary grants for new and expanded rail, bus rapid transit, and ferry systems.	Oregon did not receive funds, although TriMet and LTD have received significant funds in other years for rail and bus rapid transit projects
Section 5337	State of Good Repair Formula	Provides funding for repairing and upgrading rail transit systems along with high-intensity motor bus systems that use high-occupancy vehicle lanes, including bus rapid transit.	Portland: approximately \$17.5 million
Section 5329€	Safety Oversight Program	Provides funds for state to develop and implement transit safety program.	\$700,000
Section 5320	Transit in the Parks Allocation	Provides a discretionary program to support transit related to access to federal lands.	\$460,000 to ODOT for Mt. Hood Express buses
Section 5312	Research, Development, Demonstration, and Deployment Projects	Supports research activities that improve the safety, reliability, efficiency, and sustainability of public transportation.	\$70 million per year available nationally
Section 5314	Technical Assistance and Standards Development	Provides technical assistance to the public transportation industry and sponsors developing voluntary and consensus-based standards.	\$7 million annual available nationally; program not yet initiated

C.1.3 Federal Highway Administration's Surface Transportation Program

FHWA's Surface Transportation Program (STP) provides funding that may be used by states and localities for a wide range of transportation projects to preserve and improve the conditions and performance of surface transportation, including highway, transit, intercity bus, bicycle, and pedestrian projects. STP funds received by ODOT are allocated by the Oregon Transportation Commission in the Statewide Transportation Improvement Program (STIP). The STIP is the document that identifies funding and schedules transportation investments in Oregon, generally for a 4-year period.



The STIP is a multimodal document and includes all federal and most state and local funds assigned to transportation investments, with STP being a primary source. ODOT’s current approach for STIP fund allocation divides investments into two categories: Enhance and Fix-It. Enhance projects enhance, expand, or improve the transportation system, and Fix-It projects maintain or repair existing infrastructure. Public transportation projects are eligible in the competitive Enhance Program, and the Fix-It Program includes a category of funding for bus replacement.

ODOT has routinely consulted local governments and the Area Commissions on Transportation for advice and recommendations about STIP investments. The current process relies on the Area Commissions on Transportation to review applications for Enhance Program projects and review the recommended Fix-It Program for their area. The new process allows transit projects to compete alongside other types of projects, focusing on the best investments for the area rather than individually considering each mode or type of project.

In fiscal year 2014, the STP transfer to transit by local jurisdictions and ODOT was \$35.5 million, which represents 29 percent of the STP funds available.

C.1.4 Congestion Mitigation and Air Quality Improvement and Transportation Alternatives Program

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program is designed to improve air quality and mitigate congestion. Eligible jurisdictions receive transportation program funding under an allocation methodology developed in cooperation with the FHWA (about 80 percent goes to the Portland area; other eligible jurisdictions include Medford, Grants Pass, Klamath Falls, La Grande, and Oakridge). The CMAQ program provides a flexible funding source to state and local governments that can be used for transportation projects and funds projects that provide a public benefit and help the area meet its air quality goals.

The Transportation Alternatives Program (TAP) is also funded with STP funds. TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving nondriver access to public transportation and enhanced mobility, community improvement activities, environmental mitigation, and other projects that enhance mobility and movement of the transportation system.

C.2 State Funds

Two state source programs, the Special Transportation Fund (STF) and the Mass Transit Payroll Assessment (also referred to as the “in lieu of taxes” program) directly fund public transportation. Three additional programs can also provide funds to be used for transit:

- *ConnectOregon* grant program
- Oregon Department of Energy tax credits
- Oregon Transportation Infrastructure Bank



The Oregon legislature may choose to directly fund public transportation projects in its appropriations. For example, the legislature has made direct appropriations to Portland’s light rail projects.

C.2.1 Special Transportation Fund

Created in 1985, the STF program is defined in law by Oregon Revised Statutes (ORS) 391.800 through 391.830. The program financially supports public transportation services for seniors and people with disabilities. The STF is defined as an entitlement in the law: ODOT distributes the funds to 42 entities designated by law to receive the funds. These entities are transit districts, counties where there is no transit district, and the nine federally recognized Indian Tribes in Oregon.

The STF program are currently comprises four separate sources:

- About 2 cents per pack of the state’s cigarette tax
- Transportation Operating Funds (TOF) allocated by ODOT to the STF account; sources for TOF include nonroad gas tax (for example from gas purchased for lawnmowers and off-road vehicles)
- Excess revenue from Oregon state photograph identification cards
- Any general funds appropriated to the STF program by the Oregon Legislature

STF funds are distributed based on a population formula; recipients with the smallest population get a minimum allocation established by policy. In 2013, the total STF amount allocated by ODOT was \$6.6 million. Of the 42 agencies receiving the funds, 22 received the 2013 minimum allocation of \$40,000; the 17 next largest received amounts between \$40,000 and \$980,000. TriMet, SAMTD, and LTD each received more than \$1 million.

The STF fund revenues have been generally stable over time, with recent growth in the program associated with increased contributions of State General Funds. The funds are used primarily for transit operations and are frequently used to match federal funds. The STF funds contributed to more than 6 million demand-response rides for older adults and people with disabilities in 2013.

C.2.2 Mass Transit Payroll Assessment

Oregon supports transit districts by distributing funds from the Mass Transit Payroll Assessment. Per ORS 291.405 and 291.497, state agencies with a physical location within the boundaries of mass transit, transportation, or transportation service districts collect a state-paid payroll assessment of not more than six-tenths of 1 percent (0.006) of each qualifying state employees’ gross wages.

To be eligible to receive these funds, a qualifying transit district must levy a tax. The amount of Mass Transit Payroll Assessment funds distributed to each eligible entity may not exceed the tax collected by the district. In the 2011-2013 biennium, about \$20.5 million was distributed to 10 of 14 districts (four do not have a tax and, therefore, do not qualify). The share of the funds distributed to individual districts is primarily based on the number of state-paid employees located



in the district. For example, in the 2011-2013 biennial distribution, Salem-Keizer Transit received \$9.5 million (the largest amount), TriMet received \$5.6 million, and South Clackamas Transportation District (in Molalla area) received \$12,502 (the smallest amount). Salem-Keizer Transit benefits from operating in the state capitol where many state employees are based.

C.2.3 Other State Funds

C.2.3.1 *ConnectOregon*

ConnectOregon is a legislatively approved grant program funded by lottery-backed bonds and supports nonhighway modes including air, rail, marine, pedestrian, bicycle, and transit modes. The Oregon legislature has chosen to approve this program each year since 2005, with funding ranging from \$40 million to \$100 million. Transit agencies may apply to the program for transit infrastructure projects such as buses, transit centers, or maintenance facilities. One or two transit projects have been funded per ODOT region per biennium, amounting to about 10 to 12 percent of *ConnectOregon* funds supporting transit projects. For example, Yamhill County built a transit center in McMinnville and the Confederated Tribes of Umatilla Indian Reservation built a vehicle maintenance facility using these funds.

C.2.3.2 *Energy Incentives Program*

The Oregon Department of Energy created the Energy Incentives Program (EIP) in 2011. This program replaces the former Business Energy Tax Credit Program. Most transit service operations and alternative fuel vehicle infrastructure qualify for funding through the program. EIP funds for transportation projects are capped at a total of \$20 million per biennium; however, this program is not as well utilized as the older program it replaced.

C.2.3.3 *Oregon Transportation Infrastructure Bank*

Managed by ODOT, the Oregon Transportation Infrastructure Bank (OTIB) is a statewide revolving-loan fund designed to promote innovative financing solutions for transportation needs. Oregon's OTIB program was started in 1996 as part of a federal pilot program. Eligible borrowers include cities, counties, transit districts, port authorities, other special service districts, Tribal governments, state agencies, and private for-profit and not-for-profit entities. Eligible transit projects include capital projects such as buses, equipment, and maintenance or passenger facilities. OTIB loans may be used to cover up to 100 percent of the costs of a project. An example is the recent purchase of a bus fleet by Rogue Valley Transportation District where the OTIB funds are being used to match federal funds.

C.3 Local Funding

Three primary sources of local funding in Oregon are passenger fares, payroll taxes, and property taxes. There are also a few other less frequently used options, such as contract revenue. Local funds pay for most transit operations in the larger systems and often contribute to operations in the smaller urban, rural, and county systems. Capital expenditures are often funded through



federal or state grants, but even in those situations local funding is required to provide the required local match for the grant.

The amount of local match funding required is a percentage of the total project cost and depends on the type of project and the FTA funding program. Transit operations funding from FTA, which is available for transit providers serving urban areas under 200,000 people, has match requirements ranging from 40 to 50 percent, and in some defined cases, may be as low as 10 percent. FTA capital funding, which can be used for items such as vehicles, facilities, corridor projects, and preventative maintenance, typically has a 20 percent match requirement, but the match can be as low as 10 percent or much higher than 20 percent for some discretionary grant programs.

C.3.1 Passenger Fare Revenue

Passenger fare revenue is generated from the fares riders pay to use the transit service. The fare can be paid at the time of the ride, or prepaid in the form of a pass, ticket, or token. In addition, some transit systems have agreements with certain organizations or institutions to pay for their fares as a group rather than individually (technically, these group passes are a form of contract revenue that can be used as match for federal grants). For example, LTD has a group-pass agreement with the University of Oregon, Lane Community College, and several businesses and public agencies.

Typically, passenger fare revenue covers between 10 to 25 percent of the operating cost of the transit service.⁹⁹ This percentage, known as the farebox recovery rate, can be as low as a very small percent in some smaller communities or county systems.⁹⁹ Although an important source of revenue, all public transportation systems require additional revenue sources to function.

C.3.2 Payroll Tax

The payroll tax is levied on employers based on a percentage of gross payroll for services employees performed within the transit district boundary. Six transit providers in the state levy this tax: LTD, TriMet, City of Wilsonville, City of Sandy, South Clackamas Transportation District, and City of Canby. The payroll tax levied by TriMet and LTD was established by state statute and that legislative action was limited to those two agencies. The tax is administered by the Oregon Department of Revenue and must not exceed a maximum rate that is set by the Oregon state legislature (currently 0.008, or \$8 per \$1,000 of payroll). The South Clackamas Transportation District and Cities of Wilsonville, Sandy, and Canby payroll taxes were established by city ordinance when these communities withdrew from the TriMet service area.

The payroll tax is closely indexed to the economy, growing if employment and/or wages increase, with slow growth or even a decline in tax revenue during economic downturns. Overall, when evaluated over many years, this revenue source has demonstrated robust growth.

⁹⁹ American Public Transportation Association (APTA). 2015. *2013 NTD Data Tables*. Available at <https://www.apta.com/resources/statistics/Pages/NTDDataTables.aspx>.



C.3.3 Property Tax

Seven public transportation agencies in the state receive local revenue from a tax on real property, which is allowed through ORS 198.010 and 198.335. The tax rate for transit varies from community to community. For instance, during the 2014-2015 fiscal year, Hood River County Transit assessed \$0.07 per \$1,000 of property value, and Salem-Keizer Transit assessed \$0.76 per \$1,000 of property value.¹⁰⁰ Property taxes are an important source of revenue for many agencies. Property taxes fund many local government functions, meaning public transportation providers must compete directly with other needs.

C.3.4 Other Funding Sources

In addition to the three sources described, several other local funding sources are used or could possibly be used to fund transit:

- **City and county general funds**—Some communities allocate a portion of the city or county general fund to help finance transit service. This funding source typically pays for only a small percentage of the service cost.
- **Contract revenue**—Several transit agencies, such as LTD and TriMet, sell advertising on transit vehicles or shelters and benches to generate additional local revenue. Other sources of contract revenue include group pass sales and client services provided for human service agencies such as Coordinated Care Organizations.
- **Transportation fees**—A unique way of funding operations has been implemented by the City of Corvallis through their Corvallis City Council approval, which offers “fareless” transit. More than 30 percent of their funding is provided through transit operations fees (TOFs). Established in 2010, TOFs are indexed to the average price of a gallon of regular grade gasoline and are collected monthly from all Corvallis utility customers.¹⁰¹
- **Funding partnerships**—Several transit agencies in the state supplement local funding through partnerships with public and private entities. These organizations help fund transit in exchange for transit service for their members, employees, students, and customers. A good example in the state is Cascades East Transit, which is the largest transit provider in Oregon without a dedicated local funding source. Cascades East Transit obtains local funding through numerous funding partnerships, including Mount Bachelor, Central Oregon Community College, and several cities and counties.
- **System development charges (SDCs)**—SDCs are charges paid by developers to fund public improvements that are needed to support the development. Transit is an eligible recipient of SDCs, although very few transit providers in the state actually receive SDC funds, because they

¹⁰⁰ Oregon Department of Revenue. 2015. *Oregon Property Tax Statistics Fiscal Year 2014-15*. 150 -303 -405 (Rev. 9 -15). Available at https://www.oregon.gov/DOR/programs/gov-research/Documents/property-tax-stats_303-405_2014-15.pdf. September.

¹⁰¹ City of Corvallis. Undated. *Bus Fares/Fareless*. Available at <https://www.corvallisoregon.gov/cts/page/bus-fares-fareless>.



are administrated by cities and counties, not the transit agency. The use of the funds is restricted to infrastructure improvements, which for transit could include items such as bus shelters. Pedestrian and cycling facilities can also be funded by SDCs, supporting good connections to transit stations and stops.

- **Donations**—Although donations represent a very small source of income for most agencies, they can be important for smaller agencies. More than 20 agencies reported donation income to the state in 2011 to 2013; for example, Douglas County reported over \$20,000 in donations during the period, largely through the value of donated driver time.¹⁰²
- **Bonding**—Significant capital expenditures can be funded through the sales of bonds, which are then repaid over a period of years. Few Oregon transit providers have used bonds to pay for capital projects.
- **Income Tax**—Transit providers that are also local governments in Oregon can theoretically levy a local option income tax by public vote to generate funding for transit service and capital expenditures. The tax would be in addition to the statewide rate. However, no transit providers in the state currently use this tax option.

¹⁰² Oregon Department of Transportation. 2013. *OPTIS—Oregon Public Transit Information System*. Available at <https://www.oregon.gov/ODOT/RPTD/Pages/OPTIS.aspx>. Oregon Department of Transportation, Public Transit Division.



Glossary of Public Transportation Terms

This Glossary is adapted for use in the Oregon Public Transportation Plan, primarily from glossaries prepared by Federal Transit Administration and Transportation Research Board, with other ODOT documents.

Access, Transit: Measure of the ability of people to travel among various origins and destinations; a measure of relative access of a population to employment opportunities, community services, education, healthcare, etc. A measure of ability of people to get to the nearest transit stop. The ability of persons with disabilities to use transit.

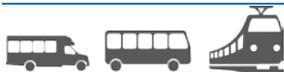
Accessibility: The ability to or ease with which people can reach or access destinations via public transportation (including employment, education, activities, and services) and return to their origin.

ADA Accessibility: The extent to which facilities, including transit vehicles, are free of barriers as defined by the Americans with Disabilities Act, and can be used by people who have disabilities, including users of mobility devices.

ADA complementary paratransit service: The Americans with Disabilities Act (ADA) requires public transit agencies that provide fixed-route service to provide complementary paratransit” services to people with disabilities who cannot use the fixed-route bus or rail service because of a disability. The ADA regulations specifically define a population of customers who are entitled to this service as a civil right. The regulations also define minimum service characteristics that must be met for this service to be considered equivalent to the fixed-route service it is intended to complement. In general, ADA complementary paratransit service must be provided within 3/4 of a mile of a bus route or rail station, at the same hours and days, for no more than twice the regular fixed route fare.

Affordability: refers to the ability of individuals and households to purchase transportation services, particularly those required to access basic goods and services (healthcare, shopping, school, work, and social activities). Affordability can be defined as the situation in which the broadest range of household incomes can bear the financial burden of purchasing basic transportation services. Affordability is a critical objective since it affects the opportunities available to disadvantaged people.

Alternative fuels: Vehicle engine fuels other than standard gasoline or diesel. Typically, alternative fuels burn cleaner than gasoline or diesel and produce reduced emissions. Common alternative fuels include methanol, ethanol, and compressed natural gas, liquefied natural gas, clean diesel fuels and reformulated gasoline.



Americans with Disabilities Act (ADA): Passed by Congress in 1990, this Act mandates equal opportunities for people with disabilities in the areas of employment, transportation, communications and public accommodations. Under this Act, most transportation providers are obliged to purchase lift-equipped vehicles for their fixed-route services and must ensure system-wide accessibility of their demand-responsive services to people with disabilities. Public transit providers also must supplement their fixed-route services with paratransit services for those people unable to use fixed-route service because of their disability.

Availability: Refers to whether or not transit is available to a rider spatially and in time, e.g. a stop close enough to for the rider to use, is there a sufficient service area covered to reach their destination, are vehicles running at useful times to the rider.

Brokerage: A method of providing transportation where riders are matched with appropriate transportation providers through a central trip-request and administrative facility. The transportation broker may centralize vehicle dispatch, record keeping, vehicle maintenance and other functions under contractual arrangements with agencies, municipalities and other organizations. Actual trips are provided by a number of different vendors.

Busway: A roadway reserved for buses only; also known as a “bus lane.”

Buy America: Federal transportation law which requires that all purchases of vehicles, equipment or any other manufactured item be of U.S.-made and assembled components, unless the purchase price is less than \$100,000 or the U.S. Department of Transportation has given the purchaser a Buy America waiver.

Capital costs: Refers to the costs of long-term assets of a public transit system such as property, buildings and vehicles. Preventive maintenance, mobility management, and certain kinds of operating expenses may be eligible to be treated as “capital” and are eligible to be reimbursed based on the percentage of federal and local match for capital projects.

Circulator bus: A bus that makes frequent trips around a small geographic area with numerous stops along the route. It is typically operated in a downtown area or an area that attracts tourists or large crowds and has limited parking and congested roads. It may be operated all day or only at times of peak demand, such as rush hour or lunch time.

Clean Air Act: Federal legislation that details acceptable levels of airborne pollution and spells out the role of state and local governments in maintaining clean air.

Community transportation: The family of transportation services in a community, including public and private sources that are available to respond to the mobility needs of all community members.

Congestion Mitigation and Air Quality Project (CMAQ): A flexible funding program administered by the Federal Highway Administration that funds projects and programs to reduce harmful vehicle emissions and improve traffic conditions. CMAQ funds may be used for transit projects, rideshare projects, high-occupancy vehicle lanes or other similar purposes.



Connectivity: Presence of useful, integrated links people can use to move between places, transportation system modes, or segments of the same mode. For example, do service routes intersect usefully in one place and time, can fares be interchangeable, or is information about all necessary links in a trip available in one place.

Coordinated Public Transit–Human Services Transportation Plan: A locally developed plan for coordinating local public transportation and human service agency transportation services that aims to maximize the programs’ collective coverage by minimizing duplication of services. The coordinated plan should be developed through a process that includes representatives of public, private and non-profit transportation and human services providers, and participation by the public. Under MAP-21, any public agency applying for funding of a new or expanded service under Sections 5310 must show that the project is identified in a locally developed, coordinated public transit-human services transportation plan developed through a process that consists of representatives of public, private, and non-profit transportation and human services providers with participation by the public.

Coordination: A cooperative arrangement among public and private transportation agencies and human service organizations that provide transportation services. Coordination models can range in scope from shared use of facilities, training or maintenance to integrated brokerages or consolidated transportation service providers.

Coverage: Also called “availability,” refers to spatial availability, temporal availability and how far one may travel, i.e., the service area.

Demand-response: As defined by the Federal Transit Administration (FTA), demand-response is any non-fixed route system of transporting individuals that requires advanced scheduling by the customer, including services provided by public entities, nonprofits, and private providers. A “demand response system” is one where passenger trips are generated by calls from passengers or their agents to the transit operator, who then dispatches a vehicle to pick the passengers up and transport them to their destinations.

Dial-a-ride service: Another term for demand-response service (see above) where the rider telephones (or “dials”) to request service.

Disabled: Any person who by reason of illness, injury, age, congenital malfunction or other permanent or temporary incapacity or disability is unable, without special facilities, to use local transit facilities and services as effectively as people who are not so affected.

Efficiency, Transit: According to the Transportation Research Board, transit efficiency generally refers to the ratio of inputs (capital and labor) to outputs (performance measures) in a given public transit system. Transit system efficiency can be measured in several possible ways, which can result in different conclusions about what solutions are optimal, such as accessibility-based transit efficiency (ratio of inputs to the spatial and temporal distribution of service coverage); economic



efficiency (ratio of monetary inputs to fare revenues); or service efficiency (ratio of inputs to service performance measures, such as headway, ridership, or fare box returns). Transit agencies generally measure for system efficiency in several ways, as opposed to interpreting any single measure as representative of the system's overall efficiency.

Employment transportation: Transportation specifically designed to take passengers to and from work or work-related activities.

Environmental Justice (EJ): refers to presence of and actions to avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations; also to ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and to prevent the denial of, reduction in or significant delay in the receipt of benefits by minority and low-income populations.

Fare box revenue: A public transportation term for the money or tickets collected as payment for rides. Can be cash, tickets, tokens, transfers or pass receipts.

Federal Highway Administration (FHWA): A component of the U.S. Department of Transportation that is responsible for ensuring that America's roads and highways are safe and technologically up-to-date. Although State, local, and tribal governments own most of the Nation's highways, the FHWA provides financial and technical support to them for constructing, improving, and preserving America's highway system. The FHWA's annual budget of more than \$30 billion is funded by fuel and motor vehicle excise taxes. FHWA is the lead agency in federal intelligent transportation (ITS) activities and regulated interstate transportation. In addition to ITS, funds under FHWA's Congestion Mitigation and Air Quality Improvement (CMAQ) Program, Surface Transportation Program (STP), and Federal Lands Highways Program can be used for a variety of transit activities.

Federal Transit Administration (FTA): A component of the U.S. Department of Transportation that administers federal funding to support a variety of locally planned, constructed, and operated public transportation systems throughout the U.S., including buses, subways, light rail, commuter rail, streetcars, monorail, passenger ferry boats, inclined railways, and people movers. FTA provides financial assistance for capital, operating and planning costs of these public transportation systems. It also sponsors research, training, technical assistance and demonstration programs. Up to 1991 the FTA was known as the Urban Mass Transportation Administration.

Fixed route service: Transit services where vehicles run on regular, scheduled routes with fixed stops and do not deviate. Typically, fixed-route service is characterized by printed schedules or timetables, designated bus stops where passengers board and alight and the use of larger transit vehicles.

Flexible routing and schedules: Flexible route service follows a direction of travel but allows for deviation or rerouting along the way to accommodate specific trip requests. Examples of flexible route systems are route deviation and point deviation. The schedule may be fixed or flexible.



Headway: The length of time at a stop between buses following the same route. If buses operating along Route A arrive at Stop 1 at 9:00, 9:30, 10:00, 10:30, and 11:00, it is operating on half-hour headways during the period between 9:00 and 11:00. When headways are short the service is said to be operating at a high frequency, whereas if headways are long, service is operating at a low frequency.

Human services transportation: Transportation for clients of a specific human or social service agency that is usually limited to a specific trip purpose. Human service agency trips are often provided under contract to a human service agency and may be provided exclusively or rideshared with other human service agencies or general public service.

Intelligent transportation systems (ITS). Refers to a broad range of wireless and wire line communications-based information and electronic technologies. When integrated into the transportation system's infrastructure and into vehicles themselves, these technologies relieve congestion, improve safety and enhance productivity. ITS is made up of 16 types of technology based systems, divided into intelligent infrastructure systems and intelligent vehicle systems.

Intercity transportation: Long distance service provided between cities, often as part of a large network of intercity bus operators. Both express and local bus service may be provided. The Greyhound system is an example of national intercity bus networks.

Intracity transportation: Transportation that allows people to move within a city. The service may include different transportation options such as bus connections to light rail, or a bus connection to a bicycle trail.

Jitney: A privately owned, small vehicle that is operated on a fixed route but not on a fixed schedule.

Match: State or local funds required by various federal or state programs to complement funds provided by a state or federal agency for a project. A match may also be required by states in funding projects that are joint state/local efforts. Some funding sources allow services, such as the work of volunteers, to be counted as an in-kind funding match. Federal programs normally require that match funds come from other than federal sources.

Medicaid: Also known as Medical Assistance, and in Oregon, called "Oregon Health Plan," this is a health care program for low-income individuals. It is jointly funded by state and federal governments. The program pays for transportation to non-emergency medical appointments if the recipient has no other means to travel to the appointment.

Metropolitan planning organization (MPO): The organizational entity designated by law with lead responsibility for developing transportation plans and programs for urbanized areas of 50,000 or more in population. MPOs are established by agreement of the governor and units of general purpose local government that together represent 75 percent of the affected population of an urbanized area.



Mobility: Ability to and/or ease with which people can use the transportation system to travel between destinations.

Mode, intermodal, multimodal: *Mode* refers to a form of transportation, such as automobile, transit, bicycle, and walking. *Intermodal* refers to the connections between modes, and *multimodal* refers to the availability of transportation options within a system or corridor.

National Transit Database: Reporting system managed by FTA that collects financial and operating data; reporters are recipients of transportation funds under Section 5311 and 5307.

Older Americans Act (OAA): Federal law first passed in 1965. The act established a national network of federal, state, and local agencies to plan and provide services to enable older persons to maintain their independence in their homes and communities. The Act created the infrastructure for organizing, coordinating, and providing community-based services and opportunities for older Americans and their families.

Operating costs: The sum of all recurring expenses (e.g., labor, fuel, administration) associated with the operation and maintenance of a transit system; excludes capital equipment purchases, loans, depreciation, or leases.

Paratransit: Paratransit is a broad term that may be used to describe any means of shared ride transportation other than fixed route mass transit services. Paratransit services usually use smaller vehicles (less than 25 passengers) and provide advance-reservation, demand-responsive service that is either curb-to-curb or door-to-door. Paratransit services that are provided to accommodate passengers with disabilities who are unable to use fixed route service and that meet specific service equivalency tests are called *ADA complementary paratransit services*.

Peak Hour / Peak Period: The period with the highest ridership during the entire service day, generally referring to either the peak hour (“rush hour”) or peak several hours. Transportation systems typically encounter two peak periods per day: AM Peak and PM Peak – about two hours each – in which the greatest movement of passengers occurs and where the greatest level of ridership is experienced and service provided. AM Peak (generally from 7am – 9am) refers to the morning commute period, generally from home to work. PM Peak (generally from 4pm – 6pm) refers to the evening commute period, generally from work to home.

Person-Trip/Passenger-Trip: A trip made by one person from one origin to one destination. Many transit statistics are based on "unlinked passenger trips," which refer to individual one-way trips made by individual riders in individual vehicles. A person who leaves home on one vehicle, transfers to a second vehicle to arrive at a destination, leaves the destination on a third vehicle and has to transfer to yet another vehicle to complete the journey home has made four unlinked passenger trips.



Radial network: A public transit route service pattern in which most routes converge into and diverge from a central transfer point or hub, like the spokes of a wheel. Arterial or loop routes may be used. If the routes are timed to arrive and depart at the same time, it is called a pulse system.

Rapid transit: Rail or bus transit service operating completely separate from all modes of transportation on an exclusive right-of-way. Often operates as an express service with a minimal number of stops. Light Rail and Bus Rapid transit are examples.

Reliability: refers to the predictability and consistency of transportation system or transit system performance, e.g. whether vehicles consistently arrive at a rider's originating stop and destination at the scheduled time.

Resiliency refers to a system's ability to accommodate variable and unexpected conditions without catastrophic failure.

Ridership: The number of people making one-way trips on a public transit system in a given time period.

Safety: refers physical or mechanical safety; it means the condition of being safe from undergoing or causing hurt, injury, or loss. For public transportation, safety primarily refers to activities and policies related to prevention of accidents, vehicle and other equipment failures, and passenger safety, such as safe waiting at stops and stations and while on vehicles.

Security: refers to the feeling or perception of personal safety. For public transportation, security refers occurrences beyond the more typical crash or slip-and-fall, such as bomb threat, arson, hijacking, sabotage, cyber security event, assault, burglary, theft, vandalism, etc. Security planning and incident prevention is typically conducted by transit agencies, in consultation with other agencies such as state FEMA agencies, police and fire, and federal Homeland Security, as well as others.

State Units on Aging (SUAs): Agencies of state and territorial governments designated by governors and state legislatures to administer, manage, design and advocate for benefits, programs and services for the elderly and their families and, in many states, for adults with physical disabilities. Since 1965 all State Units on Aging have administered the Older Americans Act (OAA) in their respective states. Through a state network of area agencies on aging and service providers, a range of services is provided to older persons including home-care, congregate and home delivered meals, transportation, information and assistance and advocacy on behalf of individual older citizens. SUAs also have significant policy, planning and advocacy roles in leveraging other federal, state and local public and private funds to support programs on aging.

Title III: A title of the Older Americans Act that authorizes expenditures for nutrition and transportation programs that serve older persons.

Title VI: A title of the Civil Rights Act of 1964 that ensures that no person in the United States will be discriminated against on the basis of race, color, or national origin. The transportation planning



regulations, issued in October 1993, require that metropolitan transportation planning processes be consistent with Title VI.

Transit amenities: include, but are not limited to, bus shelters, trash and recycling cans, bike parking, signage, lighting, pedestrian havens and crossings, landscaping, benches, bus turn-outs, medians, and sidewalks.

Transit facilities: include, but are not limited to, bus stops, park-and-rides, transit centers, and administrative and maintenance facilities.

Transit providers: a generic term for all entities that provide public transit services, including transit facilities and amenities. The assumption is that all “transit providers” have legal standing to provide the service, coordinate their planning efforts with local and state governments, and receive state and/or federal funding for transit programs. Transit providers can be non-profits, for-profits, public or private service providers, a special district, or a department of a city, county, or Tribe.

Transportation control measures (TCMs): Local actions to adjust traffic patterns or reduce vehicle use to reduce air pollutant emissions. These may include HOV lanes, provision of bicycle facilities, ridesharing, telecommuting, etc.

Transportation-Disadvantaged: Includes communities of color, the poor, older adults, youth and people with disabilities who are at a significant disadvantage without access to convenient, safe, well integrated transportation alternatives. All of these groups are often without easy access to cars and live in locations without convenient, safe transportation alternatives.

Transportation improvement program (TIP): A document prepared by states and planning commissions that describes projects to be funded under Federal transportation programs for a full-year period. Without TIP inclusion, a project is ineligible for Federal funding.

Transportation management area (TMA): Defined as all urbanized areas over 200,000 in population. Within a TMA, all transportation plans and programs must be based on a continuing and comprehensive planning process carried out by the Metropolitan Planning Organization (MPO) in cooperation with states and transit operators. The TMA boundary affects the responsibility for the selection of transportation projects that receive Federal funds.

Trip generator: A place that generates a demand for frequent travel is called a trip generator. Trip generators may be origins or destinations. For example, a high-density residential area generates a need for all kinds of trips outside of the residential area into commercial areas; a medical center generates trips for medical purposes; and a downtown area may generate trips for retail, recreational, or personal business purposes.

Urbanized area (UZA): An area that contains a city of 50,000 or more population, plus incorporated surrounding areas, and meets size or density criteria established by the Census Bureau.



U.S. Department of Health and Human Services (HHS): The federal agency that funds a variety of human services transportation through the Administration on Aging, Head Start, Medicaid, Temporary Aid to Needy Families, and other federal programs.

U.S. Department of Transportation (DOT): The federal department responsible for the funding, efficiency, and safety of the nation’s highway, aviation, transit, pipeline, and maritime transportation infrastructure.



Acronyms and Abbreviations

ACTs	Area Commissions on Transportation
ADA	Americans with Disabilities Act of 1990
AORTA	Association of Oregon Rail and Transit Advocates
APC	Automated Passenger Counter
APD	Aging and People with Disabilities Program
APTA	American Public Transportation Association
ATS	Albany Transit System
AVL	Automated Vehicle Location
BRT	bus rapid transit
CARTS	Chemeketa Area Regional Transportation System
CCNO	Community Connection of Northeast Oregon, Inc.
CCO	Community Care Organization
CMAQ	Congestion Mitigation and Air Quality Improvement
COIC	Central Oregon Intergovernmental Council
CTS	Corvallis Transit System
DHS	Department of Human Services
EIP	Energy Incentives Program
EJ	Environmental Justice
FAST	Fixing America’s Surface Transportation Act of 2015
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GCT	Gilliam County Transit
GHG	greenhouse gas
GPS	global positioning system
HCT	High Capacity Transit
iNiT	Innovation in Traffic Systems AG
LOS	Level of Service



LTD	Lane Transit District
MAX	TriMet Metropolitan Area Express Light Rail
MPO	Metropolitan Planning Organization
NEMT	non-emergency medical transportation
NTD	National Transit Database
NWOTA	Northwest Oregon Transportation Alliance
NxNW	North by Northwest Connector
OBPP	Oregon Bicycle and Pedestrian Plan
ODOT	Oregon Department of Transportation
ODVA	Oregon Department of Veterans Affairs
OHA	Oregon Health Authority
OHAS	Oregon Household Activity Survey
OHP	Oregon Highway Plan
OPTA	Oregon Public Transportation Association
OPTIS	Oregon Public Transportation Information System
OPTP	Oregon Public Transportation Plan
ORS	Oregon Revised Statute
OSRP	Oregon State Rail Plan
OTIB	Oregon Transportation Infrastructure Bank
OTOP	Oregon Transportation Options Plan
OTP	Oregon Transportation Plan
PAC	Project Advisory Committee
POINT	Public Oregon Intercity Transit
PRIIA	Passenger Rail Improvement and Investment Act
RPTD	Rail and Public Transit Division
RTAP	Rural Transit Assistance Program
RVTD	Rogue Valley Transportation District
SAM	Sandy Area Mass Transit
SAMTD	Salem Area Mass Transit District



SDC	System Development Charge
SMART	South Metro Area Regional Transit
STF	Special Transportation Fund
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
STS	Statewide Transportation Strategy
SUV	sport utility vehicle
TAC	Technical Advisory Committee
TAP	Transportation Alternatives Program
TIP	Transportation Improvement Program
TOD	Transit Oriented Development
TOF	Transit Operations Fee
TOFs	Transit Operation Fees
TPR	Oregon Transportation Planning Rule
TriMet	Tri-County Metropolitan Transportation District of Oregon
TSAP	Transportation Safety Action Plan
TSP	Transportation System Plan
USDOT	United States Department of Transportation
VMT	Vehicle Miles Travelled
WES	West Side Commuter Rail
WSDOT	Washington State Department of Transportation



Oregon Public Transportation Plan Provider Survey and Workshop Summary

This attachment summarizes themes and ideas that emerged from the Oregon Public Transportation Plan (OPTP) workshop held at the 2015 Oregon Public Transportation Conference and from the 2015 OPTP online provider survey. The goal of both the survey and workshop was to hear from Oregon public transportation providers to generate ideas and information about trends and opportunities they see, so that these perspectives can be considered during OPTP development. The survey and workshop results illuminate noteworthy current conditions information and also raise important potential policy issues and challenges.

Comparing Workshop and Survey Results

Overall, survey results and information from the conference workshop were complementary, with many common themes. There were a few differences between the survey respondents and workshop participants; for example, the workshop was attended largely by transit agency staff, while the survey respondents tended to be higher-level administrators. Based on anecdotal information, the workshop participants tended to more represent rural areas of the state, while the survey had more of a mix of urban and rural respondents. However, these differences did not result in major differences in the feedback given.

Some major themes identified from both groups are:

- Demographic changes, like the aging population, are expected to affect (and are currently affecting) service
- Concerns about ability to generate local match for funding programs
- Unique challenges of serving rural areas of Oregon with public transportation
- Desire to implement new technologies
- Need for better coordination and connections between services

Oregon Public Transportation Plan Workshop Themes

Approximately 60 Oregon Public Transportation Conference participants attended a two-hour workshop for the OPTP on Wednesday, October 21, 2015.

The primary objective of the workshop was to discuss several topics with public transportation providers to gather their ideas and build on survey themes with more detail and context. Participants engaged in an interactive dialogue about several key topics identified from initial survey responses and earlier stakeholder conversations.



Oregon Department of Transportation (ODOT) staff provided a summary of the project to provide background information for participants, while the majority of the time was spent on the interactive format of small-group activities and reporting out to the larger group. The following summarizes the major themes and ideas that emerged from the group discussions.

Access and Connections

Three groups discussed the topic of access and connections. Below are ideas and themes that resulted from the conversation.

Communications/Coordination

- Providers are communicating with locals through rider surveys, elected officials, and advisory committees
- To improve, convene a summit or system-wide regional meetings to share knowledge and planning information between providers
- Provide information about services from various providers as single system; create a communication network
- Make use of social media and other newer communication tools



Critical Connections to Make

- Bicycle and pedestrian networks
- Continuity between adjacent systems, jurisdictions or districts, and to coordinate fares
- Facilitate intermodal connections between providers and Amtrak, airports, park and rides, etc.

Changing Demographics

- Transit should serve the different populations that require transit, including aging, younger, and any population that depends solely on public transit
- There are language and technology barriers to accessing transit

Safety and Security

One group, consisting entirely of rural providers, discussed the topic of safety and security. Below are themes and ideas that resulted from the conversation.

System Safety

- Driver training is needed to ensure system safety, though accessing training can be an issue such as for rural operators



- Winter road conditions, security of operators, and vehicle maintenance are other safety concerns
- Aging volunteer drivers, sustainability of volunteer driver systems
- In rural areas, lack of cell phone coverage is a concern

Community Perspectives

Two groups discussed the topic of community perspectives. Following are themes and ideas that resulted from the conversation.

Understanding/Accommodating Transit Preferences

- Pay attention to ridership and new employers' needs
- Use advocacy groups, Title VI surveys, advisory committee
- New public engagement strategies needed
- Go to where the people are
- Use new software like Remix
- Develop Transit Development Plan (TDP) to reflect needs of the community

Top Needs

- More vehicles and more frequent service including weekend runs
- Better transit stop facilities
- Improving service often challenging with prevailing land use
- Better blend transportation options programs with transit

Equity Considerations

- Make sure to include transit providers and stakeholders in planning
- Can use on-board "ambassadors" to help those who do not speak English or otherwise need accommodation to use transit
- Consider special pass programs (e.g., student passes)
- Work with Coordinated Care Organizations (CCOs) to address needs of Medicaid populations

Strategic Investment

One group discussed the topic of strategic investment. Below are ideas and themes that resulted from the conversation.

Approaches to Maintaining Service

- Adopt emerging technologies
- Change public perception of transit



- Rethink service delivered & work with affected partners
- Prioritize service (vis a vis Maslow’s priority of needs) – identify essential services and organize services in a hierarchy to ensure preservation of the most essential programs

Other Considerations

- Concerned about stability of federal funding
- Meeting grant match requirements very difficult for the smallest providers

Creative Funding Ideas

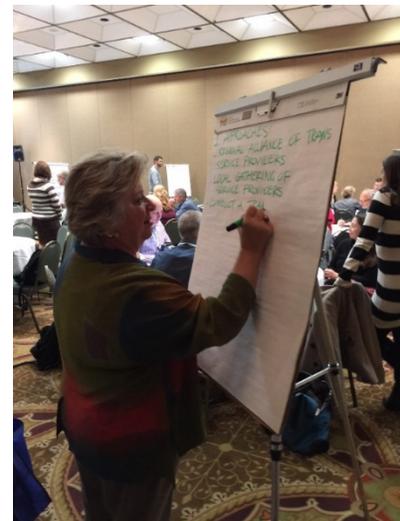
- Consider new tax options
- Partnerships with large agencies/businesses
- Partnerships with state and other agencies with related responsibilities

Transit Operations

Two groups discussed the topic of transit operations. Below are themes and ideas that resulted from the conversation.

Challenges

- Maintenance costs and wait time for repair
- Equipment operated beyond useful life
- Logistical issues related to isolation of rural systems
- Attracting qualified staff and training drivers
- Technology upgrade costs
- “Color of money” affects flexibility
- Understanding what types of service and activities to prioritize



Strategies

- Regional/peer communication to identify interagency partnerships to maximize capacity
- Increased financial help/partnership opportunities with the state
- More flexibility with funding dollars
- Share resources between systems (e.g., trainers)

Suggestions

- ODOT in-field partnerships to communicate with Regional Transit Coordinators (RTCs) about road conditions, etc.
- Coordinate and supply technology to allow communication between systems/programs
- State facilitation of technology transfer; establishment of standards



- Streamline procurement

Provider Survey Themes

ODOT conducted a short, non-scientific survey of Oregon public transportation providers in September and October, 2015. The purpose of the survey was to ask for providers' feedback to help identify issues, trends, opportunities, and challenges they are facing as they provide service to our communities. The information provided by respondents will be considered by project staff and stakeholders as the new OPTP is developed.

ODOT staff advertised the survey through emails to providers and at the Oregon Public Transportation Conference. A total of 43 responses were submitted to the survey. Typical respondents are the General Manager or Transportation Manager of a public transportation service provider, representing locales throughout the state. Based on the responses received, the project team identified the following themes.

Key Trends

- Increased demands due to aging population
- Changing demand due to other demographic changes (e.g., income, millennial generation)
- Serving large, rural areas with a real need for public transportation
- Growing communities
- Growing ridership
- Funding challenges

Technologies to be Implemented

- Automatic vehicle identification (AVI)/Automatic vehicle location (AVL) technologies
- On-board Global Positioning System (GPS)
- Real-time info via app/phone/web
- Passenger counters
- If already have AVL, transit signal priority (TSP) or E-Fare (mobile payment or other system)

Use of Volunteers and Coordination with Others

- Respondents are a mix of providers that use or do not use volunteers
- Volunteers are often drivers, particularly for on-demand/non-emergency medical transportation (NEMT) service
- Many providers offer information about neighboring or related services
- Efforts are undertaken to coordinate schedules with neighboring providers
- Most use surveys to communicate with riders



- Several providers participate in networks with monthly to quarterly coordination meetings with multiple partners and neighboring transit systems
- There is not a lot of coordination with other agencies regarding marketing or websites

Key Issues

- Funding stability
 - Local match (or inability to meet due to funding measures or other)
 - Local funding availability or willingness
- Safety and security
 - Accessing and waiting at stops
 - In vehicle behaviors
 - Vandalism
 - Roadway safety, safe stops on highways
 - Fleet reliability and maintenance
 - Aging volunteer drivers
- Interconnections
 - No fare reciprocity/transfer mechanism
 - Opportunity/need for regional and inter-regional connectivity, services
- Growth
 - More people riding transit, but without an increase in funding
 - Growing population, growing cities, but not necessarily where service is
- Aging and demographic changes
 - Affordable housing/living often not where transit is/can easily serve
 - Aging drivers, driver recruitment and training
 - Growing need for medical transport
- Communication
 - Communicating benefits and roles of transit, both urban and rural, to riders and community
 - Communicating transit services available

Opportunities

- Growth and partnerships
- Improving connections, locally and regionally



- Better technology improving user experience
- Increased public interest and use of transit
- Improved customer service



Appendix 2
Oregon Public Transportation Plan
Public Transportation Funding Overview



Public Transportation Funding Overview

Oregon Public Transportation Plan

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Introduction

The many diverse elements of Oregon’s public transportation system are funded through a complicated mix of local, state, and federal funding programs and by transit system-generated revenues such as passenger fares, advertising revenue and building leases. The specific mix used is different for each transit agency or service. Funding for public transportation in Oregon, like other modes, has been intermittent and suffers from the lack of adequate long-term dedicated funding. In some instances, funding comes from one-time revenue sources. The public transportation system would benefit by having reliable, flexible, and sustainable funding as the foundation for an integrated and interconnected public transportation network that can grow with the increase of population and service demand. In the long-term, the condition and performance of the system will be diminished without a source of significant, sustainable revenue.¹⁰³

Figure 1 provides a picture of the changes in public transportation resources managed by the Oregon Department of Transportation’s (ODOT) Rail and Public Transit Division. (ODOT is often the designated recipient of funds and then distributes the funds to local agencies.) The chart does not include local revenue, funds directly distributed by the Federal Transit Administration (FTA) to local recipients, or intercity rail funds. The majority of small urban and rural transit providers in Oregon are dependent upon these funds; while larger urban systems often receive FTA funds directly (excluded from the chart) and may receive more local funds and farebox receipts.

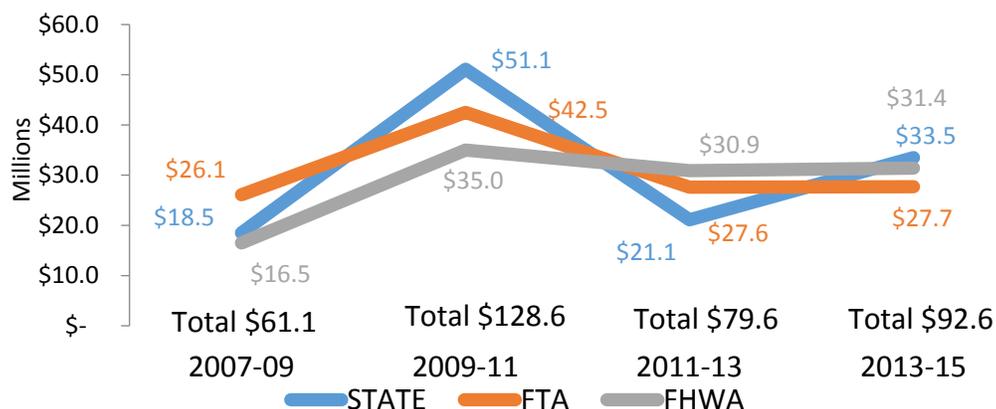


Figure 1. ODOT Public Transit Revenue Sources

Source: ODOT Rail and Public Transit Division; in 2009-11, the State program included lottery funds for Oregon Streetcar and the FTA program includes one-time American Recovery and Reinvestment Act funds.

Some of the state and federal funds are distributed based on formulas; other funds are in the form of discretionary or competitive grants, and periodically, the Oregon legislature makes direct

¹⁰³ State of the System, 2014. Oregon Department of Transportation.



legislative allocations on a one-time basis. The estimated 2014 intergovernmental funding resources for local public transportation and intercity bus are \$781 million; the breakdown of sources is shown in Figure 2. The proportion of funding received by individual agencies varies widely. For example, the majority of local funds are collected by the three largest transit agencies: TriMet, Lane Transit District (LTD), and Cherriots (serving Salem-Keizer). Many of the smallest agencies depend on state and federal funds as the majority of their budgets.

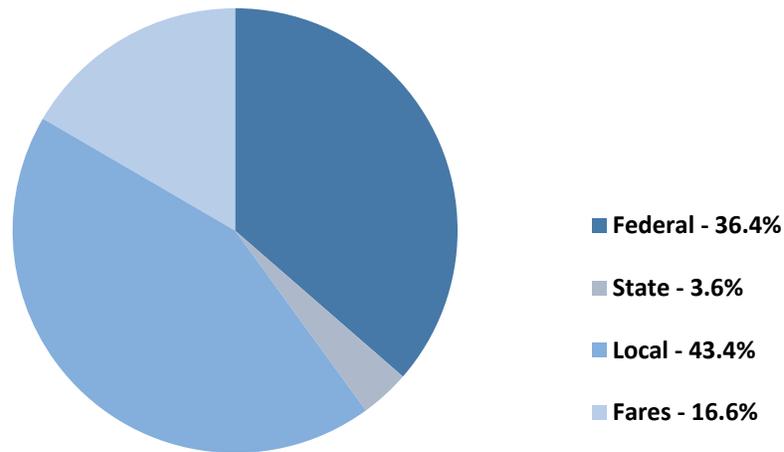


Figure 2. 2014 Estimated Funds for Public Transit

Source: Estimates calculated by ODOT Planning from internal ODOT expenditure information and Secretary of State Audits. This graphic includes local public transportation and intercity bus funds, but does not include intercity passenger rail funds.



Federal Funds

Federal funds for public transportation are authorized and appropriated by Congress, usually to the U.S. Department of Transportation's (USDOT) budget. USDOT agencies, primarily the FTA and the Federal Highway Administration (FHWA), provide funds to the states by reimbursing the states for eligible expenses. FHWA formula funds flow through The ODOT which then grants or passes through funds to eligible entities throughout the state to use for qualified purposes. FTA directs appropriated federal funds for transit through various programs, most of which flow directly to transit providers.

Congress establishes the legal authority for FTA and FHWA programs through authorizing legislation that often covers several years; however, in recent years, authorization has been short-term with some authorization periods being only a year or less. While currently authorized through 2020, federal surface funds are threatened due to declining federal gas tax receipts, political uncertainties, and potential shifts of priorities. The most recent authorizing legislation is called the Fixing America's Surface Transportation Act or FAST Act, continues and amends federal transit, rail, and highway funding programs and requirements.¹⁰⁴ The FAST Act is a five-year bill, which expires in 2020, and represents the first time in ten years that Congress has authorized a multi-year bill, providing a degree of certainty. However, in the long-term, there is continuing concern about the solvency of the Highway Trust Fund, which receives dollars from the federal gas tax, and funds both highway and transit programs.

Federal Transit Administration Funds

FTA directs federal funds appropriated for transit through various programs.^{105,106} Funds are allocated by FTA to recipients defined as eligible by each individual funding program; each program has an individual purpose and eligibility requirements (legislation typically defines a series of programs with different purposes, participants, and rules and often assigns funds to each). ODOT is the designated state recipient of programs' funds that are targeted to rural areas of less than 50,000 population or for special needs services (such as transit for persons with disabilities). ODOT manages grants and distributes the funds to eligible sub-recipients. Some entities, including large and small urban agencies, and Indian tribes, receive funds directly from FTA and also from ODOT. Urban agencies, large and small, receive most of their federal funds directly from FTA. Indian tribes may receive some of their funds directly from FTA via the Tribal Transit Program and are eligible for funds distributed by ODOT. Sometimes Oregon agencies receive funds from nationally competitive federal capital funding programs; these have been an important source of funds for some of the largest and most complex public transportation projects in the state.

¹⁰⁴ Federal Transit laws included in U.S. Code (USC), Title 49, Chapter 53.

¹⁰⁵ Federal Transit Administration (FTA). Undated. *Funding and Finance*. Available at <https://www.transit.dot.gov/funding>. U.S. Department of Transportation, Federal Transit Administration (FTA).

¹⁰⁶ Federal Transit Administration (FTA). Undated. *Funding by State, Fiscal Years 1998-2014*. Available at <https://www.transit.dot.gov/funding/apportionments/funding-state>. U.S. Department of Transportation, Federal Transit Administration (FTA).



Many federal sources require about 20 percent in matching funds (funds the state or local recipient(s) must put in to receive the federal funds), but this can vary from approximately 10 to about 50 percent depending on the individual program funding requirements. Raising the local revenue needed to meet match requirements was identified as a concern by transit agencies, especially as rules do not allow fare revenue to be used.

When local revenue is limited, transit agencies may not be able to raise enough matching funds. This also means that they are dependent on the state and federal grants that they can receive. ODOT estimates that the state and federal grant funds allocated to the eligible transit agencies typically compose about 20 to 50 percent of their annual budgets.

Federal Highway Administration Funds

There are two FHWA programs managed by ODOT that are used to support transit projects in Oregon, the Surface Transportation Program and the Congestion Mitigation and Air Quality Program.

Surface Transportation Block Grant Program

Formerly known as the Surface Transportation Program, FHWA's Surface Transportation Block Grant Program (STBGP) provides funding that may be used by states and localities for a wide range of transportation projects to preserve and improve the conditions and performance of surface transportation, including highway, transit, intercity bus, bicycle, and pedestrian projects. STBGP funds received by ODOT are allocated by the Oregon Transportation Commission through the Statewide Transportation Improvement Program (STIP). In fiscal year 2014, the STBGP funds used for transit totaled \$35.5 million, which represents about 29 percent of available STBGP funds. The amount of STBGP funding transferred to transit can vary, for instance in the most recent STIP (2018-2021), the OTC allocated an extra \$15 million for vehicle replacement.

Congestion Mitigation and Air Quality Improvement

The Congestion Mitigation and Air Quality Improvement (CMAQ) Program is designed to improve air quality and mitigate congestion. The CMAQ program provides a flexible funding source to state and eligible local governments that can be used for transportation projects. CMAQ funds projects that provide a public benefit and help the area meet its air quality goals. Qualified projects are selected by the local areas in which the projects are implemented.

Federal Funding Summary

Table 1 provides information about FTA and FHWA programs under the FAST Act. The current names of the programs are listed in the table as well as the approximate award and the method of distribution used in Oregon. Note that the programs are often known by their section number (for example, 5303 and 5304). The chart is generally arrayed by the section number, from small to large.



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<u>Metropolitan & Statewide Planning and Non-Metropolitan Transportation Planning – 5303, 5304, 5305</u>	Provides funding and procedural requirements for multimodal transportation planning in metropolitan areas and states, including for public transportation. Planning needs to be cooperative, continuous, and comprehensive, resulting in long-range plans and short-range programs reflecting transportation investment priorities.	\$1.6 million for MPO planning; \$225,000 for state planning	ODOT Planning allocates urban funds to the MPOs to support MPO planning and project development. ODOT Rail and Public Transit Division invest non-metropolitan funds for statewide/rural planning projects.
<u>Urbanized Area Formula Grants – Section 5307 and Small Transit Intensive City Performance Award – 5340</u>	Provides funding to public transit systems in Urbanized Areas for public transportation capital, planning, as well as operating expenses in certain circumstances.	Oregon urban transit agencies \$52.3 million; TriMet, Wilsonville SMART - \$33 million; LTD \$6.1 million; Salem –Keizer \$5.8; 6 small urban agencies \$7.3 million; Corvallis and the Rogue Valley shares include additional award from the Small Transit Intensive Cities Performance Program	FTA apportions funds directly to the designated urban recipients; ODOT does not have a direct role.
<u>Enhanced Mobility of Seniors & Individuals with Disabilities - 5310</u>	Formula funds apportioned to large urban direct recipients ¹⁰⁹ and the state on behalf of the small urban and rural agencies. Program purpose is to assist in meeting the transportation needs of the elderly and persons with disabilities. Funds operations, vehicle maintenance, mobility management, vehicles, and facilities.	Large urban areas -\$1.6 million per year; Small urban areas \$766,000; Rural areas, including Indian tribes \$910,000 ODOT adds not less than \$10 million of STBGP to this program each year.	FTA apportions funds directly to the designated large urban recipients; ODOT does not have a direct role. ODOT conducts a biennial discretionary grant program. Eligible recipients include small urban and rural cities, counties, transit districts, nonprofit agencies, Indian tribes and councils of governments; large urban agencies may also participate in this program due to the addition of STBGP funds to the program.

¹⁰⁷ Chart includes both Federal Transit Administration Funds and Federal Highway Administration Funds that are used for public transportation projects.

¹⁰⁸ <https://www.transit.dot.gov/funding/grants/fta-allocations-formula-and-discretionary-programs-state-fy-1998-2018-excel>.

¹⁰⁹ “Direct recipient” is an entity that receives funding directly from FTA. Direct recipients are defined by FTA in consultation with the state’s Governor.



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<u>Formula Grants for Rural Areas – 5311</u>	<p>Formula funds apportioned to the state for rural areas with population less than 50,000, where many residents often rely on public transit to reach their destinations. Program purpose is to support services open to the general public. Funds capital, planning, operations, mobility management, and administration.</p> <p>At least 15 percent of the apportionment is for rural intercity bus support.</p>	<p>Annual apportionment is about \$11.9 million of which 15 percent (\$1.8 million) is reserved for rural intercity bus support.</p>	<p>ODOT offers a biennial formula program to prequalified rural transit agencies, including cities, counties, transit districts, nonprofit agencies Indian tribes and councils of governments.</p> <p>ODOT offers a biennial discretionary intercity bus grant program. In addition to those eligible for 5311 formula, private for profit intercity bus operators are eligible for the intercity bus support.</p>
<u>Rural Transportation Assistance Program – 5311(b)(3)</u>	<p>Provides funding to states for developing training, technical assistance, research, and related support services in rural areas. The program also includes a national program that provides information and materials for use by local operators and state administering agencies, and supports research and technical assistance projects of national interest.</p>	<p>RTAP award is \$181,000.</p>	<p>ODOT offers RTAP funds to support scholarships to transit related educational events and an annual conference in cooperation with Oregon Transit Association and Transportation Options Group.</p>
<u>Public Transportation on Indian Reservations Program; Tribal Transit Program – 5311</u>	<p>The Tribal Transit Program is a set-aside from the Formula Grants for Rural Areas program consisting of a formula program and a discretionary grant program, subject to appropriations. There is no local match required under the formula program; however, a 10 percent local match is required under the discretionary program.</p>	<p>Formula funds: \$667,000 Discretionary: varies; no Oregon projects in this year</p>	<p>Awarded directly by FTA to Indian tribes; ODOT does not have a direct role.</p>



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<p><u>Capital Investment Grants (CIG) – 5309</u></p> <p>Note: Prior to FAST Act, Map-21 combined 5309 New Starts/Small Starts, and Bus and Bus Related Equipment and Facilities programs with 5339 State of Good Repair program. FTA created a series of discretionary grant programs targeted at a variety of purposes which were funded out of unobligated balances from prior years’ 5309 appropriations.</p> <p>Currently, per FAST Act, three separate grant programs are created, targeted to more distinct purposes and eligibility.</p>	<p>FTA’s primary grant program for funding major transit capital investments, including heavy rail, commuter rail, light rail, streetcars, and bus rapid transit; this discretionary grant program is unlike most others in government. Instead of an annual call for applications and selection of awardees, the law requires that projects seeking CIG funding complete a series of steps over several years to be eligible for funding.</p> <p>Eligible applicants for the CIG program are state or local governmental authorities.</p>	<p>5309 Fixed Guideway Investment:</p> <p>\$124.4 million for Portland metro area transit capital projects such as light rail.</p>	<p>Per changes in FAST Act, FTA is currently redefining the program.</p> <p>ODOT could apply for a qualified project; FTA awards funds directly to the qualified recipients.</p>
<p><u>Mobility on Demand (MOD) Sandbox Demonstration Program - 5312</u></p>	<p>Funds projects that promote innovative business models to deliver high quality, seamless and equitable mobility options for all travelers.</p> <p>Competitive program, eligible recipients are providers of public transportation including public transit agencies, nonprofits, state and local departments of transportation and federally recognized Indian tribes.</p>		<p>New Program; ODOT could apply for a qualified project; FTA awards funds directly to the qualified recipients.</p>



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<u>Public Transportation Innovation - 5312</u>	<p>Provides funds to develop innovative products and services to assist transit agencies to better meet the needs of their customers.</p> <p>Eligible recipients are determined for each competition, and may include: universities, public transportation systems, state departments of transportation, nonprofit and for-profit entities, amongst others.</p>		<p>New Program; ODOT could apply for a qualified project; FTA awards funds directly to qualified recipients.</p>
<u>Transit Cooperative Research Program - 5312(i)</u>	<p>Research program that develops near-term, practical solutions such as best practices, transit security guidelines, tests prototypes, and new planning and management tools.</p> <p>Research problem statements are solicited annually from the transit community. Transportation Research Board publishes competitive contracts for research and synthesis studies of current best practices. Funds for projects are allocated by transit industry consensus through TRB.</p>		<p>ODOT and Oregon transit agencies participate in this program by submitting research requests for consideration.</p>
<u>Technical Assistance & Standards Development - 5314(a)</u>	<p>Provides funding for technical assistance programs and activities that improve the management and delivery of public transportation and development of the transit industry workforce.</p>		<p>New Program – details not yet available.</p>
<u>Human Resources & Training - 5314 (b)</u>	<p>Provides grants or contracts for human resource and workforce development programs as they apply to public transportation activities.</p>		<p>New Program – details not yet available.</p>



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<u>Public Transportation Emergency Relief Program - 5324</u>	Helps states and public transportation systems pay for protecting, repairing, and/or replacing equipment and facilities that may suffer or have suffered serious damage as a result of an emergency, including natural disasters such as floods, hurricanes, and tornadoes. It provides authorization for Section 5307 and 5311 funds to be used for disaster relief in response to a declared disaster.		New Program – details not yet available.
Public Transportation Safety and Oversight, Chapter 53 Section 5329 ¹¹⁰	The program includes a national public transportation safety plan, a safety certification training program, a public transportation agency safety plan, and a state safety oversight program. Currently applies to passenger rail; new regulations for bus transit are being developed.	ODOT: \$700,000	Funds are apportioned to ODOT by FTA; ODOT currently uses the funds for passenger rail safety oversight.
<u>State of Good Repair Grants (SGR) - 5337</u> includes High Intensity Fixed Guideway and High Intensity Motorbus factors.	Provides capital assistance for maintenance, replacement, and rehabilitation projects of existing high-intensity fixed guideway and high-intensity motorbus systems to maintain a state of good repair. Additionally, SGR grants are eligible for developing and implementing Transit Asset Management plans. Eligible recipients are state and local government authorities in urbanized areas with rail fixed guideway and high intensity motorbus systems that have been in operation for at least 7 years. In Oregon only, the Portland urbanized area is eligible.	Portland urbanized area \$17.5 million for fixed guideway and \$91,000 for motorbus	FTA apportions funds directly to the designated urban recipients; ODOT does not have a direct role.

¹¹⁰ https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/5329_Safety_Program_Fact_Sheet.pdf.



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<u>Buses and Bus Facilities Grants Program - 5339</u>	<p>Under FAST Act, FTA offers both formula and discretionary programs. Program purpose is for purchase, replacement and rehabilitation of buses and related equipment and to construct bus-related facilities.</p> <p>Formula funds are apportioned to large urban direct recipients and the state on behalf of the small urban and rural agencies. In addition to the formula allocation, this program includes two discretionary components: The Bus and Bus Facilities Discretionary Program and the Low or No Emissions Bus Discretionary Program.</p> <p>Competitive grant program provides funding for major improvements to bus transit systems that would not be achievable through formula allocations.</p>	<p>Formula apportionments: TriMet, LTD and Salem-Keizer \$4.5 million; Small urban agencies \$718,000; Rural areas \$1.25 million</p> <p>Discretionary funds have yet to be awarded.</p>	<p>FTA apportions funds directly to the designated urban recipients; ODOT does not have a direct role.</p> <p>For formula funds apportioned to ODOT; ODOT offers a biennial competitive grant process for the small urban and rural transit agencies offering public transportation. ODOT limits the fund purpose to vehicle replacement.</p> <p>FTA Discretionary program is available to large urban areas that apply directly to FTA; ODOT applies for small urban and rural agencies.</p>
<u>Surface Transportation Block Grant Program - 23 USC 133</u>	<p>FHWA funds that may be used by states and localities for a wide range of projects to preserve and improve the conditions and performance of surface transportation, including highway, transit, intercity bus, bicycle, and pedestrian projects.</p>	<p>In 2014, \$35.5 million (29 percent) of STBGP funds were flexed to transit by ODOT</p>	<p>ODOT established a flexible funds program in 2009 and in accordance with directions from the Oregon Transportation Commission committed to annual allocation of Surface Transportation Program funds no less than \$10 million annually to senior and special transportation needs. Additional OTC allocations of STBGP are used for Transportation Options program (\$1 million) and Mass Transit Vehicles (\$2 million). STBGP funds may also be acquired by transit agencies and RPTD through discretionary programs (for example, Enhance and, in some locations, CMAQ).</p>



Table 1. Federal Fund Sources and Distribution for Public Transportation^{107, 108}

Federal Program Name per the FAST Act and Reference	Federal Program Description	2014 Approximate Award in Oregon	Oregon Distribution Method
<u>National Highway Performance Program - 23 USC 119</u>	FHWA funds that provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS, and to ensure that investments of federal funds in highway construction are directed to support progress toward the achievement of performance targets established in a state’s asset management plan for the NHS.		Program eligibility allows for transit features, such as bus pull-outs, included in highway construction.
<u>Congestion Mitigation and Air Quality Improvement Program - 23 USC 149</u>	CMAQ provides funding to areas in non-attainment or maintenance for ozone, carbon monoxide, and/or particulate matter.	\$18 million per year	Local jurisdictions in non-attainment or maintenance areas qualify for CMAQ program funds. The funds may be used for a variety of projects, including public transit, as long as it helps the area meet its air quality goals.
Transportation Investment Generating Economic Recovery Program <u>TIGER (USDOT)</u> ¹¹¹	TIGER provides funding, on a competitive basis, for innovative, multimodal, and multijurisdictional transportation projects that promise significant economic and environmental benefits to an entire metropolitan area, a region, or the nation.	No grants in Oregon related to public transit during this period.	
FHWA Federal Lands Access Program - 23 U.S.C. 204 ¹¹² (Formerly Transit in the Parks program)	Program funding to states to support, among other things, transit related access to federal lands. The program is managed by the Office of Federal Lands Highway, a division of FHWA. States are to establish committees composed of representatives from FHWA, state departments of transportation and local jurisdictions and award funding in partnership with federal land management agencies.	\$460,000 to ODOT for Mt. Hood Express	States, tribes, counties, cities, or local governments are eligible to receive program funds.

¹¹¹ <https://www.transportation.gov/BUILDgrants>.

¹¹² <https://flh.fhwa.dot.gov/programs/flap/>.



State Funds

The state has several important, though limited, funding sources for public transportation (Table 2). State funding generally provides a lesser share of most transit agencies' revenues as compared to federal funding, however, smaller agencies are generally more dependent on state funds than are larger agencies. Oregon lacks some of the funding sources available in other states for transportation, for example, two of the more common transit funding sources in other states are sales and fuel taxes. Oregon has no sales tax, and the state constitution does not allow fuel taxes to be used for transit, which also precludes a local fuel tax for transit funding. Previous efforts to revise the state constitution to allow gas tax revenue to be used for non-auto purposes (1980, 1990, 1991, and twice in 1992) have been unsuccessful.¹¹³ The two major state programs for public transportation are the Special Transportation Fund (STF) and the Mass Transit Payroll Assessment (also referred to as the "in lieu of taxes" program). Three additional programs are also available to provide funds for public transportation. The table below summarizes Oregon state funding sources for public transportation.

Special Transportation Fund

Created in 1985, the STF program financially supports public transportation services benefitting seniors and people with disabilities. The STF program revenues derived from the dedicated funds sources (cigarette tax, transportation operating fund and photo identification cards) have been stable over time (Figure 3). The funds have been augmented in recent years by contributions of State General Funds, which are specific appropriation decisions by the state legislature. STF funds are used primarily for transit operations and are frequently used to match federal funds also used for transit operations and capital. The following charts show the sources of funds included in the STF program and the variability of those funds. The STF program for 2013 - 2015 is currently comprised of four primary sources as shown in Table 3. Interest income also contributes to the funds.

Mass Transit Payroll Assessment

Oregon supports transit districts by distributing funds from the Mass Transit Payroll Assessment. To be eligible to receive these funds, a qualifying district must levy a tax in support of public transportation. The amount of Mass Transit Payroll Assessment funds distributed to each eligible entity may not exceed the tax collected by the district. In the 2011-2013 biennium, about \$20.5 million was distributed to 10 of 14 districts (four do not have a tax and therefore do not qualify). The share of the funds distributed to individual districts is primarily based on the number of state employees in the district. For example, in the 2011-2013 biennial distribution, Cherriots received \$9.5 million (the largest amount), TriMet received \$5.6 million, and South Clackamas Transportation District (in Molalla area) received \$12,502 (the smallest amount). Salem-Keizer Transit benefits from operating in the state capital where many state employees are based.

¹¹³ Association of Oregon Rail and Transit Advocates (AORTA). 2015. *Please Support SJR 16 to Provide Wise Use of Oregon's Motor Vehicle Revenue*. Available at http://www.aortarail.org/images/uploads/SJR_16_for_Transportation_Choice.pdf. February.



Table 2. State Fund Sources and Distribution for Public Transportation

State Program	State Program Description	2014 Approximate Award in Oregon	Distribution Method
Special Transportation Fund, (ORS) 391.800 through 391.830	<p>Funds support public transportation services benefitting seniors and people with disabilities. Defined as an entitlement in the law.</p> <p>Funds may be used for transit operations, capital or planning, and are frequently used to match federal funds.</p>	<p>\$6.6 million total distributed: 22 agencies received the minimum allocation of \$40,000; 17 agencies received between \$40,000 and \$980,000; TriMet, SAMTD and LTD each received more than \$1 million.</p>	<p>Oregon distributes the funds, based on population, to 42 entities designated by law to receive the funds. These entities are transit districts, counties where there is no transit district, and the nine federally recognized Indian tribes in Oregon.</p> <p>Majority of funds are allocated by a population-based formula; remaining funds are used for projects of statewide significance or as discretionary awards.</p>
Mass Transit Payroll Assessment, (ORS) 291.405 and 291.497	<p>Special payroll tax fund collected and distributed by the Department of Administrative Services to public transportation districts that levy a public transportation tax and have state employees within their taxing district. The service districts collect a state-paid payroll assessment of not more than six-tenths of one percent (0.006) of each qualifying state employee's gross wages.</p> <p>Funds may be used for any purpose designated by the recipient agencies, and may be used to match federal funds.</p>	<p>\$20.1 million distributed to 10 of 14 districts (four do not have a tax); SAMTD received the most - \$10.2 million; TriMet - \$5.9 million; the smallest South Clackamas (Molalla) - \$13,982</p>	<p>The amount of Mass Transit Payroll Assessment funds distributed to each eligible entity based on the number of state employees; may not exceed the tax collected by the district.</p>
<i>ConnectOregon</i>	<p>Legislatively allocated competitive grant program for alternative modes, modes that are not eligible for highway fund, of transportation, including transit capital projects.</p>	<p>Most recent project funding is not available.</p> <p>\$7.2 million in annualized debt service.</p>	<p>The competitive applications go through an extensive review process including a statewide committee. The OTC approves the projects. From <i>ConnectOregon</i> I-V, transit has received between 10 and 12 percent; a total of \$41.6 million. <i>ConnectOregon</i> VI is currently under review.</p>



Table 2. State Fund Sources and Distribution for Public Transportation

State Program	State Program Description	2014 Approximate Award in Oregon	Distribution Method
Oregon Transportation Infrastructure Bank	Statewide revolving loan fund designed to promote innovative financing solutions for transportation needs. Eligible applicants include counties, cities, transit districts, port authorities, other special districts, tribal governments, state agencies, private for profit and not-for-profit entities. Public transportation capital projects are eligible.	\$247,000 to the Rogue Valley Transit District for the One Call One Click center.	A prescribed loan application is submitted to ODOT. The Chief Financial Officer can make decisions under \$1 million; over a million require OTC approval.
Direct Legislative Appropriation	Each legislative session, the Oregon Legislature will consider, and fund, some special requests for public transportation funding; in this document, they are considered a direct legislative appropriation. The projects are generally larger scale in scope, where the funds will just be one portion of the total project cost. The funds provided by the legislature are generally lottery revenue.	LTD \$12 million for BRT; SAMTD \$3.5 million for transit center \$30.5 million, annualized debt service on previous non-ConnectOregon funds	The bills are introduced by a legislator, a legislative committee or the Governor’s Office. The funding is appropriated through a passed legislative bill.



Table 3. Special Transportation Funds, 2013-2015

STF Funding Source	Amount	Notes
State Cigarette Tax	\$7.1 million	About 2 cents a pack
Transportation Operating Fund	\$6.6 million	Non-road gas tax (for example, gas purchased for lawn mower and off-road vehicles)
DMV Photo ID Cards	\$3.9 million	Excess revenue after program costs
State General Funds	\$12.1 million	Legislatively appropriated

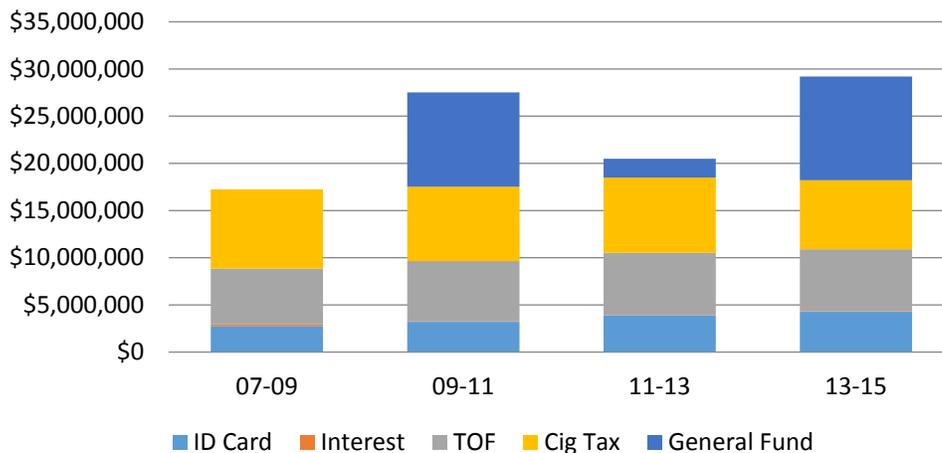


Figure 3. Summary of STF Funds by Source

ConnectOregon

ConnectOregon is a legislatively approved grant program funded by lottery-backed bonds and supports non-highway modes (that are ineligible for highway funds) including air, rail, marine, pedestrian, bicycle, and transit. The Oregon legislature has chosen to approve this program each biennium since 2005, with funding ranging from \$40 million to \$100 million with total funding over six allocations of \$427 million. Transit agencies may apply for competitive *ConnectOregon* funds for transit infrastructure projects such as buses, transit centers, or maintenance facilities. Several transit projects have been funded each biennium, amounting to about 10 to 12 percent of *ConnectOregon* funds supporting transit projects. For example, Yamhill County built a transit center in McMinnville and the Confederated Tribes of Umatilla Indian Reservation built a vehicle maintenance facility using these funds.

Energy Incentives Program

The Oregon Department of Energy (DOE) created the Energy Incentives Program (EIP) in 2011. This program replaced the former Business Energy Tax Credit (BETC) Program. The elimination of the earlier BETC program had a negative effect on the ability of some local jurisdictions to meet federal match requirements for public transportation funds and had a large effect on the ability of TriMet,



Cherriots, and Lane Transit Districts' student bus pass programs, which were largely financed by the sale of tax credits. EIP funds for transportation projects are capped at a total of \$20 million per biennium. There are two parts of the DOE incentives: Transit Services portion which had a sunset date in 2015 and the Alternative Fuel Vehicle Infrastructure portion which sunsets in 2017. Bus pass programs are no longer eligible. There are many private and public entities potentially eligible to apply for these funds; it is unknown how many public transit providers have used them. The future of DOE Energy Incentive funds is unclear.

Oregon Transportation Infrastructure Bank

Managed by ODOT, the Oregon Transportation Infrastructure Bank (OTIB) is a statewide revolving loan fund designed to promote innovative financing solutions for transportation needs. Oregon's OTIB program was started in 1996 as part of a federal pilot program. Eligible borrowers include cities, counties, transit districts, port authorities, other special service districts, Tribal governments, state agencies, and private for-profit and not-for-profit entities. Eligible transit projects include capital projects such as buses, equipment, and maintenance or passenger facilities. OTIB loans may be used to cover up to 100 percent of the costs of a project. An example is the recent purchase of a bus fleet by Rogue Valley Transportation District where the OTIB funds are being used to match federal funds.

Legislative Appropriations

The Oregon Legislature sometimes directly funds public transportation projects in its appropriations. For example, the legislature has made direct appropriations to Portland's light rail projects and chose to authorize lottery-backed bonds to fund the construction of Portland Streetcar vehicles.

Intercity Rail Funding

Prior to 2008, USDOT Federal Rail Administration provided much of the funding necessary to operate the Amtrak Cascades service. Recent federal legislation changed state funding requirements for some passenger rail services including the Amtrak Cascades corridor that Oregon and Washington State Department of Transportation work together to provide. Passenger Rail Investment and Improvement Act of 2008 (PRIIA) classifies intercity passenger rail services into two types: routes exceeding 750 miles in length are long distance, while those less than 750 miles in length are short distance corridors. For shorter corridor train services, including Amtrak Cascades, PRIIA shifted all financial responsibility to states as of October 2013; this requires Oregon and Washington to provide all operating and capital costs to maintain the Amtrak Cascades service. For long-distance services, Amtrak continues to bear full responsibility for their operation, with costs covered by a combination of fare revenues and federal support.

Oregon is in danger of losing the Amtrak Cascades route because the funding for intercity rail is fragmented and there are limited dedicated funds. This has been identified as a concern: "Oregon's lack of dedicated, sustainable funding for rail investments is one of the top challenges facing both



the passenger and freight rail systems in the state. Without funding, Oregon does not have revenue available, or the required federal match (should grant funds be made available) to improve, maintain and operate passenger service.”¹¹⁴ Amtrak Cascades funding for the 2013-2015 biennium is shown below in Table 4; as noted, the majority of the funds are one-time sources.

Table 4. 2013 – 2015 Intercity Passenger Rail Funding

Funding Type	Funding Source	Amount
Federal Transit Administration	FTA 5307*	\$5.1 million
State	DMV Custom Plates	\$7.0 million
	Transportation Operating Fund	\$3.2 million
Other	Miscellaneous*	\$12.7 million
TOTAL		\$28.0 million

*One-time allocations.

¹¹⁴ Oregon State Rail Plan, Oregon Department of Transportation, September 2014; Page 125.



Local Funding

There are three primary sources of local funding for public transportation in Oregon: earned revenues such as those from advertising or providing contracted transportation services, payroll taxes, and property taxes. Some local governments may, at their discretion, use such revenues as local general funds, transportation impact fees, system development charges, special assessments, and transportation utility fees. Local funds pay for most transit operations in the larger urban systems and often contribute to operations in the smaller urban, rural, and county systems. Of about fifty cities, counties, and transit districts offering public transportation services in Oregon, only fifteen collect revenue dedicated to public transportation.

Non-federal funding is required to match federal transit grants and some state programs too. Tracking the total amount needed for match statewide is complex. Federal funding is used routinely but different providers may use different amounts from different funding programs and amount an agency is eligible for may vary. The majority of federal funds for public transportation require a local match contribution. The amount of match varies from program to program and item to item within each program. For example, in the 5311 program, capital items require a 10.27 percent local match; in the 5310 program, the same item will have a 20 percent match. The largest item in any transit agency budget is the operating cost of public transportation. The match requirement for operations (when this expense is eligible) is 50 percent.

Local funds are a primary source of match to both state and federal grants, but only certain funds or revenue is eligible to be used for match. For example, farebox revenue is not allowed to be used as match, but income from providing contracted transportation services (such as for human service agencies), or from advertising and other revenue generating activities are allowed. In some programs, in-kind match is allowed, for example, the value of volunteer drivers may be used for match to an operations grant. Likewise, the value of donation piece of property will offset the matching requirement for a transit maintenance facility.

Local tax revenue is another important source of funds for providing public transportation service and meeting match requirement. However, in local government budget processes, public transportation services compete for funds with many other infrastructure and service needs. Local communities often cannot respond to increasing demand for service due to the volatility of local funding sources. It is difficult to increase revenues from existing resources or implement new ones. Many communities do not contribute any funds to the transit programs serving their citizens. A resulting issue in transit financing, particularly in smaller communities, is a lack of local revenue that can be used for match, leaving transit agencies dependent upon state funds and contract revenue and potentially unable to access all of the federal funds that may be available to them. Lack of local match also impacts the ability to apply for state sourced discretionary funds such as *ConnectOregon*.



Payroll Tax

Six transit providers in the state levy payroll tax: LTD, TriMet, City of Wilsonville, City of Sandy, South Clackamas Transportation District, and City of Canby. The payroll tax is levied on employers based on a percentage of gross payroll for services employees performed within the transit district boundary. The payroll tax levied by TriMet and LTD was established by state statute. This legislative action was limited to the two agencies; their tax is administered by the Oregon Department of Revenue and must not exceed a maximum rate that is set by the Oregon State Legislature. The South Clackamas Transportation District and Cities of Wilsonville, Sandy, and Canby payroll taxes were established by city ordinance when these communities withdrew from the TriMet service area.

Property Tax

Seven transit districts in the state receive dedicated local revenue from a tax on real property, which is allowed through ORS 198.010 and 198.335 (Cherriots, Sunset Empire Transportation District, Tillamook County Transportation District, Lincoln County Transportation Service District, Rogue Valley Transportation District, Hood River County Transportation District, and Basin Transit Service Transportation District). The tax rate for transit varies from community to community. For instance, during the 2014-2015 fiscal year, Hood River County Transit assessed \$0.07 per \$1,000 of property value, and Salem-Keizer Transit assessed \$0.76 per \$1,000 of property value.¹¹⁵ Cities and counties may choose to levy property taxes in support of transit; however, most do not currently do so.

Earned Revenues

While there are many potential sources of earned revenue, such as rental of transit-owned facilities, the majority of earned revenues in Oregon derive from passenger fares, advertising, and service contracts. With the exception of passenger fares, earned revenues may be used to match federal and state funds.

- **Passenger Fare Revenue:** Passenger fare revenue is one component of transit revenue funds. Typically, passenger fare revenue covers between 10 to 25 percent of the operating cost of the transit service.¹¹⁶ This percentage, known as the “farebox recovery ratio,” can be a very small percent in some smaller communities or county systems while it is often larger for urban systems with high ridership. A few transit agencies do not charge a fare, and are therefore dependent on other forms of local revenue.

¹¹⁵ Oregon Department of Revenue. 2015. *Oregon Property Tax Statistics Fiscal Year 2014-15*. 150 -303 -405 (Rev. 9 -15). Available at https://www.oregon.gov/DOR/programs/gov-research/Documents/property-tax-stats_303-405_2014-15.pdf. September.

¹¹⁶ American Public Transportation Association (APTA). 2015. *2013 NTD Data Tables*. Available at <https://www.apta.com/resources/statistics/Pages/NTDDataTables.aspx>.



- Advertising: LTD and TriMet, and other transit agencies, sell advertising on transit vehicles or shelters and benches to generate local revenue. Advertising may also be found on websites and in passenger information materials.
- Contract Revenue: Many transit agencies earn revenues derived from the operations of transit services for other agencies' needs, and some transit systems have agreements with organizations to pay for the organization's riders as a group rather than individually. For example, LTD has group-pass agreements with the University of Oregon, Lane Community College, several businesses, and public agencies. Contract revenue also includes the sale of transit services to human service agencies, such as Coordinated Care Organizations, to provide transportation for clients defined by the social service agencies.
- Donations: Although donations represent a small source of income for most agencies, they can be important for smaller agencies. More than 20 agencies reported donation income to the state in 2011 to 2013; for example, Douglas County reported over \$20,000 in donations during the period, largely through the value of donated driver time.¹¹⁷

Other Funding Sources

In addition to the four sources described, several other local funding sources are used or could be used to fund transit:

- City and county general funds: Some communities allocate a portion of the city or county general fund to help finance transit service. This funding source typically pays for only a small percentage of the service cost. Property taxes fund many local government functions, meaning public transportation providers must compete directly with other needs.
- Transportation operation fees: A unique way of funding operations has been implemented by the City of Corvallis with Corvallis City Council approval, which offers "fareless" transit. More than 30 percent of their funding is provided through transit operations fees (TOFs). Established in 2010, TOFs are indexed to the average price of a gallon of regular grade gasoline and are collected monthly from all Corvallis utility customers.¹¹⁸
- Funding partnerships: Several transit agencies in the state supplement local funding through partnerships with public and private entities. A good example in Oregon is Cascades East Transit.¹¹⁹ Cascades East Transit obtains local funding through numerous funding partnerships, including Mount Bachelor, Central Oregon Community College, and several cities and counties.
- System development charges (SDCs): SDCs are charges paid by developers to local governments to fund public improvements that are needed to support the development. The use of the funds is restricted to infrastructure improvements, which for transit could include items such as

¹¹⁷ Oregon Department of Transportation. 2013. *OPTIS—Oregon Public Transit Information System*. Available at <https://www.oregon.gov/ODOT/RPTD/Pages/OPTIS.aspx>. Oregon Department of Transportation, Public Transit Division.

¹¹⁸ City of Corvallis. Undated. *Bus Fares/Fareless*. Available at <https://www.corvallisoregon.gov/cts/page/bus-fares-fareless>.

¹¹⁹ <http://cascadebusnews.com/cascades-east-transit-launches-additional-transit-service-in-bend/>. Accessed June 27, 2016.



bus shelters and bus pull-outs. Pedestrian and cycling facilities can also be funded by SDCs, supporting good connections to transit stations and stops. Sometimes, instead of a development fee, the developer may be required to construct the infrastructure improvement as a condition of development approval.

- **Bonding:** Significant capital expenditures can be funded through the sales of bonds, which are then repaid over a period of years. Few Oregon transit providers have used bonds to pay for capital projects, however bonding have been successfully used in the development of light rail and streetcars.
- **Income Tax:** Local government transit providers in Oregon may levy a local income tax by public vote to generate funding for transit service and capital expenditures. The tax would be in addition to the statewide rate. However, no transit providers in the state currently use this tax option.



Conclusion

Stakeholder interviews and the Oregon Public Transportation Plan provider survey reveal that stable, adequate funding is one of the top concerns of all providers.¹²⁰ Providers face many funding challenges, including funding stability as funding sources can be legislatively redirected or eliminated when government priorities change; funds are vulnerable to changes in the economy; and there is a resistance to tax increases at all levels of government. Local operating budgets have not kept up with growing demand. For example, local payroll tax revenues go up and down based on how the local or regional economy performs. Local property tax revenues in Oregon, relied on by many providers, are growth-limited due to property tax limitation measures passed in the 1990s.

Low farebox revenues and varying levels of local funding mean that small county and rural providers, as well as large county and regional providers, often rely on state and federal dollars as their largest sources of funding. They tend to have extremely limited resources for new vehicles, services, and technologies and devote the great majority of their funds to operations. These providers are especially concerned about the long-term stability of state and federal funding, since they are so reliant on it for their operations. In addition, this reliance on specific funding programs can result in the transit service provided being more responsive to the requirements of the programs than to the unique needs and characteristics of the area.

Intercity public transportation funds are limited. Oregon uses federal funds to contract with both public and private transportation providers to provide bus routes between rural communities and other parts of the state that are not served by the private sector independently. As was mentioned above, with the loss of federal support for the Amtrak Cascades route, intercity passenger rail program funding is in critical condition. There are no dedicated federal and insufficient state funds to adequately retain the Amtrak Cascades route service.

Despite these challenges, recognizing that many states do not have any state level programs for funding public transportation is important. Oregon is fortunate to have the Mass Transit Payroll Assessment and the Special Transportation Fund as well as the ability to compete for special grant programs. However, Oregon public transportation funding would benefit by having additional reliable, flexible, sustainable funding as the foundation for an integrated and interconnected system.

¹²⁰ Oregon Department of Transportation, 2015. Oregon Public Transportation Plan Provider Survey. October 2015.



Appendix 3
Oregon Public Transportation Plan
Benefits of Public Transportation



Benefits of Public Transportation

Oregon Public Transportation Plan

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Public Transportation in Oregon

Introduction

Oregon's transportation system supports the state's quality of life and economy across a diversity of geographies, business drivers, and people. Public transportation is a key piece of the transportation system. Americans took 10.7 billion transit trips in 2014, and the demand for public transportation in Oregon and beyond is anticipated to increase as population grows.¹²¹

Oregon's population is expected to increase by 35 percent by 2045; meeting travel and freight movement needs for a growing population will create major challenges for the transportation system.¹²² Public transportation is critical to addressing these challenges – as demographics, technological advances, and financial constraints change how people live and work.

As described in this paper, public transportation provides a wide variety of benefits for Oregonians and visitors, including:

- Supporting mobility, accessibility and connectivity for Oregonians and visitors in both urban and rural communities;
- Playing an important role in the vitality of Oregon's economy, keeping money in the pockets of transit riders, attracting businesses and workers, and improving the mobility and reliability of the transportation system for all roadway users;
- Contributing to the health and safety of Oregon communities by improving safety on the road, improving air and water quality, and providing links to health care, groceries, and other essential needs.

Public transportation in Oregon:

- **Connects people to one another, to places, and to critical services within and between Oregon's urban and rural communities**
- **Supports Oregon's economic vitality**
Contributes to the health and safety of Oregon communities

Public transportation in urban and rural areas in Oregon takes many forms, including:

- **Fixed route bus services**
- **Bus rapid transit**
- **Light rail**
- **Streetcar**
- **Aerial tram**
- **Demand response services**
- **Intercity rail and bus**

¹²¹ American Public Transportation Association. 2015. *2015 Public Transportation Fact Book*. Accessed at <https://www.apta.com/resources/statistics/Documents/FactBook/2015-APTA-Fact-Book.pdf>.

¹²² Portland State University Population Research Center. 'Oregon's County Population Forecast 2013.' Accessed at <https://www.oregon.gov/das/OEA/Pages/forecastdemographic.aspx>.



The Growing Demand for Public Transportation

The demand for public transportation has increased both nationally and in Oregon. Nationally, public transit ridership increased by 39 percent between 1995 and 2014.¹²³ This trend is reflected in Oregon where public transportation trips have increased by over 90 percent since 1990.¹²⁴ Several factors are contributing to the growing use of public transportation in the state. Throughout Oregon, an influx of residents coupled with changing demographics has contributed to evolving needs, expectations, and desires for public transportation. A recovering economy is contributing to increased numbers of vehicles on the roadway, and public funding available to accommodate growth has not kept pace. The increasing cost of housing and stagnant wages have also left many households with less money to use for transportation.

Oregon is Growing

Oregon continues to grow faster than the national average, increasing demand for all forms of transportation including public transportation.¹²⁵ Over the past decade, Oregon's population grew by 10.7 percent while the national growth rate was 8.6 percent. Oregon's growth rate is accelerating, with the urbanized counties across the state experiencing the fastest growth rates.¹²⁶ Many newcomers seek out Oregon because of its reputation for a high quality of life, including transportation options that supplement driving alone. Accommodating the growing population is an ongoing challenge for Oregon transit agencies that have experienced budget cuts and schedule reductions even as demand for services grows.¹²⁷

Oregon's Changing Transportation Needs

Baby boomers and Millennials represent significant portions of Oregon's population. Both of these demographic groups have a stronger stated preference for using transit, and demonstrate their desire through higher levels of transit ridership. In addition, Oregonians who are minority or low-income also have a higher propensity to use public transit than the general population. In the

Annual Total Passenger Miles vs. Vehicle Miles Travelled (VMT), 1990-2013

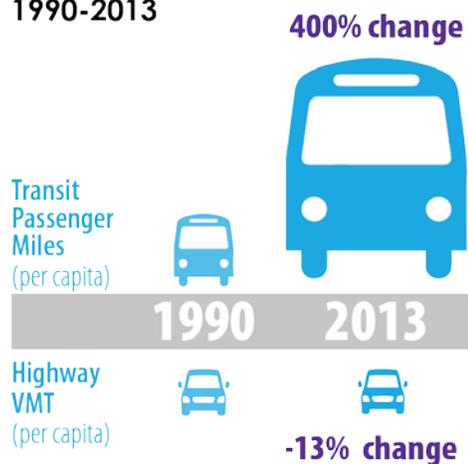


Figure 1. Annual Total Passenger Miles vs. Vehicle Miles Travelled per capita 1990-2013.

Source: US Census Bureau (1990, 2013), NTD (2013), and ODOT Oregon State Highway VMT

¹²³ American Public Transportation Association. 2015. Record 10.8 Billion Trips Taken on U.S. Public Transportation in 2014.

¹²⁴ Federal Transit Administration. 2013. National Transit Database. Accessed at <https://www.transit.dot.gov/ntd>.

¹²⁵ State of Oregon Employment Department. 2015. *Population Growth Rate Increases in Oregon for Third Straight Year*. Accessed March 2016.

¹²⁶ Ibid.

¹²⁷ 1000 Friends of Oregon. 2010. *Filling the Transit Funding Gap in Oregon: A Campaign Proposal Executive Summary*. Accessed at <https://www.smartgrowthamerica.org/app/legacy/documents/coalition/2009/11/OR-Executive-Summary-small.pdf>.



Portland Metro area, the percentage of residents who are racial or ethnic minorities has grown from about 11 percent in 1990 to over 22 percent in 2014.^{128,129}

Meeting the Needs and Desires of Older Adults

Oregon is aging: 16 percent of Oregonians are aged 65 and older, compared to the national average of 14.5 percent.¹³⁰ As people age, their rates of driving drop as they become less comfortable driving or less able to safely operate a vehicle due to declining vision, mobility and slowing reflexes.¹³¹ Transitioning to a fixed income also prompts some to give up personal vehicles, making older adults more transit-dependent than other age groups. Older adults are an important transit market, with some preferring public transportation and others depending on it. Research by the American Association of Retired Persons (AARP) indicates that older adults are taking more of their trips on public transportation. This may be because many seniors prefer to stay in their homes as they age, with older adults today being less likely to move after they retire than 30 years ago.¹³²

In an AARP survey, 88 percent of respondents agreed with the statement “What I’d really like to do is stay in my current residence for as long as possible” (Figure 2).¹³³ In 2009, older adults accounted for 12 percent of the more than 10.3 billion trips taken on public transportation in the United States.¹³⁴ In Oregon, the state helped pay for over 6 million demand response rides in 2013 for older adults and people with disabilities.¹³⁵ This figure is likely to increase as Oregon’s older adult population grows. The number of adults 65 and over in Oregon is expected to double between 2000 and 2030.¹³⁶

Serving the Travel Preferences and Needs of Younger Oregonians

Nationwide, Millennials, (those born between 1981 and 2000), have eclipsed the Baby Boomers as the largest generation.

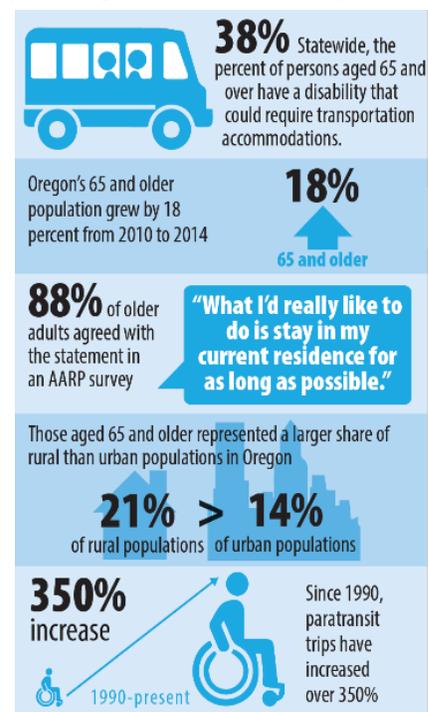


Figure 2. Transportation Needs and Desires of Older Adults

Source: National Transit Database (2014)

¹²⁸ U.S. Census Bureau. 2014. Quick Facts Accessed at <https://www.census.gov/quickfacts/fact/table/US/PST045217>.

¹²⁹ Abbott, Carl. 1991. “Ethnic Minorities in Portland: a 1990 Census Profile.” Accessed at <https://www.pdx.edu/sites/www.pdx.edu.cus/files/SR021.pdf>.

¹³⁰ U.S. Census Bureau. 2014. State & County Quick Facts: Oregon, Accessed at <https://www.census.gov/quickfacts/fact/table/US/PST045217>.

¹³¹ Insurance Institute for Highway Safety Highway Loss Data Institute. *Older Drivers Webpage*. Accessed at <http://www.iihs.org/iihs/topics/t/older-drivers/topicoverview>. November 2015.

¹³² DeGood, K. 2011. Aging in Place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation.

¹³³ Ibid.

¹³⁴ Lynott, Jana and Carlos Figuereda. 2011. How the Travel Patterns of Older Adults Are Changing: Highlights from the 2009 National Household Travel Survey. AARP Public Policy Institute, Washington, D.C.

¹³⁵ Quarterly report data submitted to ODOT Rail and Public Transit Division via OPTIS.

¹³⁶ U.S. Department of Health and Human Services Administration for Community Living Webpage. *Oregon’s population aged 65 and over is expected to grow from approximately 440,000 in 2000 to over 880,000 in 2030*. Accessed at <https://www.acl.gov/>, December 2015.



Millennials now represent 27 percent of all Oregonians.¹³⁷ This generation is the first generation in decades that drive less than their parents, obtain driver’s licenses in lower numbers, and are more multimodal.¹³⁸ Surveys have demonstrated that Millennials like the option of working or using their mobile devices while traveling, and are more likely to use multiple modes of transportation to reach their destination.¹³⁹ One study found that 46 percent of Millennials considered saving money as important to determining how they traveled, and 35 percent state that they live in a community where it makes more sense to use transit.¹⁴⁰

Transportation Budgets are Strained

Federal, state, and local transportation budgets affect how Oregon provides public transportation services. Personal transportation budgets affect the use of public transportation services.

Maintaining existing infrastructure is becoming increasingly difficult as Oregon faces long-term transportation funding challenges.¹⁴¹ Local, state, and federal dollars have not kept pace with infrastructure demands. Infrastructure owners and operators – the state, counties, tribes, and cities – are focused on maintaining current assets. Jurisdictions are looking at ways to maximize the use of existing transportation infrastructure by increasing the use of intermodal options such as public transportation, new technologies to manage the transportation system, bicycling and walking, and transportation options programs. There are conflicting studies regarding how much impact these options have in reducing current urban congestion, but these efforts do contribute to maximizing the current system investment and promoting its efficient use.¹⁴² Also, provision of reliable local and intercity public transportation can provide options for residents and alleviate the need for intercity commuters, visitors, and tourists to add vehicles to urban congestion. Many cities and counties do not have adequate local funds to invest in these options, and thus are dependent on federal and state resources to help fund these efforts.

The ability of public transit agencies to maintain and build public transportation services in response to growing need and demand is hampered by insufficient resources. Funding constraints require transit providers to make difficult choices, for example, funding the increasing cost of transit operations instead of replacing aging buses. The federal Fixing America’s Surface Transportation Act of 2015 will provide increased public transportation funding, in the short- term, to meet some of these growing needs over a 5-year period (2016-2021). However, for many transit agencies, there is a lack of consistent, reliable local funds necessary to ensure that they can match the federal funds.

¹³⁷ Oregon Office of Economic Analysis. 2015 “Population, Demographics and Generations”. Accessed at <http://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/>.

¹³⁸ Oregon Department of Transportation. 2015. *Oregon Transportation Options Plan*.

¹³⁹ American Public Transit Association. 2013. *Millennials & Mobility: Understanding the Millennial Mindset*. Accessed at <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>.

¹⁴⁰ Ibid.

¹⁴¹ Government Relations, Oregon Department of Transportation. 2013. *Six trends spell trouble for transportation funding*. Accessed at <https://www.oregon.gov/ODOT/Pages/Newsroom.aspx>.

¹⁴² Walker, Jarrett, 2010, “What does transit do about traffic congestion?” Accessed at <http://humantransit.org/2010/07/what-does-transit-do-about-traffic-congestion-1.html>.



These issues are true in both urban and rural areas. In rural areas, the situation is more difficult, as the availability of public transportation in rural areas is limited by travel times and distances, frequency of service, cost, and limitations in funding to address these challenges.¹⁴³

Not only are agencies' transportation budgets strained, but Americans' household budgets are also strained. Wage stagnation accompanied by growing housing costs contributes to the strain on household budgets. According to the Center for Neighborhood Technology, only 28 percent of American communities meet the definition of affordability, which includes both housing and transportation costs. Nationally, median housing costs increased nearly 37 percent while the median income increased by 22 percent between 2000 and 2012.¹⁴⁴

This is true in Oregon where more households are below the poverty line. More and more families are working poor, meaning those families live below the poverty line despite having at least one adult working at least part time. Between 2007 and 2014, the share of families who are working poor grew by 27.9 percent.¹⁴⁵

Public transportation plays an important role in reducing travel costs for Oregon households. The American Public Transportation Association publishes a monthly Transit Savings Report that compares the cost of commuting by public transportation with the cost of owning and driving a vehicle (calculated with average national gas prices) and national unreserved monthly parking rates versus a monthly transit pass. The January 2016 report found that a two-person household in Portland would save \$818 per month or about \$9,817 annually.¹⁴⁶ These travel cost savings are essential for Oregonians considering the strain on household budgets, especially for those that are transportation disadvantaged.

Transportation Disadvantaged Includes communities of color, persons with low-income, older adults, youth, and people with limited English proficiency or disabilities who are at a significant disadvantage without access to convenient, safe, well integrated transportation alternatives. All of these groups are often without easy access to cars and live in locations without convenient, safe transportation alternatives.

¹⁴³ US DOT, Rural Public Transportation Systems, at <https://www.transportation.gov/mission/health/Rural-Public-Transportation-Systems>, Accessed March 2016.

¹⁴⁴ Streets Blog, 2012. *Mounting Transportation and Housing Costs Devour Household Budgets*. Accessed March 2016 at <https://usa.streetsblog.org/2012/02/29/mounting-transportation-and-housing-costs-devour-household-budgets/>.

¹⁴⁵ Oregon Center for Public Policy. 2015. *Share of Oregon Families Who Work But Are Still Poor Increases*. Accessed December 2015, at <https://www.ocpp.org/2015/12/16/nr201516-families-work-but-still-poor-oregon/>.

¹⁴⁶ American Public Transportation Association. Accessed at https://www.apta.com/mediacenter/pressreleases/2016/Pages/160121_Transit-Savings.aspx. March 2016.



Public Transportation Connects People and Places

Public transportation is critical to the quality of life for all Oregonians, even those who do not use public transportation on a regular basis, because of its benefits to the economy, society, and the environment. Transit provides connections to jobs, healthcare, shopping, recreation, and services, and allows for choice among transportation options. It provides mobility and access for those who cannot drive, do not own a car, or choose to leave their cars at home.

Enhancing Urban Networks

Public transportation is playing a growing role in meeting Oregon's transportation needs. Between 1990 and 2013, trips on Portland's light rail quintupled and fixed route bus trips across the state increased by almost a third.¹⁴⁷ In 2013, there were 2.7 million trips on bus rapid transit offered in the Eugene-Springfield area, which accounts for a quarter of Lane Transit District's total ridership. In the Portland metropolitan area, TriMet provides over 300,000 transit trips each weekday.¹⁴⁸ Public transportation removes the equivalent of over 200,000 single-occupant vehicles from Portland-area roads each day. During the evening commute, for example, MAX light rail carries 26 percent of those traveling east and west on I-84, helping free up roadway capacity for people and freight on a major travel corridor.¹⁴⁹

Providing Rural Connections

Public transportation also provides connections to jobs and vital services in rural areas (Figure 3).¹⁵⁰ Rural public transportation supports social and economic connections in rural America where distance and a dispersed population make these connections even more important. "Rural transportation is essential not only for connecting people to jobs, health care, and family in a way that enhances their quality of life, but also for contributing to regional economic growth and

What are mobility, accessibility, and connectivity?

MOBILITY – The ability or ease with which people can use the transportation system to travel between destinations.

ACCESSIBILITY – The ability or ease with which people can reach or access destinations including employment, education, activities, and services and return to their origin.

CONNECTIVITY – Presence of useful, integrated links people can use to move between places, transportation system modes, or segments of the same mode. For example, do transit routes intersect usefully in both place and time, are fares interchangeable, and is information about the trip readily available?

¹⁴⁷ National Transit Database. 2015. Integrated National Transit Database Analysis System.

¹⁴⁸ Ibid.

¹⁴⁹ TriMet. *Sustainability Page*. Accessed at <https://trimet.org/sustainability/>, December 2015.

¹⁵⁰ American Public Transportation Association, *Rural Communities*, at <https://www.apta.com/resources/reportsandpublications/Documents/Rural-Communities-APTA-White-Paper.pdf>.



development by connecting business to customers, goods to markets, and tourists to destinations.”¹⁵¹ As an example, in northeastern Oregon and southeastern Washington, the Confederated Tribes of the Umatilla Indian Reservation’s Kayak Public Transit Service connects the Mission and Pendleton area with the Tri-Cities, Hermiston, Pilot Rock, La Grande, Walla Walla and other regional communities. Ridership has doubled on the Kayak bus service from 47,000 rides in 2008 to more than 96,000 in 2013.¹⁵²

Serving Those with Few Options

For people who are transportation disadvantaged, including those too young or elderly to drive, public transportation provides a community lifeline to participate in society and obtain goods and services. For Oregonians with a disability (nearly 14 percent, two percent higher than the national average) and who use mobility devices, public transportation may be the only option available.¹⁵³ Youth who haven’t yet reached driving age may also depend on public transportation to participate in afterschool activities, reach afterschool jobs, and otherwise engage in their community.

Public transportation plays an important role in providing aging Americans with transportation options when they are no longer able to drive. A 2004 study found that seniors who no longer drive make 15 percent fewer trips to the doctor, 59 percent fewer trips to shop or eat out, and 65 percent fewer trips to visit friends and family than drivers of the same age.¹⁵⁴ Research shows that isolation can increase the risk of early death by 45 percent and the chance of developing dementia by 64 percent.¹⁵⁵ Ridership of older adults on passenger rail has increased. On the Amtrak Cascades the share of riders aged 55 and over increased from 30 percent in 2011 to 50 percent of total riders in 2013.^{156,157}

In Oregon, demand response public transportation trips (many of which serve people with disabilities) have increased over 350 percent between 1990 and 2013.¹⁵⁸ The large growth is partly attributed to Oregon’s aging population, but also a result of the introduction of complementary paratransit in 1990, after the passage of the Americans with Disabilities Act. The law required that

Where are Small Urban and Rural Transit Riders Going?

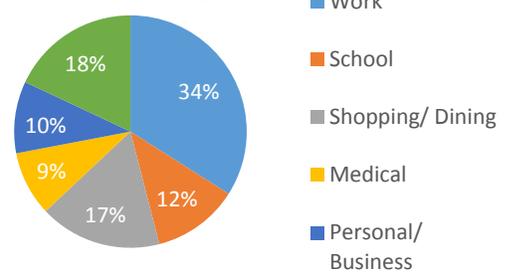


Figure 3. Small Urban vs. Rural Transit Riders

Source: APTA Profile of Public Transportation Passenger Demographics and Travel Characteristics Reported in Onboard Survey.

¹⁵¹ Federal Highway Administration, Planning for Transportation in Rural Areas, at https://www.fhwa.dot.gov/planning/publications/rural_areas_planning/page03.cfm accessed March 2016.

¹⁵² Kayak Public Transit Webpage. Accessed at <http://ctuir.org/tribal-services/planning/kayak-public-transit> March 2016.

¹⁵³ U.S. Census Bureau. 2014. Census Data. State & County Quick Facts: Oregon, Accessed at <https://www.census.gov/quickfacts/fact/table/US/PST045217>.

¹⁵⁴ DeGood, K. 2011. *Aging in Place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation*. Accessed <https://t4america.org/docs/SeniorsMobilityCrisis.pdf>, June 2015.

¹⁵⁵ Cacioppo, John and William Patrick. 2009. *Loneliness: Human Nature and the Need for Social Connection*. W.W. Norton & Company.

¹⁵⁶ Amtrak. 2012. Amtrak Cascades Qualitative Research.

¹⁵⁷ Amtrak. 2014. Ridership Profiles for Amtrak Cascades.

¹⁵⁸ National Transit Database. 2015. Integrated National Transit Database Analysis System.



transit agencies deploy paratransit vehicles to serve patrons who live within three quarters of a mile of a fixed route bus line, if they cannot use the fixed route bus service due to a disability.

Providing Connections throughout Oregon

Public transportation provides city connections to move people from ‘Point A to Point B’ and gives people choices regarding how to travel. Many forms of public transportation, such as intercity bus or rail, link people, transportation modes, agencies, and opportunities throughout Oregon. More than 95 percent of Oregon communities with populations of 2,500 or more have intercity bus connections that help them to reach neighboring communities.¹⁵⁹ Passenger rail is also important for intercity trips. Amtrak Cascades provides intercity passenger rail service between Portland and Eugene and it carried 104,776 passengers in 2015; in addition, Amtrak’s two national routes through Oregon help to connect communities with those in other states along the I-5 corridor and through the Columbia Gorge area and eastern Washington State.¹⁶⁰

Within Oregon’s communities, public transportation complements walking or bicycling and allows people to reach more destinations more quickly without using a personal motor vehicle. Public transportation also supports travel and tourism for Oregon residents and visitors. Whether using the Amtrak Cascades train or buses to travel within the Willamette Valley or among western states, public transportation remains a popular option for recreational travelers.¹⁶¹ Other services like Public Oregon Intercity Transit (POINT) and Greyhound connect urban and rural communities, serving the travel needs of long-distance commuters, vacationers, and recreationalists.



The Mt. Hood Express, with an attached bicycle trailer, waiting to shuttle residents and recreationalists.

As an example, the North by Northwest Connector, a consortium of transit providers in northwestern Oregon, creates connections throughout the north coast and to several Willamette Valley cities. The Connector coordinates services to better serve commuters working in neighboring counties, and provide connections to hospitals and health care services, educational institutions, and other regional services. The Connector also advertises specialized visitor passes targeted to tourist travel needs.¹⁶² As another example, the Mt. Hood Express, a transit provider serving Sandy and Mt. Hood communities, uses a bicycle trailer year-around to cater to mountain biking on trails in the area. The number of mountain bikes transported increased dramatically between the first and second year of service as word of the shuttle has spread, attracting recreationalists, racers, and exhibitors to the area.¹⁶³ Services like the Mt. Hood Express enable tourism that supports businesses and communities throughout the state.

¹⁵⁹ Oregon Department of Transportation “Performance Management: Key Performance Measure Summaries”. Accessed at <https://www.oregon.gov/ODOT/PerformMang/Pages/index.aspx>, February, 2016.

¹⁶⁰ Amtrak. 2015. Ridership Report for 2015.

¹⁶¹ Oregon Department of Transportation. 2014. *Oregon State Rail Plan Passenger Rail Needs Assessment*. Accessed August 2015.

¹⁶² North by Northwest Connector Website, “How to Ride”. Accessed at <https://www.nworegontransit.org/> March 2016.

¹⁶³ LSC Transportation Consultants. 2015. Mt. Hood Service Expansion Analysis Report.



Public Transportation Supports Economic Vitality

The economic and community benefits of public transportation are far ranging and shared by all residents of Oregon. The efficient movement of people and goods – contributed to by public transportation options – is essential to keeping Oregon businesses economically competitive. Public transportation can help attract a high-quality workforce and leverage private investment. It can act as a partner in tourism and economic development, bringing recreationalists to rural and scenic communities. The availability of transportation options frees up funds for Oregon families and households to spend dollars otherwise spent on transportation on other goods and services.¹⁶⁴

Supporting Oregon Businesses

Oregon businesses depend on a transportation network that moves people and facilitates the transport of goods within a reliable window of time. The majority of freight movement in Oregon occurs via truck, and according to the 2011 Oregon Freight Plan, truck freight tonnage is anticipated to increase at a more rapid rate than most other freight modes.¹⁶⁵ Transportation options, including rail public transit, can help manage roadway capacity by allowing a similar

Efficient Movement of People: Efficiency refers to how much roadway space is needed to transport the same amount of people (a bus can accommodate more passengers in less space than individual vehicles – expanding the carrying capacity of the roadway for all users. This can help to reduce pressure for new roadway capacity to accommodate growing populations).

Reliable Movement of Freight: Reliability in freight movement depends on the ability of businesses to plan their product movement so it arrives or departs on time (that is, travel time reliability). Heavy congestion, traffic accidents and non-recurring incidents, or large fluctuations in travel conditions impact travel time reliability.

number of people to make a trip in a shared vehicle, leaving more space for freight vehicles and those who must drive. Transit may not always reduce existing urban congestion; however, it allows for more efficient use of the roadway and provides an option that could slow worsening congestion. This can benefit companies that rely on trucks to efficiently move their products to market.

Congestion has detrimental effects on inventory, logistics, and incoming and outgoing deliveries.¹⁶⁶ A 2014 report estimated that congestion negatively affects businesses in the metropolitan regions of Portland, Salem/ Mid-Willamette

Valley, Bend, and Corvallis and a failure to invest in transportation improvements could jeopardize the economic competitiveness of the state. Investing in transportation improvements throughout Oregon’s metropolitan regions, including investment in and expansion of public transportation,

¹⁶⁴ Cortright, Joe. 2007. *Portland’s Green Dividend: CEO’s for Cities*.

¹⁶⁵ Oregon Department of Transportation. 2011. “Oregon Freight Plan – An Element of the Oregon Transportation Plan”.

¹⁶⁶ Economic Development Research Group. 2007. *The Cost of Highway Limitations and Traffic Delay to Oregon’s Economy*. Accessed at https://www.portofportland.com/PDFPOP/Trade_Trans_Studies_CostHwy_Lmntns.pdf.



would generate 8,300 jobs, \$1.1 billion in benefits, and a \$2.40 return for every \$1 invested by 2040.¹⁶⁷

Congestion often impacts businesses across the state. Harry and David, a Medford-based gourmet food company, ships gift baskets all over the world. Congestion and weather are the two major reasons cited by its owners for missed shipments. The company has changed their distribution schedule to allow for the uncertainty of congestion in the Portland area. It has shifted schedules to accommodate earlier shipping times and sent some trucks to ports in California, creating additional costs to the company.

In addition to the reliability of the transportation system, many employers make location decisions based on proximity or accessibility to a skilled workforce.¹⁶⁸ Highly skilled workers are often attracted to places with transportation options and to companies that can offer transportation benefits such as transit passes. Nike has invested in company shuttles that link to MAX stations, bikeshare, and employee transit passes and has received awards as a “Best Workplace for Commuters”.¹⁶⁹

Public transportation offers a win-win: employees save on their commute costs and companies save significantly on the cost of parking acquisition and maintenance costs.¹⁷⁰ Within the Portland Metropolitan area, the Department of Environmental Quality (DEQ) requires employers with more than 100 employees to provide incentives for employees’ commute options, often in the form of subsidized transit passes. The DEQ offers resources to help employers implement transportation options programs. Outside of more urban areas of the state, online resources such as *tripcheck.com* help employees find transit information and connections across agencies and park and ride information. Ridesharing through vanpooling programs can also be a valuable option for employees commuting long distances each day to a workplace that may not be accessible by fixed route transit.

In some areas, the private sector recognizes the value of public transportation for developers looking to attract renters who want to live a car-free or car-lite lifestyle, or employers or education



The tram and streetcar expand access to Oregon Health and Sciences University and hospital from SW Portland. Patients, students, and hospital staff widely use the tram as an alternative to the constrained auto access and parking.

¹⁶⁷ The report looked at transportation system plans for the metropolitan regions of Portland, Salem/ Mid-Willamette Valley, Bend, and Corvallis. Transportation improvements were defined as fully funding the planned projects identified in the Regional Transportation Plans. Source: Portland Business Alliance. 2014. *Economic Impacts of Congestion on the Portland-metro and Oregon Economy*. Accessed at <https://portlandalliance.com/advocacy/economic-reports.html>.

¹⁶⁸ Oregon Department of Transportation. 2015. *Oregon Transportation Options Plan*. Accessed at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OTOP>.

¹⁶⁹ Federal Highway Administration “21st Century Operations Using 21st Century Technologies” Webpage. Accessed at https://ops.fhwa.dot.gov/publications/mitig_traf_cong/nike_case.htm, March 2016.

¹⁷⁰ Ibid.



facilities desiring proximity to transportation services (one example is Oregon Health and Sciences University, partnering with Portland Streetcar, Portland Tram and TriMet light rail). Some private developments along light rail, bus rapid transit, and frequent bus corridors cite nearby transit access in marketing materials.¹⁷¹

Businesses and tourism offices around Oregon have also developed partnerships with public transportation providers to leverage recreational visits. Bicyclists visiting Mt. Hood can stow their bicycles on the trailer attached to the Mt. Hood Express bus, which drops riders off at Timberline Lodge and other trail destinations. The increasing popularity of the service has spurred mountain biking events and exhibitions in the area. In Bend, Cascade East Transit provides shuttles to popular recreation destinations including Mt. Bachelor for summer and winter recreation, Lava Lands National Monument and it runs a shuttle during the summer that allows riders to stow kayaks, canoes, tubes, or other floats in a trailer behind the bus for river recreation. This provides a fun, inexpensive recreational opportunity for residents and visitors, and brings patrons to downtown Bend where the shuttle operates.

Supporting Efficient Land Use

Public transportation, particularly modes with infrastructure built in-place such as light rail, streetcars, or bus rapid transit, can buoy the economy and provide access to federal or state funding for neighborhood amenities in the public realm, such as sidewalks, bicycle facilities, or street aesthetics. Public transportation can support the growth plans that local governments develop and implement and it has demonstrated the ability to leverage significant private investment along transit lines and bring new riders to an area.

Developments that are transit oriented—sometimes called TODs—often combine housing with commercial spaces. In the Portland Metropolitan area, Metro has helped to develop 31 TOD projects that have leveraged about \$10 million in direct investment into over \$528 million of development activity.^{172,173} Metro’s TOD projects also help to implement the regional centers and station communities of its 2040 Growth Concept.¹⁷⁴ In Eugene-Springfield, areas near bus rapid transit stations flourished despite the recent economic

Efficient Land Use: Efficient land use is achieved by pairing land with its “highest and best use.” In urban areas where demand for land is greatest, efficient land use can generate economic activity and promote travel patterns that support walking, bicycling, and transit use.

In rural areas, land uses may serve other goals, such as agricultural production or preservation of open space.

¹⁷¹ “Sustainable Apartments for Rent in Portland, OR” webpage. Accessed at <http://hassalooneighth.com/>, December 2015.

¹⁷² Oregon Metro. 2014. *Transit-Oriented Development Program 2014 Annual Report*. Accessed at <https://www.oregonmetro.gov/tools-partners/grants-and-resources/transit-oriented-development-program>.

¹⁷³ It is important to note that this development activity can also lead to important issues around community housing affordability if property values increase as a result of the transit investment.

¹⁷⁴ Metro, 2014, 2040 Growth Concept, Accessed at <https://www.oregonmetro.gov/2040-growth-concept>.



recession; while the metropolitan area lost jobs between 2004 and 2010, jobs across several economic sectors grew within a 1/4 mile of bus rapid transit stations.¹⁷⁵

Public transportation contributes to more efficient movement on Oregon’s roadways and efficient land use within cities. Buses, light rail, and streetcars allow more passengers and travelers to utilize existing roadways than single-occupant automobiles. Public transportation can reduce the need for parking in downtown locations where valuable land can be put to different uses, typically higher private income- and tax-generating businesses and services, in addition to housing and mixed-use development. Foot traffic can contribute to a “main street” look and feel that can support businesses by making the areas attractive for people to spend time (and money).

In addition, as more people ride public transportation and more transit is readily available, there is a reduced need for personal cars and space to park them. Reducing the resources spent on parking support a main street look and feel and allow more space for more valuable development, while making housing and commercial rents more affordable. For example, in Seattle, underground parking is estimated at \$35,000 per space and above ground at \$25,000 per space to construct.¹⁷⁶ Also in King County, parking is estimated to comprise 10 to 20 percent of the cost of multifamily building construction while only 6 percent of that cost is recovered through parking charges; therefore the rest of the cost must be charged via rents.¹⁷⁷

¹⁷⁵ Nelson, Arthur, Bruce Appleyard, Shyam Kannan, Reid Ewing, Matt Miller, and Eskic Dejan. 2013. *Bus Rapid Transit and Economic Development: Case Study of the Eugene-Springfield BRT System*.

¹⁷⁶ Shoup, Donald 2014, “The High Cost of Minimum Parking Requirements,” page 100. Accessed at <http://shoup.bol.ucla.edu/HighCost.pdf>.

¹⁷⁷ King County Metro, 2015. Right Size Parking Final Report, page 8. Accessed at <https://metro.kingcounty.gov/programs-projects/right-size-parking/pdf/rsp-final-report-8-2015.pdf>.



Public Transportation Improves the Health and Safety of Communities

Public transportation contributes to improved individual and community health. It promotes increased activity levels among many users (people often walk or bike to transit), improves air and water quality by minimizing pollutants, and helps communities meet climate goals by providing alternatives to single-occupant vehicle travel. Public transportation is an important tool that provides access to opportunity for those with lower incomes, making the community more livable and affordable for many. Public transportation also improves safety by reducing crashes and playing a role in disaster planning, resiliency, and supports evacuations and recovery following a disaster.

Resiliency: Refers to a system's ability to accommodate variable and unexpected conditions without catastrophic failure, "the capacity to absorb shocks gracefully."

Providing Opportunities for Increased Physical Activity

Diseases and complications related to lack of physical activity are some of the leading public health crises faced in this country. In accessing public transportation services, most people walk or bike, increasing their potential to meet the U.S. Physical Activity Guidelines for daily minutes spent moving.¹⁷⁸ Studies have found that close to one-third of transit users meet the activity recommendations through walking and biking to transit.¹⁷⁹ Designing roadways and public spaces to improve access on foot to transit as well as other destinations benefits people because they can more easily integrate activity into daily living, saving lives and money. Among physically able adults, average annual medical expenses are 32 percent lower for those who achieve physical activity targets (\$1,019 per year) than those who are sedentary (\$1,349 per year).¹⁸⁰



Buses with bicycle racks expand access and increase physical activity.

Minimizing Air and Water Pollution

Public transportation minimizes the amount of pollutants released into the air and waterways. Research shows that emissions can aggravate asthma, chronic lung or other respiratory illnesses and cardiovascular diseases, particularly for children and older adults.¹⁸¹ Compared to private

¹⁷⁸ Raynault, E. and E. Christopher. 2013. How Does Transportation Affect Public Health?

¹⁷⁹ Oregon Health Authority, 2015 "Transportation Research Briefs" p. 56. Accessed at <https://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Documents/OHA%208246%20Transportation%20Research%20Brief%20Final.pdf>.

¹⁸⁰ Litman, Todd. "Evaluating Public Transportation Health Benefits". 2010. *Victoria Transport Policy Institute* Accessed at https://www.apta.com/resources/reportsandpublications/Documents/APTA_Health_Benefits_Litman.pdf.

¹⁸¹ American Public Transportation. 2007. *Public Transportation: Benefits for the 21st Century*. Accessed at https://www.apta.com/resources/reportsandpublications/Documents/twenty_first_century.pdf.



vehicles, public transportation produces 95 percent less carbon monoxide, 90 percent less volatile organic compounds, and about half as much carbon dioxide and nitrogen oxide per passenger mile.¹⁸² Public transportation can support higher density land development and thereby slow demand for new roadway capacity by reducing single occupant trips. This in turn, leads to less pavement and reduced stormwater runoff.¹⁸³

Meeting Climate Commitments

Oregon has a legislatively-established goal to reduce greenhouse gas emissions by 75 percent below 1990 levels by 2050. ODOT, as part of its Statewide Transportation Strategy, estimated transportation-related emissions under different development and investment scenarios. Analysts and stakeholders

determined that investing in transportation options, including intercity and intracity transit, is key to meeting emissions reductions goals. The strategy calls for making transit more convenient and frequent with increased service, accessible through expanded coverage and higher quality stop amenities, and affordable for passengers.¹⁸⁴ If implemented, the transit strategy in the Climate Smart Strategy for the Portland Metropolitan area is estimated to reduce per capita emissions in 2035 by 16-20 percent.¹⁸⁵ In the Corvallis Area, a strategic assessment found that the metropolitan area could reach its greenhouse gas emissions reduction target of 21 percent by 2035 if the most ambitious transportation strategies were pursued, including a four-fold increase in 2010 transit service levels.¹⁸⁶ These regional strategies all would require additional focus and support in terms of transit investments.

Statewide Transportation Strategy: A state-level planning effort that examines all aspects of the transportation system, including the movement of people and goods, and identifies a combination of strategies to reduce greenhouse gas emissions

Addressing Equity

Oregonians value the livelihood and contributions of all people, making equity vital to healthy and vibrant communities. Transportation is one important tool for addressing inequitable access to opportunity, including employment and education and other community resources. Public transportation creates affordable, safe, and reliable linkages to jobs, schools, goods, and services for households that are transportation disadvantaged and others in the community.

¹⁸² VOCs are a large group of carbon-based chemicals. Exposure over long periods of time may increase people's risk of health problems, particularly those with asthma. Long-term exposure to high levels of VOCs can increase risk of cancer, liver damage, kidney damage and central nervous system damage. Source: Minnesota Department of Health. "Volatile Organic Compounds in Your Home" webpage. Accessed at <http://www.health.state.mn.us/divs/eh/indoorair/voc/>, October 2015.

¹⁸³ U.S. Environmental Protection Agency. Retrieved 10/23/2015 "Smart Growth and Transportation" webpage. Accessed at <https://www.epa.gov/smartgrowth/smart-growth-and-transportation>, October 2015.

¹⁸⁴ Oregon Metro. 2014. *Climate Smart Strategy for the Portland Metropolitan Region*. Accessed at <https://www.oregonmetro.gov/climate-smart-strategy>.

¹⁸⁵ Ibid.

¹⁸⁶ Corvallis Area MPO. 2014. *Campeo Strategic Assessment: Policy Bundles and Levels of Ambition Evaluated as Part of Additional Analysis (that is. Sensitivity Testing)*. Accessed at http://www.corvallisareampo.org/files/Policy%20Bundles_Levels_Handout.pdf.



Nationally, in communities of color, 19 percent of African Americans and nearly 14 percent of Latinos lack access to an automobile, compared to 5 percent of whites.¹⁸⁷ In Oregon, the Household Activity Survey found that 45 percent of African American households use transit at least once a week, 37 percent of Hispanic households did the same, while 26 to 29 percent of Native American, Asian, or Other households also used transit weekly. In comparison only 17 percent of white households reported using transit weekly.¹⁸⁸

In low-income communities, vehicle ownership is lower, with 33 percent of low-income African Americans, 25 percent of Latinos, and 12 percent of whites lacking access to an automobile.¹⁸⁹ Those who do own cars tend to have older, less reliable and less fuel-efficient vehicles which can make commuting expensive and unreliable.¹⁹⁰ The Oregon survey found that 37 percent of households making \$14,000 a year or less used public transportation weekly; 21 percent of households making \$15,000 to 24,000 a year used transit weekly, and 17-18 percent of those making between \$25,000 and \$50,000 per year reported using transit weekly.¹⁹¹

These factors contribute to transportation costs accounting for a larger portion of household budgets for low-income households. The average U.S. household spends about 18 percent of its income on transportation compared to lower-income households who spend 37 percent of their income on transportation.¹⁹² This can be attributed to both smaller family budgets as well as the common location of affordable housing farther from activity and job centers.¹⁹³ Affordable public transportation alternatives help alleviate the cost burden for households that struggle to make ends meet.

Providing Safer Travel and Secure Communities

Public transportation is one of the safest modes of travel available. The safety benefits apply to both riders of public transit and other drivers. For users of public transportation, transit is measurably safer than automobile travel. Per passenger mile, riders of urban rail have 1/30th the fatality rate of automobiles and bus passengers are 1/60th as likely to be fatally injured while traveling.¹⁹⁴

When use of public transportation increases in a community, crash rates tend to decline for all users of the transportation

Environmental Design refers to the practice of deterring criminal behavior through design of the built environment. Environmental design can help ensure that the space is open enough to maintain sightlines throughout, naturally assist with access management and physical maintenance, and support people's need for activity and social spaces.

¹⁸⁷ PolicyLink and the Prevention Institute. 2009. *Healthy, Equitable Transportation Policy: Recommendations and Research*. Accessed at https://www.policylink.org/sites/default/files/HEALTHTRANS_FULLBOOK_FINAL.PDF.

¹⁸⁸ Portland State University, 2015. "Oregon Public Transportation Plan Quantitative Studies: Propensity to Use Public Transit Modes" presentation.

¹⁸⁹ PolicyLink and the Prevention Institute. 2009. *Healthy, Equitable Transportation Policy: Recommendations and Research*. Accessed at https://www.policylink.org/sites/default/files/HEALTHTRANS_FULLBOOK_FINAL.PDF.

¹⁹⁰ Ibid.

¹⁹¹ Portland State University, 2015. "Oregon Public Transportation Plan Quantitative Studies: Propensity to Use Public Transit Modes" presentation.

¹⁹² PolicyLink and the Prevention Institute. 2009. *Healthy, Equitable Transportation Policy: Recommendations and Research*. Accessed at https://www.policylink.org/sites/default/files/HEALTHTRANS_FULLBOOK_FINAL.PDF.

¹⁹³ Center for Neighborhood Technology. *Housing and Transportation Cost Index Webpage*. Accessed at <https://htaindex.cnt.org/>, December 2015.

¹⁹⁴ Litman, Todd. 2014. "A New Transit Safety Narrative." *Journal of Public Transportation*, Vol. 17, No. 4, pp. 121-142.



system, including those of pedestrians, bicycle riders, motorists, and transit passengers. A 1 percent increase in transit mode share is associated with a 2.75 percent decrease in total fatalities per 100,000 residents.¹⁹⁵

Some people perceive public transportation to be dangerous or unsafe. However, most large, transit oriented cities have significantly lower crime rates than medium-sized cities due in part to crime prevention through environmental design.¹⁹⁶ Environmental design focuses on creating public spaces that attract more people walking, bicycling, and accessing commercial spaces near transit so that there are more eyes on the area.¹⁹⁷ Research shows policies that increase walking, bicycling, and travel by public transportation typically reduce total crime in the area.¹⁹⁸

Contributing to Resilience

Public transportation contributes to communities by providing resiliency, which refers to a system's ability to accommodate variable and unexpected conditions without catastrophic failure. For example, public transportation can play an important role in human-caused or natural disaster planning, particularly for evacuations and recovery. Communities can mobilize buses to transport people who may not have access to a vehicle and to prevent gridlock during many emergency evacuations, contributing to greater redundancy in the transportation network.¹⁹⁹ Redundancy ensures that people have other options and ways to transport themselves during a crisis, such as buses, vans, or trains.

After Hurricane Katrina, government officials faced problems evacuating victims and delivering emergency supplies and services. Fuel shortages compounded the issues. In the aftermath of this and other disasters, planners and transit agencies have partnered to create emergency response plans that (1) establish a system to prioritize evacuations, (2) create a system to identify and contact vulnerable populations that do not have access to a vehicle, provide them pick up locations (3) be ready to deploy buses, vans, and trains during emergencies (4) give transit vehicles priority where roadway space is limited (5) train employees in emergency response.²⁰⁰ Following the attacks in New York City on September 11, 2001, the city developed the Emergency Management Online Locator System. The web tool helps people determine if they live in an



Buses can be mobilized during disasters to aid in evacuations.

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

¹⁹⁷ Ibid.

¹⁹⁸ Hidalgo, Darío, Liliana Pereira, Nicolás Estupiñán, and Pedro Luis Jiménez. 2013. "TransMilenio BRT system in Bogota: High performance and positive impact – Main results of an ex-post evaluation." *Research in Transportation Economics* 39(1), March: 133-138. Accessed at <https://www.sciencedirect.com/science/article/abs/pii/S0739885912000777>.

¹⁹⁹ Oregon Department of Transportation. 2015. *Oregon Transportation Options Plan*. Accessed at <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OTOP>.

²⁰⁰ Schwartz, Michael and Todd Litman. "Evacuation Station: The Use of Public Transportation in Emergency Planning", *ITE Journal on the Web*. January 2008.



evacuation zone, where their neighborhood emergency reception center is located, and how to get there by transit.

In Oregon, emergencies often result from flood or fire with which public transportation could assist in evacuations as needed. Our primary major threat is anticipated to be a large earthquake in the future, which could result in damage to infrastructure from both the earthquake and subsequent tsunamis, especially in coastal areas. As public transportation is reliant on working roads, bridges, and rail lines, transit services may also be interrupted in this event. When routes are functional again, public transportation may be able to help move people to safe locations and supplies to where they are needed.



Summary

When thinking about transportation, different modes and options are often considered separate, distinct systems – the “highway system,” the “freight system,” and the “public transportation system.” However, none of these systems operate in isolation, and are instead part of an interconnected, multimodal transportation system. Public transportation, including buses, rail, and other modes, is one essential facet of the overall system, providing mobility for urban and rural residents, and connectivity between and among places and people.

As urban areas become more populated, public transportation will be increasingly relied on to meet the daily transportation needs of more residents. Having access to a variety of transportation options can help households reduce transportation costs and provide connections to opportunity. In rural areas, public transportation will help older adults stay connected in their communities and help others get to jobs and services.

Oregon communities receive many benefits from public transportation, including reduced transportation costs for residents, improved transport safety, and providing access to services and opportunities. In both urban and rural areas, public transportation will continue to provide mobility, add critical trip capacity to help manage congested transportation corridors, and ensure transportation options are available for all.



Appendix 4
Oregon Public Transportation Plan
Opportunities, Challenges, and Trends



Opportunities, Challenges, and Trends

Oregon Public Transportation Plan

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Introduction

Public transportation is a key component of Oregon’s transportation system. Public transportation includes modes such as bus, bus rapid transit, paratransit, light rail, commuter rail, intercity passenger rail, and taxis and similar services. It creates mobility and accessibility for residents and visitors, and provides connections within and between Oregon’s urban and rural communities; it supports Oregon’s economic vitality; and it contributes to the health and safety of Oregon communities.

ODOT Mission—To provide a safe, efficient transportation system that supports economic opportunity and livable communities for Oregonians.

This memorandum outlines how societal **changes and trends** may affect the way Oregonians think about and use public transportation, and how public transportation contributes to the state’s economy and quality of life. The new Oregon Public Transportation Plan (OPTP) will include a vision, goals, policies, and strategies that will build on **opportunities** and anticipate **challenges** that result from trends occurring in Oregon and nationally. The following summarizes trends, opportunities, and challenges that affect public transportation in Oregon. These were identified through OPTP Listening Meetings held in fall 2016, Policy Advisory Committee discussions, OPTP

“Trends” refer to developments that reflect changes in demographics, tendencies, habits, or behaviors.

Existing Conditions information, the OPTP Benefits of Public Transportation, and an earlier survey of public transportation providers, conference workshop, and stakeholder interviews.

The information in this memorandum is not exhaustive, and all items listed here may not become policies in the OPTP. Rather, the information and ideas collected here will be used to inform Policy Advisory Committee conversations leading to the development of **policies and strategies** for the OPTP. Policies and strategies will address many of the opportunities, challenges and trends faced by transit agencies, other state agencies, and regional and local governments. Policies and strategies shape and support decisions about public transportation planning, investment, construction, operations, and maintenance. Figure 1 shows how these sources have informed the opportunities, challenges, and trends and how these then inform OPTP policies and strategies.



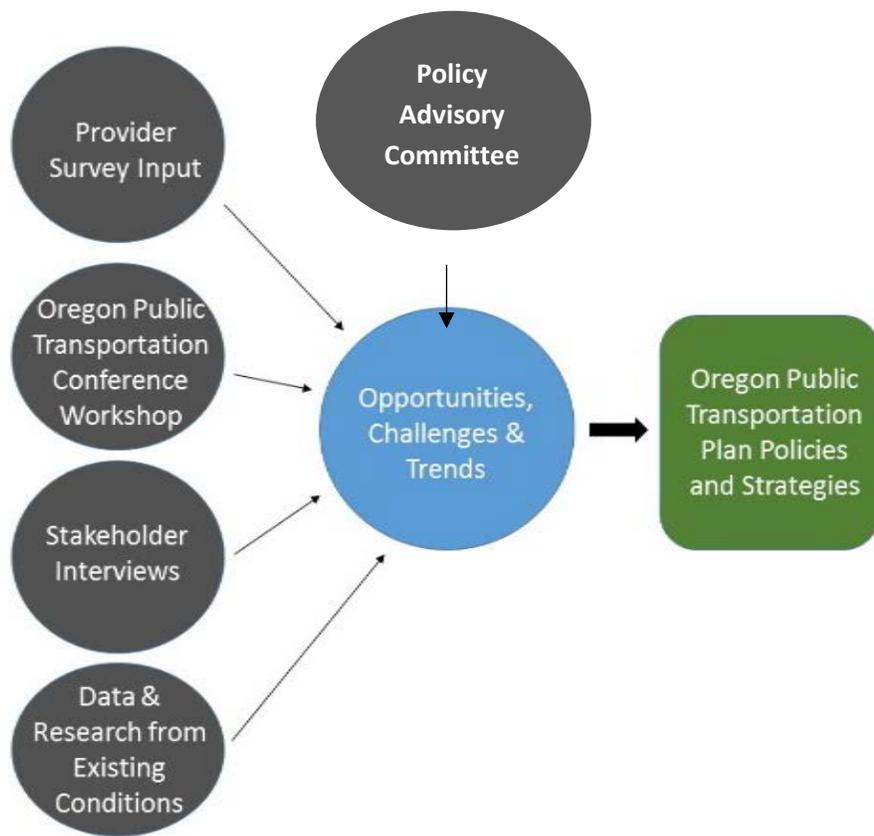


Figure 1. Development of OPTP Opportunities, Challenges & Trends

Trends

A number of trends affect transportation in Oregon and the use and provision of public transportation services in the state. These trends are important because they directly influence many of the opportunities and challenges facing public transportation now and in the future, and therefore will help shape the new OPTP.

Population Growth and Demographic Changes

Oregon is growing – about one million new residents have been added to the state’s population since the first OPTP was adopted almost 20 years ago. Oregon continues to grow faster than the national average, driving demand for all forms of transportation including public transportation.²⁰¹ Growth is expected to be greatest in urbanized areas, particularly in the Portland Metropolitan area and in the mid-Willamette Valley, and public transportation will become a more important option as motor vehicle congestion worsens. In more rural areas, population changes may vary by location and have different impacts on public transportation in those areas. These different growth trends will affect the quantity and type of public transportation service needed as communities change.

²⁰¹ State of Oregon Employment Department. 2015. *Population Growth Rate Increases in Oregon for Third Straight Year*. Accessed August 2016.



In addition to growing population, three demographic trends are influencing the use and provision of public transportation. First, millennials now make up the largest single generation nationally and in Oregon. Millennials comprise 27 percent of the state’s population.²⁰² Early trends show that millennials, particularly those who live in urban areas, are less inclined to own personal vehicles and more likely to use public transportation than preceding generations. This will place increased demands on public transportation than has previously been observed.²⁰³

Second, Oregon’s population is aging, and as adults age, they are more likely to use public transportation services as an alternative to driving. Today, 16 percent of Oregonians are aged 65 or older.²⁰⁴ Older adults are expected to represent a greater share of the population in the future and in turn, a greater share of public transportation trips. Older adults in Oregon are also more likely to live in rural areas (21 percent) compared to urban areas (14 percent), and many intend to stay in their homes as long as they are able.^{205,206} Thus, rural areas in particular, will face increased demands to support the travel needs of older adults to critical services and amenities. This will impact demand and interest in public transportation, and will require providers to accommodate more geographically dispersed riders.

Third, low-wage jobs continue to represent a significant share of jobs in the state and low-income households are more likely to use public transportation than other groups.²⁰⁷ Low wage jobs are defined as those occupations with a median wage threshold of \$12 an hour or annual median earnings of \$25,000 or less. Approximately 25 percent of all workers in Oregon meet this criterion. In 2013, 29 percent of all job vacancies in Oregon were for positions paying less than \$10 an hour. Furthermore, minority populations represent a disproportionate share of low wage workers; 45 percent of Latino and 50 percent of African American workers are employed in low-wage industries.²⁰⁸

These trends combine to result in populations that may live farther from work to find affordable housing and may not have room in their budgets for vehicles and maintenance. For example, a January 2016 report found that a two-person household in Portland would save \$818 per month or about \$9,817 annually by taking public transportation and living with one less car.²⁰⁹ Therefore, public transportation providers are likely to face increased pressure to provide accessible, convenient, and affordable transportation options.

²⁰² Oregon Office of Economic Analysis. 2015 “Population, Demographics and Generations”. Retrieved 2/1/2015. Accessed at <https://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/>.

²⁰³ American Public Transit Association. 2013. *Millennials & Mobility: Understanding the Millennial Mindset*. Accessed at <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>.

²⁰⁴ U.S. Census Bureau. 2014. State & County Quick Facts: Oregon, Accessed at <https://www.census.gov/quickfacts/fact/table/US/PST045217>.

²⁰⁵ U.S. Census Bureau, Annual Population Estimates.

²⁰⁶ DeGood, K. 2011. Aging in Place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation. Accessed June 29, 2015.

²⁰⁷ Lyons, W., Peckett, H., Morse, L., Khurana, M., & Nash, L. (2012, October 12). METROPOLITAN AREA TRANSPORTATION PLANNING FOR HEALTHY COMMUNITIES. Retrieved June 29, 2015, from https://www.planning.dot.gov/documents/Volpe_FHWA_MPOHealth_12122012.pdf.

²⁰⁸ Oregon Center for Public Policy, 2014. The High Cost of Low Wages in Oregon. Accessed at: <https://www.ocpp.org/media/uploads/pdf/2015/2014-lerc-oregon-workforce-report-the-high-cost-of-low-wages-in-oregon.pdf>

²⁰⁹ American Public Transportation Association. Accessed at https://www.apta.com/mediacenter/pressreleases/2016/Pages/160121_Transit-Savings.aspx, March 2016.



Oregon’s demographics affect travel needs and preferences. Understanding these user groups is important in not only planning routes and services but also how to make such audiences aware of their travel options, and to plan for mobility needs (for example, chair lifts) and amenities (for example, weather protected stations with seating or lighting) within the public transportation system.

Increasing Costs to Build and Operate Public Transportation

In Oregon and across the country, maintaining existing transportation infrastructure and responsive transportation service levels is becoming increasingly difficult in the face of long-term transportation funding challenges, particularly for public transportation.²¹⁰

Public transportation funding is different from other roadway and transportation investments in that public transportation includes some infrastructure costs for the vehicles, stops, stations, vehicle storage and any guideways, but more of the expenses are operational, particularly for drivers to provide the service. In a 2015 study ODOT estimated that operational costs are 2:1 the costs of infrastructure investments, yet operational funding comes from different sources than capital funding, and is fairly limited.²¹¹ Operational funding is often more from local sources, while capital funding is often mostly from federal sources. State funding contributes some to both types of expense, and state funds for public transportation in Oregon have been fairly consistent.

Local communities often cannot respond to increasing demand for service due to volatility in local funding sources such as payroll and property taxes, and difficulties associated with increasing revenues from existing sources or implementing new ones. In addition to challenges with the availability of funds, public transportation operating costs continue to rise. Costs associated with labor have increased steadily over time while funding levels have not, meaning more money is going to operations. In addition, the costs to operate and maintain vehicles have increased and many vehicles are overdue for replacement. These place pressures on the ability to sustain existing services let alone expand services to meet the changing demographic needs across the state.

State and local funds also must be used to “match” federal funds. Transit providers are expected to contribute up to 50 percent of the needed money in order to be eligible for federal funds from the Federal Transit Administration and Federal Highway Administration. These matching funds may come from taxes, or other local fees, which are often difficult to come by; several public transportation providers in Oregon have indicated that they fear not being able to use all federal funds they are eligible for because they may not have enough matching funds available.

Federal dollars can also be unpredictable due to uncertainties about levels of funding for public transportation in the transportation funding authorizations. Although the newest authorization, Fixing America’s Surface Transportation Act, increases funding somewhat, new authorizing

²¹⁰ Government Relations, Oregon Department of Transportation. 2013. *Six trends spell trouble for transportation funding*. Accessed at <https://www.oregon.gov/ODOT/Pages/Newsroom.aspx>.

²¹¹ ODOT Legislative Report derived from 2015 Portland Metro Budget Data for TriMet and SHRP2 C16 SmartGAP/RPAT accessed at: <https://planningtools.transportation.org/files/102.pdf> (**Table 3.15**).



legislation will be needed after five years. Federal funding for service, especially for seniors and persons with disabilities, has not kept up with demand either.

Connecting to Other Modes

Most people get to and from the bus or train by walking, biking, or driving and parking. Connections for pedestrians and bicycle riders to public transportation are essential in order to serve the first and last mile needs of those traveling by bus or train. More sidewalks and safe crossings have been built in many places throughout the state, but there are still many locations that need more. Likewise, emerging services like bikeshare and carshare can help make connections to public transportation more accessible. Trends show an increased interest in a shared economy and modes that support seamless travel without the burden of vehicle ownership costs. Bikeshare and carshare services are becoming more prevalent across the state and not just in areas like Portland, but also mid-sized communities like Eugene and smaller towns like Ashland. There is an opportunity to pair these services with public transportation, helping to create a more interconnected and integrated system, which can support greater access to and increased use of public transportation services.

Private Transit Providers and Transportation Network Companies

Buses, trains, and other transit services are not only provided by public agencies but may be available from private providers such as Bolt Bus, Uber, or Lyft. Private provision of transit is not new, as taxis often serve this function and many of Oregon's original street car lines were owned and operated by private businesses. An investigation of trends shows that there has been a recent resurgence of private providers, who have recognized economic opportunities to help meet traveler demands. Bolt Bus offers low-cost intercity and interstate connections across several parts of the country, while services like Uber and Lyft are similar to low-capacity demand response transit, where contracted drivers can use their own vehicles to pick up and drop off riders. There are opportunities to consider how public and private sector providers may complement one another to meet the overall needs of riders, how one may be able to better serve specific needs, and how they can function together to expand Oregonians' travel choices and opportunities overall. So far, most of this innovation has been in larger urban areas, but there may be opportunities in smaller communities and rural areas to be explored as well.

New Technologies

The emergence of mobile applications that provide trip planning, real time travel information, and alerts have also made it easier and more convenient for transit users with smartphones. New efare technologies allow riders to purchase fares on their smartphone, speeding boarding times and increasing convenience for riders. Automated and connected cars, buses, and trains are also being tested and operated and may be a future way of delivering transit in a safe, user-friendly, and cost-efficient way. These technology trends present major opportunities for making public transportation more efficient and easy to use and thereby increasing ridership and revenue, though new technologies may also add expense for implementing and maintaining the technology.



Using Public Transportation to Support State Goals

Public transportation is a tool to help accomplish many of Oregon’s goals including supporting a robust state economy, increasing freight mobility, reducing transportation-related greenhouse gas emissions, promoting energy conservation, supporting emergency preparedness, complementing land uses, and improving public health. State- and local-level greenhouse gas emissions reduction planning efforts revealed that expanding public transportation is essential to reducing emissions from the transportation sector. Additionally, public transportation almost always requires that users walk or bike to and from their station or stop, which can help increase physical activity for users and in turn improve public health. It supports the state’s economy and freight movement by providing transportation options and helping to manage congestion through the carrying capacity of a single bus or train car. Public transportation can reduce transportation costs for riders and as a result reduce overall household costs, and provide access to education and employment opportunities, as well as shopping and other services.



Opportunities and Challenges

Opportunities and challenges provide a foundation for shaping goals, policies and strategies that can anticipate change and frame and support future decisions about public transportation in the state. The following table lists the draft goals of the OPTP with associated opportunities and challenges for public transportation identified in OPTP work so far. In the right column, example policy or strategy topics following from the Opportunities and Challenges are listed for further consideration in the OPTP development process. Neither the Opportunities and Challenges column nor the Example Policy Topics is meant to be an exhaustive list, rather these represent a collection of ideas heard or identified to date. In addition, all ideas listed here may not become policies and strategies in the OPTP; these ideas will be used to begin discussions about policies and strategies with the OPTP Policy Advisory Committee.

Although many of these opportunities and challenges are related to the key trends described above (many relate to more than one trend), some may be related to other Oregon historical or societal contexts.

GOAL #1: MOBILITY: PUBLIC TRANSPORTATION USER EXPERIENCE	
People of all ages, abilities, and income levels move reliably and conveniently between destinations using an affordable, well-coordinated public transportation system. People in Oregon routinely use public transportation to meet their travel needs.	
Opportunities and Challenges	Example Policy Topics
Mobility management (Mobility management is a strategic, demand-oriented approach to the integration of transportation services that emphasizes movement of people instead of vehicles.)	<ul style="list-style-type: none"> • Collaboration between transportation providers to better plan/utilize existing services • Mobility education and travel training for customers, planners, and other community members • Incorporate mobility management measures in long-range plans and programs • Public information/marketing • One-stop information and referral and fare integration systems • Mobility support programs for human service agency clients
Multimodal features and options	<ul style="list-style-type: none"> • Best practices for bikes and users of mobility devices on transit • Best practices for facility design (for example, bike parking at transit stops) • Collaboration with private providers • Multimodal hubs • Roadway design features to support transit (for example, completion of bike lanes and sidewalks to access transit)
Access to information	<ul style="list-style-type: none"> • Provision of accessible transit information and marketing • Culturally appropriate marketing and information • Use of technologies • Develop model of “readable” transit schedules and marketing techniques



Increased congestion travel time reliability	<ul style="list-style-type: none"> • Bus queue jumps • Transit signal priority • Transit pass programs • Pre-tax benefits • Bus on shoulder • Dedicated bus lanes • Increase regional high capacity transit options
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GOAL #2: ACCESSIBILITY AND CONNECTIVITY: GETTING FROM HERE TO THERE

A readily available and user-friendly public transportation system provides people with convenient connections to and between routes and travel modes, public and private providers, and people and places in urban, suburban, rural, regional, and interstate areas.

Opportunities and Challenges	Example Policy Topics
Last Mile and Multimodal connections	<ul style="list-style-type: none"> • Link to other modes and amenities • Technology and information for travelers • Partnerships with private companies • Establish roles for development of intermodal facilities (hubs) • ODOT, local government, private partners identify key locations for park and rides in rural areas • Partner with local governments to prioritize sidewalk improvements and bike lanes on routes leading to bus stops
Access to jobs, schools, services	<ul style="list-style-type: none"> • Role of public transportation in providing access • Identification of different transit roles • Housing and job connections • Communicating transit design choices • Coordinating transit service hours of operation with business hours of essential destinations • Student passes and discounted fare programs for low-income households, veterans
Seamless connections between modes	<ul style="list-style-type: none"> • Intermodal connections, including passenger rail • Bicycle and pedestrian interface with transit system • Operator interface with transit system • Interline transit schedules • Technologies that enable transfers between modes • Efare/universal fare • Manage relationships between intercity bus/rail and regional commuter services between communities
Connections between communities, cities, regions, and states	<ul style="list-style-type: none"> • Connections between communities • Identification of needed connections • Connections to support intercity, interregional, and interstate movements • Regional planning



Traveler information	<ul style="list-style-type: none"> • Emerging technologies for trip planning, real-time information, and efare technology • Provision of travel information to non-traditional audiences • Role of state in traveler information • Use of GPS and other technologies to identify where public transportation vehicles are in time and space • Travel planning software to identify the range of potential options for individual trips • One-stop information and referral resource
Long distance trips in rural areas, often low ridership and high cost, lack of frequency; weather often an issue (too hot or too cold)	<ul style="list-style-type: none"> • Work with regional employers to encourage vanpool options • Provide support and technical assistance for agencies traveling out of state to regional destinations, such as medical centers • Develop passenger facilities near major destinations that enable people to safely and comfortably wait

GOAL #3: COMMUNITY LIVABILITY AND ECONOMIC VITALITY

Public transportation promotes community livability and economic vitality by efficiently and effectively moving people of all ages to and from homes, jobs, businesses, schools and colleges, and other destinations in urban, suburban, and rural areas.

Opportunities and Challenges	Example Policy Topics
Attracting employers and highly skilled workers	<ul style="list-style-type: none"> • Service coordination for locations identified for economic development efforts • Service coordination for existing employer locations • Incentives to locate near transit • Transit passes for employees • Pre-tax programs
Enabling workers to access jobs	<ul style="list-style-type: none"> • Public transportation services alignment with diverse work schedules • Work with public and private sector providers to provide off-hour transportation • Integrate TO strategies with transit (for example, van pools)
Enabling students to get to school	<ul style="list-style-type: none"> • Use transit to help address truancy and high absenteeism rates through student transit passes • Service coordination for colleges, universities, vocational training sites
Promoting and supporting tourism	<ul style="list-style-type: none"> • Tourist passes • Travel training and information for tourists • Transfers between transit service providers • Public transportation access to recreational activities • Bikes on buses and trains – bike trailers
Special events (athletic games, conferences, concerts, rallies, weekly markets)	<ul style="list-style-type: none"> • Service adjustment and partnering with event sponsors to meet travel needs for large events • Public-private partnerships
Maintain capacity of local transit agencies to meet the service and compliance obligations of operating transit services	<ul style="list-style-type: none"> • Co-locate core transit functions typically managed independently by transit agencies such as transit maintenance and dispatch • Identify mechanism to share qualified staff such as vehicle inspectors and trainers • Develop statewide driver recruitment and training program



GOAL #4: EQUITY

Public transportation is a tool for enhancing equity and opportunities for all Oregonians. Affordable, safe, and welcoming public transportation options improve lives by providing efficient access to goods and services, jobs, and other key destinations.

Opportunities and Challenges	Example Policy Topics
Identify needs for the use of public transportation across Oregon’s diverse population	<ul style="list-style-type: none"> Equity assessments in transportation planning and decision making Methods to ensure outreach and participation of public transportation users in capital and operations planning
Balancing different aspects of equity	<ul style="list-style-type: none"> Balance “horizontal” equity (that is, does service and resource distribution roughly reflect the distribution of population around the state, local and regional areas) with “vertical” equity (that is, does distribution of service and resources compensate for inequities in income, mobility, and need) Guidance related to setting fares Tools to develop fare subsidy programs for certain users Technical assistance and funding for rural transit agencies for planning and outreach Productivity vs. coverage for route planning
Youth access to public transportation	<ul style="list-style-type: none"> Partnerships with schools and colleges (for example, transit passes) Locating bus stops near schools Best practices in public transportation for youth
Transit-dependent needs	<ul style="list-style-type: none"> Minority and low-income households service needs Address limited English proficiency (LEP) needs Model programs for culturally appropriate outreach and public involvement

GOAL #5: HEALTH

Public transportation fosters improved health of Oregonians by promoting clean air; enhancing connections between people; ensuring access to services such as health care and goods such as groceries; and by giving people opportunities to integrate physical activity into everyday life through walking and bicycling to and from public transportation.

Opportunities and Challenges	Example Policy Topics
Access to essential services	<ul style="list-style-type: none"> Public transportation connections to health services Barriers to use of public transit for youth, aging adults, people with disabilities, and transportation disadvantaged
Support of active lifestyles	<ul style="list-style-type: none"> Support use of active modes for first/last mile connections Public transportation’s contribution to cleaner air Links between neighborhoods accessibility and access to transit Connections between neighborhoods and to recreation

GOAL #6: SAFETY AND SECURITY

Public transportation trips are safe; riders feel safe and secure and experience low risk of injury during their travel. Public transportation contributes to the ability of Oregon communities to cope with natural or human-caused disasters and other emergencies.



Opportunities and Challenges	Example Policy Topics
Transit vehicle crashes	<ul style="list-style-type: none"> • Driver training • Education for all users • Data and identification of risk factors
Transit security issues or perceptions	<ul style="list-style-type: none"> • See and be seen at transit stops (for example, illumination) • Security guard/enforcement presence • Outreach to address misconceptions • Security planning • Safety audits and toolkits • Driver and first responder training to manage illegal activity • Bus and facility security systems • Assure facility/vehicle maintenance and cleanliness
Natural disaster resilience and redundancy	<ul style="list-style-type: none"> • Emergency planning by transit agencies to secure transit operations and data • Understand and work to mitigate seismic vulnerabilities • Transit as a modal option in preparation or recovery after some disasters • Communication and incident management systems • Coordination with law enforcement and emergency responders • Technical assistance for managing evacuation of populations without cars
Roadway, guideway, or track design	<ul style="list-style-type: none"> • Bus stops and pullouts • Road, guideway, or track geometry • Guideway or track crossings • Operating speeds • Guidelines for safety mitigations in location of transit stops • Guidelines/techniques for locating transit facilities on high-speed roadways
Education for transportation system users	<ul style="list-style-type: none"> • Safety/prevention best practices • See and be seen campaigns • Rider orientation
Enforcement	<ul style="list-style-type: none"> • Disparities in fare enforcement • Techniques for enforcing regulations related to illegal activities, including drug use, loitering
Transit as a community safety management option	<ul style="list-style-type: none"> • Late night bus service in college towns and other locations/times to discourage impaired driving • Consider transit service to destinations on routes with high crash potential such as ski areas/mountain roads • Transit available for youth activities, such as football games

GOAL #7: ENVIRONMENTAL SUSTAINABILITY

Public transportation contributes to a healthy environment and climate by moving more people with efficient, low emission vehicles, reducing greenhouse gases and other pollutants.

Opportunities and Challenges	Example Policy Topics
Greenhouse gas emissions	<ul style="list-style-type: none"> • Fuel-efficient and electric vehicles • Reduced reliance on SOVs • Use of different fuels by transit (CNG, natural gas) • Opportunities for congestion mitigation



Water quality	<ul style="list-style-type: none"> • Water quality
Soil quality	<ul style="list-style-type: none"> • Soil quality
Noise levels	<ul style="list-style-type: none"> • Quieter public transportation vehicles
Operational efficiency	<ul style="list-style-type: none"> • Roles for technology in improving public transportation

GOAL #8: LAND USE

Public transportation is a tool that supports Oregon’s state and local land use goals and policies. Agencies collaborate to ensure public transportation helps shape great Oregon communities providing efficient and effective travel options in urban, suburban, and rural areas.

Opportunities and Challenges	Example Policy Topics
Last mile and multimodal connections	<ul style="list-style-type: none"> • Land use and transportation planning to support modal choice and connection to other modes • Park and ride planning • Multimodal hub planning • Support community planning for car and rideshare • When to encourage paid parking
Integration of transportation and land uses	<ul style="list-style-type: none"> • Land use and transportation planning to identify priority corridors • Where to encourage land use development patterns that support transit service (for example, designated corridors and centers, incentives for developers, transit supportive options) • Transportation system plans include transportation and land use strategies to support public transportation • Co-locate key transit destinations with transit facilities
Land use and affordable housing	<ul style="list-style-type: none"> • When to encourage development that places affordable housing near transit services • Transit services to connect affordable housing with entry level/low-wage jobs • Consider combined cost of housing and transportation

GOAL #9: STRATEGIC INVESTMENT

Sustainable and reliable funding meets the demand for public transportation service operations and infrastructure. Strategic investments in public transportation support the overall transportation system and Oregonians’ quality of life and economy.

Opportunities and Challenges	Example Policy Topics
Lack of consistent, sustainable funding	<ul style="list-style-type: none"> • Exploration/support of additional funding and financing options • Sustainable and consistent source funding
Emerging technologies	<ul style="list-style-type: none"> • Oregon as a “proving ground” for new transit technologies • Monitoring development and advancement of new technologies as they relate to public transportation
Prioritizing system investment	<ul style="list-style-type: none"> • Prioritization frameworks • Role of emerging technologies to create a more efficient system • TAM – transit asset management • Performance planning and measures



Equitable investment	<ul style="list-style-type: none"> • Equitable distribution of state/federal/local resources, including whether and how to ensure a basic level of service in all communities • Equity assessments in transportation decision making • Consider basic level of service appropriate to area • Consider rural factors (distance, cost, age) when allocating grant funds
Lack of flexibility in the use of public transportation resources	<ul style="list-style-type: none"> • Exploration/support of additional funding and financing options • Support flexible funding source that may be used for both operations and capital
Fixed route transit	<ul style="list-style-type: none"> • Best practice in designing fixed routes • Use of technology for planning
Demand for paratransit services	<ul style="list-style-type: none"> • Collaboration with human resource service agencies • Partnerships with nonprofits or private contractors • Provide alternative services such as shopper shuttles
Demand response services	<ul style="list-style-type: none"> • Partner with nonprofits or private contractors • Partner with human service providers to consolidate/coordinate operations • Technical support to providers to develop deviated fixed route or other flexible services options in lieu of demand response • Identification of best practices for provision of demand response service • Technology to increase efficiency • Develop volunteer driver programs to support low-volume service for certain vulnerable individuals, such as seniors, people with disabilities and children

GOAL #10: COMMUNICATION, COLLABORATION, AND COORDINATION

Public and private transportation providers and all levels of government within the state and across state boundaries work collaboratively and foster partnerships that make public transportation seamless regardless of jurisdiction.

Opportunities and Challenges	Example Policy Topics
Coordination between transit agencies and human service agencies	<ul style="list-style-type: none"> • Partner with human service agencies to provide rides and share costs • Encourage one-call centers that can facilitate group trips or fill empty seats in buses • Identification of potential mobility management services
Partnerships between businesses and institutions	<ul style="list-style-type: none"> • Partnerships with businesses to offer transit passes • Partnerships with schools and colleges to offer student passes and other transit support
Coordination and cooperation	<ul style="list-style-type: none"> • Coordination among public transportation providers, local government, private partners, and transportation planning efforts • Roles and responsibilities of different government agencies and transit providers • Improve transit service planning – initiate transit development plans • Interstate coordination
Data and information	<ul style="list-style-type: none"> • Share and leverage data between and across public transportation providers and jurisdictions • Identify best practices for collections, storing, and managing data



Appendix 5
Oregon Public Transportation Plan
Needs Assessment



Needs Assessment

Oregon Public Transportation Plan

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Executive Summary

Understanding public transportation needs is an important part of planning for the future of public transportation in Oregon. For the Oregon Public Transportation Plan (OPTP), **“needs” refers to the estimated annual dollar amount required by public transportation providers to provide services in communities across Oregon in the year 2045.** This analysis is not intended to propose or define a particular level of transit service. Instead, it helps illuminate the potential gap between needs and the anticipated resources available to providers around the state. By showing order-of magnitude investment requirements and potential resource gaps, the Needs Assessment will help inform implementation strategies – specific actions taken to enact policies in the plan. Understanding future needs will enable the Oregon Department of Transportation (ODOT) to develop a forward-looking set of actions and investments by agencies and leaders throughout the state that support the growth and development of public transportation.

Capital needs include the resources required to replace public transportation vehicles, build new stations and stops, maintenance facilities, and other capital expansions such as light rail lines or busways.

Operations needs include the resources required to fund the ongoing operation of public transportation in Oregon. Costs include drivers and other staff, fuel, maintenance, and administration.

The *OPTP Existing Conditions Report* describes trends that will drive the need for public transportation services in the future, including:

- **Growing population:** Oregon set to grow by about one million people by 2045. Population growth strongly influences the need for transportation services of all kinds, including public transportation.
- **Changing demographics:** the percentage of older adults will increase in coming years, while at the same time younger generations (“Millennials”) are demonstrating a greater interest in using public transportation.
- **Income and housing:** lower income populations use public transportation at higher rates than the population at large – and due to increasing housing costs, lower income individuals are increasingly living in areas with limited public transportation service.

This assessment is based on the best information available today. However, the transportation industry is evolving rapidly and the OPTP must be flexible enough to advance and accommodate a variety of outcomes. **This assessment does not represent a future investment vision for public transportation in itself, but will instead inform development of investment scenarios** as part of the planning process.



This report presents a high-level assessment of both the annual capital and operations dollars needed by public transportation providers statewide to operate services in the year 2045 under three different future service scenarios. These scenarios are not tailored to address specific needs in specific locations. Instead, they are intended to broadly describe a range of possible investment levels statewide. The future service scenarios represent a “snapshot in time” estimate based on available data and conditions today; they describe a set of scenarios that depict the total resources needed to construct and operate the public transportation system in Oregon at each service level, regardless of available funding.

Future work for the OPTP will consider anticipated funding available in development of investment scenarios. The needs of private transportation services (such as Greyhound, for example) and social service agencies that provide transportation are not included in this assessment.

The ODOT project team researched methods for determining public transportation needs and chose a method that is replicable, uses readily available data from the National Transit Database (NTD), and is very similar to methods used successfully in other states. Based on this approach, ODOT established three levels of need:

Level 1: Baseline Need. Baseline Need assumes that the level of service provided in communities (e.g. service miles), per capita, remains the same in 2045 as today. The total amount of service provided in communities would increase to account for population growth. (In 2045, the state is expected to have over five million residents, compared to approximately four million today). The total state Baseline Need is estimated to be \$1.1 billion annually (2013 dollars).

Level 2: Reasonable Unmet Need. This level of need represents the cost of providing additional service to meet “reasonable” unmet public transportation needs. Reasonable Unmet Need is presented as a range. The higher end of the range was determined by considering the level of service today in communities with a *higher* level of per-capita service as compared to peer communities, then estimating the resources needed to provide that same level of service across all communities of a certain size. The low end of the range was determined by considering the *average* amount of service in each community type. The project team established this level of need based on analysis of current public transportation service levels in Oregon communities in

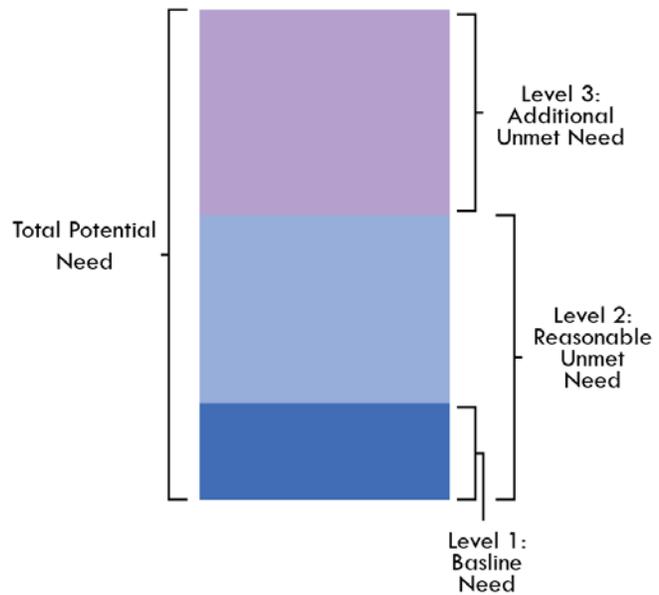


Figure 1. Levels of Public Transportation Need in Oregon in 2045



comparison with similar sized communities in the state that are well-served by transit. The total Reasonable Unmet Need is estimated to be \$1.7 to \$2.0 billion (2013 dollars) annually in the year 2045.

Level 3: Additional Unmet Need. This is the level of public transportation service that would be required to supply most or all of the public transportation trips that individuals are likely to make, were service available. This level – described qualitatively – recognizes that there is additional need beyond the Reasonable Unmet Need. For example, today in Oregon, about 600,000 individuals are not served by any public transportation at all (without reasonable access to service near their residence). Additional Unmet Need considers what it might take to serve these individuals, among other service improvements around the state. In addition, it considers the high capacity transit needs of large urban providers, and describes the typical capital and operations needs of smaller providers to provider services addressing Additional Unmet Need.

Overall, large urban providers currently represent (and likely will in the year 2045) over 90% of public transportation needs in Oregon. The urbanized areas of the state are expected to see the greatest increases in population in coming years. Rural populations will increase as well, but at a slower rate. The needs of smaller providers are therefore expected to grow under all scenarios as well. Table 1 presents a summary of the Needs Assessment results. The table shows millions of 2013 dollars needed in the year 2045 to meet each level of need; trips are millions of individual person-trips.



Table 1. Needs Assessment Summary for Future Year 2045 (millions of 2013 dollars and millions of trips)

	Baseline Need		Reasonable Unmet Need		Existing Trips (2013)	Future Trips	
	Capital	Operations	Capital	Operations		Baseline	Benchmark
LARGE URBAN PROVIDERS							
Bus	\$54	\$445	\$102	\$631 - \$763	73	110	180 – 189
Demand Response	\$8	\$76	\$13	\$80 - \$107	2	2	3 – 5
High Capacity Transit	\$243	\$165	\$356	\$226 – \$270	43	66	90 – 111
Total	\$305	\$686	\$471	\$937 – \$1,140	118	178	273 – 305
TOTAL CAPITAL + OPS	\$991		\$1,408 – \$1,611				
MEDIUM URBAN PROVIDERS							
Bus	\$3	\$13	\$6	\$12 - \$16	3	4	4 – 5
Demand Response	\$1	\$3	\$2	\$3 - \$3	0.1	0.1	0.1
Total	\$4	\$16	\$8	\$15 - \$19	3.1	4.1	4.1 – 5.1
TOTAL CAPITAL + OPS	\$20		\$23 - \$27				
SMALL URBAN PROVIDERS							
Bus	\$3	\$21	\$6	\$20 - \$33	1	1	2 – 3
Demand Response	\$1	\$9	\$3	\$12 - \$17	0.1	0.2	0.2
Total	\$4	\$30	\$9	\$32 - \$50	1.1	1.2	2.2 - 3.2
TOTAL CAPITAL + OPS	\$34		\$41 - \$59				
LARGE COUNTY PROVIDERS							
Bus	\$4	\$51	\$9	\$61 - \$129	1	4	4 – 11
Demand Response	\$2	\$15	\$4	\$17 - \$19	0.4	0.5	0.6
Total	\$6	\$66	\$13	\$78 – 148	1.4	4.5	5 – 12
TOTAL CAPITAL + OPS	\$72		\$91 – \$161				
SMALL COUNTY PROVIDERS							
Bus	\$4	\$9	\$54	\$14 - \$35		1	1 - 3
Demand Response	\$3	\$3	\$15	\$4 - \$9		1	1 – 3
Total	\$7	\$12	\$69	\$18 - \$44	0.1	2	2 – 6
TOTAL CAPITAL + OPS	\$19		\$87 - \$113				



Table 1. Needs Assessment Summary for Future Year 2045 (millions of 2013 dollars and millions of trips)

	Baseline Need		Reasonable Unmet Need		Existing Trips (2013)	Future Trips	
	Capital	Operations	Capital	Operations		Baseline	Benchmark
TOTALS							
Bus	\$68	\$539	\$177	\$738 - \$976	79	120	189 – 209
Demand Response	\$15	\$106	\$37	\$116 - \$155	2	4	5 – 9
High Capacity Transit	\$243	\$165	\$356	\$226 - \$270	43	66	90 – 111
Statewide Intercity Transit	N/A ²	\$14	N/A ³	\$55	0.2	N/A ⁴	N/A
Total	\$326	\$824	\$570	\$1,135 - \$1,456	124	190	284 – 329
TOTAL CAPITAL + OPS	\$1,150		\$1,705 - \$2,026				

Table 1 Notes:

¹ All figures in this report have been rounded. All figures are presented in millions of 2013 equivalent dollars. The future estimates of need assume that the cost of providing services does not increase beyond the rate of increase in inflation. “Additional Unmet Need” is not quantified and therefore not included in this table.

² The Baseline Need for Statewide Intercity Transit estimates the resources needed to fill gaps in the statewide intercity network through an expanded POINT system in addition to operations needs for the Amtrak Cascades route. Capital costs associated with the POINT system are generally included in the rate paid to private contractors operating POINT buses. Therefore, intercity bus capital costs are not included separately in this assessment. There is no assumed increase in capacity on the Amtrak Cascades route within Oregon as part of the Baseline Need, and the current trainsets are not expected to need replacement within the Needs Assessment timeframe; therefore, no capital costs are assumed for Amtrak Cascades as part of the Baseline Need. However, as the trainsets have an expected minimum life of 30 years, additional capital expenditures for major overhauls or leasing of train equipment are possible.

³ Similar to the Baseline Need, no capital costs are assumed for the expanded POINT system under the Reasonable Unmet Need. Capital costs for the Amtrak Cascades system (Oregon Passenger Rail preferred alternative) range from \$700 to \$815 million through the year 2035. Annualized, this is \$35 to \$41 million per year between 2016 and 2035. Because the Needs Assessment presents the estimated annual need in the future year 2045, the annualized capital needs of the Amtrak Cascades program are not included in this table.

⁴ The project team did not determine the number of trips taken on statewide intercity transit for future year 2045.



Needs Assessment

Methodology

Understanding public transportation needs is an important part of planning for the future of public transportation in Oregon. For the Oregon Public Transportation Plan (OPTP), “needs” refers to the estimated annual dollar amount range required by public transportation providers to provide services in communities across Oregon in the year 2045 under several future service scenarios. These scenarios are not tailored to address specific needs in specific locations. Instead, they are intended to describe a range of potential investment levels statewide.

This analysis is not intended to propose or define a particular level of transit service. Instead, it helps illuminate the potential gap between needs and the anticipated resources available to providers around the state. By showing order-of magnitude investment requirements and potential resource gaps, the Needs Assessment will help inform implementation strategies – specific actions taken to enact policies in the plan. Understanding future needs will enable the Oregon Department of Transportation (ODOT) to develop a forward-looking set of actions and investments by agencies and leaders throughout the state that support the growth and development of public transportation.

Background

The project team researched existing methods used by other states to estimate future public transportation needs. ODOT used key criteria – including replicability, ease of understanding, ease of documentation, and data availability – to select a method for determining needs. Through research, interviews with other state agencies (such as Caltrans and the Minnesota Department of Transportation), and conversations with researchers working on similar issues at Portland State University, ODOT developed a method that examines needs based on the amount of service provided in communities of varying sizes. This method organizes public transportation providers by the size of the population they serve (Table 2), then examines need based on different assumptions about the amount of per capita transit service provided in each community. **Attachment A** contains further details about the method used and shows how providers were categorized.

The project team established three levels of need for the OPTP. The **Baseline Need** scenario represents the resources needed to provide the same level of service (e.g. service miles), per capita, as is provided today. Baseline Need accounts for expected growth in population to 2045, meaning more resources are required in the future to provide a level of per capita service similar to what is provided today.



Table 2. Public Transportation Provider Categorization for the Needs Assessment*

Category	Description	Examples
Large Urban	Population greater than 200,000	TriMet, Lane Transit District
Medium Urban	50,000 to 200,000 population	Rogue Valley Transit District, Corvallis
Small Urban	10,000 to 50,000 population	Basin Transit, City of Pendleton, City of Woodburn
Large Counties and Regional Systems	Counties greater than 50,000 population and systems serving multiple counties	Yamhill County, Benton County
Small Counties and Rural Communities	Counties less than 50,000 population and communities smaller than 10,000 population	Harney County, Wheeler County
Statewide Intercity Public Transportation	Intercity bus and rail	POINT, Amtrak Cascades

*Note: Table 2 lists a small subset of providers to show examples of provider categorization. A complete list of categorized providers is available in Attachment A.

Reasonable Unmet Need represents the resources needed to provide a higher level of service in communities than is provided today. Reasonable Unmet Need is presented as a range, with the high end estimated by looking at the level of service provided in communities with a *higher level* of per-capita service as compared to peer communities, then estimating the resources needed to provide that same level of service across all communities of a certain size. The *average* amount of service in each community type was used as the low end of the range. This level of need would also support public transportation service goals for those communities that have engaged in scenario planning.

Additional Unmet Need represents the resources required to serve nearly all potential public transportation trips individuals would take were sufficient service available. This level of need is estimated qualitatively in terms of how the state’s public transportation system might look if this level of need was met.

Data Sources

The project team used the following primary data sources to perform this assessment:

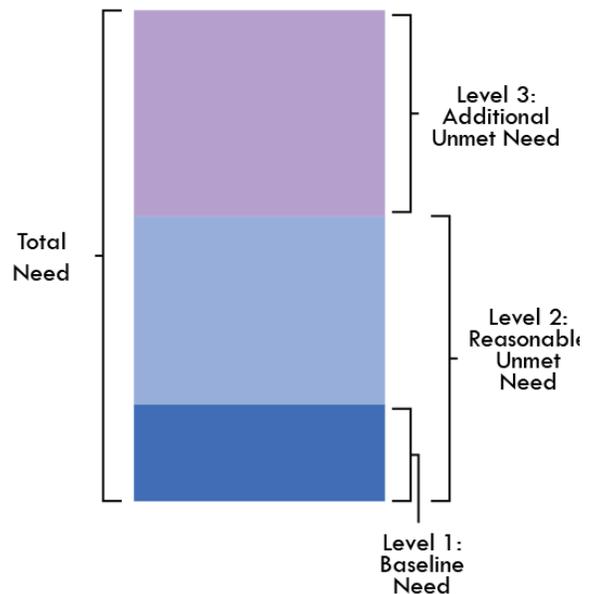


Figure 2. Levels of Public Transportation Need in Oregon in 2045



- *National Transit Database (NTD)*: most public transportation providers in Oregon (including all that receive federal funds) report capital, operations, and ridership statistics annually to this federal database. NTD data was the primary source used to establish the Baseline and Reasonable Unmet Need.
- *ODOT Rail and Public Transit Division (RPTD)*: RPTD administers a number of public transportation programs, including the Amtrak Cascades and POINT intercity bus service. Information from the Oregon Passenger Rail project and RPTD’s assumptions and standards around future intercity bus service informed the estimate of public intercity transportation needs for the Baseline and Reasonable Unmet Need.
- *Interviews with providers*: the project team interviewed several public transportation providers – TriMet, Lane Transit District, Salem-Keizer Transit, and Rogue Valley Transportation District – to verify the data used to develop needs and provided additional information to inform the assessment.
- *Oregon State Office of Economic Analysis*: the project team used future population projections from this state office to estimate the future service area populations of providers across the state.
- *ODOT Major Projects Section*: This team is conducting environmental studies regarding Willamette Valley rail service in the future, called the Oregon Passenger Rail project. Information from Major Projects Section staff and the Oregon Passenger Rail website (www.oregonpassengerrail.org) informed the rail portions of the statewide intercity transit needs assessment.

Capital needs include the resources required to replace public transportation vehicles, build new stations and stops, maintenance facilities, and other capital expansions such as light rail lines or busways.

Operations needs include the resources required to fund the ongoing operation of public transportation in Oregon. Costs include drivers and other staff, fuel, maintenance, and administration.

Additionally, the OPTP Technical Advisory Committee and Policy Advisory Committee provided input on the approach to the Needs Assessment and reviewed the results of the assessment.

While the method described above accounts for most of the public transportation services in the state, it is important to note a number of exceptions:

- *Social services transportation*, such as Oregon Health Plan (Medicaid) non-emergency medical transport, is not completely reflected in this assessment. These services vary widely based on the activities, priorities, and funding of the agencies that manage these programs; the funds used for these services are widely dispersed and are often “invisible” as part of overall cost of services, so cannot be tracked by ODOT.
- *Private transportation services* such as Greyhound intercity bus, private shuttles, and charter transportation are not included. In general, these services are not subject to state policy and so are difficult to include in a needs estimate. However, private services are considered in other



sections of the OPTP, particularly with respect to their role as services that complement public transportation.

- *National Amtrak service* (the Coast Starlight and Empire Builder Lines in Oregon) are similarly excluded from this assessment, as they are not funded by state or local agencies.

In addition to these exceptions, several other considerations should be noted:

- This Needs Assessment presents average annual capital expenditures, by public transportation mode, for different types of providers. However, actual capital expenditures can vary widely from year to year, depending for example on the timing of new infrastructure investments or vehicle purchases.
- Emerging or new modes of publicly-operated transportation may not be accounted for in this assessment. The cost to implement these technologies is not easily determined, and is not included in this analysis.
- All figures are presented in 2013 equivalent dollars. For purposes of this assessment, the estimates of future need assume that the cost of providing services does not increase beyond the rate of inflation (as it is difficult to forecast how these costs might escalate). However, it is important to note that the cost of providing public transportation services of all kinds could increase at a rate greater than inflation.

Findings and Conclusions

Table 3 summarizes the results of the Needs Assessment for the Baseline and Reasonable Unmet Need, organized by provider category and divided into capital and operations (includes maintenance) columns. These needs scenarios represent the estimated annual resources needed across all public transportation modes in the future year 2045.

The following sections briefly describe what the future public transportation system might cost and what it might look like if funding was available to meet each level of need. The table of costs below shows millions of 2013 dollars in the year 2045 to address each level of need; trips represent millions of individual person-trips.



Table 3. Needs Assessment Summary for Future Year 2045 (millions of 2013 dollars and millions of trips)¹

	Baseline Need		Reasonable Unmet Need		Existing Trips (2013)	Future Trips	
	Capital	Operations	Capital	Operations		Baseline	Benchmark
LARGE URBAN PROVIDERS							
Bus	\$54	\$445	\$102	\$631 - \$763	73	110	180 – 189
Demand Response	\$8	\$76	\$13	\$80 - \$107	2	2	3 – 5
High Capacity Transit	\$243	\$165	\$356	\$226 – \$270	43	66	90 – 111
Total	\$305	\$686	\$471	\$937 – \$1,140	118	178	273 – 305
TOTAL CAPITAL + OPS	\$991		\$1,408 – \$1,611				
MEDIUM URBAN PROVIDERS							
Bus	\$3	\$13	\$6	\$12 - \$16	3	4	4 – 5
Demand Response	\$1	\$3	\$2	\$3 - \$3	0.1	0.1	0.1
Total	\$4	\$16	\$8	\$15 - \$19	3.1	4.1	4.1 – 5.1
TOTAL CAPITAL + OPS	\$20		\$23 - \$27				
SMALL URBAN PROVIDERS							
Bus	\$3	\$21	\$6	\$20 - \$33	1	1	2 – 3
Demand Response	\$1	\$9	\$3	\$12 - \$17	0.1	0.2	0.2
Total	\$4	\$30	\$9	\$32 - \$50	1.1	1.2	2.2 - 3.2
TOTAL CAPITAL + OPS	\$34		\$41 - \$59				



Table 3. Needs Assessment Summary for Future Year 2045 (millions of 2013 dollars and millions of trips)¹

LARGE COUNTY PROVIDERS							
Bus	\$4	\$51	\$9	\$61 - \$129	1	4	4 – 11
Demand Response	\$2	\$15	\$4	\$17 - \$19	0.4	0.5	0.6
Total	\$6	\$66	\$13	\$78 – 148	1.4	4.5	5 – 12
TOTAL CAPITAL + OPS	\$72			\$91 – \$161			
SMALL COUNTY PROVIDERS							
Bus	\$4	\$9	\$54	\$14 - \$35		1	1 - 3
Demand Response	\$3	\$3	\$15	\$4 - \$9		1	1 – 3
Total	\$7	\$12	\$69	\$18 - \$44	0.1	2	2 – 6
TOTAL CAPITAL + OPS	\$19			\$87 - \$113			
TOTALS							
Bus	\$68	\$539	\$177	\$738 - \$976	79	120	189 – 209
Demand Response	\$15	\$106	\$37	\$116 - \$155	2	4	5 – 9
High Capacity Transit	\$243	\$165	\$356	\$226 - \$270	43	66	90 – 111
Statewide Intercity Transit	N/A ²	\$14	N/A ³	\$55	0.2	N/A ⁴	N/A
Total	\$326	\$824	\$570	\$1,135 - \$1,456	124	190	284 – 329
TOTAL CAPITAL + OPS	\$1,150			\$1,705 - \$2,026			

Table 3 Notes:

¹ All figures in this report have been rounded. All figures are presented in millions of 2013 equivalent dollars. The future estimates of need assume that the cost of providing services does not increase beyond the rate of increase in inflation. “Additional Unmet Need” is not quantified and therefore not included in this table.

² The Baseline Need for Statewide Intercity Transit estimates the resources needed to fill gaps in the statewide intercity network through an expanded POINT system in addition to operations needs for the Amtrak Cascades route. Capital costs associated with the POINT system are generally included in the rate paid to contractors to operate POINT buses for the state. Therefore, intercity bus capital costs are not included separately in this assessment. There is no assumed increase in capacity on the Amtrak Cascades system within Oregon as part of the Baseline Need, and the current trainsets are not expected to need replacement within the Needs Assessment timeframe; therefore, no capital costs are assumed for Amtrak Cascades as part of the Baseline Need. However, as the trainsets have an expected minimum life of 30 years, additional capital expenditures for major overhauls or leasing of train equipment are possible.

³ Similar to the Baseline Need, no capital costs are assumed for the expanded POINT system under the Reasonable Unmet Need. Capital costs for the Amtrak Cascades system (Oregon Passenger Rail preferred alternative) range from \$700 to \$815 million through the year 2035. Annualized, this is \$35 to \$41 million per year between 2016 and 2035. Because the Needs Assessment presents the estimated annual need in the future year 2045, the annualized capital needs of the Amtrak Cascades program are not included in this table.

⁴ The project team did not determine the number of trips taken on statewide intercity transit for future year 2045.



The totals in the table above represent the annual cost of meeting each level of need (in 2013 dollars). Statewide intercity in this summary table includes long distance POINT system bus service and the Cascades Amtrak service through the Willamette Valley. (Local city to city services provided by transit agencies, such as Salem-Wilsonville service by Cherriots and SMART, are included in NTD data reported by the agencies and therefore included in the services summarized in the tables on prior pages.) Note that the operating costs for Statewide Intercity are based on fiscal year 2013 for the POINT bus and fiscal year 2014 for the Cascades rail route as this was thought to better reflect legislative and operational changes as of 2014 for Cascades rail service.

The Baseline Need for Statewide Intercity Transit estimates the resources needed to fill gaps in the statewide intercity network through an expanded POINT system in addition to operations needs for the current Amtrak Cascades service. Capital costs associated with the POINT system are generally included in the rate paid to contractors to operate POINT buses for the state. Therefore, intercity bus capital costs are not listed separately. Since there is available capacity on existing Cascades service, there is no assumed increase in capacity on the Amtrak Cascades system within Oregon as part of the Baseline Need. Also, the number and age of current trainsets will not necessitate replacement within the Needs Assessment timeframe. Therefore, no capital costs are assumed for Amtrak Cascades as part of the Baseline Need.

Similarly, no capital costs are assumed for the expanded POINT system under the Reasonable Unmet Need as the existing system has additional capacity available and POINT capital costs are a part of the rate paid to contractors for operation. The Reasonable Unmet Need for the Amtrak Cascades system reflects the Oregon Passenger Rail (OPR) preferred alternative²¹² now being explored via an Environment Impact Statement. Capital costs for the Cascades service in the preferred alternative range from \$700 to \$815 million. OPR assumes an end date of 2035 for build-out of the preferred alternative; annualized the capital cost would be \$35-\$41 million per year between 2016 and 2035. Since the table above shows the estimated annual need in the future year 2045, the annualized capital cost of the OPR scenario is not included. The annual operations and maintenance cost for the OPR preferred alternative (approximately \$48 million) includes six rail roundtrips per day between Eugene and Portland.

No future ridership for intercity bus and rail is included in the table, as intercity bus ridership was not projected to the future. No Cascades route ridership estimate is available for 2045. For 2035, Cascades route ridership is estimated by the preferred alternative to be 739,000 trips by both train and bus. The Cascades route is currently served by both Amtrak trains and POINT buses, with six train roundtrips per day, some bus ridership will move to the train.

²¹² See <http://www.oregonpassengerrail.org/> for Oregon Passenger Rail project information.



Baseline Need

The state's public transportation system under the Baseline Need would look similar to today in terms of the per-capita level and types of services provided in communities. Throughout the state, the amount of public transportation service provided – in terms of service frequency and the span of hours over which service is operated – would increase to accommodate increased population; the large and medium-sized urban providers would likely see the greatest increases in service due to larger expected population increases.

Small counties and rural communities would have smaller increases in service given lower expected population growth. In smaller urban and rural communities, increased service needed to serve a growing population could mean more fixed route service than is presently provided.

In large urban areas, it could mean continued modest expansion of high capacity transit, such as bus rapid transit and light rail systems. Intercity bus public transportation (POINT) service would increase along with statewide population, though the Cascades rail line would likely provide a similar level of service as today since there is current capacity on the passenger rail system to accommodate more riders.

Reasonable Unmet Need

If resources were available to meet the estimated Reasonable Unmet Need, the state's public transportation system would likely look different from today in many communities. The following descriptions characterize how the public transportation system would look with this level of service:

- *Large urban areas* would see expanded bus rapid transit and light rail systems that substantially increase high capacity transit service. Bus rapid transit, in particular, could expand to most of the large urban providers in the state, and regular fixed route service would see increased service frequencies. Demand response services would increase slightly, but not at the same pace as other services, since agencies generally seek to accommodate riders on fixed-route systems when possible. Commuter services, such as express buses – and to a more limited extent, rail – would connect within and between regions. Public transportation services would be offered 7 days per week, with 24-hour or late night/early morning service on certain routes.
- *Medium-sized urban areas* would have robust fixed route bus systems, and may introduce some high capacity transit. Fixed route bus systems might expand to recently developed areas of communities (where there is currently no development, no service, or both) while service frequencies could increase in some high-activity corridors or during peak hours on certain routes. Intercity connections offered by local providers, in addition to express commute bus service during commuting hours, might be increased as well. Demand response services in medium-sized urban areas would likely remain similar to those offered today, as agencies generally seek to accommodate riders on fixed-route systems when possible.
- Under this scenario, *small urban areas* would likely see expansion of their fixed route systems, which today are fairly limited. Service frequencies could increase; for example, from hourly to



once every 30 minutes. Some commuter bus service – offered in the morning and evening – could be offered between small communities and urban areas or between urban areas. Demand response services in small urban areas would likely be similar to those offered today, as agencies generally seek to accommodate riders on fixed-route systems when possible.

- *County (large and small) and rural systems* might see increased service frequencies for their fixed route bus systems, with some new routes developed to serve growing population centers. Demand response services would likely continue to be the most effective means of serving large parts of rural counties and small communities, and the amount of service offered could increase to account for increased population.
- *Intercity public transportation* could be expanded to provide service to all communities over 2,500 population. This level of need assumes that the POINT network would expand to fill the existing gaps in intercity service among communities of this size. Intercity service operated by local providers would also increase, providing links between these communities and larger cities and regions.²¹³ Amtrak Cascades service in the Willamette Valley would have increased round trips (six per day) serving the corridor.

Additional Unmet Need

Additional Unmet Need is defined as the resources needed to serve all potential public transportation trips in the state, were service available. This level of need is addressed qualitatively by looking at location- and population-specific considerations in the context of OPTP goals and objectives. The public transportation system in Oregon would be significantly expanded if this level of need was met; the system could look different than that under the Reasonable Unmet Need in a range of ways, including the following:

- **Serving unserved populations.** Today, approximately 600,000 individuals in Oregon are not served by public transportation of any kind (they do not have reasonable access to public transportation service near their residence). These individuals, as well new residents in these areas, could see a basic level of public transportation service under an Additional Unmet Need scenario. Demand response service would likely be the most effective means of serving those who live in sparsely populated areas of the state generally unserved by transit today. These populations are – and would continue to be – relatively difficult and costly to serve through existing public transportation models.
- **Expansion of high capacity transit.** Public transportation in large urban areas could include major high capacity transit expansions – such as light rail, commuter rail, and/or bus rapid transit – as well as enhancements to standard fixed route systems. Enhancements could include more dedicated transit lanes, signal priority, and transit-only streets. These capital improvements could greatly expand the amount and quality of public transportation service

²¹³ Note that locally-provided intercity service is included in the needs estimate for fixed-route bus; the needs estimate for intercity bus service.



available, and serve a greater number of trips than would be possible under the Baseline or Reasonable Unmet Need scenarios.

- **More fixed route and demand response service in smaller urban and rural areas.** Today, public transportation represents a relatively small percentage of all trips taken in smaller urban and rural areas of the state. Significantly expanding fixed route and demand response systems would likely increase public transportation trips. However, assuming current land use trends extend into the future, the resources needed to expand public transportation services in these areas beyond the Reasonable Unmet Need would be significant compared to the number of expected riders. It is unlikely that high capacity transit – either rail or bus rapid transit – would be financially viable in these smaller communities.
- **Expanded intercity public transportation.** Building on the new links that could be provided under the Reasonable Unmet Need scenario, the POINT system and locally-provided intercity service would have increased service frequency. High-speed or higher-speed passenger rail in the Willamette Valley could provide greatly increased passenger capacity. Given population density, the Willamette Valley is the most likely area for passenger rail investment such as that described in the *Oregon Passenger Rail Environmental Impact Statement* currently being prepared by ODOT and the Federal Railroad Administration.
- **Increased capital investment.** Major capital investments would be needed in order to provide the significantly expanded level of public transportation service described above. New administration and maintenance facilities, transportation hubs, park and rides, and expanded vehicle fleets would all be required to significantly increase service.



Needs Assessment Methodology

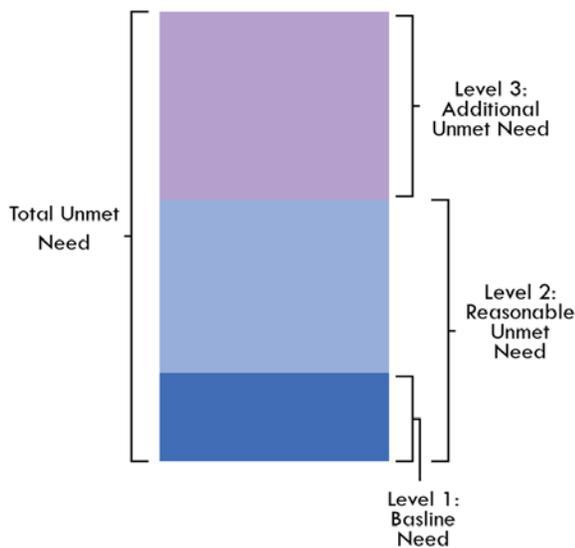
June 30, 2016

Understanding public transportation needs is an important part of the Oregon Public Transportation Plan. The project team is performing this evaluation to understand, at a high level, the resources required to meet different levels of statewide public transportation need. The results of this work will inform development of investment scenarios and ultimately the “Implementation” chapter of the OPTP. The investment scenarios will reflect those described in the Oregon Transportation Plan: considering what might the system look like if we have more resources available, the same amount, or fewer resources available.

This memorandum details the approach to determining statewide public transportation needs, in terms of future year annual operations²¹⁴ and capital dollars for public transportation in the state of Oregon. Needs will reflect local and intercity public transportation, but will not include private services, like employer shuttles, taxi service, or other privately owned and operated services.

Needs are calculated for Year 2045, the planning horizon for this study.

The project team will estimate three levels of need, which in combination equal the total need for the state.



Level 1: Baseline Need = the cost of providing service at the same level as today, accounting for population growth. This level of need assumes that the amount of service provided per capita remains the same in 2045 as today. This is estimated quantitatively, and is presented as a range.

Level 2: Reasonable Unmet Need = the cost of providing additional service to meet reasonable

unmet public transportation needs. This is defined as the resources in addition to the Baseline required to meet community transit needs based on analysis of levels of public transportation service in peer communities that are well-served by transit. This is estimated quantitatively, and is presented as a range.

Level 3: Additional Unmet Need = the level of transit service required to supply all transit trips individuals are likely to make were service available. This level recognizes that there is need beyond the Reasonable Unmet Need. This is discussed qualitatively.

²¹⁴ “Operations costs” are inclusive of administration, operations, and maintenance costs.



The following section details how the project team will estimate each level of need.

Level 1: Baseline Need

The project team will estimate “baseline need” for communities with local public transportation providers through the following steps:

1. Determine current per capita levels of transit service in terms of revenue service miles²¹⁵ per capita in areas served by public transportation, organized by five groupings of providers.
 - This will be calculated from 2013 NTD data (most recent data available) by dividing the total annual revenue miles for each transit provider type by the total population served by that group of providers. For those providers that do not report to the NTD, the project team will estimate revenue service miles based on peers, from OPTIS, PSU research data, or other available information.
 - The rural NTD database does not differentiate agency expenditures by vehicle mode. The project team will use the national average ratio²¹⁶ of cost per revenue mile for demand response to fixed route modes to estimate the breakdown in cost by mode for rural providers.
 - Revenue miles will be estimated for fixed route bus, demand response (inclusive of general demand response, complementary paratransit, demand response taxi, etc.), and light rail. Intercity transportation will be addressed separately.
 - Approximately 600,000 individuals do not live within a public transportation service boundary of any kind.²¹⁷ The project team will assume that these areas of Oregon continue to be unserved by public transportation in 2045.
2. Determine population growth between 2013 and 2045, based on data from the US Census and Portland State University Population Research Center.
 - Future population estimates are produced at the county level. The county-level population rate increase will be applied to the service area populations for each provider.
3. Generate the 2045 future total annual revenue miles (by provider type, by mode) by multiplying current per-capita revenue mile rates by the total future population served by each provider type.

Transit providers are organized into a provider typology as follows:

- *Large urban*
- *Medium urban*
- *Small urban*
- *Large county/regional*
- *Small county/rural*

This typology will help with evaluating needs and reporting statistics.

²¹⁵ A “revenue service mile” is a mile driven when a transit vehicle is picking up or dropping off riders.

²¹⁶ The operational cost per mile ratio of demand response to fixed route modes is 0.36, based on 2011 APTA data.

²¹⁷ As determined through research conducted by Portland State University (2016).



- Multiply the future total annual revenue miles for each provider type by their average 2013 operations cost per revenue mile (from NTD) for each mode to yield the total estimated O&M costs for each provider type in current year dollars.
 - Capital costs will be estimated by determining an average capital cost per revenue mile, based on the most recent 5 years of available NTD data. The average capital cost per revenue mile will be multiplied by the future total annual revenue miles for each provider to yield a capital cost figure for each provider type (also in current year dollars).
4. Generate the estimated future number of trips on public transportation by multiplying the future number of revenue miles for each provider type by an average productivity rate for that provider type.
 5. The project team will address intercity bus and passenger rail quantitatively through discussion with ODOT RPTD on the financial needs of the POINT and Amtrak Cascades system. The project team will not conduct any original research of estimation for intercity bus and passenger rail needs, but use existing information available from ODOT RPTD. In general, the baseline need will assume that the POINT intercity bus service continues operations at current levels and costs. Passenger rail service is assumed to continue to operate primarily in the Willamette Valley at present-day levels of service and costs.

EXAMPLE

Example Baseline O&M Needs Calculation for System Operating Motor Bus and Demand Response Service				
Transit Provider X				
1	Year 2014 NTD Data	Population	100,000	
2		Motor Bus	Annual Revenue Miles	600,000
3			Annual Ridership (Boardings)	2,500,000
4			Productivity: Boardings per Rev. Mile (Line 3/Line2)	4.2
5			Annual Cost	\$5,000,000
6			Costs per Revenue Mile (line 5/Line 2)	\$8.33
7		Demand Response	Annual Revenue Miles	250,000
8			Annual Ridership (Boardings)	50,000
9			Productivity: Boardings per Rev. Mile (Line 8/Line7)	0.2
10			Annual Costs	\$2,000,000
11			Costs per Revenue Mile (line 10/Line 7)	\$8.00
12	Year 2040 Population		120,000	
13	Population growth factor: 2014 to 2040 (Line 12/Line 1)		1.20	
14	Year 2040 Annual Estimates	Motor Bus	Estimated Revenue Miles (Line 2 X Line 13)	720,000
15			Estimated Ridership (Line 14 X Line 4)	3,000,000
16			Estimated Costs: 2014 Dollars (Line 14 X Line 6)	\$6,000,000
17		Demand Response	Estimated Revenue Miles (Line 7 X Line 13)	300,000
18			Estimated Ridership (Line 17 X Line 9)	60,000
19			Estimated Costs: 2014 Dollars (Line 17 X Line 11)	\$2,400,000



Level 2: Reasonable Unmet Need

The project team will estimate reasonable unmet need as follows (Reasonable Unmet Need is inclusive of the Baseline Need established above):

1. Determine future revenue miles per capita by establishing benchmark per-capita rates for each provider type.
 - Benchmark rates will be established for small county/rural, large county, small urban, and medium urban providers by selecting the highest per capita rate among the providers in each group and applying that “benchmark” rate to all providers within the group. Depending on the range of rates found, the project team may set the benchmark by looking at per capita rates of peer providers from other communities in the U.S. that are deemed to have an exemplary level of transit service, or may use the benchmark rate assumed by the Statewide Transportation Strategy. Benchmarks for demand response services will be set by using the 80 percentile service level among providers in each typology.²¹⁸
 - The benchmark rate for the Portland metropolitan region will be the rate established in the preferred scenario of the Metro Climate Smart Communities project. The benchmark for the Salem metropolitan area will be based on analysis of peer metropolitan areas. The benchmark for the Eugene/Springfield metropolitan regions will be based on the benchmark established in the Central Lane Scenario Planning project.
 - Approximately 600,000 individuals do not live within a public transportation service boundary of any kind. The project team will assume that these areas of Oregon continue to be unserved by public transportation in 2045.
2. Generate the 2045 future total annual revenue miles (by provider type, by mode) by multiplying benchmark per-capita revenue mile rates by the total future population served by each provider type.
 - Multiply the future total annual revenue miles for each provider type by their average 2013 operations cost per revenue mile (from NTD) for each mode to yield the total estimated O&M costs for each provider type in current year dollars.
 - Capital costs will be estimated by determining an average capital cost per revenue mile, based on the most recent 5 years of available NTD expenditure data. To account for unmet capital needs, the average capital cost per revenue miles will be adjusted upward by “x”%, based on results of:
 - Outreach to providers;
 - Vehicle inventory data available from RPTD;

²¹⁸ Because providers typically have higher ridership targets for fixed route services as opposed to demand response, a lower benchmark level will be used for demand response to account for this.



- The average capital cost per revenue mile will be multiplied by the future total annual revenue miles for each provider to yield a capital cost figure for each provider type.
3. Generate the estimated future number of trips on public transportation by multiplying the future number of revenue miles for each provider by an average productivity rate for that provider type.
 4. The project team will address intercity bus and passenger rail quantitatively through discussion with ODOT RPTD on the future financial needs of the POINT and Amtrak Cascades system. The project team will not conduct any original research or estimation for intercity bus and passenger rail needs, but use existing information available from ODOT RPTD. The project team will assume that the POINT intercity bus service continues operations at current levels, plus additional routes or increases in service frequency or span of service identified by ODOT staff. Passenger rail service is assumed to continue to operate primarily in the Willamette Valley; the Oregon Passenger Rail preferred alternative service level may be assumed as the future reasonable need.

EXAMPLE

Example Reasonable Unmet Need O&M Needs Calculation for System Operating Motor Bus and Demand Response Service				
Transit Provider X				
1	Year 2014 NTD Data	Population	100,000	
2		Motor Bus	Annual Revenue Miles	600,000
3			Annual Ridership (Boardings)	2,500,000
4			Productivity: Boardings per Rev. Mile (Line 3/Line2)	4.2
5			Annual Cost	\$5,000,000
6			Costs per Revenue Mile (line 5/Line 2)	\$8.33
7		Demand Response	Annual Revenue Miles	250,000
8			Annual Ridership (Boardings)	50,000
9			Productivity: Boardings per Rev. Mile (Line 8/Line7)	0.2
10			Annual Costs	\$2,000,000
11			Costs per Revenue Mile (line 10/Line 7)	\$8.00
12	Year 2040 Population		120,000	
13	Benchmark Per-Capita Revenue Miles: Motor Bus		8.50	
14	Benchmark Per-Capita Revenue Miles: Demand Response		2.50	
15	Year 2040 Reasonable Unmet Need Annual Estimates	Motor Bus	Estimated Revenue Miles (Line 12 X Line 13)	1,020,000
16			Estimated Ridership (Line 15 X Line 4)	4,250,000
17			Estimated Costs: 2014 Dollars (Line 15 X Line 6)	\$8,500,000
18	Demand Response	Demand Response	Estimated Revenue Miles (Line 14 X Line 13)	300,000
19			Estimated Ridership (Line 18 X Line 9)	60,000
20			Estimated Costs: 2014 Dollars (Line 18 X Line 11)	\$2,400,000

Level 3: Additional Unmet Need

Additional unmet need will be described in narrative and not estimated quantitatively. This level of need represents the resources that would be required to provide all transit trips that are likely to



be taken in the state were sufficient service available. This description will include at a minimum the following aspects of need:

- Resources required to serve unserved populations (as defined by research conducted by Portland State University) in the future: this qualitative discussion would explore the challenges around serving dispersed populations in rural areas of the state and what kind of service, were it provided, would be most applicable.
- Urban transit enhancements: a description of the types of major urban transit capital projects – commuter rail, light rail, exclusive busways, transit technologies – that would greatly increase transit capacity in urban areas.
- Passenger rail scenarios: discussion of areas where passenger rail expansion could be warranted, in addition to the high speed rail vision for the Amtrak Cascades corridor.
- Effects of demographics and changing demographics: an exploration of how demographic shifts could affect future transit needs (much of this work is captured in the Existing Conditions Description).
- Transit provided by social service agencies.
- Improved intercity transit throughout the state: aspirational discussion of intercity bus improvements; for example, restoring all intercity bus routes prior to the 1980 deregulation of the intercity bus industry.
- Need for facilities: discussion of general facility needs that would be required to meet additional unmet need, including administration and maintenance facilities, transportation hubs, park and rides, and other facilities (this discussion is separate from major guideway needs described above as part of “urban transit enhancements”).



Appendix 6
Oregon Public Transportation Plan
Investment Considerations



Investment Considerations

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Introduction

This memorandum describes the Oregon Public Transportation Plan’s (OPTP’s) Investment Scenarios, which articulate possible futures for the public transportation system as a result of different levels of funding. This document summarizes public transportation needs studies, which inform the Investment Scenarios, in addition to the OPTP’s goals, policies, and strategies. Together, these scenarios reflect a range of investment considerations that will inform development of the statewide public transportation system.

The OPTP provides policy guidance for development of the public transportation system statewide. The OPTP does not direct public transportation investment decisions; these decisions are made by local agencies. This memorandum explores potential public transportation outcomes through scenarios when there is more or less funding available for public transportation investment. These scenarios provide context and examples to inform future decisions. This memorandum provides considerations for providers as they develop these lists.

The OPTP’s Investment Scenarios apply globally to urban and rural communities across Oregon. They describe what the system may look like under different funding levels, but do not describe specific projects to be undertaken by individual providers.

The OPTP’s Investment Scenarios describe what the public transportation system might look like and how it would likely function under three different funding scenarios. One scenario considers the future under current levels of investment, and two additional scenarios envision the system with increased levels of funding. Other Oregon Department of Transportation (ODOT modal plans (Oregon Highway Plan, Transportation Options Plan, Bicycle and Pedestrian Plan, and others) typically include a scenario that assumes flat funding resulting in decreased buying power or even a reduction in funding, and several scenarios that envision increased funding. The OPTP Investment Scenarios in this memo generally follow this approach.

Like all states, Oregon is at the cusp of significant change for the transportation system in general and public transportation specifically. New and rapidly expanding services like ride- and carsharing, transportation network companies (TNCs), coupled with emerging technologies like autonomous and connected vehicles, will have profound effects on the types of public transportation services offered by the private and public sectors and demanded by the public. Already, TNCs are bridging the “last mile” to public transportation, and carsharing services are increasingly used as part of multimodal trips that include public transportation. The scenarios described in this memorandum contemplate these changes to the best of our ability. Regardless of technology and service changes, public transportation will continue to be needed, desired, and beneficial to Oregonians.

Understanding Public Transportation Needs

Public transportation “needs”—that is, the estimated funding required to make needed improvements to the public transportation system, inform the OPTP’s Investment Scenarios. Needs



assessments answer the question, “what **resources** are required to meet public transportation needs?” while the Investment Scenarios answer a different question about outcomes: “what **types of investments** could be made if more funding was available?” The Investment Scenarios apply the OPTP’s goals, policies, and strategies as a framework within which to describe how the state’s public transportation future might look under different levels of investment. The Investment Scenarios draw on the *OPTP Needs Assessment* and other analyses of Oregon public transportation needs described below. The high-level funding estimate for each Investment Scenario is informed by these needs analyses. The range of Investment Scenarios built from these analyses is intended to articulate different “futures” for the public transportation system, based on more funding or less funding.

Oregon Public Transportation Plan Needs Assessment: Levels of Public Transportation Need

As of 2013, approximately \$750 million in federal, state, and local funds was invested annually by Oregon providers in public transportation operations and capital.²¹⁹ **Figure 1** shows the sources and amounts of funding in 2016 and 2020, the latter including estimated funding from House Bill (HB) 2017, the legislative transportation funding package that includes significant new funding for public transportation.²²⁰ As the graphs show, the increase in estimated funding provided by HB 2017 raises the per cent of funds contributed by state level sources from 4.4 percent to 14.5 percent. While this is a substantial increase, the state remains one contributor of funds, with local and federal sources providing the majority of the total, and fares also an important contributor.

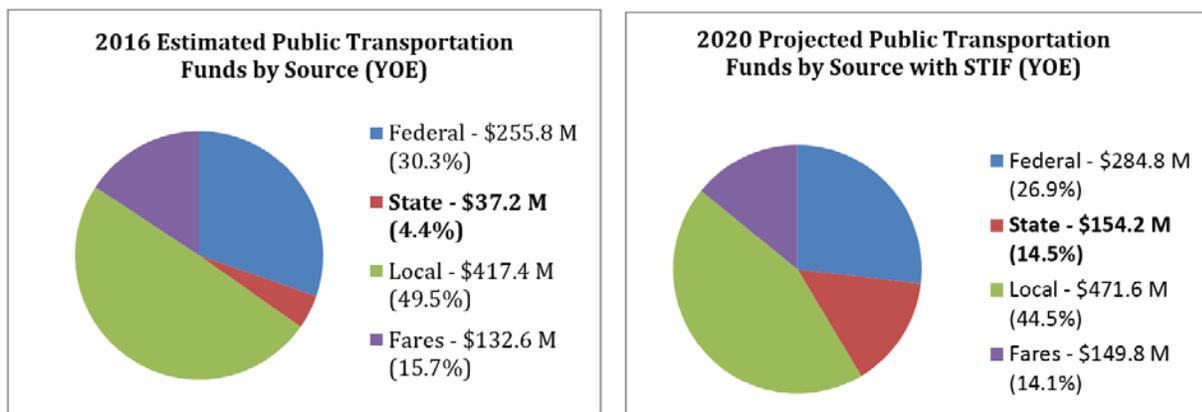


Figure 1. Sources of Public Transportation Funding in Oregon, 2016 and 2020

In this context, the *OPTP Needs Assessment* was developed to describe three different levels of public transportation investment needed to achieve a range of service levels in 2045.²²¹ The *OPTP*

²¹⁹ The OPTP Needs Assessment relied on 2013 NTD data which was available in 2015/16 at the time the assessment was performed. More recent NTD data now available has been evaluated and found to be very similar to the 2013 data used in the assessment. Other funding information developed as part of the OPTP uses the most recent data available, generally 2015/16.

²²⁰ The amount of investment and funding can vary substantially from year to year, largely due to variability in capital investment and funding.

²²¹ For more details on the methodology used, see the OPTP Needs Assessment: <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OPTP>.



Needs Assessment was intended to be a snapshot in time; it was completed prior to passage of HB 2017 in July 2017 and therefore does not include in its assumptions the new funding authorized by the bill. As noted above, “need” refers to the estimated resources required by public transportation providers to serve people living, working, and moving around in their communities. The *OPTP Needs Assessment* included the following levels of need:

- **Level 1: Baseline Need**—The estimated “Baseline Need” assumed that the level of service provided in communities (that is, service miles), per capita, would remain the same in 2045 as today (prior to passage and implementation of HB 2017). The total amount of service provided in communities would increase to account for population growth. An estimated \$1.1 billion (2013 dollars) annually was projected to meet the Baseline Need in the year 2045.
- **Level 2: Reasonable Unmet Need**—This level of need estimated the cost of providing additional service to meet reasonable unmet public transportation needs. “Reasonable Unmet Need” was presented as a range. The higher end of the range was determined by considering the level of public transportation service in communities with a higher level of per capita service as compared to peer communities of similar population in Oregon, then estimating the resources needed to provide that same level of service across all similarly sized communities. The low end of the range was estimated by considering the average amount of service in each community type. An estimated \$1.7 to \$2.0 billion (2013 dollars) annually was projected to meet the Reasonable Unmet Need in the year 2045. (This analysis was conducted independent of new state funding from House Bill 2017, discussed below.)
- **Level 3: Additional Unmet Need**—This level was intended to describe public transportation service that supplies most or all public transportation trips that individuals would be likely to make, if service was available. This level, described qualitatively, recognized additional need beyond the Reasonable Unmet Need. For example, today in Oregon, about 600,000 individuals do not have reasonable access to public transportation service near their residence. “Additional Unmet Need” estimated what it might take to serve these individuals and make other service improvements around the state. In addition, it considered the high capacity transit needs of large urban providers, and included the typical capital and operations needs of smaller providers.

Other Public Transportation Investment Studies

The *OPTP Needs Assessment* provides context for and informs the OPTP’s Investment Scenarios. The following sections discuss additional studies of public transportation needs conducted by the Oregon Transit Association (OTA), the Governor’s Transportation Vision Panel, and the Oregon Transportation Commission (OTC) as information for development of HB 2017 (a statewide transportation investment), passed by the Oregon Legislature in July 2017. These studies provide additional context to assess the resources needed to realize the OPTP Investment Scenarios.



Oregon Transit Association Better Transit Proposal

In 2015, the OTA released a funding proposal based on work the organization conducted to understand the needs of individual providers across the state. The *Better Transit* proposal envisioned a \$100 million per year increase in public transportation investment, with approximately \$70 million raised via an increase in the payroll tax to support TriMet in the Portland metro region.²²² As proposed, the state would provide the remaining \$30 million to increase service throughout Oregon, providing new stops and upgraded technology.

Governor's Transportation Vision Panel Report

In 2016, the Transportation Vision Panel released its report, *One Oregon: A Vision for Oregon's Transportation System*.²²³ The Vision Panel was convened by the Governor to conduct a study of transportation needs throughout the state. This report provides a summary of the status of various transportation modes and recommendations for addressing funding gaps for each. Public transportation was a theme consistently heard by panel members in public meetings conducted in all regions of the state. For public transportation, the final report notes that "\$108 million invested annually could meet basic mobility needs of seniors and people with disabilities, help close gaps in service, and better leverage federal funds."

Oregon Transportation Commission Strategic Investment Proposal

In January 2017, the OTC released a strategic investment proposal for various modes of transportation in the state. *Strategic Investment in Transportation* describes the current state of investment for each mode, and articulates two alternative funding scenarios for each.²²⁴ An additional \$108 million per year was proposed as part of Investment Scenario 1, with about \$40 million of that dedicated to improving regional/intercity transit and \$40 million dedicated to urban transit. Investment Scenario 2 proposed additional investment of \$1.2 billion per year that would support increases in public transportation commensurate with the vision in the Statewide Transportation Strategy and the Portland metro region's Climate Smart Scenarios.

House Bill 2017

HB 2017, passed by the Oregon legislature in July 2017, provides ongoing funding for public transportation through a statewide employee payroll tax of 0.10 percent.²²⁵ This tax will generate approximately \$100 million for public transportation in 2018, increasing to \$140 million annually by 2024. This level of funding is roughly equivalent to the investment level expressed in OTA's *Better Transit* proposal, the Transportation Vision Panel's recommendation, and by Investment Scenario 1 in the OTC's *Strategic Investment in Transportation*. The OPTP's policies and strategies reflect and build on the priorities articulated in the bill. HB 2017 represents a significant and stable investment in the future of public transportation, but even this level of funding will not meet all public

²²² <http://fregonese-associates-hnjw.squarespace.com/the-proposal/>.

²²³ <https://visionpanel.wordpress.com/>.

²²⁴ https://www.oregon.gov/ODOT/Get-Involved/OTC/OTC_InvestmentStrategy.pdf.

²²⁵ <https://olis.leg.state.or.us/liz/2017R1/Downloads/MeasureDocument/HB2017/Enrolled>.



transportation needs in the state. **Table 1** provides a comparison of public transportation needs studies in Oregon.

Table 1. Comparison of Public Transportation Needs Studies

Existing Annual Investment (2013)	
OTTP Needs Assessment	Baseline Need: \$1.1 billion annually in 2045 Reasonable Unmet Need: \$1.7 to \$2.0 billion annually in 2045
OTC Strategic Investment in Transportation	Investment Scenario 1: \$108 million additional per year
Transportation Vision Panel	\$108 million additional per year
OTA Better Transit	\$100 million additional per year
HB 2017 ²²⁶	Approximately \$100 million additional per year, starting in 2019, increasing to \$140 million by 2024

What happens if funding declines?

Public transportation funding is subject to increases and decreases based on the funding source; and sources include local, state, and federal sources, and fare revenue. Any of these sources may experience declines due to changing conditions. State funding may decline temporarily due to economic recessions that affect payroll tax receipts, for example. ODOT and local providers in most cases do not have control over these risks. When funding declines, service reductions and other impacts could occur. Potential impacts from reduced funding include:

Reductions in service. Providers would strive to maintain overall service to the extent possible, but local providers would have to make some service reductions as they seek to preserve core services.

Limited service in rural areas. Rural providers are particularly dependent on federal funding and operate with thin budgets. Stagnant or reduced funding would significantly impact rural providers as they do not typically have substantial farebox revenues or other local revenues to support service.

Regional connections remain unchanged or experience service declines. The ability of public transportation providers to supply regional services such as connecting to the neighboring system or the next larger town would likely decline in urban and rural areas alike.

Amtrak Cascades and POINT experience a reduction in service. POINT service is dependent on federal funding while Amtrak Cascades is dependent on funding from the state’s general fund (in addition to farebox revenues), making both services vulnerable to declines in funding. Even a temporary reduction or interruption of Cascades service could make it difficult to resume service in the future.

Older equipment kept in use longer. Providers will need to keep older equipment in service longer, increasing the likelihood of equipment breakdowns, service disruptions, and increased maintenance costs. In addition, they would likely forego implementation of new technologies like efare or fleet technologies like automatic passenger counters (APCs).

²²⁶ HB 2017 taxes will be collected starting in July 2018. The first distributions under the new law will occur in 2019. There is uncertainty around the exact amount of funding that will be available; the dollar amounts presented are estimated and subject to change depending on payroll tax receipts and other factors.



Investment Scenarios

The OPTP Investment Scenarios describe what the public transportation system might look like under differing levels of investment. These scenarios describe a continuum of services and improvements that make progress towards the plan’s goals, policies, and strategies. As noted earlier, these scenarios do not represent investment mandates, but instead provide context and decision making guidance for providers by communicating the potential effects of various funding levels in urban and rural areas throughout the state. The scenarios describe how the system could evolve and the results of different levels of public transportation investment. **Table 2** summarizes the Investment Scenarios.

Public transportation funding is subject to uncertainty, including the investment made by HB 2017. Economic downturns can have dramatic effects on government revenues of all kinds, including employer and employee payroll taxes and property taxes which represent substantial sources of public transportation revenue. In addition, federal funding levels fluctuate over time. Federal dollars are a major source of public transportation capital improvement funding in both urban and rural areas; but programs and funding levels may change. Similarly, under each Investment Scenario, a steady and constant increase or decrease of funding is not likely. Rather, the scenario outcome descriptions below discuss likely cumulative effects over the plan horizon (to 2045).

Finally, under each scenario, new opportunities for service and private-sector partnerships will arise as a result of emerging technology and new companies including TNCs. The impact of these changes on specific services and the public funding dedicated to those services is difficult to estimate, but that impact would likely apply across all three scenarios.

Table 2. OPTP Investment Scenarios

	Scenario 1: Preservation and Critical Improvements	Scenario 2: Expanding Service	Scenario 3: Realizing the Vision
Description	Funding increases to account for increased population (current funding level: equivalent to the investment from HB 2017)	Significant investment elevates public transportation across the state (equivalent to double the investment from HB 2017)	Additional investment funds most public transportation needs
Estimated change in funding from today²²⁷	None <i>(Current investment level)</i>	+\$200 to +\$300 million per year, increasing with population growth over time <i>(1.3x to 1.4x current investment)</i>	+\$950 to +\$1.2 billion per year by the year 2045 <i>(2.3x to 2.6x current investment)</i>

²²⁷ Table 2 dollars amounts presented in 2017 dollars.



Scenario 1: Preservation and Critical Improvements (Baseline Scenario)

Funding allows for preservation of the existing system and some improvements

Oregon’s population is growing rapidly, adding tens of thousands of new residents each year. New funding anticipated from HB 2017 will allow providers to improve service and keep up with population growth for about ten years; then demand from expected population growth starts to outpace HB 2017 funding (Figure 2). The increases in public

transportation service funded through HB 2017 will help make transit a viable choice for many, and will particularly benefit those who are transportation disadvantaged, by providing more routes, more frequent service, more days of service, and potentially additional routes serving more areas.

Scenario 1 could result in the following outcomes:

Public Transportation Service

Urban

Modest service increases. Current funding will allow for modest service increases in step with population growth. In the past, funding for public transportation has not kept pace with population growth, meaning that many providers will use new HB 2017 funding simply to “catch up” to the levels of service their expanding communities expect. Providers could implement more frequent service on some existing routes, a limited number of new routes, or expand service hours or days of service.

Extended service hours, more frequent service. Service hours and frequencies could be increased on existing routes to account for the evolving needs of a growing population. This may also mean a change from one type of service to another in small urban and rural areas: for example, fixed routes may replace today’s demand response service in some small urban communities and enhanced bus service may be introduced in busy corridors in medium-sized urban areas.

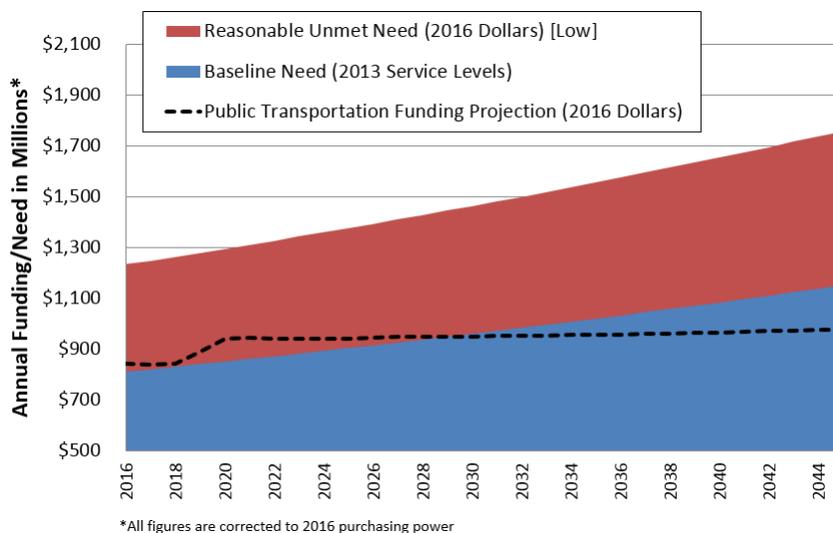


Figure 2. Oregon Public Transportation Funding and Needs



Rural

Expanded demand response systems and improvement to fixed route service. Days or hours of service for demand response systems in rural areas could be expanded. Demand response systems may be able to purchase additional vehicles and hire more drivers to decrease response times to rider requests. Fixed route services, which in rural areas generally operate several round trips each day, could increase service frequencies to hourly throughout the day, or expand the times and days that the service is offered.

Intercity

Better connections between systems and regions. More funding would allow for more staff time and resources dedicated to linking the state's local public transportation systems. Enhanced connections could include timed transfers between different systems, more transfer points between systems, and resource sharing among systems to deliver needed regional connections that are not provided today.

Regional and intercity services see minor increases. With this scenario, regional and intercity bus services supplied by local providers will see some minor increases in frequency or routes. Amtrak Cascades service will likely remain static, while additional efforts are made to increase ridership. Significant capital investment in Cascades service is unlikely. While HB 2017 does not provide additional funding for ODOT-funded Public Oregon Intercity Transit (POINT) services, some increase in service may be possible through the reallocation of existing resources.

Agency and Rider Experience

Technology

Some investment in new vehicles/public transportation technologies. Under this scenario, providers would make modest investments in existing or new technologies. For example, real-time travel information for riders could be more widely available in medium-sized urban areas and efare programs could be expanded to many fixed route systems around the state. Smaller providers that have not yet implemented automatic passenger counters (APC) or automatic vehicle locators (AVL), for example, could implement these technologies to aid service planning and delivery. Additionally, some investment would be made in information technology and partnerships with public agencies and private companies such as TNCs to better enable first and last mile access.

Expansion of efare. Efare is a transformational technology for riders and providers alike, allowing for a more seamless fare payment system, more equitable fare assessments, and better data collection for providers. Efare, presently available on the TriMet and Rogue Valley Transit District (RVTD) systems, would be expanded to other public transportation systems, including other medium-sized urban, small urban, and county systems. The smallest systems such as those serving rural Oregon counties likely would not implement efare.



What does HB 2017 mean for communities in Oregon?¹⁹⁰

For the Rogue Valley Transit District (RVTD), HB 2017 funding likely will allow the agency to invest in a new express route between Medford and Ashland, a new local circulator route in the community of Central Point to the north of Medford, as well as a fixed route circulator to link downtown Ashland to the surrounding area. In addition, RVTD will be able to provide more weekend service and expand the hours services are offered during the week. These improvements will significantly expand access and opportunity in Rogue Valley communities. While these improvements will benefit nearly all users, some needs require additional funding. Expanding and keeping the bus fleet in good repair is a critical need that will require robust funding in the future. HB 2017 will fund about 30% of the projects in RVTD's long-range plan, meaning the new funding from HB 2017 is a significant down payment on community needs.

For Cherrriots (Salem-Keizer Transit), HB 2017 will likely allow for restoration of weekend and holiday service – long sought by the Salem community since Saturday service was cut in 2008 due to a lack of adequate local funding to support that level of service. Additionally, Cherrriots likely will be able to extend service later into the evening on many routes. Similar to RVTD, some needed improvements (such as increasing service frequency on routes that presently have service once per hour, or expanding coverage in several areas) may remain unfunded for many years. HB 2017 will have a significant positive and transformational effect on the communities Cherrriots serves, but some community needs will still require additional funding in the future.

Fleet

Equipment maintained generally in good repair. This level of funding would allow providers to keep more of their vehicles and other infrastructure in good repair. Most equipment would not need to be kept in service beyond its useful service life. Providers likely would have an opportunity to invest in low- or zero-emission vehicles as they expand and replace their fleets.

Communication and Coordination

More resources devoted to coordination, planning, and communication. Providers would increase engagement with the jurisdictions and communities they serve to identify opportunity for new connections to neighboring systems, plan jointly for future service, and respond to community needs. Local providers would engage in more near- and long-term planning for maintenance, preservation, and service expansion. Local providers would have more resources to commit to communication, education, and outreach to riders.

More one-stop information available. Under this scenario, staff and funding resources would be dedicated to creating and maintaining a single centralized source of public transportation information in Oregon. While short of the resources required to include all systems in the state, this level of funding would enable riders to get information about multiple regions at a single online location, as well as at a call center and/or strategically placed “brick and mortar” locations.

Scenario 2: Expanding Service

Significant investment elevates public transportation across the state

This scenario would build on the investment from HB 2017 and result in substantial expansion of public transportation service in communities across Oregon through the entire OTP planning

²²⁸ Based on conversations with RVTD and Cherrriots staff, August 2017.



horizon (to 2045). Providers would be able to increase service frequency, the types of services available, and the days and hours that service is offered throughout the state. Context-specific service increases would mean that public transportation can meet many daily travel needs for Oregonians. For example, small urban areas (most of which today have only demand response and limited fixed route service) would have more fixed route service that reaches further into communities with increased service frequencies. Increased public transportation service will benefit those who are transportation disadvantaged by providing more routes, more frequent service, more days of service, and potentially additional routes serving more areas.

Scenario 2 could result in the following outcomes:

Public Transportation Service

Urban

Substantial service expansion. With this level of funding, urban providers in communities around the state will be able to improve service in multiple ways, including longer service hours, more frequent service on existing routes, new routes and geographic coverage, and new fleet vehicles and vehicle types. This could include bus rapid transit, or enhanced bus priority investments in large and medium-sized urban areas.

Rural

Demand response service available in most rural locales. Most rural residents of Oregon would have access to a demand response public transportation system. Providers would be able to invest in sufficient vehicles and new drivers to provide improved response times to riders.

Limited fixed route service between and within communities. Fixed route service would replace demand response service between population centers in rural areas. Some new routes could serve commuters, while others might run at hourly service frequencies during the week.

Intercity

Increased regional and intercity service, including major rail capital investment. Local providers are able to provide additional regional service for their riders and visitors that is well coordinated with neighboring systems. Intercity bus such as POINT would be expanded on existing routes, and the state could add several additional routes to serve intercity corridors not well served by local providers or the private sector. Increased funding may allow continued investment in Amtrak Cascades. In this case, the Cascades service would see increased investment in the Willamette Valley rail corridor to begin implementing the preferred alternative of the Oregon Passenger Rail project such as two additional trips on the corridor and improved sidings that allow for more opportunities for trains to pass one another.²²⁹

²²⁹ For more information, see <https://www.oregonpassengerrail.org/>.



Agency and Rider Experience

Technology

Further steps toward fare integration. This scenario would increase coordination among many public transportation providers in Oregon, and take significant steps toward an integrated fare system including fare amounts, instruments, and purchasing systems.

Further expansion of efare to most public transportation systems in Oregon. Efare could be expanded to smaller systems, especially those in rural areas, to facilitate easy fare payment for nearly all Oregonians.

Expansion of new and emerging technologies. More providers may implement technologies like Wi-Fi on transit vehicles, while more communities would develop real-time traveler information systems and other technologies that improve the rider experience. There would be more opportunity to collaboratively plan and implement creative solutions to first and last mile access through technologies and partnerships with private providers, bike- and carshare companies, TNCs.

Fleet

Major vehicle fleet improvements. Most new public transportation vehicles would be low- or zero-emissions. Greater funding would enable new vehicles to be equipped with current technology in all communities, including automatic passenger counters, global positioning system, and other emerging technologies that prove helpful.

Communication and Coordination

Coordination, planning, and communication result in substantial benefits to providers and riders. Riders would be able to transfer between urban public transportation systems with ease at multiple connection points. New public transportation service would be closely coordinated with local jurisdictions, private developers, and others to ensure that the interests of all are fully addressed. Providers would have sufficient resources to devote to rider education, outreach, and communication, as well as increased coordination with services like bikeshare and carshare, to facilitate a seamless whole-trip experience in large urban areas, with benefits realized in smaller urban and rural areas as well.

Scenario 3: Realizing the Vision

Additional investment funds most public transportation needs

This aspirational scenario represents significant progress toward the vision articulated by OPTP policies and strategies. It is equivalent to the level of investment envisioned under the Reasonable Unmet Need from the *OPTP Needs Assessment* and Scenario 2 from the OTC Strategic Investment in Transportation. While not every need would be met, the majority of trips that riders want to take on public transportation would be served, systems and fares would be closely coordinated throughout the state, and integrated information about all public transportation services would be easily available in a single location. This scenario represents a very significant investment above current funding levels and would substantially expand public transportation services in nearly all



areas of the state, both urban and rural. Providers would grow and expand in different ways that reflect the unique circumstances of the communities they serve. Scenario 3 would facilitate the highest levels of public transportation service and therefore attract new riders, provide a great benefit to those who rely on public transportation and have few other options, and serve visitors and tourists throughout the state.

There are multiple avenues possible to raise revenue and leverage resources to achieve this scenario. Federal, state, and local revenue increases would be required to achieve the improvements to the system described below. Partnerships at all levels of government, and between the public and private sectors, would be important to leveraging funds and improving service. The mix of new and increased fund sources and new partnerships would likely be different for each provider, reflecting their unique characteristics and decisions made in their communities.

Scenario 3 could result in the following outcomes:

Public Transportation Service

Urban

Major capital investments, including separated transitways and new high capacity transit. High capacity transit and improvements that separate transit vehicles from traffic are expanded where needed throughout urban areas in Oregon. Additional corridors where transit vehicles are given priority treatments, bus-on-shoulder facilities, and/or separated transitways (rail or bus) would further increase capacity in congested corridors and would result in decreased travel times and public transportation options less affected by congestion. Currently, high capacity transit is present only in Portland and Eugene-Springfield, under this scenario other urban communities would implement high capacity services to serve congested or heavily travelled corridors.

Nearly seamless service with excellent regional connections. Under this scenario, riders would have a nearly seamless experience on the public transportation system. Riders could transition from one local public transportation system to another, transfer within a public transportation system, or transfer between modes without the inconveniences that result today from moving between systems. Fare integration, timed transfers, and increased investment in coordination and collaboration would make this possible. More public transportation services are available later in the evening and earlier in the morning, mid-day frequencies are greater, and there are additional services in rural areas, including an expansion of fixed route service.

Rural

Rural public transportation services meet most travel needs. While rural areas of Oregon are unlikely to see the types and amount of public transportation service that urban areas receive, under this scenario, nearly all rural residents would have access to a demand response or fixed route system to enable local trips. Connections between systems would allow rural residents to access urban areas with minimal transfer time and delay.



Intercity

Higher-speed passenger rail service developed. In addition to the regional and Intercity improvements described for Scenario 2 (Expanding Service), funding at this level available for intercity rail investment could result in full development of the preferred alternative for higher-speed passenger rail in the Willamette Valley, including the planned six additional trips per day, improved tracks, and sidings, and upgraded signaling systems.

Agency and Rider Experience

Statewide one-stop information available. Significant staff and funding resources would be dedicated to creating and maintaining a single centralized source of public transportation information in Oregon. Information about systems throughout the state would be available in a single online location and call center, as well as at strategically placed “brick and mortar” locations and kiosks.

Technology

Full fare integration achieved. This scenario would result in a universal fare system across most or all public transportation providers in Oregon. Riders would be able to seamlessly transition between and within public transportation systems in the state using a common fare system.

Public transportation technologies widely implemented on all systems. New technologies would be implemented in smaller urban areas and on rural systems to a much greater extent than Scenario 1 or 2, aided by aggressive implementation by the large urban providers.

Fleet

Fleet fully modernized to include low- and no-emission vehicles. This level of investment would allow for full conversion of the public transportation fleet to low- and zero-emission vehicles, helping the state achieve other state goals around greenhouse gas emissions reductions.

Communication and Coordination

Local providers closely coordinated to achieve a near-seamless riding experience. This scenario would permit providers to devote significant resources to communicating and coordinating with other providers throughout the state. Fare integration, seamless scheduling, and other improvements would allow riders to complete all trips with ease. Integration with expanded first and last mile solutions such as carshare, taxis, TNC services, park and rides, and bikeshare, would allow riders to switch between these services to complete their trips seamlessly. Strategic collaboration between public agencies and private partners including TNCs would create opportunities for new communication methods and improved service.



Appendix 7
Oregon Public Transportation Plan
Performance Measures



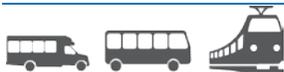
Performance Measures

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Introduction

The goals, policies, and strategies of the Oregon Public Transportation Plan (OPTP) will guide statewide public transportation decisions and investments by proactively anticipating change and providing a blueprint for investing resources. Performance measures provide a means to document past trends and track future progress with regard to the OPTP’s goals, policies, and strategies. These measures support strategic investments and agency goals, and identify areas in need of improvement.

This memo explores potential statewide performance measures for tracking progress on OPTP goals and policies, drawing from a literature review and a review of performance measures in other states’ plans, as well as Oregon state mode and topic plans. Not all performance measures are appropriate for statewide application; some may work well at the local agency level but not be suitable for measuring progress on the OPTP.

Statewide key performance measures (KPM) are used by Oregon agencies to track progress made toward state goals and objectives. ODOT has several KPMs supporting its statewide mission, including several tied to public transportation.

Current Oregon Department of Transportation Key Performance Measures

The Oregon Department of Transportation’s (ODOT) key performance measures (KPMs) quantitatively track performance relative to the agency’s mission, goals, and services. This section reviews existing ODOT KPMs related to public transportation. OPTP performance measures will not duplicate existing KPMs, but will complement them with additional public transportation performance measurement specific to the OPTP’s desired outcomes.

ODOT KPMs are grouped according to five policy and goal areas: Safety, Mobility and Economic Vitality, Preservation, Sustainability, and Stewardship. The following KPMs related to public transportation performance support ODOT’s Mobility, Economic Vitality, and Preservation goals.

- **Special transit rides – Average number of annual elderly and disabled transit rides per each elderly and disabled Oregonian.** The Special Transit Rides KPM measures progress toward increasing service to elderly and disabled Oregonians, with a target of 24 annual trips per person per year by 2022. The Special Transit Rides KPM tracks progress toward this target, with the goal of a 2.5 percent increase in ridership each year to reach the target.²³⁰
- **Passenger rail ridership – Number of rail service passengers.** The Rail Ridership KPM tracks the number of rail service (not including TriMet light rail, Portland Streetcar, or WES) and thruway

²³⁰ Oregon Department of Transportation. (2017). Special Transit Rides KPM Summary. Retrieved from <https://www.oregon.gov/ODOT/PerformMang/Pages/index.aspx>.



bus passengers per year to track performance relative to yearly target ridership. Since 2007, passenger rail ridership has increased by more than 46,000 within Oregon. From 2012 through 2014, ridership exceeded ODOT ridership targets. In 2014-2015, ridership decreased somewhat, mirroring national transit ridership trends.²³¹ In 2016, ridership on the Cascades line improved, increasing 7.9 percent for the Oregon portion.²³²

- **Intercity passenger service – Percent of communities of 2,500+ with intercity bus or rail passenger service.** In Oregon, intercity bus services, like Greyhound, connect larger cities, but often do not extend service to rural communities. The Intercity Passenger KPM tracks progress toward connecting 95 percent of communities (2,500+) in Oregon, using general transit feed specification data and population data. In 2016, the performance target of maintaining existing services and serving 95 percent of communities was met and increased to 100 percent of communities for 2017. ODOT is currently reviewing this KPM for potential revision.²³³
- **Transit condition – Percent of Public Transit buses that meet replacement standards.** ODOT tracks the percent of public transit buses exceeding useful life to determine and act upon the most cost-effective maintenance and replacement strategies. Most rural transit vehicles are considered “in good repair” for as little as five years. Accordingly, ODOT has set an initial target of no more than 40 percent of vehicles statewide exceeding useful life through 2020.²³⁴

Performance Measures in other Oregon State Modal Plans

Performance measures support policy and investment planning in Oregon’s statewide modal plans that nest within the overall Oregon Transportation Plan. **Table 1** describes some performance measures described in Oregon state modal plans. These statewide measures are good examples of the kinds of measures most appropriate for statewide application. While they will not be duplicated in the OPTP, these measures can help inform selection of the recommended measures.

Table 1. Performance Measures in Oregon State Mode and Topic Plans

Plan Name	Goal and/or Category	Performance Measure
Transportation Options Plan	Accessibility	Transportation Options staff per capita Number of transportation options staff per capita
	System Efficiency	Vehicle miles traveled Motor vehicle miles traveled per capita
	Transportation Options	Peak hour trips in non-single occupant vehicles Percent of trips that use a mode other than driving alone during the peak hour

²³¹ Oregon Department of Transportation. (2017). Rail Ridership. Retrieved from <https://www.oregon.gov/odot/performmang/pages/index.aspx>.

²³² Oregon Department of Transportation, 2017: Rail and Public Transit Division data.

²³³ Oregon Department of Transportation. (2017). Intercity Passenger Service. Retrieved from <https://www.oregon.gov/odot/performmang/pages/index.aspx>.

²³⁴ Oregon Department of Transportation. (2017). Public Transit Fleet Status. Retrieved from <https://www.oregon.gov/odot/performmang/pages/index.aspx>.



Table 1. Performance Measures in Oregon State Mode and Topic Plans

Plan Name	Goal and/or Category	Performance Measure
Oregon Bicycle and Pedestrian Plan	Accessibility	Pedestrian access to transit (measure under development) Percent of streets within 0.5 mile of a transit stop that have sidewalks
	Data	Identifying data needs (measure under development) Data gaps for pedestrian and bicycle performance measures
	Safety	Number of pedestrian and bicycle fatalities 5-year average
		Number of pedestrian and bicycle serious injuries 5-year average
		Perceived safety of walking and bicycling Percent of public that feels safe walking and/or biking
Utilization	Utilization of walking or biking for short trips Percent of commute trips under 20 minutes that are accomplished by walking or biking	
Oregon State Rail Plan	Economic	Increased statewide jobs created and/or retained Public and private sector long-term and construction jobs
	Mobility	Improved system efficiency Measured using travel times and delays
		Improved system connectivity and access
Safety	Reduced Incidents Property, injury, fatality	
Oregon Transportation Safety Action Plan	Safety	Motorized fatalities and serious injuries Including fatalities and serious injuries per 100M vehicle miles traveled
		Nonmotorized fatalities and serious injuries
		Rural road safety
		Older driver and pedestrian safety

Sources:

1. Oregon Department of Transportation. (2016) Oregon Bicycle and Pedestrian Plan. Retrieved from <https://www.oregon.gov/ODOT/TD/TP/BikePed/OBPP.pdf>.
2. Oregon Department of Transportation. (2014). Oregon State Rail Plan. Retrieved from <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OSRP>.
3. Oregon Department of Transportation. (2015). Oregon Transportation Options Plan. Retrieved from <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#OTOP>.
4. Oregon Department of Transportation. (2016). Oregon Transportation Safety Action Plan. Retrieved from <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx#TSAP>.

Key Oregon Public Transportation Plan Outcomes

During development of the OPTP’s vision, goals, policies, and strategies, a number of key issues and desired outcomes have emerged. These address important policy outcomes identified by the Policy



Advisory Committee and help define how progress toward OPTP goals might look. Feedback from the Policy Advisory Committee, the Technical Advisory Committee, the public and stakeholders across the state – as well as state, regional, and local agency staff – informed these key outcomes:

- Transit service is safe, and perceived that way by riders
- Public transportation service is available and widely used throughout Oregon
- Public transportation meets the needs of transportation disadvantaged (low-income, minority, disabled) riders
- Public transportation services are well-coordinated, benefiting riders and providers alike
- Public transportation helps reduce – and bypass – urban traffic congestion
- Public transportation is easily and safely accessible by walking and bicycling
- New development and major facilities are coordinated with public transportation, and planning at multiple levels (local, regional, and statewide) includes public transportation
- Public transportation is provided cost-effectively
- Transit fleets and facilities are maintained in good working order
- Increased investment in public transportation investment promotes environmental stewardship and improved public health

These outcomes inform the range of performance measures considered in this paper, as well as those recommended for inclusion in the OPTP. However, not every outcome will have a corresponding performance measure in the plan. Some outcomes may be tracked through other means, such as qualitative evaluation, or simply through the course of ODOT’s ongoing work.



Performance Measures Review

Reviewing literature, other states' public transportation performance measures, and local provider measures provides an understanding of the “universe” of public transportation performance measures and informs the recommended measures for the OPTP. This section reviews criteria for successful performance measures, and discusses select performance measures from the literature review and those in use by local providers and other states.

Successful Performance Measures

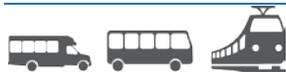
Successful performance measures are clear, concise, and, ideally, use readily available data. The project team, with feedback from ODOT and a review of the literature, identified a number of key criteria for selecting successful performance measures:

- **Clear and concise**—Measures should be easy to understand and clearly defined in the context of OPTP and the statewide public transportation system.
- **Linked to goals**—There should be a direct link to plan goals and measures should be easily tracked in terms of progress made toward OPTP goals.
- **Reliable and trackable**—Measures should use data that are readily available throughout Oregon, and can be reliably tracked over time to deliver a clear and convincing story of Oregon public transportation.
- **Informative and meaningful**—Measures should be meaningful and easily understood by Oregonians, incorporate social values, and help to inform decisions on future policy, goals, and investments.
- **Flexible**—Measures should be flexible to permit change as OPTP targets and goals evolve over time, but should also retain context with historical measurements.

The project team used these criteria to screen potential and recommended performance measures reviewed in the last section of this paper. In addition, it is important to select an appropriate number of performance measures, balancing the number of measures with the available agency resources to track them.

Performance Measures Literature Review

To inform potential performance measures for use in the OPTP, the project team reviewed available technical papers, reports, and relevant federal requirements related to public transportation performance measures. In the coming months, Oregon requirements for performance monitoring and measurement are expected to change to reflect new 2017 legislation – and these requirements will be reflected in the OPTP as appropriate.



State Requirements

As of this writing, the Oregon legislature passed House Bill (HB) 2017, a major multi-modal transportation investment package that includes significant new funds for public transportation statewide. The bill will require various accountability measures as a condition of these funds. However, as this bill was just passed in July 2017, its full impact and how new procedures, measures, and reporting will work has not yet been determined. Rule-making and other implementation measures are just beginning. Final performance measures included in the OPTP may change as needed to reflect new requirements.

Federal Requirements

MAP-21 and FAST Act

Fixing America’s Surface Transportation (FAST) Act is the most recent federal transportation authorization that funds surface transportation programs from fiscal years 2016 through 2020. The FAST Act continues the performance-based surface transportation program established in the previous authorization, Moving Ahead for Progress in the 21st Century Act (MAP-21). Under FAST Act requirements, states must establish performance targets that address the national performance measures issued by U.S. Department of Transportation (USDOT) and report on them annually. The national performance measures track progress made toward seven national performance goals: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project delivery delays.²³⁵

National Performance Management Measures; Transit Asset Management and Congestion Mitigation Air Quality Improvement Program—USDOT Final Ruling

Federal Highway Administration and Federal Transit Administration final rulings on transit asset management and congestion mitigation require state departments of transportation to track progress toward maintaining a public transportation fleet in good repair and improving air quality by reducing single-occupancy vehicle (SOV) trips. The Transit Asset Management final ruling is reflected in ODOT’s Transit Condition KPM. Some states (including Washington) already have congestion mitigation performance measures in place and ODOT is now engaged in developing targets as well. The criteria contained in the USDOT final ruling are reflected in the research on performance measures in other states, and within the identified OPTP key outcomes.²³⁶

²³⁵ U.S. Department of Transportation. (Last updated February 2017). Fixing America’s Surface Transportation Act. Retrieved from <https://www.fhwa.dot.gov/fastact/>.

²³⁶ Federal Register Rule by FHWA. (January 18, 2017). National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program. Retrieved from <https://www.federalregister.gov/documents/2017/01/18/2017-00681/national-performance-management-measures-assessing-performance-of-the-national-highway-system>.



Technical Papers

Transit Cooperative Research Program Report 88 - A Guidebook for Developing a Transit Performance-Measurement System

The Transit Cooperative Research Program Report 88 is a guidebook for improving decision making processes for transit agencies using performance measurement programs. The Guidebook provides a step-by-step process for developing performance measurement programs and reviews key characteristics of performance measurement systems. The criteria and characteristics discussed in the Guidebook echo the criteria for successful OPTP potential performance measures described in the section above. Key Guidebook characteristics of a performance measurement system include:

- Stakeholder acceptance
- Linkage to agency and community goals
- Clarity
- Reliability and credibility
- Variety of measures
- Number of measures
- Level of detail
- Flexibility
- Realism of goals and targets
- Timeliness
- Integration into agency decision making

The Guidebook includes 12 case studies of successful programs, focusing on programs that met agency goals and objectives identified in long-range plans. Additionally, the Guidebook includes a menu of performance measures grouped into the following categories:²³⁷

- Availability measures
- Service delivery measures
- Community measures
- Travel time measures
- Safety and security measures
- Maintenance and construction measures
- Economic measures
- Capacity measures
- Paratransit measures
- Comfort measures

²³⁷ Transit Research Board. (2003). TCRP Report 88 – A Guidebook for Developing a Transit Performance-Measurement System. Retrieved from https://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_88.pdf.



The National Cooperative Highway Research Program Research Result Digest 361 offers information on using public transportation performance measures effectively to support state-level decision making. The report provides results from a nationwide survey of 30 state departments of transportation, most of which were using between two and six measures. The most commonly used public transportation performance measures were associated with ridership, such as total ridership, passenger miles, ratio of ridership growth to population growth, passengers per capita, and number of riders at park-and-ride lot. Following are other measures used by state departments of transportation:

- **Availability measures**—Total service hours provided versus total hours needed to meet transit demand, average days per week that transit service is available.
- **Internal cost and efficiency measures**—Passengers per vehicle mile, passengers per vehicle hour, total operating cost per passenger, operating expense per vehicle revenue mile, fuel economy.
- **Quality measures**—On-time performance by mode, ratings of public transportation system.
- **Asset management measures**—Age of fleet by vehicle type, percent of vehicle useful life remaining, number of mechanical failures, and distance between vehicle failures.
- **Community measures**—Percent of non-single-occupant vehicle commuters, number of auto vehicle trips reduced, energy savings, percent of fleet vehicles transitioned to clean or alternative fuels.
- **Safety measures**—Rate of injuries and/or fatalities involving transit vehicles.

Performance Measures used in Other States

Several other states using statewide public transportation measures have key outcomes and agency goals similar to OPTP goals and key outcomes. This section summarizes representative performance measures used in other states that reflect OPTP key outcomes and goals.

Washington

The Washington State Department of Transportation (WSDOT) statewide transportation performance measures and associated progress are published in quarterly and annual progress reports. WSDOT's Office of Strategic Assessment and Performance Analysis is responsible for tracking the data and results associated with each performance measure.²³⁸

- **Avoided annual vehicle miles traveled**—Progress made toward reducing congestion by improving system efficiency is tracked by the number of SOV miles avoided due to use of

²³⁸ Washington State Department of Transportation. (2016). 2016 Biennial Transportation Attainment Report. Retrieved from <https://wsdot.wa.gov/publications/fulltext/graynotebook/AR2016.pdf>.



transit. A scale factor of 0.62 SOV per transit passenger mile is applied to miles traveled, representing the estimation that “62 percent of transit miles traveled would have been taken as equivalent SOV trips if transit services were not available.”

- **Amtrak Cascades ridership and on-time performance**—Ridership and percent of trips on time for Washington state sponsored Amtrak Cascades train service is used to track progress made on WSDOT’s Mobility goal.
- **Fatalities and injuries**—The number of fatalities and injuries on public transportation is tracked for progress made toward the state’s Safety goal.
- **Transit fleet status**—The percent of the transit fleet exceeding useful life is tracked, with a target of 25 percent maximum exceeding useful life by 2020.

California

California Department of Transportation (Caltrans) Office of Strategic Management is responsible for implementing performance-based management. Statewide performance measurement data is obtained through the Caltrans Performance Measurement System to use in tracking progress toward statewide transportation goals including: Safety and Health; Stewardship and Efficiency; Sustainability, Livability, and Economy; System Performance; and Organizational Excellence.²³⁹

- **Multimodal information available to public**—The percentage of 25 top integrated corridors with real-time multimodal system information available to the public is tracked. The goal by 2020 is to provide real-time multimodal system information to the public on 50 percent of the top integrated corridors.
- **Accessibility and livability scores**—These measures are under development and will help track progress toward improving the quality of life for all Californians. Measures under consideration include the following: multimodal transportation proximity to jobs, disadvantaged communities, transit oriented communities, and environmental justice concerns.
- **Non-auto commute modes**—California’s baseline data is calculated from 2010-12 California Household Travel survey with a goal of doubling the use of transit mode to improve the quality of life for people and provide mobility choices by 2020.
- **Transit ridership**—Increase transit ridership for all modes.
- **Opportunities for safe, accessible active transportation**— Promote community health and reach 100 percent of funds of allocated vs programmed.
- **Housing and jobs near transit**—This is a California statewide indicator and policy performance measure to assess the number of housing and jobs within 0.5 miles of transit stops.
- **Number of fatalities and injuries**—There is currently a target of 10 percent fatality reduction.

²³⁹ California Department of Transportation. (2015). Caltrans’ Strategic Management Plan 2015-2020. Retrieved from http://www.dot.ca.gov/perf/library/pdf/Caltrans_Strategic_Mgmt_Plan_033015.pdf.



- **Percent of transit assets in good repair**—This tracks progress toward improving multimodal mobility and maintaining a state of good repair.

Pennsylvania

The Pennsylvania Department of Transportation (PennDOT) has a long-range transportation plan and freight plan known collectively as “PA On Track” that includes the following statewide transportation goals: System Preservation, Safety, Personal & Freight Mobility, and Stewardship. PennDOT’s sole public transportation performance measure is annual transit ridership.²⁴⁰

Colorado

The Colorado Department of Transportation’s (CDOT) Statewide Transit Plan outlines performance measures which help to track progress made on the following statewide goals: System Preservation and Expansion, Mobility/Accessibility, Transit System Development and Partnerships, Environmental Stewardship, Economic Vitality, and Safety and Security.²⁴¹ Measures include:

- **Alternative energy fleets**—The percentage of statewide transit using compressed natural gas, hybrid electric, clean diesel or other low emission fuel types is used to track progress toward the Environmental Stewardship goal.
- **Major employment and activity centers served by transit**—The percentage of major employment and activity centers that are served by public transit tracks progress on the Economic vitality goal. CDOT aims to increase the availability and attractiveness of transit and further integrate transit services into land use planning through this goal.
- **Rural transit access**—The percentage of rural population served by public transit is tracked for progress toward the goal of increasing service to rural population, and a target of 90 percent of rural populations with access to transit.
- **Transit assets in good repair**—The percent of transit assets in good repair tracks progress toward the target of 65 percent of fleets in good condition.

Local Provider Performance Measures in Oregon

Performance measures are most often tracked at the local level in the public transportation realm. However, local performance measures may not be appropriate for statewide application, as they often track provider-specific goals or data.

Metropolitan Planning Organization (MPO) areas generally encompass a number of local providers, and are required by federal law to lead and coordinate regular (four-year) updates to regional transportation plans. This section provides an overview of performance measures in use by local

²⁴⁰ Pennsylvania Department of Transportation (2016). Pennsylvania Long Range Transportation Plan. Retrieved from <https://www.pennidot.gov/ProjectAndPrograms/Planning/Documents/PennDOT-LRTP%20-%20FINAL%20August%202016.pdf>.

²⁴¹ Colorado Department of Transportation. (2015). Colorado Statewide Transit Plan. Retrieved from <https://www.codot.gov/programs/transitandrail/plans-studies-reports/statewidetransitplan/statewide-transit-plan/view>.



transit providers in Oregon that track progress made toward local and MPO regional planning goals.

TriMet

TriMet tracks a number of performance measures addressing ridership, efficiency, budget, and safety. Example measures include:²⁴²

- Ridership by weekly boarding rides.
- *Operating cost per boarding ride*—Direct cost for a ride on the TriMet system.
- *On-time performance*—For buses and MAX, on time departure is no more than one minute early and five minutes late, and for WES trains, it is within four minutes of scheduled time. A LIFT vehicle is considered on time if it arrives within 30 minutes of scheduled pick-up time.
- *Vehicle service miles per road call incident*—Measure of lost service by the average number of miles traveled per service delay or incident.
- *Income received from passenger revenue on fixed route and LIFT services*—Includes cash, ticket, and pass fares as well as revenues from a variety of special fare programs including the low-income fare program.
- *Transit collisions per 100,000 miles*—Preventability and liability is not distinguished. Collision types are tracked by TriMet mode.

Lane Transit District

Lane Transit District (LTD) is the public transportation provider for the Eugene and Springfield metropolitan area. LTD has transit performance measures that support progress toward LTD's long-range goals and key concepts. Additionally, LTD lists potential ways that key outcomes and concepts can be met.²⁴³ Representative measures include:

- *On-time departures*—Percent of service departures within four minutes of the scheduled time. LTD uses electronic data collection methods through an automated vehicle locator system at significant time points to determine on-time performance.
- *Frequency of transit service*—Percent of the planned Frequent Transit Network (FTN) miles currently in operation, to ensure investments are leveraged to the best of abilities. Frequent transit service is considered an average of 15 minutes or better.
- Passenger miles per revenue hour.
- Passenger miles per capita.

²⁴² TriMet. (May 2017). Performance Dashboard: May 2017. Retrieved from <https://trimet.org/about/dashboard/index.htm>.

²⁴³ Lane Transit District. (2014). Long Range Transit Plan March 2014. Retrieved from <https://www.movingahead.org/wp-content/uploads/2015/03/Long-Range-Transit-Plan-2014-03-Final.pdf>.



- *Percent of households with access to transit*—Percent of residential addresses within 1/3 mile of frequent service stops and 1/4 mile of all other fixed routes.
- *Percent of employers with access to transit*—Percent of employers within 1/3 mile of frequent transit and 1/4 mile of all other fixed routes, to measure the impact on strengthening the local economy.
- *Sense of safety while riding with other passengers*—This is a qualitative measure, capturing the perception of safety.
- *Operating cost per revenue mile*—This measures the cost to deliver transit service, with the cost broken down by direct service and operations, maintenance, and administrative support.
- *Operating costs per boarding*—General cost per bus ride, with the cost broken down by direct service and operations, maintenance, and administrative support.

Cherriots

Cherriots is the public transportation provider for the Salem-Keizer area. The Salem-Keizer area Regional Transportation System Plan includes *indicators* which report progress on long-range plan goals and align with performance measures introduced as part of MAP-21 and FAST Act. These performance indicators include:²⁴⁴

- *Number of fatalities and injuries*—By mode to indicate progress made toward the related Safety goal.
- *Preserve the existing system*—Tracks average age of the transit fleet.
- *Provide a multi-modal system*—Tracks daily ridership, and the number of transit hours of service.
- *Maximize the efficient use of the existing system*—Tracks the number of people moved per hour, or throughput in specific corridors.

Additionally, the Cities of Salem and Keizer each have measures meant to show progress toward providing transportation options within their community. These measures include:²⁴⁵

- *Transit and land use*—Number of residential units or square feet of commercial development within a transit influence area.
- *New residential units near transit*—Number of new residential units within 1/4 mile walking distance of transit compared to all new residential units.
- *Growth in rideshare*—Number of people using alternative modes.

²⁴⁴ SKATS. (Adopted 2015, Amended 2016). Regional Transportation Systems Plan 2015 – 2035. Retrieved from <https://www.mwvcog.org/programs/transportation-planning/skats/planning-programs/regional-transportation-system-plan-rtsp/>.

²⁴⁵ SKATS. (Adopted 2015, Amended 2016). Regional Transportation Systems Plan 2015 – 2035. Retrieved from <https://www.mwvcog.org/programs/transportation-planning/skats/planning-programs/regional-transportation-system-plan-rtsp/>.



Recommendations

The preceding sections of this paper describe the context for establishing performance measures that support the OPTP. Performance measures are included in all of the statewide modal plans recently developed by ODOT; recent plans like the Bicycle and Pedestrian Plan and Transportation Options plan contain several performance measures (generally three to six) that track plan progress.

This section reviews potential performance measures gleaned from the research and findings presented earlier, evaluates them based on the criteria for adopting a successful performance measure, and recommends a set of performance measures for inclusion in the final OPTP.

Measures Considered

Table 2 describes potential performance measures that could be included as part of the OPTP. The project team developed this list of potential measures based on the research summarized in this memo, and by applying the criteria for selecting successful measures. This selection was also informed by performance measures in use in other Oregon state plans, by other states, and by local providers. A variety of possible measures are described, with different strengths and areas of focus. Some measures may lend themselves to tracking and documenting statewide progress, while others may be more appropriately considered as indicators that identify trends over time and show more generally how the public transportation system is working.

Table 2 evaluates the measures based on the criteria for selecting successful performance measures, and the following section recommends a subset of these (including both performance measures and indicators) for inclusion in the OPTP.



Table 2. Potential Performance Measures

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
Transit service is safe, and perceived that way by riders	Public transportation incidents per million transit vehicle VMT	Reported public transportation incidents. Currently collected through the National Transit Database (NTD).	Yes. Data is readily available. However, this measure may require additional explanation in order to be readily understood by lay audiences. In addition, the definition of an “incident” can vary from transit agency to transit agency.
	Percent of individuals stating they perceive public transportation to be safe	Survey responses; similar question is included in the ODOT Transportation Needs and Issues Survey.	Yes. Relatively easy measure to track; is readily understandable and reliable.
	Percentage of agencies with adopted safety plans	Tracking of agency safety plans. ODOT RPTD could collect this information.	Partially. Adoption of safety plans does not track implementation of plans and therefore does not necessarily account for actual changes in public transportation safety. It may also be somewhat unclear what constitutes a “safety plan” as opposed to safety policies or safety elements integrated into broader plans.
	Average age of the public transportation fleet	Reported fleet age data. RPTD already collects this information and it is also reported to the NTD.	Yes. This is already an ODOT KPM and should be retained. However, it is important to note that this measure does not have a direct correlation with safety, but correlates more with service reliability and operating costs.
Public transportation service is available and widely used throughout Oregon	Public transportation ridership	Already reported by most providers to the NTD	Yes. Though ridership is affected by many external factors (as are most of the other measures reviewed in this table), overall ridership is a good measure of this outcome.
	Public transportation revenue hours per capita	Already reported by most providers to the NTD	Yes. This measure may be difficult to readily understand by the broader public. However, it represents an efficient way of tracking the supply of public transportation provided across the state. It also represents a “supply-side” measure that complements ridership above.
	Percentage of state population and employment within ½ mile of a public transportation route or stop	US Census data and transit stop or route information that ODOT RPTD already maintains.	Yes. This measure is for fixed route services that usually serve larger towns and urban areas.



Table 2. Potential Performance Measures

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
Public transportation meets the needs of transportation-disadvantaged (low-income, minority, disabled) riders	Percentage of employment and/or lower-wage employment within ½ mile of public transportation stops	US Census data for general employment and transit stop or route information that ODOT RPTD already maintains.	Yes. This measure does not directly address the outcome, but access to employment is nonetheless an important consideration for low-income households. This measure is also a surrogate for the degree to which public transportation is coordinated with development and transit-supportive land uses. This measure is for fixed route services that are more prevalent in larger towns and urban areas. Lower-wage employment data may not be available at this time.
	Percentage of low-income population within ½ mile of public transportation routes or stops	US Census data and transit stop or route information that ODOT RPTD already maintains.	Partially. Relatively easy measure to collect data for. However, this may serve better as an indicator; local providers have limited influence on land use and housing decisions that affect this measure.
	Public transportation commute mode share for low-income groups	US Census/American Community Survey data	Yes. Relatively easy measure to collect data for. However, this census data point is somewhat controversial and may underreport mode share for non-SOV modes.
Public transportation services are well-coordinated, benefiting riders and providers alike	Number of public transportation systems that connect to neighboring services	Local provider public transportation networks in GIS format or survey of local systems to determine interconnections.	Partially. This measure would assess the level to which neighboring public transportation systems are connected, facilitating easy connections for riders. However, this measure would not necessarily track the number of interconnections or the utility of those connections (that is, the frequency of service at interconnected stops).
Address urban congestion; helping public transportation bypass congestion	Public transportation travel time reliability in urban areas	Urban public transportation provider reliability data	Partially. This measure relies on reliability data as tracked by local providers; not all providers track travel time reliability, nor do they track it in the same way. Would be difficult for ODOT to determine this.
	Share of public transportation priority corridors with transit priority treatments	Linear feet of transit priority treatment as a percentage of designated public transportation priority corridors (GIS data)	Yes. This measure could serve to track the increase or decrease in transit priority treatments, indicating more physical separation of public transportation and other vehicle traffic, and therefore better congestion mitigation. Would require minimal information from local providers.
	Avoided personal VMT due to public transportation use	Public transportation passenger miles in urban areas	Yes. Could adopt WSDOT methodology to estimate the number of avoided personal vehicle VMT. However, this measure is not easily understood by the public.



Table 2. Potential Performance Measures

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
Improve safe access (for example, bicycle/ pedestrian facilities) to public transportation	Share of public transportation priority corridors with continuous cycling and pedestrian facilities	Designated public transportation priority corridors and cycling/pedestrian facility GIS data	Partially. Data for this measure may be difficult to collect in smaller urban and rural areas. This measure would need to be carefully considered in rural areas where dedicated cycling/walking facilities are often not present.
Ensure new development and major facilities are coordinated with public transportation and that planning at multiple levels (local, regional, and statewide) includes public transportation	Percentage of urban transit routes intersecting with high-density land uses	ODOT PlaceType data and statewide transit routes, both already maintained by ODOT	Yes. Important to note that this measure focuses on the “productivity” side of public transportation which inherently focuses on urban areas, as opposed to “coverage.” Could consider adopting a parallel measure to track performance in rural areas. Would also need to consistently define what “high density” land use is.
	Percentage of rural residents with access to public transportation	Transit routes and service areas	Partially. Data may be difficult to collect on an annual basis. Also focus is on rural areas, which represent a small portion of new development and major facilities.
	Cost per boarding for fixed route service (adjusted for inflation)	Data already reported to NTD	Yes. Would be relatively simple to calculate and would provide meaningful information about system efficiency. This is a standard measure that most public transportation providers track. ODOT would need to carefully consider the methodology given the variety of providers and circumstances throughout the state; for example, relative to rural fixed route service due to more limited data and the different circumstances that pertain to rural fixed route.
Be good stewards of public funds by providing public transportation in a cost-effective manner	Farebox recovery	Data already reported to NTD	Partially. Farebox recovery rates reflect local policy choices to collect more or less revenue at the farebox, and agencies have different policy goals for seeking lower or higher farebox recovery rates. For example, Corvallis operates a “fare-free” system. Farebox recovery is not recommended as a performance measure for the OPTP, but could be tracked as a general indicator.
	Maintain transit fleet and facilities in good working order	Percentage of active public transportation fleet that exceeds design life	Data already collected by ODOT RPTD



Table 2. Potential Performance Measures

Outcome	Potential measures	Data needs	Meets Criteria?/Notes
Promote environmental stewardship and public health through public transportation investment	Percent of fleet that is low- or no-emission (for example, hybrid gas-electric, non-fossil CNG, biodiesel)	ODOT RPTD could collect this data; RPTD already collects fleet data	Yes. Would be relatively simple to fold this data point into existing RPTD data collection practices.
	Access to public transportation measures described above could be surrogates for public health (access to public transportation encourages use, which promotes health)	N/A	N/A



Recommended Measures

The project team recommends the performance measures below for consideration in the OPTP to help measure progress on goals, policies, and strategies. Performance measures should be reliable and trackable; needed data should be readily collectable and the measure should assess progress toward OPTP goals. Collectively, OPTP performance measures should not require undue time or resources for collection and assessment.

In the interest of maintaining a manageable number of performance measures that are matched with available agency resources, the recommended measures below do not address every outcome described in previous sections of this paper. The project team recommends these measures based on how well they measure overall progress on OPTP desired outcomes, their ability to broadly measure more than one outcome, whether they meet the criteria for successful performance measures, and how they relate to existing KPMs or the performance measures in other statewide modal plans. This memo does not articulate the exact methods or the best way to present these measures; these decisions will be determined by ODOT staff as part of OPTP implementation.

Recommended measures include:

- **Statewide public transportation ridership per capita**—This is a fundamental “demand-side” measure that addresses many outcomes. Data is readily available for fixed route service and is reported by most providers to NTD. Tracking ridership per capita will show changes corrected for population growth, providing an indication of whether ridership is growing in excess of population growth. Ridership for demand response can be tracked separately if and when the data becomes readily available.
- **Public transportation revenue hours per capita**—This “supply-side” measure is a corollary to ridership, tracking changes in the amount of service provided. Similar to ridership, tracking at the per capita level will show whether the amount of service provided is keeping pace with population growth. Data is readily available for fixed route services and is reported by most providers to NTD. Tracking per capita will show the service level changes corrected for population growth and allow for measurement of whether more or less service is being offered as the state grows.
- **Cost per boarding for fixed route service (adjusted for inflation)**—This measures how efficiently public transportation service is being provided. That is an important measure for accountability and stewardship of public funds. Data is readily available from transit providers and is reported to NTD. Care should be taken in developing the exact methodology due to the differences between urban and rural systems.
- **Percent of public transportation vehicle fleet that is low- or zero-emission**—This measure addresses both environmental sustainability and public health. Data for this measure is not consistently collected today, but is anticipated to be collected in the future through ODOT RPTD for the vehicles purchased with ODOT assistance (about half the total fleet in Oregon). Local



providers on the OPTP Technical Advisory Committee voiced strong support for inclusion of this measure.

- **Transit vehicle condition – percent of public transit buses exceeding useful life**—A current ODOT statewide KPM, this measure reveals information about the financial condition of transit agencies around the state, as well as information about the age of buses that is relevant to safety, environmental sustainability (new/clean technologies), and service for those who benefit from state of the art equipment to serve those with disabilities.

As of this writing, rulemaking is underway for House Bill 2017 (HB 2017), a major legislative transportation funding package. This process may result in a need for new or additional performance measures related to public transportation.

In addition to the recommended performance measures, several of the measures reviewed in this paper may be useful as more general indicators of progress or trends over time. Indicators that track important OPTP outcomes, and could be monitored by ODOT on an ongoing basis, include:

- **Public transportation incidents per million transit vehicle miles traveled**—Traffic safety data reveals that public transportation today is quite safe compared to other modes. This indicator could be tracked for multiple purposes (for example, to compare transit safety to other modes of travel and to monitor traffic safety trends on the public transportation system).
- **Percent of individuals stating they perceive public transportation to be safe**—While it is difficult to assess performance based on perceptions, changes in safety perception are important to understand how users feel about the system and how likely they are to use it. The data needed for this indicator is already collected as part of the ODOT Needs and Issues survey.
- **Percent of low-income population within 0.5 mile of a stop**—While variations among urban and rural systems make this less appropriate as a performance measure, as an equity indicator it could help monitor changes in public transportation accessibility for low-income Oregonians.

Other measures discussed earlier, while providing valuable information, may require data that is not yet available or is difficult to collect. For example, the areas below require further research, additional data, or more development, but represent important OPTP outcomes:

- **Technology measures**—The “number of providers that have efare” is one potential indicator of technology dissemination to public transportation providers in Oregon. Efare is one of the more transformative technologies currently being implemented by providers in Oregon and keeping track of this indicator could serve as a good proxy for public transportation technology advancement statewide.
- **Fare affordability measures**—As of this writing, few public transportation providers and no states researched have performance measures concerning fare affordability. ODOT could consider looking into potential measures or indicators around fare affordability at a later date.



- **Transit asset management**—Transit asset management is an increasing focus for local providers due to recent Federal Transit Administration rules requiring providers to develop asset management plans. As reporting requirements evolve, it may become possible, and beneficial, to track broader measures of asset condition in addition to the transit vehicle condition measure recommended above.
- **Accessibility measures**—People’s ability to access public transportation (and go where they need to go on the system) is essential to the OTP. However, potential performance measures to track this are typically best suited for measurement at the local level due to data requirements. For example, measures around pedestrian access to public transportation usually require having up-to-date information on the local pedestrian network that is more easily tracked at the local level. Other measures of accessibility (such as the proximity of public transportation to residents, jobs, and services) are also used by many local providers, but it is presently difficult to assess these types of measures at the statewide level. Therefore, ODOT could continue to evaluate potential measures of accessibility that would be more viable at the statewide level.

These are not recommended for inclusion in the OTP at this time, but may be considered in the future for tracking as indicators or for adoption as performance measures as data becomes more readily available.



Appendix 8
Oregon Public Transportation Plan
White Papers

July 14, 2015



OPTP Transit Typology

White Paper

Oregon Public Transportation Plan

Introduction

Transit typologies can be used to categorize information in the Existing Conditions Report and other elements of the Oregon Public Transportation Plan (OPTP), including the needs assessment, performance measures, and implementation strategies. The identification of an appropriate typology at the beginning of the planning process is helpful in organizing and presenting information and analysis within many of the technical deliverables developed for this project. In addition, organizing each report by a standard typology could assist readers of the plan, including transit providers and transportation policy-makers, by guiding them to the most relevant sections of the plan for their particular organization or community. The typologies will not only assist in making the plan easier to read, they will make it more useful over time.

While the provider typology will be used as a way to generally organize OPTP information, it is understood that it is imperfect. Some providers will be partially reflected in more than one category, others may not quite fit into any of the categories. Oregon public transportation providers are each unique and reflect the needs and characteristics of the area that they serve. In addition, relatively similar communities or transit providers may operate in very different contexts throughout the state, and these complexities cannot be adequately reflected in a basic typology. As information is developed and organized for the OPTP, these complexities and exceptions will be noted and discussed as needed in order to provide a plan that will work well for Oregon and its various communities and public transportation providers.

This document recommends a transit provider typology for OPTP use.



Transit Provider Typology

Transit providers relate to the size of their system, as reflected by the fact that the Federal Transit Administration (FTA) and transit organizations such as the American Public Transportation Association (APTA) have created categories for transit related to system size (either community population or fleet size). In addition, peer assessments conducted by transit providers typically focus on other systems serving similar-sized communities and with similar fleet compositions. Geography and transit provider organizational structure are secondary factors in terms of how transit providers make decisions. Thus, community population size should be the primary focus for a general typology to be used on the existing conditions report and potentially other elements of the OPTP. Another advantage of the population-based typology is that it population is correlated with factors that affect transit markets and ridership demand, such as commuting distance, congestion, and parking costs.

The population typology should be fine-grained enough that vastly differently-sized transit providers are not grouped together, but have a limited number of categories to keep the report from become cumbersome and difficult to read.

The table below shows the recommended break-down of the population-based typology. Statewide public transportation services are listed separately since they are not linked to a specific community. Statewide public transportation includes Amtrak passenger rail service. Including Amtrak in the existing services description in the OPTP is important since it provides essential passenger connections within the state and from Oregon to other states.

Table 1. Recommended Transit Provider Typology

Category	Description	Examples
Large Urban Areas	Population greater than 200,000	TriMet, Lane Transit, Salem-Keizer Transit
Medium-Sized Urban Areas	50,000 to 200,000 population	Rogue Valley Transit District, Albany, Corvallis
Small Urban Areas	10,000 to 50,000 population	Basin Transit, South Lane Wheels, City of Woodburn
Large County and Regional Systems	Counties greater than 50,000 population and systems serving multiple counties	Yamhill County, NW Connector Consortium, Central Oregon Intergovernmental Council
Small County and Rural Community Systems	County less than 50,000 population and communities smaller than 10,000 population	Harney County, Wheeler County, City of Lebanon
Statewide Public Transportation	Bus and rail	Greyhound, Amtrak, Bolt Bus, POINT service providers



In addition to the population-based transit provider typology it is important to consider secondary typologies that can affect policy and strategic considerations. These additional typology considerations can be used as appropriate in the report to supplement the overall population-based typology. These include:

- **Geography:** The location of a community can have significant influence on the provision of transit service and on the transit market served. For example, the City of Canby and the City of Pendleton have similar populations and face similar administrative and operational challenges associated with small transit providers. However, because of the City of Canby's proximity to the Portland metropolitan area the transit market served will be different. In addition, the general location within the state can influence transit service. For example, transit service providers in coastal communities have different opportunities and challenges than do those serving eastern Oregon communities.
- **Transit service type:** Many transit service types operate within Oregon communities, including commuter rail, light rail, streetcar, bus rapid transit, fixed-route bus, and demand-response service. Transit service types have differing operational characteristics that may impact policies and performances measures. For example, demand-response service, which is offered by virtually every community-based transit provider, may warrant special consideration for policy development given the specialized market, unique operational characteristics, and high per-trip cost.





Private Sector Roles in Public Transportation

White Paper

Oregon Public Transportation Plan

Roles of Private Transportation Providers

Public transportation in Oregon encompasses a wide variety of services. The Oregon Public Transportation Plan (OPTP) policies are primarily focused on publicly-provided transportation services, including fixed route bus, light rail, and demand response services. However, the private sector also plays important roles in providing public transportation – for example, many public agencies contract with the private sector to provide certain services (such as demand response service), and private companies directly own and operate transportation services open to the public (for example, Greyhound intercity bus). Furthermore, transportation developments in the private sector, including the advent of Uber and carsharing, present opportunities to enhance public transportation services, and leverage each sector’s strengths. This white paper explores the significance and roles that the private sector may play in the provision of public transportation services in Oregon, drawing on examples from other states to illustrate differences in roles. Finally, this paper reviews several current and emerging trends in the private sector that are likely to affect public transportation and policy in the future.

“Public transportation,” broadly defined, includes any transportation service open to the general public. The OPTP policies are focusing on public transportation services that are provided or funded by public entities, such as:

- *Mass Transit Districts*
- *Transportation/Transit Districts*
- *Counties*
- *Cities*
- *Tribes*
- *Councils of Government*
- *Nonprofits*
- *State of Oregon*

The private sector has multiple roles in the provision of public transportation services, including:

- *As a contractor to public agencies for services*
- *Privately owned and operated services (for example, Greyhound intercity bus)*
- *Complementary services, like carsharing, ridesharing, employer shuttles, and others*

This paper provides an overview of private transit provider roles and trends in Oregon and other states to inform the discussion of policies and strategies for the OPTP. Although the OPTP will include policies and strategies for which the state and other governmental agencies have authority, understanding the relationship between public and private sector providers is essential to a comprehensive statewide policy framework for public transportation. The private sector plays an integral role in the overall transportation system, complementing public transportation and contributing to trends that will shape the transportation industry moving forward. State policy can help ensure that the public and private sectors are able to contribute their strengths to providing a comprehensive system of public transportation options.

Private providers operate a wide variety of services nationally and in Oregon, including intercity bus, fixed route and demand response transit, shuttles, taxis, carsharing services, and facilitating ridesharing, as described below.



Intercity Transportation

The Federal Transit Administration (FTA) defines intercity bus services as “regularly scheduled public service...with limited stops between two urban areas or that connects rural areas to an urban area [...]”²⁴⁶ In Oregon, intercity transportation options are typically interconnected with local public transportation systems at community transit hubs or stations, providing intercity connections for many residents statewide. Oregon intercity services include public agency services such as those provided by Lane Transit District and Tillamook County Transportation District and private providers’ services such as Valley Retriever Busline, Greyhound, and Amtrak (although government funded, Amtrak is operated as a private, for-profit corporation).²⁴⁷

Intercity Bus

Private intercity bus companies operate scheduled bus service across an expansive network spanning the continental United States, providing low-cost intercity connections for many. For example, in Oregon, Greyhound serves several large cities along interstate corridors, including Medford, Grants Pass, Eugene, Corvallis, Salem, Portland, The Dalles, and Pendleton, connecting to cities across the country.²⁴⁸ Greyhound and other interstate bus services, however, do not provide service to many rural areas of Oregon. Several Oregon intercity bus companies serve rural communities, for example, Pacific Crest Buslines operates daily service between Coos Bay, Florence, and Eugene, where service connects to Greyhound and Amtrak. Federal deregulation of the private bus industry in the 1980s allowed interstate private carriers to set their own fares and routes, resulting in private carriers dropping many rural routes, including most in Oregon outside of the major interstate highway corridors.²⁴⁹ As a result, the private interstate bus network primarily serves the most urban areas of Oregon. Public services, regional intercity bus operators, and public-private partnerships like the Public Oregon Intercity Transit (POINT) fill in many of the gaps.

The growing services of low-cost, non-stop, and limited-stop bus carriers, known as “curbside buses” augment traditional intercity bus transit. These curbside bus providers may not service bus terminals, but rather pick-up and drop-off passengers at designated places on city streets, traditionally in a city’s downtown core. These services also lack many traditional features such as ticket counters and waiting rooms and rely on online sales. However, they may provide relatively low-cost trips with competitive travel times and in-vehicle services that include electronic outlets and Wi-Fi. These electronic services increasingly appeal to millennials who prefer to work or digitally socialize while they travel.²⁵⁰ The added amenities make non-stop and limited-stop

²⁴⁶ Federal Transit Administration. (2016). National Transit Database Glossary. Retrieved from <https://www.transit.dot.gov/ntd/national-transit-database-ntd-glossary>.

²⁴⁷ <https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/AnnualReport/Annual%20Report%20Fiscal%20Year%202015.pdf>, page 4. Retrieved 1/19/2017.

²⁴⁸ Greyhound. (n.d.). Route Map - US 2014 EXPRESS and GH routes only 9-14. Retrieved from <https://www.greyhound.com/-/media/greyhound/pdf/discovergreyhound/routemap-pdf.pdf>.

²⁴⁹ Meyer, J. R., & Oster, C. V. (1987). Deregulation and the future of intercity passenger travel. Cambridge, MA: MIT Press.

²⁵⁰ American Public Transportation Association (APTA). (2013). Millennials & Mobility: Understanding the Millennial Mindset. Retrieved from <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>.



services an attractive alternative to driving. While growing in popularity, these types of services from national companies are unlikely to serve rural or smaller urban locales where service may not be profitable.²⁵¹

Bolt Bus, a curbside service owned by FirstGroup, who also owns Greyhound, expanded into the Pacific Northwest in 2012 with service between Portland, Seattle, Vancouver, B.C., and Bellingham, as well as limited service to Albany and Eugene (fares vary based on demand and distance travelled). Similar low-cost intercity bus services are operating in other parts of the country, including Megabus which provides non-stop and limited-stop services throughout the Eastern United States and Canada. While these companies are unlikely to serve rural areas, other private solutions are in place to serve some rural needs. For example, Estrella Blanca is a curbside service that enables access to work opportunities and other destinations in Mexico, California, Oregon, Washington, and British Columbia.

Thruway Motorcoaches or “Thruway bus” are various intercity bus services that work with Amtrak and Greyhound services. Riders can buy tickets through Amtrak or Greyhound and the services are designed to feed into or complement the rail service. The Thruway Motorcoaches system extends the reach of the passenger rail system and adds capacity to popular rail corridors. This redundancy can provide temporary service in the event of rail service disruptions as well.

California has an extensive network of Thruway Motorcoaches. Customers purchase their train and Thruway Motorcoach tickets together from Amtrak. Connections are timed to provide reliable transfers from rail to bus. Thruway Motorcoaches in Oregon are operated by numerous private operators including Pacific Crest Buslines, POINT services, Crater Lake Trolley, Klamath Shuttle, and Valley Retriever.²⁵² Increasingly, public sector providers are participating in the Thruway program, for example, Lane Transit District offers Amtrak connections to Oakridge. These services close mobility gaps between major rail transit hubs and undeserved areas, but some communities in Oregon, including parts of eastern Oregon and the Oregon coast, are still lacking meaningful intercity connections.

In Oregon, the intercity bus service POINT is planned and managed by Oregon Department of Transportation (ODOT), but operating the buses is contracted out to private carriers.²⁵³ The POINT service is funded with FTA Section 5311 rural intercity bus funds. Many state departments of transportation distribute their Section 5311 rural intercity bus funds through grant programs to private providers for routes or services proposed and operated by the private sector. However, Oregon uses a portion of its intercity portion of Section 5311 dollars to contract with private providers to provide service on several routes established by the state. This allows the state to

²⁵¹ Klein, N. J. (2015). Get on the (curbside) bus: The new intercity bus. *Journal of Transport and Land Use*, 8(1), 155.

²⁵² Amtrak. (n.d.). Amtrak System Timetable Winter-Spring 2016. Retrieved from https://juckins.net/amtrak_timetables/archive/timetables_National_20160111.pdf.

²⁵³ Oregon Department of Transportation. (n.d.). POINT website. Retrieved from <https://oregon-point.com/>.



develop routes where need is greatest (often on routes which private intercity providers do not serve), while leveraging private transportation services and capital throughout the state.

Similarly, Minnesota and Washington operate a network of intercity buses, primarily in underserved rural areas of each state. The Minnesota Department of Transportation manages the intercity bus program and has several private subcontractors that provide service. Services funded under the 5311 program provide a link between rural communities and major metropolitan areas. Minnesota and Washington, like Oregon, uses the FTA 5311 rural intercity bus program that allows states to use the value of the operating costs of private services like Greyhound as in-kind match for the operating costs of rural intercity bus feeder service.²⁵⁴ This cost-sharing approach reduces the amount of local cash needed for match, helping to address the challenge that many states face in finding enough local funds to leverage federal funds for intercity bus service. In Minnesota, Washington, and Oregon, Section 5311 rural intercity bus funds are critical to providing intercity services, and can be used to leverage private sector resources and funds to increase service where it would not otherwise exist.

Intercity Rail

Amtrak provides intercity passenger rail service across the continental United States connecting 500 communities in 46 states. Amtrak receives federal funds, but operates as a for-profit corporation. Two national Amtrak routes (Coast Starlight and Empire Builder) and one Oregon and Washington service operated by Amtrak (Cascades) serve stations in Oregon and with connections to other destinations throughout the country. The Cascades route is managed by the Departments of Transportation of Washington, Oregon, and British Columbia, with operation of the train service currently contracted to Amtrak. The route operates between Eugene, Oregon and Vancouver, B.C., making additional stops in major cities including Portland and Seattle. Amtrak service, especially in the Willamette Valley, adds capacity to the increasingly congested I-5 corridor and provides an important intercity travel option as well as connecting Oregon residents with regional and interstate destinations.

The Coast Starlight service operates between Seattle and Los Angeles, making stops at several Oregon cities including Portland, Salem, Albany, Eugene, Chemult, and Klamath Falls. The Empire Builder provides rail service to the eastern portion of the United States, originating in Chicago, with western termini in Portland and Seattle, after the line splits in Spokane, Washington. Amtrak provides affordable intra- and inter-state connections, often connecting to local public transit networks where riders may start or finish their trips.

²⁵⁴ National Cooperative Highway Research Program. (2011). Analysis Of State Rural Intercity Bus Strategies: Requirements For Utilization Of S.5311(F) Funding (Digest 356). Retrieved from <https://www.trb.org/Publications/Blurbs/166318.aspx>.



Demand Response and Local Fixed route Contracted Services

Demand response transit (DRT) is characterized by flexible routing and scheduling, often using small or medium sized vehicles. DRT can operate as a shared ride between a passenger's pick-up and drop-off locations, or as an individual ride in a taxi or other private service. DRT systems are typically found in rural or suburban areas where there is low density development, dispersed destinations, and relatively low passenger demand. In these conditions, fixed route bus service is often not a feasible service design. Provision of DRT for certain populations is also a federal requirement of some public transportation providers; this is called "complementary paratransit," a specific type of DRT, and is found in both rural and urban settings.

While some DRT is operated directly by transit agencies, a few are contracted to private operators who may provide the service at a lower cost. In Oregon, Cherriots (Salem-Keizer Transit), for example, contracts with MV Transportation, Inc. to operate CherryLift, its complementary paratransit service, and the RED Line, a DRT system available more generally to older adults and those with disabilities. The agency also recently started a deviated fixed route service called the West Salem Connector using private contractors.

Local fixed route (routed bus service present in many communities) is also contracted to private providers in some instances; for example, the Columbia County Rider public transportation system owns the transit vehicles plans and creates the policies associated with the service, such as the routes, schedules, and fares, but uses contract drivers. Similarly, City of Canby, Yamhill County, City of Corvallis, as well as other transit agencies contract out all or a part of their service. Some transit agencies look to private contractors when starting new services because it can save on high startup costs (such as the purchase of new vehicles) associated with providing the service themselves.²⁵⁵

Private providers can offer advantages to transit agencies such as handling logistics and scheduling, and sometimes reducing the need to budget for some replacement vehicles, though in Oregon, it is usually the transit agency that owns the vehicles. In a Government Accountability Office report on the use of contractors by transit agencies in the United States, surveyed providers cited cost savings and the ability to start new services as two of the most important reasons that transit services are contracted to the private sector.²⁵⁶

Public transportation providers may use taxis as a means of providing public transportation.²⁵⁷ In Oregon, public transit agencies offer vouchers for taxi rides, primarily for riders in rural communities where there is a lack of other transportation options. Taxis may provide a more flexible resource that requires fewer dedicated vehicles owned by the transit agency and increased availability of service for riders. However, using taxis as a means of public transportation may mean

²⁵⁵ Government Accountability Office. (2013). Transit Agencies' Use of Contracting to Provide Service. Retrieved from <https://www.gao.gov/assets/660/658171.pdf>.

²⁵⁶ Ibid.

²⁵⁷ Use of Taxis in Public Transportation for People with Disabilities and Older Adults, TCRP Report Synthesis 119, published 2016.



a lack of accessible equipment in the fleet (which are mostly passenger cars) and a need for close monitoring regarding driver training, safety, and fiscal oversight.

Transit operators have also begun to use transportation network companies (TNCs) as a means of providing DRT services. Pinellas Suncoast Transit Authority in Florida became the first transit agency in the country to subsidize Uber rides to and from designated transit stations in underserved neighborhoods.²⁵⁸ The ability to use private resources including TNCs in the provision of DRT service could have profound effects on the way DRT service is offered by public providers throughout Oregon as TNCs expand throughout the state. First, public agencies could potentially provide service more efficiently through TNCs; the cost per-trip for complementary paratransit provided through public agency-owned vehicles is typically very high (over \$25 per trip). Second, the platforms that TNCs operate – web apps used for reserving (and paying) for rides – make reserving trips convenient and easy for riders. However, the current TNC model requires users to have a smartphone, which may be a barrier to using TNCs as paratransit for some users. TNCs also presently have limited ability to serve customers with disabilities (as discussed later in this paper), which may limit the ability of TNCs to serve DRT and paratransit customers who are disabled. They are also currently operating only in the Portland metro region.

Social Service Transportation Services

Social service transportation providers often serve people with limited mobility options and who are usually clients of a human service agency. These services may provide transportation for purposes including medical visits, meals, shopping, and recreation. These services are operated by a variety of public agencies or private parties, including senior centers, elder care facilities, and religious institutions. There are a variety of social service providers and types of services; social service transportation often is specific to a particular need such as veteran’s needs or seniors, or people with intellectual or developmental disabilities, and Medicaid-eligible non-emergency transportation.

Social service transportation services can provide both door-to-door service or operate on a fixed route. Some may operate on a deviated fixed route, which allow passengers to request a vehicle to make a unique pick-up or drop-off within a certain distance from the route. An example of this service is Ride Connection, which operates as a non-profit organization that encompasses a network of transportation providers that serve older adults, people with disabilities, and lower-income individuals in the Portland metro area.

A second example is non-emergent medical transportation (NEMT), a transportation service provided as a benefit through Medicaid to connect people with medical care. Oregon’s Coordinated Care Organizations (CCOs) contract with NEMT brokers to provide these services, following rules

²⁵⁸ CityLab. (n.d.). Pinellas County Partners With Uber to Offer Free Dial-a-Ride Services. Retrieved from https://www.citylab.com/transportation/2016/06/pinellas-county-uber-dial-a-ride/487568/?utm_source=SFFB.



established by the Oregon Health Authority (OHA). CCOs are a fairly new type of organization within Oregon (launched in 2012). CCOs are community networks of all types of health care providers. Medicaid gave Oregon a grant to demonstrate the concept as a national model. CCOs have agreements to serve their communities for people who receive health coverage under the Oregon Health Plan.²⁵⁹ In Oregon, there are 16 CCOs approved for the Oregon Health Plan, covering most areas of the state. CCOs have the ability to provide transportation services themselves or contract with brokerages or other transportation providers, allowing CCOs to manage their transportation costs effectively.

Qualifying customers can call a NEMT broker who will verify eligibility and in turn determine the mode of transportation required, which may include private transportation services such as taxis. A NEMT broker will dispatch a trip to a transportation provider to complete the transportation request, who in turn will submit claim information after the trip is completed.

Most NEMT brokers in Oregon are governmental entities, such as an existing transit district (Lane Transit District, for example), or a regional council of governments (Central Oregon Intergovernmental Council); however private organizations can act as brokers as well. The service area with the largest number of NEMT rides is the Portland area; and the broker is Ride to Care, a private business.²⁶⁰ NEMT brokers typically subcontract to private individuals or companies to provide the actual rides for Medicaid customers. Subcontractors must meet vehicle standards and other requirements established by OHA.

In contrast to Medicaid, Medicare does not generally fund NEMT services. Medicare will reimburse medical transportation costs only if the service is provided by an ambulance, and a doctor certifies that a person cannot use any other means of transport without endangering his or her health. As a consequence, lower-income elderly people who do not qualify for Medicaid may struggle to find affordable transportation for non-emergency medical care. Doctors may be faced with prescribing ambulance transport for non-emergency patients with no other means of accessing medical care. The expansion of TNC services in the future could help to bridge this gap for lower-income Medicare patients, and other elderly, disabled and lower-income travelers. However, as of this writing, the major TNC companies have limited means of accommodating customers with disabilities; Uber is exploring ways to serve customers with disabilities through more specialized services like UberASSIST, which are intended to specifically serve riders who have disabilities.²⁶¹

Nonprofit Public Transit Agencies

Nonprofit public transit agencies, such as South Lane Wheels and Community Connection of Northeast Oregon (CCNO), provide fixed route, deviated fixed route and demand response services

²⁵⁹ Oregon Health Authority. Oregon Health Policy Board Coordinated Care Organizations. (n.d.). Retrieved from <https://www.oregon.gov/oha/HSD/OHP/Pages/Coordinated-Care-Organizations.aspx>.

²⁶⁰ Oregon Health Authority, Division of Medical Assistance Programs. (n.d.). Non-Emergent Transportation Brokerages for Oregon Health Plan members Retrieved from <https://www.oregon.gov/oha/HSD/OHP/Tools/Transportation%20Brokerage%20Map.pdf>.

²⁶¹ CNN. (2016). Uber's services for the disabled lack actual cars. Retrieved from <https://money.cnn.com/2016/05/02/technology/uber-access/>.



to provide or supplement transit services in specific locations. Typically, a nonprofit provides transportation services as part of its independent mission, usually providing accessible and economical transportation services to the public to reach local destinations or nearby metro areas. The agency may choose to serve either a specific group of people (for example, seniors or persons with a disability) for social service purposes, or may operate public transportation for any member of the public. Like other transportation providers, these organizations set their own fare structure. While non-profits are privately operated, they are often funded from federal, state, and local grants, as well as donations. Nonprofits such as CCNO help to fill transportation gaps not served by public agencies; they may partner with local governments and public transportation providers to coordinate service, share costs, or access grants.

Another example is the Linn Shuttle, based at the Sweet Home Senior & Community Center in Sweet Home, Oregon. The Shuttle receives grant funding from Linn county and City of Sweet Home, and also has several service contracts with human service agencies such as Linn county Mental Health. The shuttle serves the general public in addition to client populations. The Shuttle connects to other transportation providers in the region, including Amtrak, the Linn Benton Loop, and Albany Transit. Dial-a-bus services are also provided by the Sweet Home Senior and Community Center during limited hours and offer connections to the Linn Shuttle.

Transportation Network Companies and Carshares

A TNC is a service that allows for paid, prearranged rides that uses a digital platform to connect a passenger with a driver using a personal vehicle. Both the passenger and driver connect to the TNC via a mobile app or website. The digital platform creates an online marketplace that allows passengers to meet drivers for hire as well as facilitate the delivery of payment to the driver upon completion of a trip. TNCs operating in Oregon include Uber and Lyft in the Portland metro region. Regulation of TNCs vary from place to place, and unlike taxis, can be exempt from certain business requirements due to its nature as a marketplace rather than a company employing drivers and maintaining vehicles. They typically operate in medium and large urban areas and are less available in rural or small communities.

The rollout of TNCs has been occasionally controversial, including in Portland, due to issues and concerns over regulation and safety.²⁶² In Austin, Texas, residents recently voted to remove Uber and Lyft from the city due to these concerns.²⁶³ TNCs, unlike taxis, do not own their vehicular assets, and allow drivers to make use of their own private vehicles to provide services; the TNCs provide the means to connect riders to drivers and facilitate payment. TNCs also have greater

²⁶² The Oregonian. (2014). Uber agrees to leave Portland for 3 months as City Hall works out rideshare rules. Retrieved from https://www.oregonlive.com/commuting/index.ssf/2014/12/uber_agrees_to_leave_portland.html.

²⁶³ Austin Business Journal. (2016). Uber, Lyft defeated in Proposition 1 Referendum. Retrieved from <https://www.bizjournals.com/austin/news/2016/05/07/uber-lyft-defeated-in-prop-1-referendum.html>.



ability to provide service to locations outside of the urban core and can collect data to understand mobility demand patterns.²⁶⁴

Carsharing refers to a model of car rental where customers can rent a vehicle for a short period of time (for example, by the hour), and available cars are usually distributed throughout the service area. Carshare companies mostly attract customers who need occasional use of a vehicle; by filling an occasional need, carshare services can reduce the need to own a private vehicle or own a second vehicle as customers know they can rent a vehicle for specific trips.

There are several types of carshare business models and interfaces, including companies owned by traditional car rental companies and those owned by car manufacturers. Carsharing networks owned by traditional rental companies such as ZipCar (a subsidiary of Avis Budget Group) or Enterprise CarShare allow customers to make vehicle reservations via website, mobile app, or by phone, and can be billed by the hour or day, or enroll in a monthly or annual plan. Other carshare companies, such as Car2Go, owned by car manufacturer Daimler AG, exclusively uses two-passenger vehicles that are designed for local, short-distance trips that are charged per-minute with discounts for hourly and daily usage.

TNCs complement public transit usage by providing a solution for the last mile problem. These services provide a way for customers to get to and from transit stations without relying on a personal vehicle. In addition, while carsharing may take the place of some public transportation trips, it can also encourage more public transportation use overall by allowing more people to choose not to own a vehicle. In a study of traveling habits of people across seven cities, researchers found that the more people used shared services such as TNCs, the more likely they will use public transportation. Among people who use Uber and Lyft, 50 percent of respondents say they use a train and 45 percent report using a bus frequently.²⁶⁵ Travelers who use many shared services (carshare, bikeshare and on-demand TNCs) owned a few number of cars than transit-only users.²⁶⁶

Ridesharing and Ridematching

Ridesharing is any service that allows groups of people to share a ride on a larger scale; ridematching services connect individuals to form rideshares.²⁶⁷ Examples of ridesharing options include vanpools or carpooling. Transportation Management Associations (TMAs) and other transportation options organizations may facilitate or operate ridesharing services. (TMAs are associations of businesses and neighborhood organizations that manage and promote travel options, primarily in congested urban places; Oregon TMAs are primarily in Portland and include

²⁶⁴ National Research Council, Committee for Review of Innovative Urban Mobility Services. (2016). Between public and private mobility: Examining the rise of technology-enabled transportation services. Retrieved from <https://www.trb.org/Publications/Blurbs/173511.aspx>.

²⁶⁵ American Public Transportation Association. (2016). Shared Mobility and the Transformation of Public Transit. Retrieved from <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf>.

²⁶⁶ Ibid.

²⁶⁷ American Public Transportation Association (APTA). (2016). Shared Mobility and the Transformation of Public Transit (Rep.). Retrieved from <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf>.



ones for Washington Park, the Lloyd district, and downtown Portland. Transportation options organizations may be public or private and are found in both urban and rural areas; an example is Commute Options, a nonprofit organization serving central and eastern Oregon.) Ridesharing provides several benefits to users, including personal cost savings (for example, insurance, gasoline), fixed schedules, and road incentives such as access to high-occupancy vehicle lanes. Vanpool vehicles may be provided by individuals, public or private programs, or employers. Individuals who choose to rideshare typically select a common meeting location and travel to a common destination or employment center.

Ridesharing can occur informally, or through ridematching services like Oregon’s DriveLessConnect. DriveLessConnect is a publicly-funded online tool used to connect individuals in both urban and more rural areas with public and private carpools and vanpools, such as those offered by Enterprise RideShare.²⁶⁸ This service is a resource for those interested in ridematching by allowing people to setup and manage their carpool or join an existing carpool.

In Washington State, public and private sector employers are required to facilitate services like ridematching and carpooling to reduce single occupant vehicle trips. The state Commute Trip Reduction (CTR) Law, passed in 1991, requires employers with over 100 employees to develop and implement plans to reduce single-occupant vehicles commute trips. Employer programs include encouraging ridesharing and matching employees for carpools/vanpools, subsidizing transit passes, developing work-from-home programs, implementing parking management policies, and providing infrastructure to encourage biking and walking to work. In addition, the state legislature passed a grant program called the Vanpool Investment Program that provides \$6 million per year to expand vanpool programs, primarily through funding the purchase of vans and subsidizing a statewide transit insurance pool for vanpools.²⁶⁹ The CTR program has reported a reduction of over 154 million statewide vehicle miles traveled since 2007 with over 1,000 worksites participating in the program.²⁷⁰ The program also reports an annual cumulative monthly savings of \$30 million for CTR participants.

TNCs, like Via and Uber, also provide ridesharing services in some markets; TNCs currently offer on-demand transportation services in Oregon, but TNC ridesharing services (where riders heading in the same direction can share the cost of a trip to a common destination) are not yet available in Oregon. These private ridesharing services are currently operating in cities like Seattle and Chicago. They allow users to book and share a ride (and the costs) with others heading in the same direction or to the same destination. Ridesharing via a TNC platform provides users a convenient, fast, and cost-effective form of transportation. Although ridesharing and taxis have been well-established as transportation options, the use of mobile applications has spread its appeal to new, younger users.

²⁶⁸ <https://www.enterpriserideshare.com/vanpool/en.html>. Retrieved 1/19/2017.

²⁶⁹ Washington State Department of Transportation. (2007). 8 CTR 2007 Report to the Washington State Legislature, “Vanpool Investment Program”. Retrieved from <https://www.wsdot.wa.gov/Transit/Grants/vip.htm>.

²⁷⁰ Washington State Department of Transportation. (2016). Commute Trip Reduction Overview Webpage. Retrieved from <https://www.wsdot.wa.gov/Transit/CTR/overview.htm>.



The popularity of TNC services is increasing, for example, in the Portland metropolitan area (including Vancouver, WA), Uber reports that 312,000 riders took more than one trip in the quarter leading up to September 2016; this was a significant increase over the 223,000 such riders in the previous quarter.²⁷¹ Use of TNCs both competes with and encourages transit trips, as the expansion of transportation options has encouraged travelers to give up second vehicles or live entirely car-free.²⁷² These individuals may be more likely to mix in public transportation trips, particularly on high-quality, frequent transit service vehicles, with other private ridesharing services.

Shuttles

Shuttle services are any type of bus service intended to transport passengers typically between two fixed points. Shuttle services are often provided by the private sector to serve particular destinations such as between airports and hotels; sometimes a public agency such as a college may provide a shuttle service to ensure transportation to its campus. Often shuttles both fill a gap in public transportation services and meet a location's specific need, allowing expanded use of public transportation services.

Shuttle services often use passenger vans or large coach buses, and are usually short or medium distance trips taking less than an hour. Shuttles may be open to the public, such as transporting passengers between airport facilities and major transportation hubs or residences, such as the Cascade Airport Shuttle in the Rogue Valley. They may also serve private employers where companies such as Intel or Nike provide service to their employees and visitors between worksites and transportation hubs like MAX light rail stations in Washington County, Oregon.

Nike's world headquarters, located in Beaverton, offers an employee shuttle that circulates through the large campus and connects to the nearest TriMet light rail station. Employees are also offered monthly incentives to use alternative modes of transportation to commute to work, including organized carpools/vanpools, transit or walking and bicycling. Nike employees are eligible for TriMet passes and reserved carpool parking in exchange for recording the number of alternative commute trips they take using Nike's online commute portal. The shuttle service, coupled with incentives and other transportation options, works together to solve the "last mile" problem (the distance between where a rider gets off or on public transportation and their final destination) for Nike employees connecting between public transportation and their workplace. As a complement to public transportation, shuttles help to extend the reach of public transportation investments like MAX light rail, as well as boosting ridership by providing connecting services between destinations and major transit hubs.

Similarly, Apple's Cupertino, California headquarters provides free shuttles to employees to connect its campus to strategic points in the San Francisco metro region, including stops in

²⁷¹ Uber, Oregon Public Affairs Director via email November 2016.

²⁷² American Public Transportation Association. (2016). Shared Mobility and the Transformation of Public Transit (Rep.). Retrieved from <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Shared-Mobility.pdf>.



neighborhoods throughout San Francisco, Santa Cruz, Berkeley, and other cities. Their buses include amenities such as power connectors and Wi-Fi connectivity. The company also encourages private carpool and vanpooling through its Apple Commuter Program, in which each commuter is eligible for up to \$100 per month of their commuting cost. Apple also maintains a database of employees' cars, addresses, and work schedule in order to facilitate ridesharing between employees. Apple's employee shuttles complement public transportation, but also competes for some trips. Many of Apple's shuttle stops are located within walking distance to Bay Area Rapid Transit (BART) stations, allowing employees to take BART and transfer to a shuttle. However, some shuttle stops are also located within residential neighborhoods and provide a "one-seat" ride to employees.²⁷³

Shuttle services are also common on college campuses, such as the Xpress Shuttle at Oregon's Clackamas Community College (CCC), which connects the college campus to major commercial and residential areas, transportation hubs, and connecting the different CCC branches to each other. The CCC shuttle also acts as a transportation demand management strategy in order to reduce the number of single occupancy vehicle trips that are made to the different CCC campuses, reducing the need for additional parking. Public providers also may not experience enough demand to serve campuses outside of typical service hours when many students and staff may attend classes (for example, night classes).

Charters and Tours

Charters and tour services transport people or organizations that have contracted exclusive use of a vehicle intended for travel to a specific destination. Typically, a charter is hired for a flat fee or based on mileage traveled. This type of service is important for providing transportation for people attending same events, such as conferences and tours. Charter services are almost exclusively offered by private providers in Oregon because FTA regulates the opportunity for federal grant recipients to compete with private sector charter businesses. FTA funds cannot be used for charter services.

²⁷³ Community Transportation Association of America. (2012). Success Stories of Employer-Sponsored Transportation Programs. Retrieved from website: http://www.ctaa.org/webmodules/webarticles/articlefiles/2014_SuccessStoriesEmpTranspPrograms.pdf.



Emerging Private Sector Trends and the Future Role of Private Providers in Public Transportation

Evolving technologies and trends in the private sector will impact public transportation in the future. This section reviews some of the major transportation trends occurring in the private sector and the potential implications for the future of public and private transportation.

Public-Private Partnerships

Public resources available to support large infrastructure projects are increasingly scarce, which has led many public agencies to leverage public-private partnerships (P3s) to accomplish public transportation projects. P3s provide a role for both the government and private industry in building transportation infrastructure, which lessens the burden of one party being responsible for all project finances. This type of partnership typically allows projects to be built more quickly, but often privatizes previously public assets and can forgo future potential returns on those assets.²⁷⁴ P3s can also include the maintenance and operation of a transit project; The Regional Transportation District in Denver, Colorado currently has a P3 project in which the rail line will be constructed, operated, and maintained by a private consortium for a set period of time.²⁷⁵

In Oregon, TriMet's MAX Red Line in Portland was developed jointly with Bechtel Enterprises, which funded 23 percent of the extension's project costs. In return, Bechtel received development rights to a 120 acre mixed-use commercial site near the entrance to the airport, which was owned by the Port of Portland.²⁷⁶ The P3 arrangement allowed the Red Line to be funded without federal appropriations, state funds, or increase in property taxes. Innovative P3s like this could become more important to developing major transit capital projects in the future if public funding does not keep pace. However, public agencies encounter significant challenges when contemplating P3 arrangements, due to differing laws in each state around such arrangements, political concerns, and the inherently complicated nature of P3 agreements and legal processes.

P3s are also used for projects of smaller magnitude such as financing mixed use developments on or near transit stations. In King County, Washington, King County Metro has negotiated several P3s for developments that support ridership at major public transportation hubs. In recent years, King County has planned or completed five major transit oriented developments (TODs) at Renton, the Village at Overlake Station, downtown Redmond, and Burien.²⁷⁷ The developments are a mix of residential units with other ground-floor uses like retail, commercial or office space. Developer

²⁷⁴ Organization for Economic Cooperation and Development. (2014). Private Financing and Government Support to Promote Long-term Investments in Infrastructure. Retrieved from <https://www.oecd.org/daf/fin/private-pensions/Private-financing-and-government-support-to-promote-LTI-in-infrastructure.pdf>.

²⁷⁵ Regional Transportation District. (2016). Eagle P3 project website. Retrieved from <http://www.rtd-denver.com/FF-EagleP3.shtml>.

²⁷⁶ US Federal Highway Administration. (n.d.). Innovative Program Delivery Project Profiles – Airport Max Red Line. Retrieved from https://www.fhwa.dot.gov/ipd/project_profiles/or_airport_max.aspx.

²⁷⁷ King County. (n.d.). Transit-Oriented Development. Retrieved from <https://www.kingcounty.gov/depts/transportation/planning.aspx>.



incentives to participate in TODs typically include public agency write-downs of agency-owned property to reduce the costs of development, as well as state and federal housing tax credits. The TODs are co-located with major transit stations and include transportation incentives for residents such as free or subsidized transit passes and bicycle parking. With P3s developers may receive a tax incentive on the cost of the development parcel, or be granted design exceptions to build more residential units or leasable space. In other scenarios, a public agency may enter into an agreement to reimburse a developer for construction costs through taxes captured through a special assessment district. The conditions for P3s in building a TOD are often dependent on real estate market conditions.²⁷⁸

Autonomous Vehicles

Autonomous vehicles encompass a wide range of vehicles that have advanced control systems that navigate a vehicle on a path, avoid obstacles, and interpret signage.^{279,280} Numerous technology and automotive companies, including Google and General Motors, have been designing and testing autonomous vehicles.²⁸¹ While not yet available to consumers, the capabilities of autonomous vehicles have been successfully demonstrated and policymakers are beginning to prepare for the introduction of autonomous vehicles on roadways. While fully autonomous vehicles on public roads will likely occur in the long-term, there are emerging applications for autonomous vehicles in controlled environments in the near term.

Autonomous vehicles will have numerous effects on the transportation network. First, automation will help to avoid traffic collisions caused by human error. Second, autonomous personal vehicles are likely to result in a modest increase in roadway capacity, but could potentially result in increased congestion if the number of vehicles miles or trips increases as predicted by some studies.²⁸² As autonomous vehicle technology progresses (greater integration into the vehicle market could occur as soon as the mid-2020s), consumers are likely to see vehicles as a service, rather than traditional ownership-based models where private individuals make one-off purchases of autonomous vehicles.²⁸³ One mobility model includes the use of autonomous vehicles as taxis. A TNC would have the potential to be always available without the cost of a hired driver.

Autonomous taxis could work on a similar ride-hailing or ride-sharing platform like Uber, Lyft, or Via. This type of service would require a fleet of autonomous vehicles that would be ‘dispatched’ to users who request a ride. These services are likely to be very cost-competitive with car ownership,

²⁷⁸US Environmental Protection Agency Smart Growth Office. (2013). Infrastructure Financing Options for Transit-Oriented Development. Retrieved from <http://ctod.org/pdfs/20130122-TOD-infrastructure-financing-report.pdf>.

²⁷⁹ Throughout this white paper, “autonomous vehicles technology” refers to new non-fixed guideway technologies; it does not refer to autonomous fixed guideway technology, like airport “people movers,” or driverless rail systems.

²⁸⁰ “Connected vehicles” are a related field, but will be addressed in a separate white paper.

²⁸¹ CB Insights. (2016). 30 Corporations Working on Autonomous Vehicles. Retrieved from <https://www.cbinsights.com/research/autonomous-driverless-vehicles-corporations-list/>.

²⁸² Bierstedt, J., Gooze, A., Grey, C., Peterman, J., Raykin, L., & Walters, J. (2014). Effects of next-generation vehicles on travel demand and highway capacity. Retrieved from http://orfe.princeton.edu/~alaink/Papers/FP_NextGenVehicleWhitePaper012414.pdf.

²⁸³ Ibid.



as the lack of a driver could reduce the costs of on-demand autonomous vehicle services.²⁸⁴ These services have great potential to serve the needs of on-demand transit in rural areas, or with patrons needing door-to-door service. Additionally, the potential mobility benefits of autonomous vehicles may compete with trips on traditional public transportation services.

Autonomous buses and shuttles have also been developed and tested. EasyMile, a Northern California based company who designed an autonomous shuttle called the EZ10, has been piloting their driverless shuttles at a 500 acre office park at slow speeds on a dedicated route.²⁸⁵ The EasyMile shuttles demonstrate some of the many capabilities that autonomous vehicles might have as a shared transportation solution. The EZ10 has three modes of operation, including:

- ‘Metro’ mode—The shuttle makes stops at all stations along the route. It follows a set timetable and passengers can get on and off at every station.
- ‘Bus’ mode—The shuttle stops at stations on request. The shuttle will follow a predefined route and passengers can request the shuttle to stop either on the shuttle or at a station.
- ‘On demand’ mode—The shuttle can be requested like a taxi using a smartphone application.

Autonomous buses present significant implications for the future of public transportation. If implemented in the public sector, they could have significant effects on capital costs for the purchase of required infrastructure and vehicles, labor costs due to the reduction in need for drivers, and transformative changes in public provider operations, dispatching, and routing. Personal autonomous vehicles are likely to have equally significant effects on travel behavior and congestion, but, as with autonomous buses, the exact results are difficult to predict and dependent on many factors. Some of the implications of this technology that should be considered include:

- Depending on the business model that emerges, autonomous vehicles may render some transportation services obsolete, while creating markets for new services.
- Potential infrastructure upgrades to accommodate new vehicles (for example, roads, signaling, signage, dedicated guideways) could be very costly.
- The vehicles themselves may be costly, requiring agencies to carefully weigh the benefits and costs of implementing an autonomous fleet; personal autonomous vehicles, if implemented, may also be expensive, limiting market penetration.
- Literature is mixed on the potential effects of autonomous personal vehicles on congestion and mobility.
- Public transportation employees may be affected due to potentially reduced labor needs.

²⁸⁴ Fagnant, D. J., & Kockelman, K. (2015). Preparing a nation for autonomous vehicles: opportunities, barriers and policy recommendations. *Transportation Research Part A: Policy and Practice*, 77, 167-181. doi:10.1016/j.tra.2015.04.003.

²⁸⁵ EasyMile. (n.d.). Shared transportation for the last mile. Retrieved from <http://www.easymile.com/>.



Evolution of Transportation Network Companies

Several TNCs provide digital marketplaces connecting drivers and passengers (for example, Uber, Via) using mobile and web applications. These marketplaces provide on-demand ridesharing and the ability to book and share rides with other users, which are not yet available in Oregon. Another trend in TNCs are ‘luxury’ services, which include bus, van, and black car on-demand transportation. Bridj, a TNC founded in Boston, makes use of high-tech buses outfitted with in-vehicle Wi-Fi and promise riders that they will always have a seat on-board. Bridj allows riders to choose two points within a service area and request a ride days or minutes in advance. Bridj follows the footsteps of the now-defunct Leap, a luxury bus service that operated in San Francisco. Leap mirrored some of Muni’s high-ridership routes and provided buses with high-end amenities including leather seats and on-board food and drinks. Leap declared bankruptcy in 2015 after many issues, including operating without permit from the state of California or the City of San Francisco.

Integration of Private Transportation Providers in Public Transportation Mobile Applications

In considering the role of private transportation providers, most public transit agencies have focused on the providers’ ability to solve the last mile problem. In support of this, several agencies have looked to increase awareness of, and provide easier access to private transportation services, including TNCs. Agencies have engaged in joint-marketing and integration with existing services, such as trip planning and mobile ticketing applications. TriMet’s mobile ticketing app, RideTap, is piloting a feature that allows users to identify other transportation options as part of their trip planning, including Lyft and Car2Go. The ability to pay for and use BIKETOWN bikesharing in Portland, Oregon will likely be included in a future update of the application. Dallas Area Rapid Transit (DART) has also integrated private operators into their mobile ticketing application, including Lyft, Uber, and ZipCar. Coordination and communication among private and public providers stands to benefit customers, as well as providers, by boosting ridership on both services, solving last mile issues, and creating a more seamless transportation experience for riders.

These integrations and partnerships focus on providing customers with more last mile options and easier access to those options. Private operator integration has also aided in helping customers find transportation alternatives during planned and unplanned transit outages. Integrating payment systems (that is, enabling payment for public and private transportation services in a single transaction) is also a growing service offered by transit agencies, however public agencies accepting funds on behalf of private operators, and vice versa, presents significant challenges. In lieu of this, the public agencies and private operators have reached agreements to provide discounts when the two services are used together (for example, discount given on Lyft or Uber when used at a transit stop).



Conclusion and Key Findings

The private sector is integral to the provision of transportation in Oregon and the United States. Privately-operated services connect riders to major employment centers, universities, to cities and towns throughout Oregon, to special events, tourist destinations, and many other key locations. Public agencies often contract with the private sector to provide some public transportation services, resulting in cost efficiencies and the ability to more easily start new services. Technologies and innovations developed in the private sector – like the advent of TNCs, mobile apps, and autonomous vehicles – present opportunities for public agencies to provide services in different ways, improve the rider experience, and create a more seamless transportation system.

However, an overall lack of coordination between the public and private sector may limit the benefits listed above, resulting in unrealized connectivity that is possible between many private and public services. Additionally, not everyone is served by private transportation services. Private transportation services—of all kinds—are generally only available in the more urban and densely populated areas of the state, while many newer private services, like TNCs, are just now increasing their ability to serve riders with disabilities. Finally, the advent of new private services like TNCs and carsharing, and to a greater extent, autonomous vehicles, have enormous potential to affect the transportation system as whole – in short, emerging private sector technologies are likely to have profound effects on the future of transportation, but it is difficult to confidently assess what the exact effects are likely to be.

Additional key findings of this paper are discussed below, beginning with the implications of these findings on the OPTP and state policy.

Implications for Oregon

- A framework for responding to change, in light of rapidly evolving transportation technologies in the private sector, is important for addressing opportunities, challenges, and concerns that may emerge.
- Fostering new or better partnerships between public agencies and the private sector (across all types of transportations services, from workplace shuttles to TNCs) would result in benefits for everyone: private providers could see increased business, public providers could realize reduced costs and better connections for their riders, and riders could benefit from a more seamless and easy-to-use transportation system.
- TNCs are a rapidly evolving transportation service. Presently offered in the Portland urban area, it is possible that expansion to medium-sized or smaller communities in the state will occur (or areas on the “urban fringe”). TNCs present a number of regulatory issues and concerns for communities – the state could help ease the entry of TNCs into new marketplaces by establishing model policy and/or code for communities.



- Pilot projects present an opportunity to implement new models in the public and private sector, for example, using TNCs in the provision of complementary paratransit services. The state has significant experience with implementing pilot projects (for example, the Road Usage Charge Pricing Pilot Project). In some cases, public agencies may lack the financial or technical resources to implement a pilot project and support may be required.
- P3 arrangements represent a potentially promising way of funding (and operating) public transportation services. However, P3 arrangements are often complicated due to state and local regulations. Evaluating policy and regulations that affect P3s could make them easier to implement, while still ensuring that public agencies are not exposed to undue financial risk.
- Intercity bus services, like Greyhound, Bolt Bus, and others, along with contracted intercity services like POINT, provide much of the state’s intercity public transportation. However, some intercity markets are currently unserved or underserved (including some routes that were served in the past but discontinued because private providers found them unprofitable). Regulations governing intercity transportation could be examined for any restrictions on popular or competing routes. Additionally, increased coordination and communication between private and public services, including local public transportation, could improve the transportation experience for riders.
- TNCs present a number of opportunities for public transportation. However, the potential benefits they present could be greater if they served additional markets and enhanced their ability to serve individuals with disabilities.

General Findings

- The proliferation of carsharing, on-demand transportation services, and private ridesharing services through TNCs may serve to increase the number and frequency of travelers using public transportation due to their complementary nature. Research shows that users accessing these services have lower rates of car-ownership overall and are more likely to use all types of non-single-occupant vehicle modes of transportation.
- TNCs, and other technology and software advances like smartphone apps that facilitate fare payment, are private sector developments. Public agencies are partnering with the private sector to take advantage of these developments (like TriMet’s new Hop efare system and smartphone ticketing app).
- Autonomous vehicle technology may significantly impact the operation of transit systems and the overall transportation system. Privately-owned autonomous vehicles are expected to reduce collisions attributed to driver errors and will require less space for travel, since vehicles could travel more closely together. Autonomous or semi-autonomous shuttles could help to expand the reach of transit to previously underserved areas by reducing operating costs and contribute to the first and last mile access to transit. If implemented in the public sector, the technology could have significant effects on capital costs for the purchase of required



infrastructure and vehicles, labor costs due to the reduction in need for drivers, and changes in public provider operations, dispatching, and routing. These new vehicle technologies may even result in entirely new means of transportation, the effects of which are at present difficult to assess. Because of the uncertainty around these technologies, public providers and policymakers will need to actively monitor development in this field and be prepared to respond to change.

- The ability to use TNCs in the provision of DRT service could have profound effects – including reduced costs for public providers and increased ease of use for riders – on the way DRT service is offered by public providers throughout Oregon as TNCs expand throughout the urban areas of the state.
- As private on-demand transportation services such as TNCs, carsharing, and others increase in coverage and use, they expand available transportation options. It is possible that these private services may compete for trips on public transportation systems.
- Contracting with private providers for services offers advantages to transit agencies such as handling logistics and scheduling, as well as reducing the need to budget for replacement vehicles.

Coordination, Communication, and Collaboration

- Coordination and communication among private and public transportation providers is presently limited. Coordination occurs with intercity bus services (for example, ODOT’s POINT service coordinates its schedules with Amtrak), and among some TNCs and public providers (for example, to develop apps that include TNC options for the last mile of transit user’s trips).
- Most coordination efforts occur informally or opportunistically between private and public providers. Fostering collaboration between the many private transportation services operating in the state and public providers (among others) could result in benefits to riders, including more options and seamless connections.

Accessibility and Connectivity

- Private operators often complement public transportation services by serving as the first and last mile connection for public transportation riders, or bridging gaps where public transportation services are not present. In this capacity, they provide essential services in some communities and contribute to the success and ridership of public transportation services in others.
- TNCs and taxis help bridge the last mile for users, and can potentially fulfill demand response trips in areas that are difficult to serve through traditional transit service. However, there are concerns over the accessibility of TNC vehicles, as many do not currently accommodate customers with disabilities. Additionally, TNCs currently operate primarily in urban areas; and rural areas may not have taxi service.



- Private shuttles leverage existing transit investments by operating as last mile solutions from transit hubs to an employment center, universities, or other major destinations.
- Although private providers operate many intercity bus routes in Oregon, public services and agency partnerships like POINT fill in some service gaps where private providers do not operate.

Community and Economic Vitality

- The private curbside bus industry (such as Bolt Bus) is growing rapidly and competing for single-occupant vehicle trips. While curbside services are increasingly important options for travel between major urban centers, these services are limited in Oregon and have not expanded into smaller suburban or rural communities, leaving these populations not served by these private intercity transit services.

Strategic Investment

- Transit agencies are contracting with private providers, particularly for paratransit and demand response trips where private providers may be able to operate more efficiently. However, the ability to contract out these services is limited for some public providers (due to existing agreements and contracts, for example).
- Public-private partnerships are becoming more widespread as an innovative financing tool to fund transportation infrastructure (as well as operations and maintenance in some places), or to build transit-supportive developments.
- Oregon manages its intercity allocation in a manner that allows ODOT to establish service where need is greatest.
- Federal Section 5311 rural intercity funds are critical to providing intercity services, and can be used to leverage private sector resources and funds to increase service where it would not otherwise exist.
- Private providers will continue to play an integral role in NEMT and CCOs; TNCs present an important opportunity to provide service at lower cost and increased ease of use for customers.

Safety and Security

- Though TNCs and taxis present many opportunities for public transportation, there are ongoing concerns about safety and security with these services in many communities, due to differing regulations and safety requirements among states and communities, and difficulties in oversight of contracts.



January 2017



Public Transportation Technology

White Paper

Oregon Public Transportation Plan

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1 Introduction

The Oregon Public Transportation Plan (OPTP) is the public transportation element of the Oregon Transportation Plan (OTP). The OPTP functions as one of several statewide transportation mode and topic plans that refine, apply, and implement OTP goals, policies, strategies, and key initiatives for specific modes. The OPTP will provide a long-range vision and policy framework to help shape the public transportation system over the next 25 years in light of emerging statewide trends, opportunities, and challenges.

The purpose of this paper is to provide an overview of key emerging transit technologies in support of OPTP development. The paper outlines overall technology trends to provide context in which transit technologies are being developed and implemented. Key technologies are then discussed more specifically. The rapid pace of technological change presents certain challenges to public transportation providers. The challenges are then discussed along with strategies to overcome them. The paper concludes by suggesting potential implications for policy in the OPTP and for the state. Interviews with public transportation technology professionals in Oregon, as well as research and staff knowledge, informed the development of this white paper.



2 Overall Trends in Technology

General trends in technology can have a major influence on transportation and provide context in which public transportation agencies operate. Major current developments in technology - and their implications for public transportation – are discussed below.

2.1 The Internet of Things

The Internet of Things (IoT) is a system of interrelated computing devices, mechanical and digital machines, objects, animals or even people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.²⁸⁶ By allowing objects to be sensed and controlled remotely, it creates opportunities for more direct integration of previously disconnected objects, activities, and systems. Experts estimate that the IoT will consist of almost 50 billion objects by 2020.²⁸⁷ This computer-to-computer communication has major implications for public transportation, with the potential to improve system efficiency and target service more accurately to user needs.

2.2 Explosion of Data

In addition to the expansion of Internet-connected automation, the IoT is also expected to generate large amounts of data, require quick aggregation of that data, and create a need to index, store, and process such data much more effectively. IoT is one of the platforms of today's Smart City and Smart Energy Management Systems.²⁸⁸ The additional data generated by interconnected objects such as vehicles, sensors, and smart phones will enable public transportation agencies to understand and communicate with their customers in unprecedented ways, while enabling the agencies to be more transparent to their customers. This potential is further discussed in Section 3. New capabilities will, in turn, create a need for staff and systems to analyze, manage, store, and protect a vast amount of new data. This presents a challenge, particularly for smaller transit agencies.

2.3 Mobile Devices

A **mobile device** is a general term for any type of handheld computer. These **devices** are designed to be hand-held and extremely portable. Some **mobile devices**—like tablets, e-readers, and smart phones—are powerful enough to do many of the things that previously only a desktop or laptop computer could do.²⁸⁹ The proliferation and power of mobile devices presents many opportunities to increase efficiency for public transportation providers and improve the transit user experience. These include improved communication, data collection, mobile payment, and integration of transit with other modes of travel.

²⁸⁶ <https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT>.

²⁸⁷ <https://www.forbes.com/sites/steveolenski/2015/10/20/how-the-internet-of-things-will-transform-high-tech-marketing/#6a914ea52561>.

²⁸⁸ Ibid.

²⁸⁹ <https://www.gcflearnfree.org/computerbasics/mobile-devices/1/>.



2.4 Open Source

Open source software is developed with source code that is designed to be publicly accessible so that anyone can inspect, modify, and enhance it. What started as a term for software has come to represent a broader set of values that encourages collaboration, participation and transparency for software, data, and more.²⁹⁰ While some data is necessarily private – including individual identifiers and business or trade secrets – many public transportation agencies are finding ways to achieve the benefits of open source data while minimizing the risks. Open source software and data allows both the private sector and public agencies to mine a vast array of data and create programs that benefit customers and, in some cases, the agency itself. Transit agencies can publish an application program interface (API), which is a set of routines or protocols that are necessary to allow software development. For example, *Google Maps Transit* uses online transit route and schedule information provided by public transportation agencies and incorporates it into an integrated trip planning tool.²⁹¹ Increasingly, programs and applications are able to interact directly (program to program) with each other and accomplish complex transactions without direct human action or intervention. Open source approaches have the potential to enable agencies to make management decisions that improve the speed, reliability, and cost-effectiveness of the public transportation system.

General transit feed specification (GTFS) is a common format for transit schedules and geographic information. Using GTFS allows public transportation agencies to publish their transit data, including schedules, routes, and bus stops, in an open source format that enables software developers to create applications that use the GTFS data. Examples include way finding and real-time information apps, as well as system maps with links to needed services and information.

2.5 Automated Vehicles

Automated vehicles are those in which at least some aspects of a safety-critical control function, such as steering or braking, occur without direct driver input.²⁹² The Society of Automotive Engineers developed five “levels” of vehicle automation, with Level 1 corresponding to vehicles that can sometimes assist drivers complete some driving tasks (cruise control, for example), and Level 5 corresponding to vehicles that can complete all driving tasks without driver intervention.²⁹³ A fully autonomous car is capable of sensing its environment and navigating without any human input.²⁹⁴ Level 1 and 2 personal vehicles are available on the market today, with car manufacturers testing Level 4 vehicles that could be on the market by the early 2020s. Fully autonomous buses are also operating in several cities around the world, though generally on limited routes or for special purpose trips.²⁹⁵

²⁹⁰ <https://opensource.com/resources/what-open-source>.

²⁹¹ <https://maps.google.com/landing/transit/index.html>.

²⁹² <https://www.nhtsa.gov/>.

²⁹³ <https://www.transportation.gov/sites/dot.gov/files/docs/AV%20policy%20guidance%20PDF.pdf>.

²⁹⁴ https://en.wikipedia.org/wiki/Autonomous_car.

²⁹⁵ <https://gizmodo.com/5-cities-with-driverless-public-buses-on-the-streets-ri-1736146699>.



Automated and autonomous vehicles are being developed, tested, and deployed rapidly. The implications and potential benefits of these technological advances for public transportation are immense, encompassing a range of safety and service improvements. Truly autonomous vehicles could profoundly alter the public transportation landscape, changing the way people interact with transit services. The effects of autonomous vehicles are further explored in the *Private Sector Roles in Public Transportation White Paper* that was produced earlier in this planning effort.

2.6 Shared Use Mobility

Shared-use mobility (SUM) encompasses transportation services that are shared among users. The term describes all shared vehicles and transportation services – including public transportation, taxis, bikes, cars, ridesharing, shuttles, and even parking spaces. transportation network companies (TNCs) represent a subset of shared-use mobility. TNCs provide paid, prearranged rides using a digital platform that connects a potential passenger with a driver using a personal vehicle. TNCs and their implications for public transportation are further explored in the *Private Sector Roles in Public Transportation White Paper* that was produced earlier in this planning effort.

Shared-use mobility has major implications for public transportation, offering people many more options for trip making. These options present opportunities for trip planning and integration with traditional public transportation services – and, in some cases, may disrupt or displace those services.

2.7 Smart Cities

As cities adopt smart technologies, such as those described in this paper, it changes the environment for transit and creates more opportunities. The City of Portland has embarked on such a transformation. It is using the IoT and local proven open source data-sharing and security protocols to implement Ubiquitous Mobility for Portland.²⁹⁶ Through the use of scalable distributed data architecture, mobility options and performance data will be consolidated and accessible to citizens, agencies, and businesses. It will allow people in all modes to buy and sell mobility in a secure environment with transparent pricing. The user-interface will provide accurate data on cost, schedule, and other factors across modes. It will utilize data analytics and improved communications to enhance operations and optimize functionality.²⁹⁷

²⁹⁶ <https://www.portlandoregon.gov/transportation/69999>.

²⁹⁷ <https://www.portlandoregon.gov/transportation/article/564105>.



3 Key Emerging Public Transportation Technologies

In addition to the broader technology trends described earlier in this paper, technologies specific to public transportation are changing the way people interact with transit service, as well as increasing the efficiency of providing that service for public transportation agencies. This section provides an overview of major emerging technologies under the following broad categories:

- Trip planning and passenger communications
- Network planning
- Electronic ticketing and fare collection systems
- Operations and fleet management
- Intelligent vehicles
- Security

The next section summarizes the opportunities and challenges these technologies pose to public transportation agencies.

3.1 Trip Planning and Passenger Communications

A major hurdle for many potential public transportation riders is access to easy-to-understand bus schedules and routes. Technologies to address this challenge are proliferating rapidly, and are ever more available on mobile devices. Websites with scheduling information allow passengers to plan a trip, reduce wait times, and coordinate transfers – even between modes. An ever-increasing number of people have access to the internet, and are using it to get directions and other transportation information. Smart phones are quickly outpacing traditional computers for activities such as directions, and studies have reported that smart phone usage in the United States is higher among populations who are minorities than other groups.²⁹⁸ In addition, conventional public transportation timetables and maps can be confusing to many riders.²⁹⁹ As a result, it is important that public transportation schedule and geographic information be user-friendly and easy to navigate – even for those with limited reading ability or English language proficiency. GTFS enables this type of information to be provided by Google Maps or other third-party mapping applications. TriMet, for example, pioneered the OpenTripPlanner application, which not only maps transit trips but also provides schedule and system information, and integrates bicycling and walking options.³⁰⁰

3.1.1 Real-Time Travel Information

On-board systems, such as next-stop audio, help passengers in unfamiliar areas reach their destinations. Electronic status information signs at bus stops increase certainty for riders and make public transportation more attractive by allowing people to see when the next bus is anticipated to arrive. According to a 2013 American Public Transportation Association (APTA) survey of transit

²⁹⁸ US Census, <1.usa.gov/1Eea24y>.

²⁹⁹ University of south Florida, <https://www.usf.edu/>.

³⁰⁰ <https://www.opentripplanner.org/>.



agencies, over 50 percent of respondents offered real time information to their customers. Agencies typically cited lack of resources or technical expertise as the reason for not offering this information.³⁰¹

Providing this information on mobile devices allows customers throughout the public transportation network to conveniently plan their trip, reduce wait times, and improve transfers. Real time information requires transit vehicles to be outfitted with global positioning system automatic vehicle location (AVL). GTFS real-time is an open source feed specification that allows public transportation agencies to provide application developers with real-time updates about their fleet.³⁰²

In the 2013 survey by APTA, about one-third of transit agencies published APIs that allowed third party developers to create apps with their real-time data for those that did not publish APIs, the main reason many transit agencies cited was existing contract restrictions with third party providers. To be included in Google Maps or other mapping applications, arrival predictions and service advisories would need to be published in an API using GTFS real-time format. Several example open source software products are available using GTFS data, including OneBusAway (available in Seattle, New York, and Atlanta) and Transitime, hosted by Swiftly.³⁰³

3.1.2 Multimodal Trip Planning

Most public transportation trips begin or end with another mode – and increasingly, millennials and others want to consider multiple transportation options. The ability to include other modes, such as bikeshare and TNCs in trip planning software, represents a major opportunity. There is as yet no comprehensive app that includes all modes, although more limited versions exist. One of the barriers to comprehensive multimodal journey planners is the lack of standardized data format for all modes. TriMet has been awarded funding from the Federal Transit Administration Mobility on Demand Sandbox Program to include shared-use mobility on their OpenTripPlanner.³⁰⁴ This type of integration will be increasingly important to keep public transportation service attractive. In addition, it may present opportunities to augment or replace certain types of transit service, including those in areas with more dispersed land use patterns that are harder to serve.

3.1.3 Demand Responsive Transit

Demand responsive transit services (DRT) can be difficult to use due to the need to schedule trips in advance. Several public transportation agencies, including Jacksonville (Florida) Transit Authority, are planning projects to allow DRT services described in GTFS-flex to be included in their OpenTripPlanner. Cambridge Systematics has developed a trip planner, called “1-click”, that includes both fixed route and DRT services and enables matching based on eligibility criteria. It has

³⁰¹ <https://www.apta.com/resources/reportsandpublications/Documents/APTA-Real-Time-Data-Survey.pdf>.

³⁰² <https://developers.google.com/transit/gtfs-realtime/>.

³⁰³ Aaron Antrim/Trillium, September 15, 2016 memorandum to Matt Barnes and Bridget Wieghart.

³⁰⁴ *ibid.*



been implemented in several locations including Broward County, Florida.³⁰⁵ This presents the possibility of additional or alternative service models for certain locations and service types.

3.2 Network Planning

A number of tools offer the ability to improve public transportation network planning by allowing easy integration of additional information and visualization. The Rail and Public Transit Division at ODOT has hired Oregon State University to create an open source, web-based application called the Transit Network Analysis Tool. The software will bring in the entire state public transportation network utilizing the same GTFS data used for trip planning to locate routes and stops, combined with census information for agency analysis. Remix is an example of a privately developed transit planning platform that utilizes GTFS. Used by public transportation agencies around the world, Remix allows these agencies to pull in their existing public transportation networks to quickly evaluate service alternatives. It offers the ability to immediately understand the cost and demographic impact of a proposed route or schedule change. It is easy to use and integrates with existing programs.³⁰⁶ ODOT's Rail and Public Transit Division has purchased access to the "Pro" version of Remix for all public transportation agencies in the state. OSU is also completing research to develop a transit ridership data standard for all Oregon public transportation agencies to follow. This will allow the development of open-source, web-based tools for public transportation agencies, ODOT and others involved in public transportation in Oregon, and will improve data collection and sharing, performance monitoring, and analysis.

3.3 Electronic Ticketing and Fare Collection Systems

The inconvenience of purchasing tickets or lack of understanding of fares can be a barrier to public transportation use. Today, many public transportation agencies already offer online ticket purchases. Tickets may also be purchased on board or at transit stations through various technologies. Electronic transit fare payment systems, enabled by smart card, smart phones, or magnetic stripe technologies, can provide greater customer convenience, and generate significant cost savings by increasing the efficiency of money handling operations.³⁰⁷ Larger public transportation systems, including those in New York City, San Francisco, and Seattle, have implemented electronic fare payment systems.

Currently, TriMet offers electronic ticket purchases online and by smart phone. In 2017, the agency will launch a new, system wide efare system, Hop Fastpass, which takes a technological leap forward to contactless payment. It will utilize a smartcard with payment activated by tapping it on a reader. It is built using open architecture, designed to make adding or modifying elements easy, so that it will be possible to include other agencies in the system. At opening, in addition to TriMet, the Hop Fastpass system will include C-TRAN (the transit agency for Clark County, WA) and

³⁰⁵ <http://oneclick-broward.camsys-apps.com/en/users/199247/trips/new>.

³⁰⁶ <https://www.getremix.com/>.

³⁰⁷ https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.



Portland Streetcar.³⁰⁸ ODOT is working with other transit agencies to complete the planning necessary to enable them to join in the future. In the longer term, these types of payment systems could also include other mobility providers, such as Uber and Lyft, although there are potential issues around mixing public agency and private company transactions within the same application.

Electronic payment systems, while offering numerous customer and agency benefits, have also raised equity concerns, including the lack of a smart phone, a bank account, or difficulty in understanding new systems for certain riders. For example, TriMet performed a comprehensive equity analysis of its Hop Fastpass program to understand any disproportionate burdens that may occur and mitigate these impacts.³⁰⁹ Mitigation measures include maintaining the ability to purchase paper tickets and receive paper transfers at no added cost, reducing the price of obtaining Fastpass cards from the originally proposed fee, and providing training and technical assistance on how to use the new system.

3.4 Operations and Fleet Management

Implementation of AVL and computer-aided dispatch (CAD) systems can improve public transportation system reliability, coordinate transfers, and reduce passenger wait times. Data from AVL/CAD systems and automatic passenger counter systems and other technologies can assist in the planning of new and modified public transportation services. In-vehicle self-diagnostic equipment can automatically alert maintenance personnel of potential problems.

3.4.1 Automated Vehicle Locators/Computer Aided Dispatch

AVL and CAD systems facilitate the management of public transportation operations, providing up-to-date information on vehicle locations to assist transit dispatchers as well as inform travelers of bus status. AVL, combined with dispatching and reservation technologies, facilitates the implementation of flexible public transportation routing and scheduling. Many agencies have implemented these types of systems and also use the information they provide in route planning.³¹⁰ The cost of demand-responsive operational software and computer-aided dispatching systems can range from \$10,000 to greater than \$50,000 per deployment.

Low-end systems can facilitate scheduling, accounting, and report generation activities. Higher-end systems provide more advanced transit demand management features including automated passenger registration, real-time trip scheduling, communications with digital mobile messaging systems, and data exchange with geographic information system and AVL fleet management systems. More advanced systems could be used to coordinate service within or between public transportation agencies. The more advanced applications present more challenges, including on-going maintenance, upgrades, and staffing requirements, and have not been broadly deployed due to the costs and complexity.³¹¹ Additionally, some of these systems are not open source;

³⁰⁸ Interview with Tim McHugh, TriMet, September 2016.

³⁰⁹ <https://trimet.org/pdfs/equity/2016-fare-equity-analysis>.

³¹⁰ https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.

³¹¹ <https://www.itscosts.its.dot.gov/ITS/benecost.nsf/ID/78B1282BE4E0574885256DD700505A33?OpenDocument&Query=CApp>.



meaning they are typically more expensive while less transparent and readily adapted and modified.

3.4.2 Automated Passenger Counters

Automated Passenger Counter (APC) systems are electronic machines that count the number of passengers that board and disembark at every bus stop. They, together with AVL systems, have traditionally formed the two most important technologies that public transportation systems seek first. In systems that have them, they replace the schedule checkers that previously collected ridership information manually.³¹² In addition to use in evaluating service, for larger agencies, ridership information they collect can be used to fulfill National Transit Database reporting requirements. Many public transportation agencies cannot afford AVL and APC systems which cost \$2,500 to \$15,000 each per bus, in addition to the software needed to run the system.^{313,314}

There is potential in the future to obtain rich information regarding passengers and other data using Bluetooth technology. This more sophisticated data collection could inform agencies regarding potential customer demand. However, this data has not yet been accepted as means for documenting ridership.

3.4.3 Signal Priority and Roadway Communications

Transit signal priority (TSP) systems detect approaching transit vehicles and alter signal timing to improve system performance.³¹⁵ Systems can extend the duration or expedite a green signal for an approaching bus or train. TSP detection systems range from \$2,500 to \$40,000 per intersection and \$50 to \$2,500 per vehicle, depending on the need to upgrade signal hardware and software and the type of detection used.³¹⁶ A recent study in Arizona found that TSP decreased bus travel times by 8.2 percent.³¹⁷ More sophisticated systems integrate signal control with transit management operations. These require more advanced Intelligent Transportation Systems (ITS) on-board transit vehicles and can perform more complex transactions, such as calculating whether the bus is ahead or behind schedule and modifying the priority request accordingly. Systems are being piloted that allow for driver interaction. For example, a system could allow a driver to modify a standard treatment request or request priority only when it will be beneficial.

3.4.4 Maintenance

Maintenance monitoring technologies allow for the automatic collection and reporting of vehicle maintenance information. Information can be uploaded at the end of a run, or while in service via wireless communication.³¹⁸ TriMet has a grant application to create an IoT gateway on vehicles so

³¹² <https://www.thoughtco.com/automated-passenger-counting-apc-2798822>.

³¹³ <https://www.thoughtco.com/automatic-vehicle-location-avl-2798823>.

³¹⁴ <https://www.itscosts.its.dot.gov/ITS/benecost.nsf/ID/5A7F0EEBA4F6C5A85257A610065F58C?OpenDocument>.

³¹⁵ https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.

³¹⁶ Alan R. Danaher, et.al, TCRP Synthesis 83: Bus and Rail Transit Preferential Treatments in Mixed Traffic, Transportation Research Board, 2010. <https://www.trb.org/Publications/Blurbs/163890.aspx>.

³¹⁷ Kyoungho Ahn, Hesham Rakha, and David K. Hale, Multi-Modal Intelligent Traffic Signal Systems (MMITSS) Impacts Assessment, U.S. Department of Transportation Federal Highway Administration, 2015. <https://rosap.ntl.bts.gov/view/dot/3557>.

³¹⁸ https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.



that all fitness of fleet infrastructure is connected to it. All systems related to maintenance would be actively monitored and the information provided in a single location. This would make it much easier and more efficient for agencies to maintain a state of good repair and avoid breakdowns that inconvenience riders. This approach can be particularly important with rail systems since the disabling of one vehicle can affect the entire line or network.

3.5 Intelligent Vehicles

While intelligent vehicle technologies provide numerous benefits and are used for a variety of reasons in passenger vehicles, the focus of their adoption in transit agencies has been safety. Safety is a priority for transit vehicle expenditures due to limited resources and responsibility to the public. Although bus transit is one of the safest ways to travel, nationwide, in 2011 alone, bus transit properties reported 3,260 collisions, 12,928 injuries, 92 fatalities, and \$483,076,010 in casualty and liability expenses. That amounts to an average of \$8,069 per bus.³¹⁹ As a result, intelligent vehicle technologies shown to reduce the severity and frequency of accidents are being developed and widely deployed on transit vehicles.

3.5.1 Collision Avoidance

Vehicle-mounted collision warning systems (CWS) use a variety of sensors to monitor the vehicle's surroundings and alert the driver of conditions that could lead to a collision. Examples include forward collision warning, obstacle detection systems, and road departure warning systems. Given the moderate costs associated with existing technologies (in the range of several hundred to several thousand per bus, depending on the capability), and the noted safety benefits, these technologies are widely deployed.³²⁰ Battelle Memorial Institute undertook an analysis of the Transit Safety Retrofit Package (TRP) on three University of Michigan transit buses for the U.S. Department of Transportation. While the TRP on-bus software provided effective alerts and the drivers expressed acceptance of the concept, there was a high rate of false alerts with several of the applications due to the limitation of global positioning system and microwave based crosswalk detectors.³²¹ Eight public transportation agencies in King County Washington are engaged in a pilot where bus mounted visual sensors scan the area and notify the driver if pedestrians, bicycles or other vehicles are in close proximity in time for them to take evasive action.³²² Automated driving technology is rapidly advancing and automobiles are entering the market with systems that not only sense that a collision is imminent but take control of various functions, including braking, to avoid or mitigate collisions. New Jersey Transit and the APTA have submitted a proposal seeking a federal partnership with the goal of applying enhanced collision avoidance technologies to transit buses.³²³

³¹⁹ <https://www.apta.com/resources/safetyandsecurity/Documents/Autonomous%20Bus%20Technology.pdf>.

³²⁰ https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.

³²¹ Battelle Memorial Institute, Transit Safety Retrofit Package Development – Final Report, FHWA-JPO-14-142, 2014.

https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.

³²² <https://www.kingcounty.gov/depts/transportation/news/2016.aspx>.

³²³ <https://www.apta.com/resources/safetyandsecurity/Documents/Autonomous%20Bus%20Technology.pdf>.



3.5.2 Driver Assistance

Numerous intelligent vehicle technologies exist to assist the driver in operating the vehicle safely. Systems are available to aid with navigation. Others, such as vision enhancement, which incorporates data from other sensors, and speed control systems, are intended to facilitate safe driving during adverse conditions. Other systems assist with difficult driving tasks such as transit vehicle docking. These technologies are developing rapidly within the passenger vehicle market. As they become more sophisticated, there will be more applications in public transportation properties. Costs range significantly depending on the capability, from several hundred dollars to \$50,000 or more per bus.³²⁴

3.5.3 Collision Notification

Collision notification systems have been designed to detect and report the location and severity of incidents to agencies and services responsible for coordinating appropriate emergency response actions. These systems can be activated manually (Mayday), or automatically with automatic collision notification, and advanced systems may transmit information on the type of crash, number of passengers, and the likelihood of injuries. These systems have resulted in improved response times and reduction in loss of life.³²⁵

3.5.4 Positive Train Control

Positive Train Control (PTC) is a computer-assisted system for controlling trains intended to reduce accidents. PTC uses computers and satellites to ensure safe locomotive operations; for example, PTC systems can stop trains if they miss a signal due to engineer error.³²⁶ In 2008, congress required all Class 1 railroads handling hazardous materials and any with passenger train service to implement PTC over a number of years. It is costly to retrofit railroads for PTC, and the deadline has since been extended.³²⁷ The benefits of PTC include increased railroad safety and the potential for passenger trains to operate at higher speeds, which are presently limited to 79 miles per hour without PTC.

3.6 Security

Advanced software and communications enable data as well as voice to be transferred between transit management centers and transit vehicles for increased safety and security, improved public transportation operations, and more efficient fleet operations. Transit management centers can monitor in-vehicle and in-terminal surveillance systems to improve quality or service and improve the safety and security of passengers and operators.³²⁸ These kinds of technologies tend to be expensive, however, so, despite their benefits, are mostly deployed in larger, urban transit agencies. Security – or the prevention of intentional acts against the transit properties or its

³²⁴<https://www.itsbenefits.its.dot.gov/ITS/benecost.nsf/SingleLink?OpenForm&Tax=Intelligent+Transportation+Systems+Driver+Assistance+In-Vehicle+Monitoring+Safety+%26+Security&Location=Cost>.

³²⁵https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.

³²⁶<https://www.fra.dot.gov/Page/P0358>.

³²⁷<https://www.fra.dot.gov/ptc>.

³²⁸https://www.its.dot.gov/factsheets/ITSJPO_overview.htm.



passengers – has long been a concern of transit agencies. The focus on security in transit has increased since 9/11, making these technologies more relevant to a broader range of transit systems.

3.6.1 In-Vehicle or Facility Surveillance

Video cameras monitor the interior of buses or train cars. Wireless communication can make images available to transit dispatch or transit management centers. Microphones and transmitters can also enable audio surveillance. Automatic vehicle location systems often incorporate silent alarm features, allowing operators to report problems and vehicle location to dispatchers. Basic systems can cost \$10,000 per bus.³²⁹

3.6.2 Remote Disabling

Transit vehicles in distress can be remotely shutdown via wireless communication and control, typically from dispatch centers. This is becoming more prominent in passenger vehicles and trucks, especially in fleets. As of 2013, this technology appeared to have limited deployment in transit agencies, mostly among those with larger fleets.³³⁰

³²⁹ <https://www.itscosts.its.dot.gov/ITS/benecost.nsf/0/8B8C41B27B397636852573E7006B1AFE?OpenDocument&Query=Home>.

³³⁰ https://www.its.dot.gov/deployment_resources.htm.



4 Challenges and Opportunities for Public Transportation Agencies

This section reviews the major challenges and opportunities for public transportation agencies related to existing and emerging technologies and their implementation.

4.1 Awareness of, and Responsiveness to, the Pace of Change

Public transportation technology experts in Oregon interviewed for this paper suggested that a major challenge for public transportation agencies in dealing with technology is the rapid pace of change. The most important first step public transportation agencies can take in preparing for these technologies is awareness: follow technology in industry publications and blogs; watch what other agencies are doing; engage in pilot projects.

Interviewees suggested that, while some of the changes such as the growth in shared use mobility (SUM) may appear to compete with public transportation, agencies should view SUM as an opportunity. New technologies present great opportunities for public transportation and agencies that actively embrace them stand to reap great rewards (though adopting new technologies is a significant barrier, described below). For example, agencies that develop applications that interfaces with or links to other modes and services (like TNCs) can benefit from access to a growing customer base. Failure to do so may lead to attrition of their customer base as more and more people rely on TNCs and other shared mobility solutions. However, agencies have obligations such as providing access to riders with disabilities and will need to ensure that new services also meet such obligations.

It is important to note that some technologies can present barriers for riders. For example, mobile ticketing applications and efare may require that riders have a mobile device as well as a credit or debit card to make purchases. This example illustrates that the needs of disadvantaged riders must be considered in the implementation of these technologies moving forward. (See the OPTP Private Sector Roles in Public Transportation white paper for a further discussion of opportunities and barriers with SUM services.)

4.2 Resources

The public transportation technology experts interviewed noted that most public transportation agencies are stretched for funding and must devote most of their resources to day-to-day operations. Therefore, finding financial resources to adopt, implement, and maintain these technologies is a challenge. Additionally, many public transportation providers, and particularly the smaller agencies, are unlikely to have staff with expertise in this area.

While having in-house expertise is invaluable, agencies lacking those resources can follow what larger agencies are doing. In fact, it may be more efficient for smaller agencies to let larger agencies serve as first adopters and testers and pick up technologies once they are proven. Experts also suggested that agencies seek opportunities to pilot projects.



Collaboration was a common theme heard in interviews. Smaller agencies can band together or can partner with larger ones. Those interviewed strongly encouraged all public transportation agencies to work towards open source platforms, which enable sharing of information both with the public, software developers, and between agencies.

Funding for adoption is a major challenge. The costs to acquire technology can be high and then on-going training of staff, maintenance, and upgrades are required. There are a few programs to help, for example, transit agencies can find some funding sources for pilots and new technologies such as through Federal Transit Administration's research and development program.

4.3 Procurement

Several of those interviewed noted that procurement rules were developed many years ago and are focused on physical products, such as buses. New technologies often require hiring of expertise or purchase of software more akin to staff or ideas than objects. When procuring technology, agencies have tended to issue a single request for proposal for multiple components, even an entire program. This works against innovation and competition. Some smaller agencies have gotten into long contracts for use of proprietary products. Suggestions heard during interviews include revamping the procurement rules, requiring that vendors use open source technologies, and unbundling procurements into individual functions.

In summary, lack of awareness, limited resources, and outdated procurement processes all slow the rate of adoption of new technology among transit agencies. The gap between the rapid pace of technological change and responsiveness by transit agencies presents a serious problem within transit industry. This issue is further addressed in the next section.



5 Implications for the Oregon Public Transportation Plan

The technologies reviewed in this paper as well as opportunities and challenges related to the adoption and implementation of technologies present a number of potential implications for development of the OPTP. An overarching theme is the difficulty the public sector, due to financial and staffing limitations, has had in keeping up with the rapid pace of technological innovation by the private sector. This section broadly reviews potential considerations for the OPTP:

- Awareness of new technologies and their potential benefits was identified as a barrier during interviews with public transportation technologies experts. Sharing of technical information as well as trainings could expand awareness of technologies throughout the state. This would be especially useful for smaller and medium-sized public transportation agencies that lack the in-house staff to keep track of and respond to technology trends.
- Coordination among agencies on new and emerging technologies is currently lacking. Increased coordination, especially between “adopter” agencies (typically larger public transportation agencies) and small agencies could improve the dissemination of technologies to agencies with fewer resources. Partnerships can also allow sharing of resources, providing a financial benefit to those involved. Some coordination is already occurring at the state level through the ODOT Rail and Public Transit Division; for example, it is conducting work to establish open source standards that will allow Oregon agencies to share data and collaborate more easily. It has also hired Oregon State University to develop a statewide public transportation network planning tool. There is additional work to make GTFS for all fixed routes in the state available via Google maps and other third parties.
- Improved coordination among public and private transportation providers could yield benefits in terms of facilitating seamless connections between modes and improving user experience. New technologies, like mobile apps, are now making these connections between public and private transportation services easier, but there are potential issues associated with close coordination and collaboration between public and private providers (for example, sharing of resources or information and mixing private and public funds).
- The state plays an important role with respect to coordination and implementation of technology today. Stakeholders suggested that it should continue and grow in the future. ODOT and the Rail and Public Transit Division are currently engaged in a number of projects and programs that facilitate expansion of certain technologies to providers, or offer technical assistance to providers. For example, the state purchased premium access to Remix (online public transportation planning software) for all public transportation agencies in the state and is offering training on this planning software. As technologies continue to advance more rapidly than transit agencies can keep up, the state’s role in coordinating and providing guidance and expertise to smaller agencies across the state will remain critical.



- Procurement is a barrier to implementing new technologies. Revising state and local procurement processes to enable those that are more geared for on-going software development and maintenance, rather than one-time equipment purchases. In addition, providing “blanket” procurement arrangements that allow public transportation providers access to services in a streamlined manner could help with adoption of beneficial technologies, especially for smaller agencies.
- “Open source” software and technologies are important to ensure transferability of technologies between providers. Many software applications, for example, are proprietary and expensive to license and maintain. Open source alternatives can result in reduced costs, increased transferability, and can facilitate innovation.
- Pilot projects represent an opportunity to try new technologies and ascertain their benefits and drawbacks. Funding or technical support for pilot projects fosters technological advancement and supports adoption of beneficial technologies statewide.
- Funding for technology is a principal barrier to implementation, especially for smaller agencies. Existing and emerging technologies can be costly to implement. In addition to the capital resources for the new technology itself, implementation may require replacement of older equipment or software in associated systems. Additionally, staff with information technology skills is required to utilize and maintain many technologies. Partnerships can facilitate pooling of resources to support adoption.
- With regard to technologies that improve the customer experience, like efare or mobile apps, it is important to recognize that not everyone can access these technologies due to potential barriers like owning a mobile device. Care needs to be taken with implementation of these technologies to avoid disproportionately burdening disadvantaged populations.





Regional Connections

White Paper

Oregon Public Transportation Plan

Introduction and Summary of Key Findings

The Oregon Public Transportation Plan (OPTP) establishes a statewide vision, goals, policies and strategies that encourage working together to promote a seamless public transportation system. Efficiently connecting services offered by neighboring transit providers is essential to providing seamless regional travel opportunities for Oregonians.

The spectrum of partnering strategies for transit agencies as described in research can range from simple inter-agency communication, to informal coordination, to formal collaboration, and sometimes consolidation, as defined in Figure . System consolidation is often not the end goal, and many effective strategies can be found in the middle of the spectrum where partnerships for coordination and collaboration between neighboring systems occur to make regional connections. Even in cases where consolidation of two or more agencies is ultimately desired, national experience indicates that the incremental implementation of coordination and collaboration strategies over time is key to a successful consolidation process.³³¹

For this paper, we focus predominantly on the middle of the spectrum, looking for inter-agency coordination and collaboration strategies that are effective at improving regional transit connections.

OPTP VISION

"In 2045, public transportation is an integral, interconnected component of Oregon's transportation system that makes Oregon's diverse cities, towns, and communities work. Because public transportation is convenient, affordable, and efficient, it helps further the state's quality of life and economic vitality and contributes to the health and safety of all residents, while reducing greenhouse gas emissions."

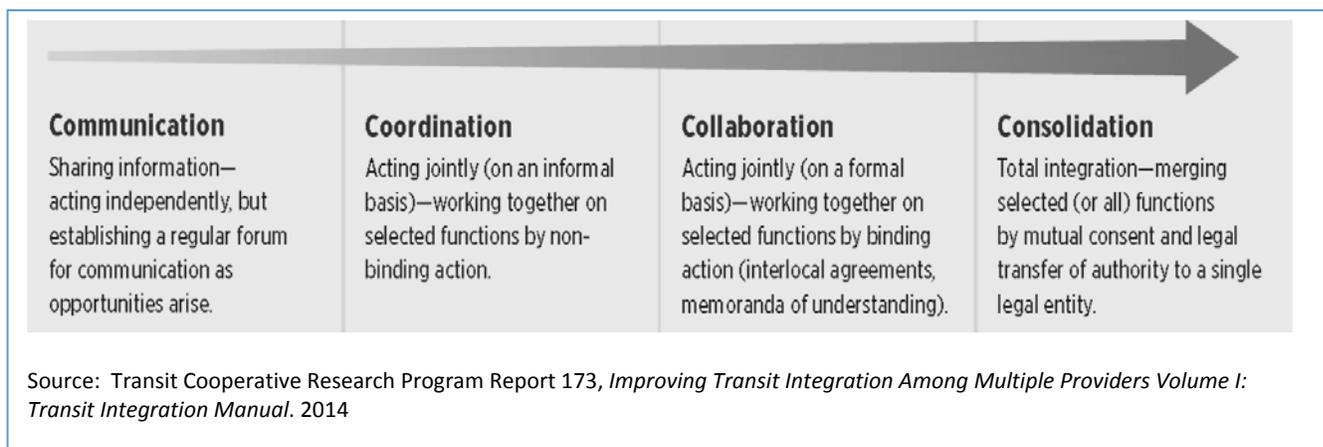


Figure 1. Spectrum of Partnering Options

³³¹ Transportation Research Board, Transit Cooperative Research Program, *TCRP Report 173, Improving Transit Integration Among Multiple Providers*. Washington, D.C.: National Academy of Sciences, 2015.



Purpose

The purpose of this paper is:

- To outline principles of success and lessons learned from national experiences described in literature;
- To describe the specific experiences of several Oregon agencies working to improve regional connections;
- To highlight strategies and implementation considerations for providers statewide, who may be interested in improving coordination with neighboring systems; and
- To outline suggested roles for ODOT in helping to facilitate regional connections statewide.

Method

The project team performed a literature review of guidelines drawn from regional partnering efforts in other areas of the country, looking for principles that have led to long-lasting, successful strategies for coordinating and connecting independent transit systems. The team also interviewed several Oregon providers who are engaged in current and emerging partnerships for regional coordination. Interviews were intended to obtain insight on strategies that have been successful in helping to establish and maintain regional connections, as well as hurdles providers have experienced and connection strategies that still need work.

Summary of Key Findings

Strategies can be categorized as operational or institutional, but one overarching principle applies to nearly all successful regional transit partnerships: successful regional partners are understanding of, and responsive to, the travel needs and desires of potential customers. Every proposal for improving regional connections should consider anticipated outcomes *from a rider's perspective*.

Operational Strategies

- Pulsed connections, where buses meet and linger at a shared stop to exchange passengers, can be effective for regional connections, especially in areas where service frequencies are low.
- Shared corridors can eliminate the need for transfers and can be accomplished by providers trading trips (such as where each operator makes alternating roundtrip runs) or agreeing to have one operator serve the entire corridor in both service areas.
- Fare reciprocity agreements for connecting routes can improve convenience for riders and need not be overly complicated.
- Specific route connections are best accomplished by one-on-one interaction between transit agency staff with in-depth knowledge of each system – typically at the supervisor level.



Institutional Strategies

- When more than two transit providers are involved, or when the implementation of broader regional initiatives is envisioned, a central facilitator is helpful to manage and document group communications, meetings and decisions.
- Partnerships with tribes are useful in rural areas where tribal communities have identified transportation needs in common with other surrounding communities.
- Leveraging the experiences of others who have overcome insular barriers can help potential transit partners get past “turf” issues.

Suggested Roles for ODOT

ODOT is in a unique position to observe the function of the overall transit network at a statewide level. From this broad vantage point, the agency can identify statewide connectivity needs and gaps that may not be immediately apparent to regional planning agencies or individual transit service providers. Principal roles for ODOT in improving system connectivity could include:

- Identifying and analyzing connectivity needs and gaps;
- Identifying potential partners and resources to address connectivity needs;
- Providing policy-level guidance and technical support, to promote statewide consistency and to assist transportation partners with developing and implementing appropriate connection strategies;
- Facilitating ongoing stakeholder input and feedback as statewide connectivity improvements are made.



National Lessons and Guidance

Critical Success Factors for Effective Regional Partnerships

A Transit Cooperative Research Program (TCRP) study of regional coordination practices in six metropolitan areas around the country identified eight lessons that were common to successful partnering efforts.³³² These high-level principles, excerpted from the study report, can also be applied to smaller community and rural providers.

Table 1. Lessons from TCRP Report 173: Improving Transit Integration Among Multiple Providers

Lessons from TCRP Report 173 Improving Transit Integration Among Multiple Providers*	
1.	<i>Prioritize the Customer Experience.</i> Transit provision is first and foremost a service industry. This research found that whether providers were seeking more integration or resisting integration, the underpinning of their rationale was to provide better customer service. This means that any move toward improving transit integration among multiple transit providers must address <i>why</i> changes to the status quo will benefit their passengers, and these benefits must be transparent to all partners involved.
2.	<i>Collaboration Succeeds when Implementation is Incremental.</i> In many cases, coordination efforts were most successful when they evolved gradually over time. Agencies often were not ready to commit to full integration efforts at the start. By working together over time, staff and leaders built trust, established a step-by-step track record of success, and came to understand – and “buy in” to – the benefits of integration. In places where agencies moved quickly, and skepticism has remained, integration has been more challenging.
3.	<i>Strong Local Leadership Is Needed to Sustain an Integration Effort.</i> Local leadership that is committed to the value of integration for its community is important. When that commitment is present, the leadership needs to be involved for the long term, because integration rarely happens quickly. Leaders need to be flexible and willing to change directions if the followers are not behind them as they keep their eyes on the ultimate goal of better service for their constituents; leaders must have a degree of humility to put greater goals before their own. Willingness of large agencies to cede some of the power inherent in their size and put themselves on an equal footing with smaller agencies can be very important to getting and keeping everyone at the table.
4.	<i>Broadening the Pool of Stakeholders Leads to More Widespread Acceptance.</i> Including all key stakeholders and giving them decision-making power in the process proved essential to success in most of the case studies. Further, stakeholders must have equal access to the process, information, and project leadership. A broader decision-making group can have the effect of slowing a project down, but many of these integration efforts could not have been

³³²Ibid.



Lessons from TCRP Report 173
Improving Transit Integration Among Multiple Providers*

accomplished without this “grassroots” approach. Failed attempts prove the rule: where stakeholders have felt excluded or not respected, coordination efforts have faltered.

5. **Create Processes that Develop Trust Among Stakeholders.** Where projects succeeded, cultivating trust and respect among project stakeholders was cited as an important factor. Establishing problem-solving processes or methods that are transparent, inclusive, and effective gives stakeholders and policymakers confidence that, as problems arise, there are systems in place to balance competing interests. Committees need to be representative of all stakeholders involved, with some degree of power to guide projects and a clear line of reporting back to the regional decision-making body.
6. **Maintain a Level of Local Control.** Stakeholders need to determine the baseline components of a coordinated process that cannot be sacrificed. Beyond these baseline components, flexibility can be granted to ensure participants that they can retain some local identity and are not being entirely subsumed into the regional process. This flexibility was used in the case studies in a number of ways: agreeing on minimum performance standards, allowing local control over fare changes, developing cooperative agreements instead of top-down mandates, negotiating formulas to prioritize projects, and creating subcommittees to determine local versus regional details of joint projects. Flexibility can ensure that issues that are primarily local in nature remain in the purview of the local agencies. This is important for long-term working relationships among the stakeholders involved in collaborative efforts.
7. **Set Goals and Document Anticipated Outcomes at the Outset of the Integration Process.** Setting goals and documenting anticipated outcomes—costs, savings, ridership gains—will help to determine whether to stay the course or make changes as the project is implemented. Communicating financial information clearly throughout the project will build trust among participants. Project evaluation is a useful and effective tool to demonstrate the value of the project to decision makers, funding agencies, and the public, and to adjust mid-stream if needed to improve project outcomes.
8. **Benefits May Outweigh Additional Costs Incurred in Integration.** Integration projects do not necessarily result in cost savings and may incur additional costs. Cost reduction is often a primary impetus for working toward transit integration. Many transit agencies have found, however, that integrating transit systems, programs, and services does not necessarily result in cost savings and can in fact lead to increased costs. This is often because successful transit integration requires effort on the part of individuals at all participating agencies over an extended period of time which comes at a cost of time, money, and other resources. Sometimes these are only upfront costs and costs may eventually go down as a result of integration. However, even in cases where projects result in permanently higher costs due to increased project management or ongoing coordination activities, the majority of the agencies studied viewed the benefits of integration efforts as worth the additional costs they incur. In particular, they often cited the more qualitative benefits that cannot be readily measured such



Lessons from TCRP Report 173 Improving Transit Integration Among Multiple Providers*

as a superior passenger experience, improved access to regional locations, and increased public and political support for transit.

* Excerpted and adapted from TCRP Report 173³³³

Experienced project managers will recognize that these elemental lessons are key to successful implementation of nearly any complex project or program, not only regional transit coordination. Not surprisingly, these principles underpin many of the specific methods used by Oregon providers interviewed for this paper to form successful partnerships.

Why Partnering Efforts Sometimes Fail

TCRP provides extensive guidance for rural transit providers in the form of a “toolkit” that, in addition to offering suggestions for effective service coordination strategies, also explores reasons why partnering efforts may not succeed.³³⁴ Keeping these lessons in mind can help potential partners avoid expending significant time, energy and resources with nothing to show for it in the end.

Top reasons why partnering efforts to coordinate transportation services fail:

- **Those attempting to implement coordination strategies do not fully understand the local politics.** Inexperience and political naivete can be a death knell to partnership proposals in situations where hidden agendas exist. Confusing or conflicting statements, misdirection, and withheld information can be red flags that an underlying motive is being masked. A partnership without a foundation of trust is unsustainable, and trust is only possible where honesty and transparency are scrupulously practiced.
- **Institutional support is inadequate.** Visionaries and charismatic leaders can help spark the initial enthusiasm to get a coordination initiative off the ground. However, the “grunt work” needed to successfully implement a partnering effort can be substantial, often requiring significant staff time and/or resources. Without commitments to provide the institutional support needed to establish and maintain a partnership, the chances of long-term success are poor.
- **Expectations are unrealistic.** A corollary to the issue of inadequate institutional support is a situation where partners do not have a realistic grasp of potential benefits or costs. Over-promising and under-delivering can destroy the credibility of the people involved and delegitimize a partnering proposal in the eyes of policymakers and stakeholders. It can be

³³³ Ibid.

³³⁴ Transportation Research Board, Transit Cooperative Research Program, *TCRP Report 101, Toolkit for Rural Community Coordinated Transportation Services*. (Washington, D.C.: National Academy of Sciences, 2004.)



helpful to begin with a period of exploration without commitment, so that adequate information is available for decision-making.

While these cautionary lessons can seem formidable, the intent of including them here is not to discourage potential partnerships, but rather to help transit partners be aware of potential pitfalls so they can better position themselves for success. Many transit agencies have successfully navigated these potential snares to establish effective regional connections for their customers.



Oregon Case Examples and Lessons Learned

NW Connector: Multi-Faceted Regional Connection Strategies



In 2010, a consortium of five transit agencies in northwestern Oregon known as the Northwest Oregon Transit Alliance (NWOTA) were awarded nationally-competitive funds through the US Department of Energy (USDOE), to improve their region’s livability using innovative transit strategies. The Northwest Connector system (NW Connector) has used both operational and institutional strategies to improve regional transit connections between their five counties, and to larger urban centers in the Willamette Valley.

NWOTA member agencies include:

- Columbia County Rider (CCRider)
- Sunset Empire Transportation District (SETD)
- Tillamook County Transportation District (TCTD)
- Lincoln County Transit (LCT)
- Benton County Transportation (BCT)

The initial pilot program was fast-paced and the USDOE grant required immediate implementation of an ambitious menu of regional coordination activities. Pilot funding was generous but covered initial implementation only and did not include funding to sustain the program over the long-term. Originally there was external skepticism that regional connections could be maintained after the USDOE grant expired; however, in the five years since the pilot program concluded in 2013, the continued commitment of the agency partners has kept the NW Connector system in operation. As the system matures, partners are working to extend system routes, improve timed connections, and advance the system’s long-term organizational stability.

The number of regional connection strategies implemented by the NW Connector is too great to cover within the scope of this paper, so we have narrowed the field to a few high-impact initiatives that may have relevance to other areas of the state. Strategies described below for the NW Connector include:

- Select operational coordination examples;
- Regional visitor pass;
- Website concepts; and
- The group’s regional business plan.



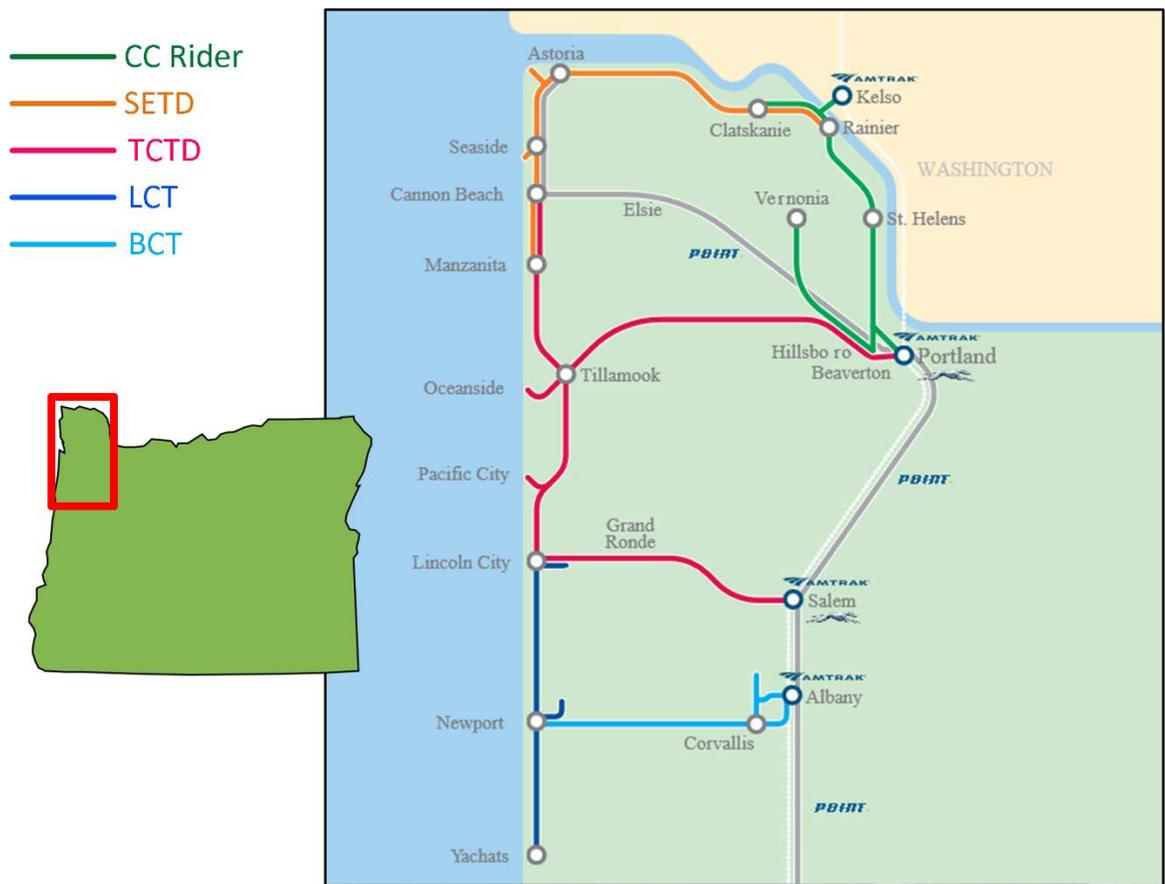


Figure 2. The NW Connector is an alliance of transit providers serving a five-county region in northwestern Oregon.

NW Connector Operational Examples

NW Connector agencies have made improvements to timed connections across each of their common county lines. For this paper, we looked at the specific partnership between TCTD and LCT which has improved connections between Tillamook, Lincoln City, Grand Ronde and Salem.

Tillamook to Lincoln City: Converting Local Routes into a Regional Corridor.

In 2010 when the NW Connector partnership was first formed, LCT and TCTD were both serving a stop location in Otis, near the Tillamook/Lincoln county line. While this made a transfer between their two systems theoretically possible, connections were not timed, making transit travel between Tillamook and Lincoln City largely impractical.

Since then, LCT and TCTD have eliminated the need for a transfer at the county line altogether, dramatically improving the convenience of transit travel between the two cities. TCTD now extends four round trips per day from Tillamook all the way into Lincoln City, and LCT reimburses TCTD's costs for the portion of the route within Lincoln County. The cooperative arrangement has been operating successfully for approximately 6 years.

The two partners have also looked beyond their initial city-to-city connection and have implemented timed (pulsed) connections between the regional Tillamook to Lincoln City route and other local routes on their respective systems. The pulsed connections improve access to Grand



Ronde and Salem for Tillamook County residents who do not live near the regional route. They have had some success; however, challenges remain. A pulse with LCT's North County route has been accomplished in Lincoln City on three of their four runs. Pulsing the regional route's early morning run in Lincoln City with LCT's North County route is not yet practical as the North County route operates with limited stops early in the morning and a route deviation is required to connect with TCTD. Driver availability in the early morning hours has posed an obstacle for resolving this, and the two agencies continue to look for solutions.

Lincoln City to Salem: A New Route to Address a Previously Unserved Area.

To complete a gap in the regional transit network, LCT partnered with the Grand Ronde Tribe to help fund a new route between Lincoln City and Salem, and then retained TCTD as the operator. TCTD operates the "Coastal Connector" route seven days per week with three round trips per day between Lincoln City and Salem. (Monday through Friday, an additional four round trips are provided on just the portion between Grand Ronde and Salem, the "Grand Ronde Express".)

The partners have elected to prioritize a timed connection with Amtrak/Greyhound in Salem. However, the Coastal Connector must leave Grande Ronde by 6:10 am to make the connection with Amtrak/Greyhound, and currently LCT's North County Route does not arrive at Grand Ronde in time for passengers to transfer to the Coastal Connector. This issue is again related to availability of LCT drivers in the early morning hours, and the partners continue to explore potential solutions.

Regional Visitor Pass

Early in the development of the Connector system, a market analysis was performed to gauge the importance of fare reciprocity between the five independent systems. While the analysis showed that there was limited inter-county travel for daily needs (commuting, shopping and essential services), the potential for inter-county travel by visitors to the region was significant.

A visitor pass program was established to help make transit travel for visitors more convenient. A three-day pass can be purchased for \$25, and a seven-day pass for \$30. Both passes allow one round trip between the Willamette Valley and the coast, and unlimited travel within the three coastal counties. Until an online purchase option or mobile ticketing application can be implemented, riders simply purchase the passes from the driver when they board the bus. Pass revenue is currently retained by the transit agency that sells the pass; however, the group is collecting data on where visitor pass trips occur, in case a future cost-sharing arrangement is warranted.

NW Connector Website

When the NW Connector was first launched, a centralized website was created as a place for the group to share progress on the development of their partnership and provided online performance tracking and monitoring information (a requirement of the initial USDOE grant funding). The early site was significantly agency-oriented, and the group has recently revamped their online presence with a new customer focus. An open source plugin was created as part of the Connector website



development that may be used to help make future transit websites less expensive to develop and easier to maintain.³³⁵

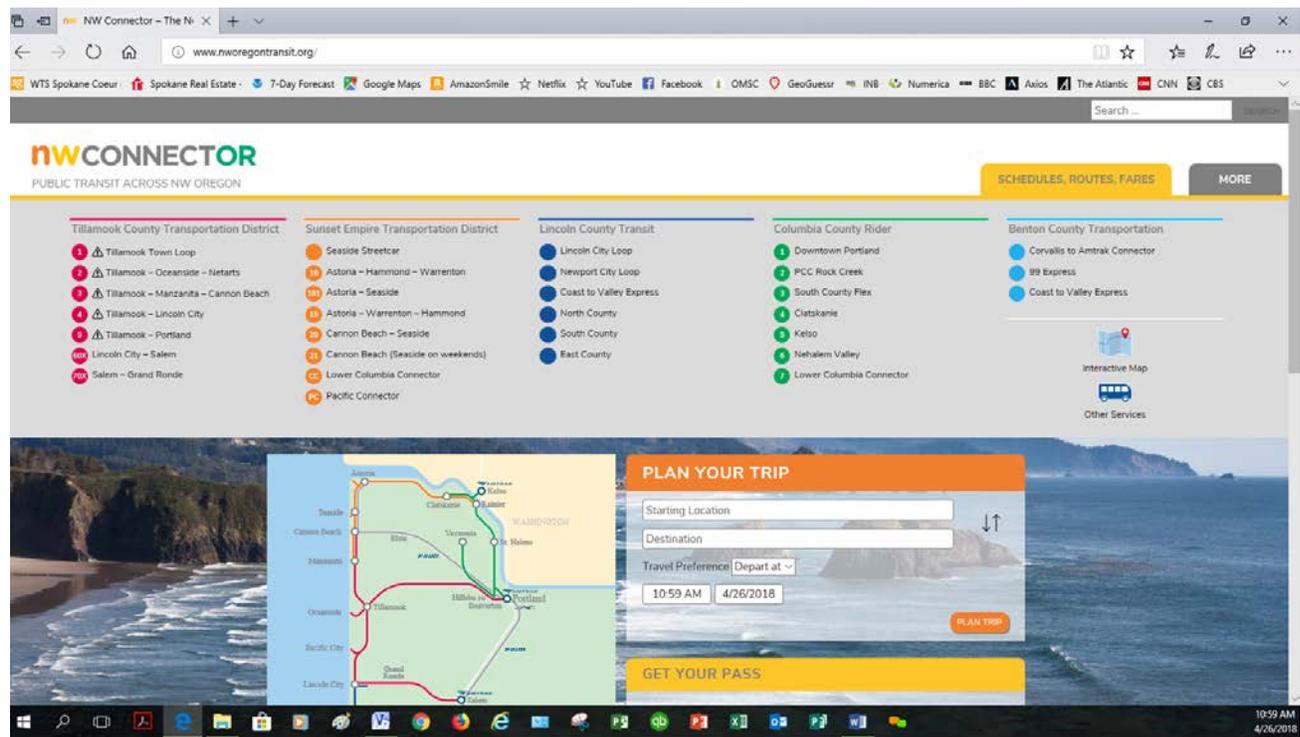


Figure 3. The NW Connector website is eminently user-oriented.

Consistent and Uniform for Agency Partners, Intuitive for Users

The new home page has at-a-glance information on the system overall and trip planner tied to General Transit Feed Specification (GTFS) data.³³⁶ Individual route schedules published by the transit providers are also “one-click” accessible from the home page.

Each partner agency has its own agency-specific page, accessible by clicking on the agency’s logo from the home page. All individual agency pages use a consistent graphic layout, so although the information presented on one agency’s page may differ from another’s page, the user is able to easily locate similar topics throughout.

Maintaining the Website

The site allows password protected access by multiple agencies, with permissions set so that one agency cannot inadvertently alter information on another agency’s page. Information about the overall system and the alliance partnership is centrally maintained by the NW Connector’s administrator (a position jointly funded by the partner agencies to manage monthly partnering meetings and maintain the group’s records.) Agency partners are responsible for maintaining the information presented on their own individual pages.

³³⁵ Trillium, Nome Dickerson. December 20, 2017. *Transit Custom Posts: A WordPress Plugin for Transit Sites*. [ONLINE] Available at: <https://trilliumtransit.com/2017/12/20/transit-custom-posts-a-wordpress-plugin-for-transit-sites/>. [Accessed 25 June 2018].

³³⁶ ODOT provides a centralized GTFS data management program for transit providers statewide that allows trip planning with online services such as Google Transit.



All five transit agencies have moved their online information to the new central website, eliminating the need for each agency to maintain its own site and freeing up resources that can be used to help defray the ongoing cost of hosting and maintaining the new central site.

Overcoming Insular Barriers to the Central Website

Three of the transit providers in the NW Connector alliance are divisions of county governments that have their own online protocols and requirements. Early on, there were concerns by some parent counties that online information for county transit departments would not match how other county information was presented. Transit agencies made the case that a greater public good is served by making transit information consistently accessible across the region. Ultimately, parent counties recognized that it was more important for riders to be able to efficiently access transit information than for the transit agencies to be held to arbitrary and differing standards county-by-county.

Because the individual transit agency partners have different organizational structures, the website was designed to give each partner the ability to define and control their own information on the central website. For example, transit districts with independent governing boards can post board meeting agendas and minutes on the NW Connector site, whereas for county transit departments where the governing body is the board of county commissioners, board meeting information remains on the parent county's site.

Online Regional Marketing Opportunities

NW Connector partners are leveraging their new site to improve joint marketing opportunities. The central website is used to promote the NW Connector system by providing visitor pass information, sample tourist itineraries and highlights of regional travel destinations accessible by transit.

Regional Business Plan

NW Connector partners have an ambitious vision for the future of the system and have expressed a desire to continuously improve. This requires clear priorities as well as the ability to maintain focus and motivation over a long period of time. To help with this, the group undertook a joint business planning effort in 2016. Their process examined their shared values, vision, mission and broad goals; assessed the strengths, challenges and risks associated with their current partnership, and set priority work areas for the group over the next 5 years.

Joint strategies were developed for:

- Governance of the system (including cementing their authority to work together through an intergovernmental agreement (IGA), and enhancing elected oversight)
- Long-range organizational considerations (including studying the potential for future consolidation of one or more individual districts)



- Identification of specific management tools and strategies for near-term implementation, such as:
 - Regional policies and procedures
 - Joint customer service training program
 - Future staff to support the alliance
 - Route coordination protocols
 - Performance tracking
 - Website enhancements
 - Increased elected official engagement

The business planning process culminated in an action item table, which established leadership roles for each proposed initiative and realistic timelines for accomplishing the work. The group updates their action plan table several times annually to reconfirm priorities, maintain forward momentum, encourage accountability and provide continuity as staff changes occur.

Figure 4. The NW Connector Management Plan sets priorities and helps the group maintain forward momentum on joint projects and other regional initiatives.



CONNECTOR ACTION PLAN		Leader	Action Items	Target Completion
GOAL 1: IMPROVE RIDER ACCESS AND CONVENIENCE				
1A	Develop a trip planning tool for the Connector website.	SETD	<ul style="list-style-type: none"> • Select and hire a website contractor • Provide a technical staff contact person to work closely with website developer • Collect and consolidate input from Coordinating Committee members as website is developed • Ensure perspectives of Public Involvement Coordinator and Media Consultant are included as website is developed • Review and recommend Coordinating Committee acceptance of final work products 	2017
1B	Agree on major stops and amenities to be installed with Enhance funding.	ODOT Liaison	<ul style="list-style-type: none"> • Work with Coordinating Committee to confirm the list of stops to be studied with the Enhance grant. • Coordinate with project manager assigned by ODOT to determine the improvements to be installed at each location. • Work with the Coordinating Committee to confirm study recommendations. 	2018



Kayak Public Transit: Leveraging Tribal Resources for Rural Connectivity



In northeastern Oregon, the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) provides connections for many rural communities and regional cities.

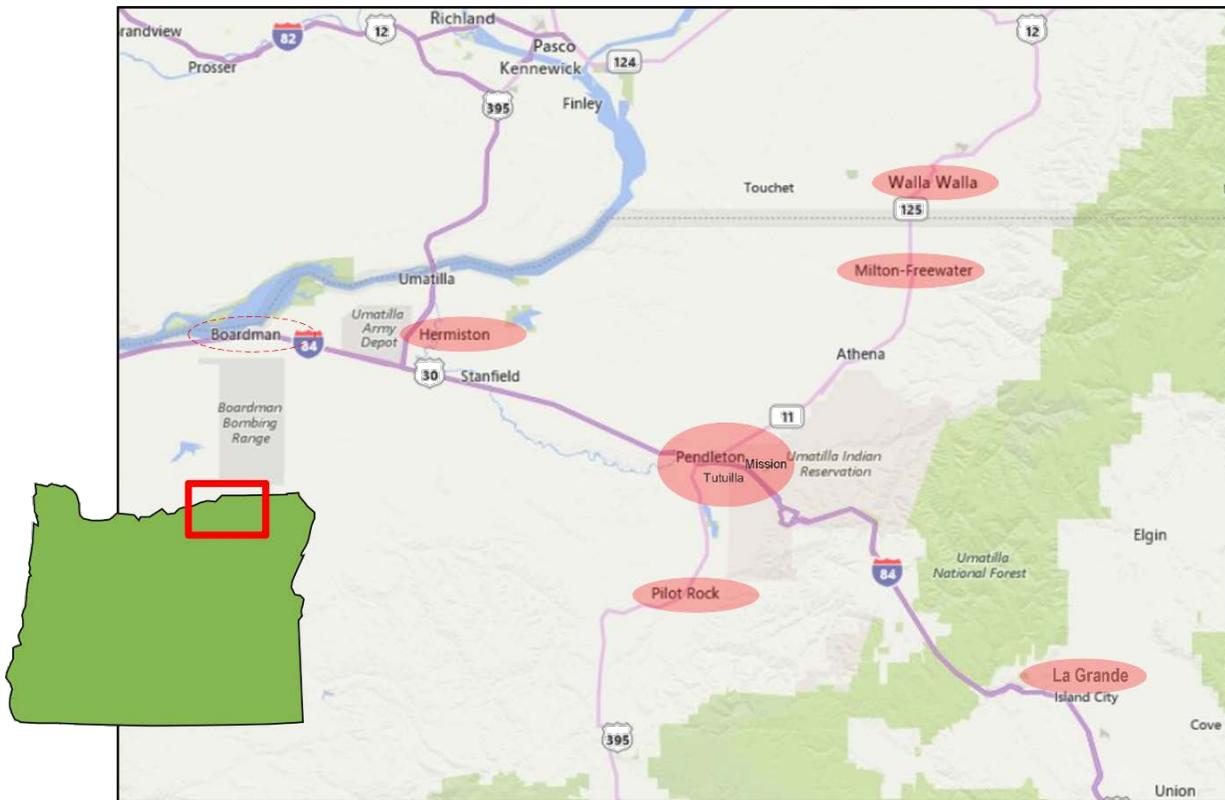


Figure 5. Kayak Public Transit connects the communities of Pendleton, La Grande, Pilot Rock, Milton-Freewater, Hermiston, and other small communities in eastern Oregon, and provides commuter service to the Walla Walla metropolitan area in Washington State.

Kayak Public Transit began as connector service from the community of Mission on the Umatilla reservation to Pendleton, to address travel needs for tribal members who had been hitch-hiking the 8 miles to reach town. Kayak is an example of a system of regional connections that have grown organically through the years, as tribal members desired broader regional connections to communities beyond Pendleton, including Tutuilla, Pilot Rock, Hermiston, LaGrande, Umatilla, and the Walla Walla metropolitan area in Washington State. While the service was initiated to address tribal travel needs, it also fills a critical transportation gap for non-tribal members of the general public in the communities it serves.

Within the region served by Kayak, the only other fixed route operator is the City of Milton-Freewater. All other fixed route services in the region is provided by Kayak. This includes circulator



service for the city of Pendleton, and connections from Pendleton to La Grande, Pilot Rock, Hermiston, Milton-Freewater and Walla Walla. To help make sure the system is meeting regional needs, CTUIR coordinates system plans with surrounding local agencies and human services transportation providers. Recent planning efforts have included a travel shed analysis, coordinated human services transportation plan, and a process to establish regional funding priorities.

Most routes operated by Kayak are inter-city commuter services with three to four weekday round trips. The local fixed route circulator serving Mission on the Umatilla Reservation and the City of Pendleton has six weekday round trips. Some Saturday service is provided on select routes.

Kayak provides pulsed connections with Valley Transit, the metropolitan area provider in Walla Walla, and connections to Greyhound can be made in Pendleton and Hermiston.

Tribal Funding Advantages

Tribes have access to some federal funding that is not available to non-tribal entities. CTUIR has been able to leverage funding from the Federal Tribal Transit Program (along with other state and federal funds and their own tribal funds), to provide regional connections that serve both tribal members and the general public. To date, CTUIR has not required financial contributions from local municipalities. This is a significant advantage for smaller communities with limited resources.

“A few years back, a false rumor began that Kayak’s service was going away. One of our small-town mayors was so concerned that he chased the bus down to tell the driver how important Kayak is to his community.”

-- JD Tovey, *Confederated Tribes of the Umatilla Reservation*

Challenges with Similar Services in the Same Corridor

Kayak’s “Walla Walla Whistler” service provides commuter access to jobs in Pendleton, with four weekday round trips and two round trips on Saturday, stopping in Athena and Milton-Freewater along the way. Schedules on this route are set up assuming Pendleton is the primary commute destination, because a travel shed analysis commissioned by CTUIR indicated there was more travel to Pendleton from the Walla Walla area for jobs than the reverse direction.

At the time that Kayak began providing the Whistler service between Pendleton and Walla Walla, the City of Milton-Freewater had an existing route that also connected their city to Walla Walla. Milton-Freewater’s service has continued to operate, mirroring Kayak’s service in the same corridor with two morning runs and one mid-day run on weekdays. The two providers’ routes are nearly duplicates of each other, although arrival times in Walla Walla are staggered.

Because Milton-Freewater is only 10 miles from Walla Walla, their customers’ travel patterns are likely oriented toward Walla Walla rather than Pendleton; whereas Kayak’s commuter service is designed with Pendleton at the center. Each agency may be serving a different market; however, challenges can still arise with system identification and clarity of information for riders when two operators share the same corridor. Riders must currently go to each website to access separately



published route and schedule information; however, Milton-Freewater and CTUIR provide links to each other’s websites, and both services are visible in Google Transit for trip planning.

Moving Past “Turf” Issues

The advent of Oregon’s new Statewide Transportation Improvement Fund (STIF) authorized under 2017’s Keep Oregon Moving Act (HB 2017) has opened opportunities to improve transit service in many areas of the state. CTUIR has reached out to officials in Umatilla County and also Morrow County to the west, to discuss potential regional connections to Boardman and other unserved areas in these two counties.

Early conversations began with an assumption of separate providers in each county, with a passenger transfer point at the county line. However, policymakers in both counties have since recognized that connecting in community centers makes more sense than transferring passengers at an arbitrary political boundary in the rural hinterland. Both county boards and CTUIR have tentatively determined to work collaboratively on a service plan that makes the most of the new transportation funding to provides efficient access to logical destinations.

Gorge TransLink: Centralized Mobility Management for a Five-County Region



In the Mid-Columbia River Gorge region, five counties have collaborated to establish a central mobility management program to identify community transportation needs and work with multiple transit providers to address those needs. The program, which is staffed by the Mid-Columbia Economic Development District (MCEDD), covers Hood, Wasco and Sherman counties in Oregon, and Skamania and Klickitat counties in Washington.

Fixed route transit providers participating in the partnership include:

- Columbia Area Transit, based in Hood River County
- Mt. Adams Transportation Services, based in Klickitat County
- Sherman County Transit
- Skamania County Public Transit
- The Link, based in Wasco County (shopping shuttle in The Dalles)
- Columbia Gorge Express, a seasonal service for visitors to the Gorge

Additional demand-response and human services transportation providers also serve the region and participate in regional coordination efforts.



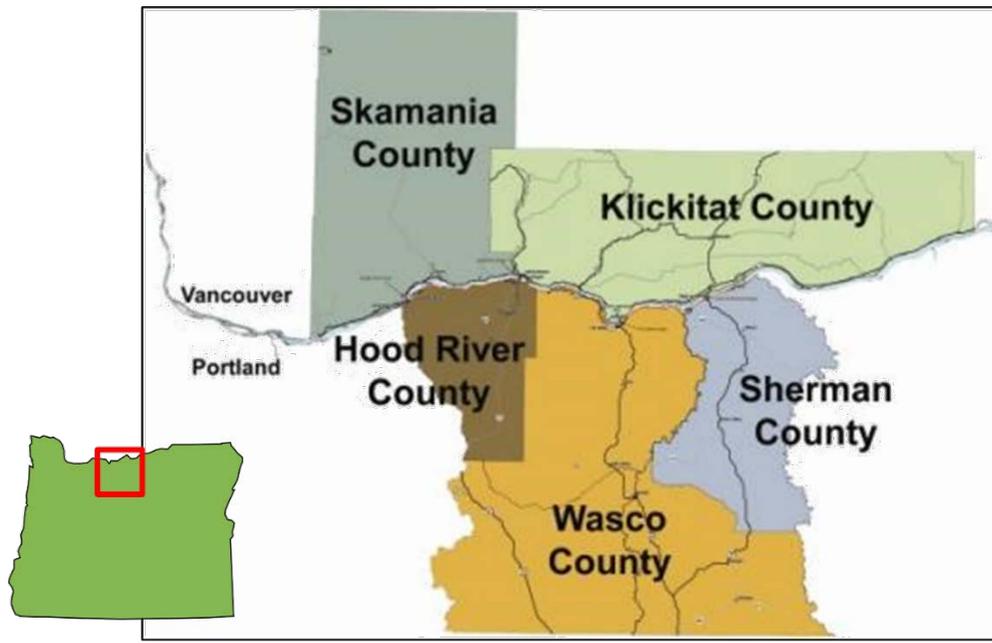


Figure 6. Gorge TransLink is a collaboration of five counties and affiliated transit agencies in Oregon and Washington.

Centralized Mobility Manager Concept

While mobility managers are often found on staff in larger urban areas at transit agencies, city or county departments, health districts, or large urban employers, situations where multiple rural agencies jointly share such a position are still relatively rare in Oregon. The Gorge TransLink region is geographically disparate; however, transportation providers in all five counties recognized years ago that they share overlapping travel markets, as well as the common goal of providing seamless regional travel options for residents, workers and visitors. Because of this, a loose alliance had developed over time, based on informal communication between the transportation providers.

In 2008, the five counties decided that formalizing their partnership and designating a lead agency to help work on regional issues and strategies could strengthen their working relationship. Improving access for regional residents to medical, employment and other community services is the primary purpose of the partnership.

The Mid-Columbia Economic Development District (MCEDD) was selected as the lead agency for this purpose, which, in addition to providing a neutral third-party perspective, also helps to increase awareness of transportation considerations in regional economic development initiatives. Funding from ODOT was secured to hire a mobility manager and MCEDD has a separate memorandum of understanding (MOU) with each of the five counties for management of the partnership.

While regional transit connections are a major focus area, MCEDD also works to improve coordination with human services providers, and improve the quality and availability of public information on regional transportation options.



The role of MCEDD's mobility manager is to facilitate transportation partner meetings and keep records for the group, including an annual work plan that identifies collaborative work areas and priorities. The mobility manager is also tasked with staying abreast of funding opportunities. The arrangement allows MCEDD to sponsor grant applications for projects and initiatives to be implemented jointly by the consortium. Additionally, the mobility manager helps to promote and market transit services and implement other regional and statewide transportation programs.

Gorge TransLink partners meet roughly quarterly. Regional strategies are discussed and prioritized at these meetings and then the affected agencies work in smaller informal groups to implement them.

The mobility management concept is allowing the group to coordinate transfer points and advance several collaborative initiatives described below. The mobility manager is also helping to expand the reach of various statewide programs to local agencies and regional employers.

Mobile Ticketing and Universal Pass Initiatives

Gorge TransLink partners are currently exploring a mobile ticketing option that will let riders in all five counties pay fares with a smart phone app. Coordination meetings are allowing the partners to vet various vendors and select an option that will work for all providers.

Similarly, the group is also examining the potential for a universal pass program, which would let organizations buy passes for their employees or students with one annual purchase. Such a program could lead to new and/or expanded public transportation services. For example, Columbia Gorge Community College has campuses in Hood River and The Dalles and the college currently provides its own private shuttle between campuses. However, the college has expressed an interest in supporting existing public transportation services and getting out of the business of providing transportation themselves. It is thought that a universal pass program could establish a funding stream to help make this happen. The group's mobile ticketing initiative should provide data on where trips using a universal pass are occurring, which may help the group determine how best to share pass revenue.

Incentivizing Regional Commute Options

MCEDD has state contracts to coordinate transportation options programs for Hood River County and Wasco County, and the mobility manager's work is helping to encourage employee transit use.

For example, under Oregon's Drive Less Connect program, large employers can receive a gift card incentive for every 45 transit trips logged by their employees. Those employers that have limited space for employees to park have a built-in incentive for encouraging transit use. However, in other cases where employee parking is prevalent and/or employer staff capacity is limited, employers may be disinclined to take advantage of the Drive Less Connect program to help make transit use a priority. MCEDD helps with the administrative burden of the program so that employees can be encouraged to ride, and employers can be eligible for the gift card incentives. Without the mobility management position, many employers in the region would be unlikely to participate.



Managing Differing Levels of State Support

Gorge TransLink spans areas in two states, adding a level of complexity to the partnership. Oregon and Washington have different approaches to funding public transportation and different levels of institutional support for local transit agencies. MCEEDD's mobility manager helps to work through and resolve issues arising from differences in state programs.

For example, in Oregon, ODOT pays a contractor to support the creation and maintenance of GTFS data for local transit providers and houses this data on a central server where it is made publicly available. There is no comparable program in Washington, so trip planning with online tools such as Google Transit is only theoretically possible for fixed route services in Gorge TransLink's three Oregon counties. The Gorge TransLink partners are planning to resolve this by having MCEEDD's mobility manager be the keeper of GTFS data for fixed route services in the two Washington counties.

Willamette Valley Connections: Long-Standing and Emerging Partnerships

Within Oregon's Willamette Valley, there is a long-standing partnership for express commuter service along the I-5 corridor, connecting Wilsonville and the City of Salem. In addition, another partnership is emerging to connect multiple communities along the Highway 99E corridor from Oregon City to Salem. The following case examples explain how transit partners are making connections to address different rider markets within parallel travel sheds.



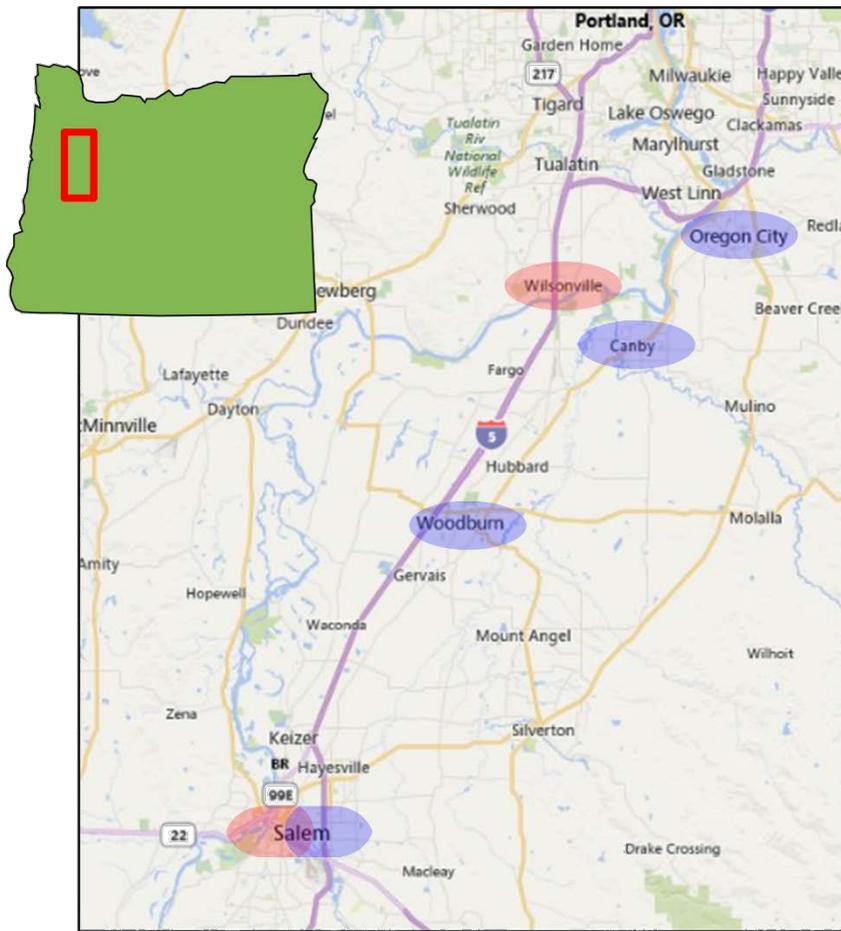


Figure 7. SMART and Cherriots operate a long-standing shared commuter service between Wilsonville and Salem. Canby Area Transit (CAT) is currently working with Cherriots to plan new connections between Oregon City and Salem along the Highway 99E corridor.

Wilsonville to Salem: A Long-Standing Partnership for Commuter Service in the I-5 Corridor



South Metro Regional Transit (SMART) is owned and operated by the City of Wilsonville. One of SMART’s most effective partnerships is with Cherriots (Salem-Keizer Transit) for the 1X route, a shared commuter express service connecting transit centers in Wilsonville and Salem, which operates weekdays along the I-5 corridor.

SMART initially planned, designed and implemented the 1X service for residents of Wilsonville commuting to Salem, and for several years SMART operated the route alone. As time went on, Cherriots recognized that there was also demand for a reverse commute service, for people residing in the Salem area to access jobs in the growing Wilsonville area. Cherriots began coordinating with SMART to add runs of their own, and the two agencies shared the route on an ad-hoc basis until an IGA in 2011 formalized their partnership.



The 1X line now provides 13 daily round trips. Both transit providers run buses on the 1X route, providing direct service between Wilsonville and Salem. SMART currently provides a few more runs per day than Cherriots. The 1X pulses with Tri-Met’s Westside Express Service (WES) commuter rail in Wilsonville, which has 30-minute weekday service, and the partners do their best to achieve timed connections at the Wilsonville and Salem transit centers, where multiple routes are accessible with 15 to 30-minute frequencies throughout the day.

Fares and Revenue Sharing

The two agencies have a simple and straightforward revenue sharing agreement. On-board fares are kept by the agency that collects them. Passes for the route are sold by Cherriots both online and at the Salem Transit center, and pass revenue is shared based on the number of bus runs provided by each operator. The two agencies reconcile pass revenues received on a quarterly basis.

Without a pass, fares for the 1X route are currently \$3 one-way, or approximately \$6 per day. Fares for the routes were established based on the professional judgment of the transit agency staff, after considering fares for other routes within Cherriots service area.

Staff from both agencies can ride free when traveling on official business.

Day to Day Operational Coordination

Staff coordination occurs at the supervisor level, and operational supervisors from both SMART and Cherriots are in constant contact with their counterparts at the other agency. The close working relationship expedites problem solving. For example, in the case of a bus breakdown or accident, the agency closest to the incident can respond or assist, regardless of who’s bus is involved.

Oregon City to Salem: An Emerging Partnership for Connecting Multiple Communities on the Highway 99E Corridor



A study is currently underway to look at options for connecting a string of small cities and suburban communities in the Highway 99E corridor, from Oregon City to Salem. Canby Area Transit (CAT), operated by the City of Canby, currently links Oregon City, Canby and Woodburn with commuter service. Cherriots currently provides limited service between Woodburn and Salem. The current study is examining potential strategies, so for this case the project team focused on some of the potential implementation considerations that partners are encountering during the study and how they are likely to address them.

The market for the 99E corridor is different from the 1X route described above from Wilsonville to Salem. While the 1X connects primary commuter destinations at each end of the route, the 99E corridor connects a string of smaller communities along the route, with shorter distances between them.



CAT recently increased frequencies from Canby to Oregon City to provide 30-minute service, and they have also extended the hours for this connection later in the evening. CAT increased frequencies between Canby and Woodburn to provide hourly service, and they are pulsing with SMART in Woodburn twice in the morning. Riders on the route from Canby to Woodburn, which include students destined to the Woodburn campuses of Pacific University and Chemeketa Community College, are asking for even more frequent service extending further into the evening, similar to service on the Canby to Oregon City leg.

Cherriots' service on the south part of the corridor between Woodburn and Salem is currently less frequent than CAT's. (Cherriots currently has six trips per day from Salem to Woodburn via Highway 99E. Another five trips access Woodburn from Salem via Silverton.) The two transit systems have a single common stop location at the eastern edge of Woodburn, and neither system currently goes into downtown Woodburn. Prior to the advent of their current study, connections at the shared stop were not timed.

CAT and Cherriots are exploring two options for making regional transit travel on the 99E corridor more seamless: Timed connections, or traded trips from Canby to Salem, similar to the 1X partnership between Wilsonville and Salem.

Timed Connection Scenario

A timed connections proposal would involve adjusting CAT's current service between Oregon City and Canby to 30-minute frequencies during peak periods only and reducing to hourly service during off-peak times. This would free up resources to increase service levels between Canby and Woodburn so that CAT's route would have the same service levels both north and south of Canby.

This scenario would also mean that Cherriots would need to increase service in the 99E corridor. Resources for Cherriots to add trips to Woodburn could not be found within their existing program, so the scenario assumes Cherriots would rely on new STIF funding to increase service frequencies between Woodburn and Salem. A tentative goal for this scenario would be to accomplish a timed connection in Woodburn at least four times daily on weekdays.

Traded Trips Scenario

A partnership similar to the shared 1X service between Wilsonville and Salem is being considered for the 99E corridor. Under this scenario, CAT and Cherriots would both operate the entire distance between Oregon City and Salem, trading trips. Trading trips would streamline travel for people who are making longer-distance trips, by removing a transfer at the mid-point of the route.

Service levels under a traded trips scenario could be similar to levels provided with a timed transfer scenario; however, the longer run distances and overall run times for each bus under a traded trips option could require adding a bus (or two) to achieve the same frequencies as a timed connection scenario. Also, CAT and Cherriots do not yet have the same operational relationship that has evolved over many years between SMART and Cherriots for the 1X route, so a traded trips scenario from Oregon City to Salem initially comes with logistical concerns for managing incidents when buses are much further away.



Dealing with Symbolic Boundaries

For most municipal services, such as water, sewer, or waste collection, extending city services to areas beyond the city limits can strain limited resources, creating challenges for elected officials whose primary responsibility is to city residents rather than those who live outside the city.

When considering transportation services, however, a perceived need to avoid spending local taxes and other local funding outside of the service area boundary can be a barrier to making convenient connections. For example, a traded trips scenario might mean that CAT would run twice the distance, but provide only half the number of trips, so the difference in operational cost between the timed connections and the traded trips scenario may not be significant. From a political perspective, however, the presence of a CAT bus in another city a significant distance away may be uncomfortable for policymakers.

A perception that regional connections may carry people away from jobs and services within a city can also be difficult to overcome, even though this concern is not typically borne out when connections are made. The Wilsonville to Salem service in the I-5 corridor described above is an example of where providing a commuter service for residents to reach jobs and other destinations outside the city has also helped to import workers and visitors.

Although the 99E corridor study is not yet complete, there are indications that an incremental approach is likely to prevail in this case. If partners can successfully work out timed transfers in the near term, a traded trip scenario could be reconsidered in future, if appropriate.



Successful Strategies and Implementation Considerations

The spectrum of options for improving regional connections is broad and requires considerable case-by-case judgment.

Regional strategies can be categorized as operational strategies (nuts and bolts concepts for connecting stop locations and coordinating bus arrival/departure times), and institutional strategies (techniques for creating a supportive organizational framework that makes it possible for operational improvements to be made).

The following suggestions are offered, based on national guidance and the specific experiences of Oregon providers interviewed for this white paper.

Top Overarching Principle: It's About the Rider.

Successful regional partners are understanding of, and responsive to, the travel needs and desires of potential customers. Every proposal for improving regional connections should consider anticipated outcomes *from a rider's perspective*.

Without exception, initiatives that have proven successful in the case examples described above addressed the customer experience first and foremost. In some cases, this was done formally, with commissioned studies to examine travel markets, rider needs, and operational alternatives. In other cases, consideration of the customer has been more intuitive, based on the professional judgment of transit operators that something could be made easier or better for the user.

Operational Strategies

Timed Connections: Pulsing

Merely sharing the same stop location does not always provide a realistic connection for the rider. If a transferring rider must wait long periods for the next bus, or if the bus she intends to transfer to departs before she arrives at the shared stop location, the “connection” is not realistically feasible.

Pulsing is an operational strategy that is used successfully by several providers in the case examples described above, to help riders make regional connections from a shared stop location. In a pulse, a bus arrives at the designated stop and lingers there to await the connecting bus(es) so that passengers can be exchanged. A complete pulse allows passengers to make connections in both directions.

The concept is straightforward, but in practice it can be challenging to accomplish. And once established, a pulse requires ongoing monitoring and adjusting to keep it working.



Implementation considerations for a pulse include:

- Partner agencies need operational protocols to handle delays or other incidents that may prevent one of the buses from arriving in time to complete the pulse, so that passengers are not stranded.
- Accomplishing a complete pulse is not always operationally feasible since each connecting route requires a fixed time to make its round trip and may have schedule constraints associated with other timed connections. In some cases, such as during a peak commute period with highly directional travel, a connection that allows passengers to continue travel in only one direction may still be desirable. In other cases, it may be possible to adjust the location of the shared stop to make it work.
- Accomplishing pulses at multiple locations on a given route may not be operationally feasible for the same reasons noted above. Providers should be prepared to prioritize timed connections.
- When a pulse is in place with two or more providers, unilateral schedule changes must not be made. Rather, schedule adjustments become a joint endeavor. Proposed schedule adjustments should be communicated with other providers participating in the pulse *before* they are implemented, so that the domino effect can be understood and hopefully mitigated.
- Fare reciprocity, such as accepting each other's transfers, can help make the pulsed route more convenient for riders.

Shared Corridors

Eliminating the need to transfer is a desirable outcome for any rider. Two shared corridor options are currently used by providers in the case examples above: Traded trips on the 1X corridor from Wilsonville to Salem, and single-operator connections in the NW Connector system from Tillamook to Lincoln City and from Lincoln City to Salem.

Traded Trips

Transfers between two systems can be eliminated when two providers both run buses on the entire route, such as the successful 1X route partnership between Salem and Wilsonville.

Implementation considerations for this concept include:

- Fare reciprocity on the route is needed for traded trips to work effectively.
- Providers should identify and work through potential policy conflicts that could confuse customers, such as differing standards for rider behavior, bicycle accommodation, transport of animals, etc.
- Significant driver pay disparities between providers, or potential employee union concerns may need to be addressed.
- Route and schedule information for all runs in the corridor should appear in information published by both providers.



- Protocols for dealing with bus breakdowns, accidents, driver or rider emergencies, and other incidents when they occur in each other’s service areas can be helpful.
- Route branding should take precedence over individual system branding, so that customers can easily identify the bus, regardless of which agency is providing the run.

Single-Operator, Two Service Areas

Transfers can also be eliminated when two agencies agree to have one operator serve the corridor, as is the in the NW Connector system, where TCTD operates the route from Tillamook to Lincoln City and LCT contributes financially. Many of the same implementation considerations arise as with the traded trips strategy described above; however, there may be fewer rider-related policy issues to resolve with a single operator in the corridor.

Fare Reciprocity

Fare reciprocity, where riders can use one pass for both routes, or where providers will accept each other’s transfer tickets, can improve the convenience of regional connections for customers. Joint fares collected on the 1X corridor between Wilsonville and Salem, and the NW Connector’s visitor pass program provide these implementation considerations:

- Don’t overly complicate revenue sharing.
- A simple process that allows reconciliation of joint fares monthly, quarterly or annually can be set up to work with each agency’s accounting schedule.
- It may be fairest to share revenue based on the number of runs made or miles driven by each provider, rather than attempting to tie fare revenue to ridership numbers.

Institutional Strategies

Central Forum

Implementation of the specific operational strategies described above is best accomplished by one-on-one interaction between people with in-depth operational knowledge of each system. However, when more than two transit providers are involved, or where the implementation of broader regional initiatives (beyond connecting routes operated by two providers) a central forum can be instrumental. In the case examples described above, Gorge TransLink and the NW Connector are both using this strategy to accomplish multiple regional initiatives. Implementation considerations for a central forum include:

- Retain a facilitator. Central forums are most effective when there is a designated staff person to facilitate the group and keep records. Retaining someone in this role who is not on staff at one of the partner agencies can help dispel concerns about potential biases. This can be especially important if the group will be collaborating on regional funding priorities.
- Meet regularly. The dependability of a consistent meeting schedule with a standing date and time can be easier for busy participants to manage and helps promote attendance.



- Prepare a written work plan and don't let it sit on the shelf. A log of action items *and assigned responsibilities for each partner*, reviewed and updated at least quarterly, maintains forward momentum by helping the group track their progress and see their accomplishments over time. A written work plan can also be used to bring new people up to speed, helping to ensure momentum is not lost as individual agencies experience staff turnover. The ability to orient and report out to elected officials and other stakeholders who may be funding the partnership or have an interest in its outcomes is another benefit.

Tribal Partnerships

Tribes can make excellent transit partners. Oregon has nine federally-recognized tribes with access to funding in the Federal Tribal Transit Program. These funds, which have no match requirement, are intended to better connect tribal community residents to jobs, education, healthcare and other services.

Tribal communities often have many transportation needs in common with communities outside but near reservation lands. In Oregon, Kayak Public Transit is one example of how tribal funding is being leveraged to provide regional travel opportunities for tribal members that can also be accessed by the general public. In the NW Connector area, funding provided by the Grand Ronde tribe has been used to pay for service by TCTD, again benefiting both tribal members and surrounding communities.

Reaching out to better understand regional connections that tribal members need can help identify common corridors where partnerships may be possible.

Resolving Insular Barriers

Providers interviewed for this paper offered several strategies when making the case for a broader public good is not enough to get past “turf” issues and other symbolic barriers.

- Focus on benefits of regional travel opportunities for customers within existing service areas.
- Provide policymakers with direct input from their constituents to underscore need for regional travel options.
- Leverage peer examples and bring in agency managers and elected officials from other areas where turf issues have been resolved to speak directly to decisionmakers.

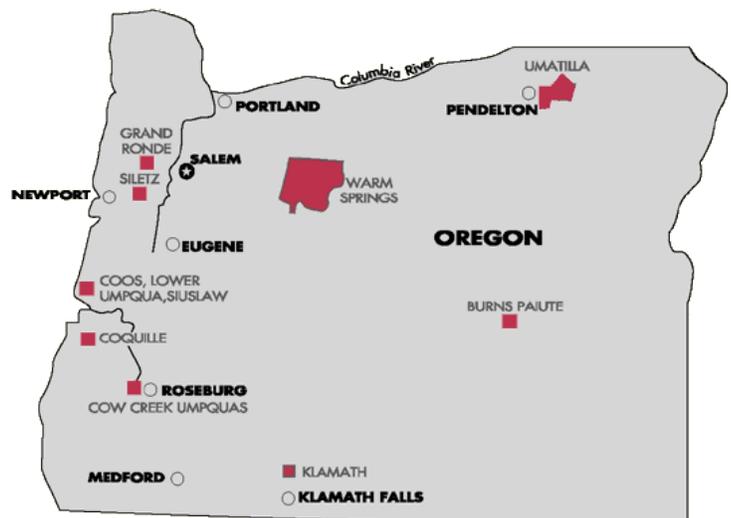


Figure 8. Oregon has nine federally recognized tribes. (Excluding the Fort McDermitt Paiute and Shoshone Tribes on the Oregon/Nevada border).



Suggested Roles for ODOT

ODOT is in a unique position to observe the function of the overall transit network at a statewide level. From this broad vantage point, the agency can identify statewide connectivity needs and gaps that may not be immediately apparent to regional planning agencies or individual transit service providers. Principal roles for ODOT in improving system connectivity could include:

- Identifying and analyzing connectivity needs and gaps;
- Identifying potential partners and resources to address connectivity needs;
- Providing policy-level guidance and technical support, to promote statewide consistency and to assist transportation partners with developing and implementing appropriate connection strategies;
- Facilitating ongoing stakeholder input and feedback as statewide connectivity improvements are made.

Identifying and Analyzing Connectivity Issues

ODOT could play a key role as a central data and information repository and could also develop analysis tools to help identify regional connectivity needs on the overall transit network.

An initial focus on these topic areas would be beneficial:

- *Transit hubs and hot spots.* ODOT should be aware of high-use transit stop locations or clusters of stop locations that are served by multiple (three or more) transit providers. ODOT could monitor travel patterns and rider experiences at these important nodes on the statewide transit network and facilitate regular communication between providers to help ensure a common understanding of customer needs.
- *Underserved communities.* Understanding typical service levels for urban, suburban and rural communities in Oregon could help ODOT to identify population centers that have less transit service than peer communities.
- *Underserved travel corridors.* A comparison of available transit service versus total travel demand in state highway corridors could help to identify those corridors with proportionately less transit service.
- *Physical gaps in the system.* An inventory of areas without transit service altogether, or locations where neighboring systems have stop locations that are close but not connected (for example three miles apart or less in urban/suburban areas, or 10 miles apart in rural areas) could help to identify potential opportunities for new connections. Reports by riders that significant out of direction travel is required to accomplish their trips is another indication that a physical gap may exist in the network.



- *Poorly timed connections.* Analysis of transfer times at stop locations served by two or more transit providers can help to identify where customers currently experience long wait times when making regional connections.
- *Redundant services.* Areas where more than one transit provider offers similar or competing service could be examined to see if efficiencies can be gained through improved coordination between providers or consolidation of service under a single provider.
- *Passenger information gaps.* A lack of high quality, easily accessible and useful information can be a barrier to transit use. Where regional connections are available, a review of where and how information on those connections is made available to customers can help to identify information gaps.

Facilitating Partnerships and Resources to Address Identified Needs

It may be appropriate for ODOT to take a lead role in addressing connectivity needs under two scenarios:

1. When there is no other entity currently providing transit service in or near an area with an identified connectivity need. In this case, ODOT will likely need to lead efforts to convene stakeholders, identify strategies and potential service providers, secure funding and implement improvements.
2. When there are multiple (three or more) providers with the potential to help address a significant connectivity need that affects large numbers of people. In this case, ODOT may need to serve in a lead role by convening and facilitating discussions between potential transit agency partners, or by helping to secure and fund a third-party facilitator.

Between these two extremes, a supportive, rather than leadership role may be more appropriate for ODOT. ODOT could bring identified connectivity issues to the attention of existing transit agencies and provide a process for requesting technical and/or financial assistance in cases where addressing the connectivity issue is beyond the capacity of existing service providers.

ODOT could also develop analysis tools and technical guidance to help partners select appropriate strategies for improving connectivity, and to help gauge the effectiveness of partnering efforts over time. In California, a broad study of public transportation connectivity issues, including research to develop a methodology for evaluating transit connectivity performance, was undertaken by the California Department of Transportation in 2007.³³⁷ This information may be useful as a starting point for the development of Oregon-specific tools and guidance.

³³⁷ Taylor, Brian D., et al. "Tool Development to Evaluate the Performance of Intermodal Connectivity (EPIC) to Improve Public transportation." *California Department of Transportation, 2007*, http://www.dot.ca.gov/newtech/modal/intermodal_connectivity/epic/tasks/tool_development.htm.



Promoting Statewide Consistency

While methods and strategies for improving regional connections will vary based on individual circumstances, there are several areas where ODOT could help to promote statewide consistency.

- **Data and Information.** By ensuring GTFS data is developed and maintained for all fixed route transit providers in Oregon, ODOT has already taken a significant step toward compiling operational data that is useful for transit connectivity gap analyses.

Information from customers about their experiences and needs related to regional connections is also important, but more difficult to capture in a uniform way. Individual transit providers frequently survey their customers to stay abreast of rider needs and issues; however, these surveys are developed independently by each provider. The questions posed, methods for collecting and compiling responses, and data reporting formats vary significantly by provider. ODOT could provide a brief set of standard survey questions geared toward regional connectivity issues and encourage providers to incorporate these questions into their survey processes. A standardized method for providers to use in reporting responses back to ODOT that minimizes the administrative burden for providers would be needed.

Currently, there is an excellent opportunity for ODOT to collect consistently formatted information on travel patterns and behaviors across the state that may be useful for transit connectivity analyses. The Oregon Modeling Steering Committee (OMSC) is developing a strategy for designing and implementing a household travel survey statewide³³⁸. At this time, the OMSC is asking agencies who are interested in participating in the survey effort to provide a summary of their data needs. ODOT may wish to coordinate internally to make sure that household travel information needed for regional transit connectivity analysis can be included as the survey is designed and implemented.³³⁹

- **Policy Level Guidance.** ODOT could provide guidance to new partnerships and can help link interested parties to contacts and resources for existing partnerships.

ODOT could also prepare a checklist to help prompt partner agencies to think through potential policy issues that may need to be resolved to improve a regional connection. Alternatively, ODOT could provide a suggested agreement template that can be easily edited and adapted for use by potential partner agencies.

Topics that could be included in a checklist or sample agreement template are:

- Financial commitments of partners

³³⁸ The Oregon Modeling Steering Committee is a consortium of state and regional agencies that is working to ensure Oregon has the right tools, skills and expertise needed to answer important questions about transportation systems, land uses and economy. For more information, visit <https://www.oregon.gov/ODOT/Planning/Pages/OMIP.aspx>.

³³⁹ ODOT's Transportation Planning and Analysis Unit (TPAU) is represented on the Oregon Modeling Steering Committee's Travel Survey Subcommittee.



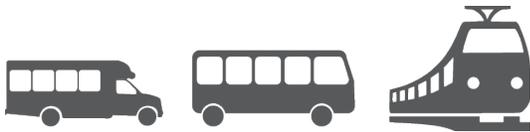
- Revenue sharing (including how fare income will be apportioned between partners and a process for periodic reconciliation of fare revenues)
 - Decision-making process (including how future operational changes or fare adjustments will be coordinated)
 - Marketing of regional connections and rider information
 - Rider amenities to be provided by partners (e.g. on-board wifi, AC power)
 - Holiday service schedules
 - Rider behavior expectations
 - Pets and service animals
 - Bicycle transport
 - Managing emergencies
 - Data collection responsibilities
 - Other operational considerations (e.g. shared vehicles and equipment; stop facility maintenance; procedures to handle delays or stranding of passengers, etc.)
 - Future date for review of partnership
- *Uniform passenger fare experience.* Dealing with different fare systems when making regional connections is inconvenient for riders and working through complex fare reciprocity issues can be a daunting task for potential partners. It may be possible to develop a universal pass program that would help to remove this obstacle to improving network connectivity. ODOT could continue to support efforts that move towards a seamless fare system such as programs that enable or expand use of a shared pass or payment system for travel across multiple transit systems. Regional examples of such a system include the ORCA pass program in Washington’s Puget Sound region that allows travel between seven different transit providers, or the Clipper Card in California’s Bay Area, which accommodates travel across 22 transit providers.

Continued Stakeholder Participation is Key

As the OPTP has been prepared, the use of advisory committees and a significant community outreach effort have demonstrated ODOT’s commitment to providing a practical and relevant plan for transit stakeholders. As ODOT begins to solidify its own role in improving regional connections statewide, continued stakeholder engagement will be essential.

As statewide initiatives move forward, it will be important for ODOT to think through potential impacts for transit agencies and other internal and external stakeholders. ODOT could convene ad hoc teams or stakeholder sounding boards as new initiatives are developed, to help make sure statewide activities that are intended to improve regional connectivity are workable and useful for those who will be directly affected.





Land Use and Transportation Coordination

White Paper

Oregon Public Transportation Plan

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Attachment

A Available Tools



Introduction

The purpose of this white paper is to explore opportunities and barriers to integrating land use and transportation systems and identify methods to: 1) enhance coordination between transit and land use agencies serving the same population and/or geographic area; and 2) improve transit-supportive land use and development requirements. This paper documents broad lessons and advice from consultants, transit authorities, and land use authorities that have familiarity with planning for transit through local Transportation System Plans (TSPs) or long-range transit plans.

The exploration is framed by four long-range plan “case studies”:

- Sunset Empire Transportation District Long-Range Comprehensive Transportation Plan;
- Pendleton Transit and Active Transportation Plan;
- City of Corvallis Transportation System Plan and Transit Development Plan Update; and
- TriMet Service Enhancement Plans.

These case studies represent recent planning projects – all of the plans listed have been completed within the last five years – and represent distinct geographic regions within the State of Oregon. The overview of these planning projects includes a summary of who was involved in each planning process, plan objectives related to implementation, and examples of how the plan guides land use decisions. The contents include key issues brought to light through interviews with participants involved with implementing the plans or who had a part in developing the plans. Individuals interviewed included local land use planners, consultants, and representatives of transit agencies, organizations, and municipal departments. Participants included staff of transit special districts and city staff whose positions include management of city transit services. The case studies provide insight into the relationship between transit development plans and local jurisdictions’ long-range plans, and between the objectives of the transit plan and local implementation through land use permitting.

The second part of the paper summarizes how local governments provide for transit through development requirements and examines existing tools available to strengthen transit-supportive provisions in local land use and development codes.



Key Findings

Key findings of this paper fall into two categories: Coordination, Communication, and Collaboration and Land Use Code Requirements. Findings under Coordination, Communication, and Collaboration are further organized under either “Long-Range Planning” or “Land Use Permitting and Implementation.” Summarized below, key findings reflect the opinions of those who shared their insights regarding plan documents and processes with which they were familiar, as interpreted and recorded by the authors of this white paper.

Coordination, Communication and Collaboration

Long-Range Planning

- The “Keep Oregon Moving” transportation funding package (HB 2017),³⁴⁰ championed by representatives from all modes of transportation, validates and codifies a coordinated planning approach.
- The Oregon Department of Transportation (ODOT) is providing critical guidance, leading the way to more integrated, multimodal planning through long-range policy plans, including the Oregon Public Transportation Plan,³⁴¹ Transportation System Planning Guidelines,³⁴² and the Transit Development Plan Guidebook.³⁴³ This guidance is intended to help local transit agencies and jurisdictions think about transportation in a more integrated way.
- Transit agencies can be effective on local TSP advisory committees. Participation provides an opportunity to advocate for transportation improvements that are consistent with transit needs as part of developing or updating a jurisdiction’s long-range transportation plan. Intimate knowledge of the long-range planning process can also help transit providers evaluate future transportation improvements and make sound determinations regarding the extent to which they are consistent with the adopted plan.
- Involving local land use planners in developing long-range transit plans presents a strategic opportunity for local land use planners to learn about transit needs and to inform and implement development code and ordinance recommendations in the long-range transit plan. (Implementation is further addressed under “Land Use Code Requirements” findings.)
- Long-range transit plans can provide clear direction to local jurisdictions regarding the nature and timing of improvements needed to support transit. Transit authorities are not able to specifically anticipate all services and facilities needed during the time horizon of the plan, nor do they have ownership of the roadway system on which certain improvements are recommended.

³⁴⁰ <https://www.oregon.gov/ODOT/Pages/HB2017.aspx>.

³⁴¹ <https://www.oregon.gov/ODOT/Planning/Pages/Plans.aspx>.

³⁴² <https://www.oregon.gov/ODOT/Planning/TSP-Guidelines/Pages/default.aspx>.

³⁴³ <https://www.oregon.gov/ODOT/Planning/Pages/Guidance.aspx>. The guidebook appendices include a sample Transit Development Plan (TDP) outline and a sample TPD scope of work.



- Transportation development plans can effectively establish thresholds for improvements – “triggers” that will require transit agencies and jurisdictions/roadway authorities’ coordination between land use planning, public improvements, and transit service.
- The Statewide Transportation Improvement Fund, or STIF,³⁴⁴ provides the impetus for local jurisdictions and transit providers to coordinate planning for transit-supportive transportation improvements.
- Concept planning for future urbanizing areas provides an opportunity for the local jurisdiction and transit agency to coordinate, not only to collaborate on planning for land uses and densities and transportation facilities that can support transit, but also through actionable steps to set the programmatic and funding groundwork for future transit service.

Land Use Permitting and Implementation

- It is difficult to generalize, standardize, or replicate practices that will work for every transit agency, transit department, and jurisdiction with land use authority.
- Transit plans do not necessarily include explicit strategies guiding agencies on how to coordinate with jurisdictions with land use authority.
- Regarding notice of proposed developments that can impact transit service or improvements, personal and professional relationships between transit agency staff (or a local jurisdiction’s transit staff) and local land use planners can help establish informal but effective protocols.
- Relationships between transit agency staff and local developers may allow for effective, informal coordination regarding development and needed transit improvements.
- Formal agreements such as memoranda of understanding between transit agencies and local jurisdictions can be effective in delivering transit-supportive projects as part of larger transportation projects. Agreements can document each partner’s role and commitment, leveraging expertise and funding to implement physical improvements in a specific geographic area.³⁴⁵
- A recent collaboration in the Metro area between the transit service provider, a local jurisdiction, and a developer is a model of successfully identifying future ridership needs and determining transit routing and stops in advance of roadway improvements supporting the new development.

³⁴⁴ Section 122 of Keep Oregon Moving (Oregon House Bill 2017) established a new dedicated source of funding for expanding public transportation service in Oregon. <https://www.oregon.gov/ODOT/Pages/HB2017.aspx>; <https://www.oregon.gov/ODOT/RPTD/Pages/STIF.aspx>. As stated in the Oregon Department of Transportation’s Frequently Asked Questions (<https://www.oregon.gov/ODOT/Documents/HB2017-FAQ.pdf>): Keep Oregon Moving will provide over \$100 million per year to improve public transportation services in both rural and urban communities in Oregon. The Oregon Transportation Commission will distribute most of the money directly to transit districts, counties, and Native American tribal governments that submit plans for how they will improve public transportation. A portion of the money will be used for connections between communities. The funding will come with strong accountability and reporting requirements, as well as with requirements to improve service for low income residents who rely on public transportation.

³⁴⁵ An example is a recent memorandum of understanding between the Portland Bureau of Transportation (PBOT) and TriMet to concurrently implement sidewalk improvements and facilitate enhancements to bus service on 122nd Avenue. This is a model that can be replicated elsewhere in the service area.



- Transit provider involvement in local long-range planning and development review can increase the likelihood that the land use and transportation system are coordinated, and transit-supportive improvements are considered, during development review and permitting.
- Enhancing coordination between local planning staff and the transit provider/department as part of the development review is dependent on formal and informal relationships and established protocol, as well as staff availability.
- Increasing the opportunity for, and heightening the expectations regarding, the involvement of transit agencies or departments in land use permitting decisions has an implication for personnel resources. Existing transit agency or transit department staffing may not allow for the desired involvement in the local land use process.
- Current funding for staffing at transit agencies and jurisdictions responsible for overseeing transit planning and operations may not be sufficient to allocate staff time to both long-range projects and current planning proposals where transit may be affected.

Land Use Code Requirements

- The new Transit Development Plan Guidebook acknowledges that long-range transit plans may include transit-supportive amendments to local comprehensive plans and land development codes as an element of their implementation plans.³⁴⁶
- Reference publications such as *Transit in Small Cities* and the *Cool Planning Handbook*³⁴⁷ provide guidance to jurisdictions interested in enabling and promoting transit-supportive land use and infrastructure.
- Codified prerequisites that require notification to transit agencies of proposed land use decisions can help ensure that land use and transit needs are coordinated. It is more effective to have transit agency/department involvement early in the land use approval process so that alternatives and improvements can be discussed that are mutually beneficial to both the development project and transit service. Being a part of the application review process and providing input prior to public hearing and land use decision stages will yield better land use decisions as they relate to transit.
- Transit-related requirements in land use codes are typically triggered by land division, conditional use permits, and design review. Other procedures and tools need to be in place for proposed uses that are allowed outright and not subject to a land use permit, but that may have an impact on transit facilities and/or services not anticipated by the long-range transit development plan (e.g., building permits).
- The number of existing or expected employees at a proposed new development or relocation site would be a useful “trigger” for requiring transit agency involvement and requirements

³⁴⁶ The guidebook introduction identifies comprehensive plan and land use code amendments as implementation items that “could” be included in a TDP, as distinguished from those that “should” be included in a TDP. The reason for the distinction is not overtly stated. The sample scope of work in Appendix D of the guidebook includes development of comprehensive plan and land use code amendments as tasks in the TDP process.

³⁴⁷ Both publications can be found on the State’s Transportation and Growth Management Program website: <https://www.oregon.gov/LCD/TGM/Pages/publications.aspx>.



related to transit. If the transit agency can be involved early in the siting process, it may be able to suggest opportunities to provide new or enhanced transit service to the site.

- A commitment to a timeline for updating local codes and ordinances consistent with the long-range transit plan’s policy and code recommendations can bridge long-range transit planning and current planning at the local level. Actions by jurisdictions with land use authority are key to implementing plan policy and code recommendations through local development requirements.
- Local development code requirements related to transit commonly contain provisions that require discretion in decision-making. Such requirements may be disputed, discarded, or litigated when considered in association with development applications that provide needed housing.³⁴⁸
- Having transit-supportive code is of limited effectiveness if there are not established relationships and routine coordination between city and regional transit service providers and city planning.

³⁴⁸ Pursuant to State Statute, local governments must adopt and apply clear and objective standards, conditions and procedures regulating the development of needed housing. “Needed housing” means all housing on land zoned for residential use or mixed residential and commercial use that is determined to meet the need shown for housing within an urban growth boundary at price ranges and rent levels that are affordable to households within the county with a variety of incomes (ORS 197.303, <https://www.oregonlaws.org/ors/197.303>).



Case Studies

The following four planning projects provide a framework in which to explore coordination between land use and transit authorities:

- Sunset Empire Transportation District Long-Range Comprehensive Transportation Plan;
- City of Pendleton Transit and Active Transportation Plan;
- City of Corvallis Transportation System Plan and Transit Development Plan Update; and
- TriMet Service Enhancement Plans.

The Overview for each case study provides a high-level summary of the plan, including scope and objectives, the geographic planning area, and the adoption/completion date of the resulting plan. Included under Coordination are the jurisdictions and agencies involved in plan development, as well as those with responsibilities related to plan implementation, via future land use planning and permitting. Recommendations and Outcomes identify specific direction the plan provides, potentially via policy or projects, which have a bearing on land use and transportation coordination. Finally, the Implementation section for each case study describes local regulations or practices that were helpful in the development of the plan and/or are currently helpful in its implementation.

Sunset Empire Transportation District Long-Range Comprehensive Transportation Plan

Overview

The Sunset Empire Transportation District (SETD) operates public transportation for the population centers of Clatsop County along the US 30 and US 101 corridors and provides connections to Columbia and Tillamook Counties. The primary jurisdictions in the SETD service area include Clatsop County, Astoria, Warrenton, and Seaside. The smaller communities of Gearhart and Cannon Beach are also in the service area. The SETD Long-Range Comprehensive Transportation Plan (“plan”),³⁴⁹ adopted in 2016, includes recommendations related to changes to routes, schedules, passenger information, transit vehicles, and performance tracking.

Chapter 2 of the plan sets out the context for SETD planning, including an overview of local zoning and comprehensive plan policies from each of the jurisdictions that SETD serves (Land Use, p. 2-16). Positing that transit cannot succeed without a concentration of residents, jobs, and/or customers, the plan finds that the largest communities of Clatsop County include some high-density housing, commercial areas, retail districts, and low-density housing. Figure 2-13 in the plan shows residential densities allowed in the zoning codes; findings state that Astoria’s density metrics all meet or

³⁴⁹ The plan can be viewed at: <http://www.nworegontransit.org/wp-content/uploads/2017/12/SETD-LRCTP-Vol-I.pdf>.



exceed thresholds for 60-minute service, as do most of the moderate or higher density metrics in other jurisdictions (the exception is the intermediate-density zone in Warrenton). The plan also notes attractors in the service area, including a planned regional Walmart.

The plan includes an assessment of local comprehensive plan policies, which evaluated how well adopted plans met the following three best practices for transit-supportive policies:

- Reflect the objectives and recommendations from the SETD Transportation Plan;
- Provide consistency with State transportation planning rules related to transit; and
- Generally support and promote transit in communities within the SETD service area.

The plan documents how existing local policies compare against 11 recommended “model” policies drawn from the Oregon Transportation Planning Rule (TPR)³⁵⁰ and other local TSPs. The plan concludes existing policies do not provide the level of specificity and direction that would support SETD planning efforts.

The review of local development code requirements focused on the following:

- Coordination with transit agencies – during all stages of the development review process.
- Access to transit and transit-supportive facilities – including making walking and bicycling safer and more comfortable.
- Multimodal elements (vehicle parking, bicycle parking, and urban form) – including how other modes of transportation access a development site and support transit.

The plan also includes an assessment of each jurisdiction’s development code language as it relates to recommended “model code” language.³⁵¹ The review revealed limited support for transit in current land use (development code) requirements.

As articulated in Chapter 7, SETD has six goals and 17 objectives guiding transit decision-making. Land use coordination is articulated in the objective to “(m)atch service types to appropriate land use densities,” under Goal 1, Efficiency: Provide cost effective public transportation.

Chapter 8 details the long-term (20-year) vision for each SETD route, including the programmatic support and capital investments needed to support the service. The Summary of Recommended Roadway/Signal Improvements table identifies the applicable agencies/jurisdictions that SETD would need to coordinate with to identify and secure funding for specific improvements. This chapter includes a section describing the role of transit-supportive land use (p. 8-30)³⁵² and the focus on “primary transit corridors” where future investments in service capacity, frequency, and

³⁵⁰ <https://secure.sos.state.or.us/oard/displayChapterRules.action?selectedChapter=124>.

³⁵¹ Based on TPR transit-related benchmarks and language recommended in the State of Oregon Transportation and Growth Management Model Development Code for Small Cities, 3rd Edition.

³⁵² This is also addressed in Vol II, Section E, Memo #3: Land Use and Transportation Needs, Figure 3-2: Characteristics of Transit-Supportive Land Use.



amenities “help support a long-term policy goal of providing service that is frequent enough to be convenient.”

Coordination

The SETD Long-Range Comprehensive Transportation Plan planning process involved both SETD staff and representatives from each of the jurisdictions served by SETD. SETD staff comprised the Project Team and had principal responsibilities in the development of the plan. A SETD Senior & Disabled Advisory Committee member and a SETD Board member sat on the Project Advisory Committee (PAC). Except for Gearhart, all of the jurisdictions in the service area were also represented on the PAC, including local land use planners and public works staff.

Chapter 6 of the plan lists the identified transportation needs in the community. The following items are listed under “Organizational/Coordination”:

- Uses that have located away from major transit corridors require significant deviations and increase travel time for all riders.
- It is necessary to get multiple services to communicate/coordinate and prioritize improvements to the built environment (sidewalks and bike access).
- Transit is not always “at the table” during the development process.

Programmatic Support for the planned system outlined in Chapter 8 features a list of Community Outreach action items. Items include working with major employers (Seaside Providence Hospital, Clatsop Community College, and Columbia Memorial Hospital) to help meet future transit needs and reaching out to seasonal employers (Hallmark and Mo’s) to determine interest in purchasing bus passes for employees. Coordinating with local land use authorities is not specifically identified as part of programmatic support. For example, actions related to employer expansion (such as Columbia Memorial Hospital’s plans) and removing RV parking at locations served by SETD in order to encourage bus trips into town would be subject to local land use regulations and planning department staff review. The description of Transit-Specific Improvements under Capital Improvements in Chapter 8 also includes items that will require some level of coordination related to land use permitting, such as locating new park-and-rides, transit centers, and bus shelters.

While there are no formalized coordination procedures in the plan, land use/transit coordination is regularly occurring in Clatsop County. SETD is tracking development permitting in the county and is participating in land use decisions, actively advocating for transit-related improvements through the development permitting process. Coordination is occurring between SETD and local planners due in part to SETD’s clearly expressed interest in information about land use applications that might impact transit service. Where SETD staff has an established relationship with a community, notification can happen informally, through telephone calls or email, even before public notice of a pending decision. In addition to the important public sector relationships, SETD is also regularly communicating with the development community and actively exploring ways to integrate transit into new projects. SETD staff is also participating in state level planning projects such as the



Transportation System Plan Guidelines update and, previously, the Transit Development Plan Guidebook project and is part of the progression towards more integrated, multimodal transportation system planning.

Recommendations and Outcomes

The SETD Long-Range Comprehensive Transportation Plan recommendations are focused on specific service enhancements (Chapter 8), but also include an intention to focus intensive land uses along corridors. The expectation is that local jurisdictions will focus land use planning, encouraging dense and/or transit-intensive land uses, along identified corridors (Figure 8-21). SETD’s role is identified as providing direction to local jurisdiction engineers and planners about where street rights-of-way should be designed and managed to help maintain transit operating speed and reliability.

The policy and code assessment summarized in Chapter 2 of the plan includes model language that can be used to enhance locally adopted plans and requirements. Part of the intent for providing model policy and code language was to give jurisdictions the opportunity to more fully integrate all modes of transportation into land use decisions. The proposed language illustrates that the land use planning and development process can support transit directly as a mode or indirectly by encouraging other modes, such as connections to transit made by walking and bicycling.

Plan recommendations had direct implications for local long-range transportation planning. Because of the level of growth that Warrenton was experiencing at the time of the plan’s development, specific adoption-ready language was developed for this jurisdiction (Volume II, Section G). This language will be considered as part of the implementation phase of the City’s TSP update. The Gearhart TSP was developed after the adoption of the SETD plan and the two plans are consistent regarding recommended transit improvements in Gearhart. SETD staff serve or served on the technical advisory committees for both local TSP planning projects.

Implementation

SETD staff cited two examples where the plan has provided the basis for transit improvements associated with new development in Warrenton. The first was the new regional Walmart, where the developer paid for a new bus shelter. The second was a negotiated off-site improvement related to a large residential development on an existing bus route, which also resulted in a new bus shelter.

Successful implementation of transit improvements is also occurring as a result of updated local TSPs. In an example in the SETD service area, a development application did not include an improvement associated with a new bus shelter called for in the 2018 Gearhart TSP. SETD identified the shelter as a needed improvement through the development approval process, which was supported by the City’s legislatively adopted local TSP and, thus, was a defensible condition of approval. Since the adoption of the local TSP, Gearhart also has robust transit policies in the



Transportation chapter of the City’s Comprehensive Plan, including policies that require coordination with SETD.

Pendleton Transit and Active Transportation Plan

Overview

The City of Pendleton’s 2016 TSP update specifically focused on active transportation and transit. The update was part of a final periodic review³⁵³ phase for the City’s Comprehensive Plan. The City’s objectives in updating the transit, bicycle, and pedestrian components of the TSP included identifying infrastructure, policy, and programming actions that create a safe and efficient environment for these forms of transportation. The planning process included designing for active transportation modes and exploring opportunities for improving and expanding the existing multi-use trail system, improving access to transit stops, and identifying park-and-ride and/or park-and-pool facilities. The resulting Pendleton Transit and Active Transportation Plan³⁵⁴ includes identified improvements (project prospectus sheets), supportive Comprehensive Plan policies, and transit-supportive modifications to the City’s Unified Development Code (UDC). Transit improvements are detailed in Section 4 of the plan.

Active transportation and transit policies were developed as part of the planning process, consistent with the project goals and objectives and were subsequently adopted by the City, also in 2016. Generally, these new policies supported increasing the opportunities for people to walk, bike, and take transit in Pendleton. The City also updated the UDC (Ordinance 3485) to reflect the outcomes of the TSP update, including:

- Multi-family residential, commercial, industrial, and institutional development requirements to provide pedestrian access to existing or planned transit stops.
- Allowing redevelopment of parking spaces and parking areas for transit-related uses.
- Requiring carpool and vanpool parking spaces in larger employee lots.
- Requiring proposed development adjacent to an existing or planned transit stop to provide for access to and improvements for transit service, consistent with an adopted transportation or transit plan and in coordination with the transit service provider.

Coordination

The Pendleton Transit and Active Transportation Plan planning process was directly guided by an Advisory Committee (AC) and other project stakeholders. The AC was comprised of key stakeholder agencies, including the City of Pendleton, Umatilla County, and ODOT. The project stakeholders included community leaders, local business owners, and residents. Participants included Pendleton’s Finance Director whose responsibilities include overseeing the City’s transit service and

³⁵³ https://www.oregon.gov/LCD/docs/publications/Periodic_Review_Guide_2nd_ed.pdf.

³⁵⁴ Plan is still draft as of this writing, see <http://pendleton.or.us/community-development/tsp-update-pedestrian-bicycle-and-transit> for more information.



the Planning Director for the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) whose department oversees regional transit service.

Kayak Public Transit Services is funded and run by the CTUIR. Kayak provides a fixed-route service to cities and counties in the vicinity of the Umatilla Reservation, located east of Pendleton. Kayak service includes stops in Pendleton at Til Taylor Park, City Hall, and Walmart. While the service is to facilitate travel for Tribal members, Kayak is available to all riders free of charge. The City of Pendleton funds and manages on-demand transit service in the city. The Pendleton Let'R Buck Van service is contracted through a local taxi company and operates from 7:00 am to 7:00 pm, Monday through Friday. The City has applied for two separate State grants that would fund a deviated fixed-route system.³⁵⁵ This service will provide a local counterpart to Kayak regional services.

Because fixed-route transit service is in the planning stages for the City, it is not clear how City service will relate to existing Kayak service. To date there has not been coordination between the regional and local transit providers regarding existing or future services or transit-related improvements. It is also not clear if coordination between land use planning and transit planning is occurring as part of development permitting within the City.

Recommendations and Outcomes

The Transit and Active Transportation Plan includes recommendations pertaining to inter-agency coordination, including a “High” priority project to establish formal quarterly check-ins between the City and Kayak (Table 4-1, Project #T6). In addition to the transit-supportive UDC amendments adopted as part of the Transit and Active Transportation Plan, the City has coordination requirements that can highlight transit needs during development review. Pursuant to the UDC, the City encourages development applicants to schedule a pre-application conference. A pre-application conference is a requirement for subdivisions and partitions. This meeting is held between the developer or developer’s agent and City staff and may include other parties, including “representatives of other public and private agencies affected by the proposed development.”³⁵⁶ Despite this coordination opportunity, historically pre-application conferences have not included Kayak representatives. CTUIR is not routinely contacted to participate in local land use planning actions that may have an impact on the fixed-route ridership or service.

The City’s transit program does not have a full-time staff and is operated out of the Finance Department. It is not current practice to coordinate with the Planning Department regarding future transit service enhancements and land use permitting that may have impacts on the service. Opportunities for interdepartmental coordination may present themselves once grant money is secured and the City finalizes the proposed route for the new deviated fixed-route transit system.

³⁵⁵ As proposed, this service would be very similar to project T-17 and T-18 in Table 4-1 (Transit Projects) in the Transit and Active Transportation Plan. Transit service in the city would involve a City-run bus on a fixed route, with six trips a day, which could deviate with advance request/scheduling.

³⁵⁶ Ordinance 3845, City of Pendleton Unified Development Code, Section 10.05.1 Pre-Application Conference.



Implementation

To date, fixed-route transit service has been limited to Kayak, which is the responsibility of CTUIR and operated for the benefit of Tribal members commuting in areas on the Reservation and in surrounding communities. With a focus on regional connections, service is not extensive in the City of Pendleton. CTUIR is engaged in activities with other transit providers to coordinate service in the region, such as Milton-Freewater transit service and the Morrow County / Port of Morrow shuttle, but to date has not engaged Pendleton on any projects or initiatives.

Assuming that the City's grant funding requests are approved to start a locally-run fixed-route system, there may be more interest in coordinating the regional route with the local route. A fixed-route system may also bring more awareness of the land uses along the City-run route and potential opportunities to implement improvements that are consistent with the Transit and Active Transportation Plan. However, unless the State grants include funding for staffing or other funding for staffing is secured, City coordination both externally (with the regional provider) and internally (with Public Works and Planning) will likely be hamstrung by the lack of City personnel solely dedicated to providing transit service.

Regarding coordination with City land use planning, not all development permit applications have implications for transit ridership. However, development in areas of new growth (such as urban growth boundary amendments) and the (re)location of large employers should be targeted for opportunities to increase transit access and ridership. There may be future opportunities to coordinate land use decisions with both the regional transit provider and the City's transit staff to the benefit of employees. In particular, transit service and improvements coordinated between large employers, Kayak, and the City can be promoted as a significant employee benefit.

City of Corvallis Transportation System Plan Update and Transit Development Plan (in progress)

Overview

The City of Corvallis began the process to update its TSP in January 2015,³⁵⁷ with expected completion in 2018.³⁵⁸ The current TSP was adopted in 1996. The planning project was initiated to address impacts related to growth in the community since that time, including development on the Oregon State University (OSU) campus,³⁵⁹ and to develop plans that provide guidance for how and where transportation facilities and services will be needed to accommodate anticipated growth over the next 20 years.

In conjunction with the TSP planning effort, the City is developing a Transit Development Plan (TDP) that will inform investment in the Corvallis public transportation system. The City does not

³⁵⁷ <http://corvallistsp.org/news/tell-us-what-you-think-about-local-transportation>.

³⁵⁸ <http://www.corvallistsp.org/>.

³⁵⁹ <http://fa.oregonstate.edu/university-land-use/osu-district-plan>.



currently have a long-range transit plan. The Corvallis Transit System is City-run and managed through the Transportation Services office in the Public Works Department, which is within the Engineering and Transportation Division.

Documents produced to date that directly relate to transit and the eventual recommendations in the TDP include:

- Technical Memorandum #8: Existing Transit Conditions and Baseline Performance
- Technical Memorandum #13: Future Transit Conditions
- Technical Memorandum #18: Transit Solutions
- Technical Memorandum #20: Transit System Recommendations
- Corvallis Active Transportation Toolkit

These documents are expected to be included in a technical appendix, or “volume,” as supporting materials to the adopted TSP and/or TDP. The transportation modeling, which was coordinated with ODOT’s Transportation Planning and Analysis Unit, confirms that the growth areas are outside of where transit service exists today. It is not expected that land use designations will be modified through the TSP/TDP planning process. One of the challenges of the TDP will be to develop a phased, financially realistic plan for extending service to new growth areas.

Coordination

The City Council appointed a Steering Committee (SC) to provide a community perspective to the process of developing the TSP update and the TDP. Among other interests, SC members represent a major employer (Safeway), OSU, a neighborhood association (South Corvallis), and the City’s Planning Commission. The SC’s role is to develop recommendations to the Project Management Team (PMT) and the City Council. A Technical Advisory Committee (TAC) also provided input. Membership on the TAC included City staff from a variety of departments (including Planning and Transportation Services), Oregon Cascades West Council of Governments (Linn, Benton and Lincoln Counties), and Corvallis Area MPO (CAMPO). The Corvallis Transportation Services Supervisor represented transit interests on the TAC.

Recommendations and Outcomes

The anticipated outcome of the planning process is two separate plans with recommendations that rely on some of the same background analysis.³⁶⁰ These plans will have recommended transportation and transit projects and programs. In addition, the project scope of work anticipates that there will be proposed amendments to the City’s Comprehensive Plan and Land Development Code (LDC) necessary to implement the plans. Updated policy language related to transit is expected to reflect the multimodal goals and objectives set out for the TSP and TDP process.

³⁶⁰ According to the Work Order Contract, Corvallis TSP Update and TDP, ODOT Price Agreement #B31878, Work Order Contract #2.



An evaluation of the LDC³⁶¹, conducted in an early phase of the TSP/TDP planning process, confirmed that the City has transit-supportive development requirements, including Section 4.0.50 (Transit Requirements), which requires on-site walkway connections to an existing or planned transit stop. The evaluation found that the code could be strengthened in the following ways:

- Include transportation facility and service providers and operators in notice requirements for applications that may affect a transportation facility or service.
- Invite transportation facility and service providers and operators to participate in or provide comments on a pre-application meeting. (These meetings are informal and voluntary pursuant to existing code, so no code provisions are proposed related to this recommendation.)
- Add bicycle parking requirements for transit stops and transit centers, and for commercial uses such as general retail services and business and professional services in Section 4.1.30. Consider developing supportive policy statements to be included in the TSP/Comprehensive Plan, including language regarding ongoing maintenance and funding.

Transportation Services is the City agency responsible for City transit services. It is part of the Public Works Department, which has a core role in development services and land use permitting. As a City agency, Transportation Services staff has direct access to departments with land use permitting functions. Permitting coordination can be formalized through straightforward code modifications.

Unlike an independent transit agency that has decision-making authority granted directly by a City Council or Board of County Commissioners, Corvallis Transportation Services is under the Public Works Department, which is in the Engineering and Transportation Division. Transit is not the primary responsibility of a single agency or department head, but rather just one of the many responsibilities of the City's Public Works Department.

Implementation

Transit-related development requirements are reportedly invoked regularly and the City is getting needed improvements where developments are proposed in the vicinity of existing or planned transit routes. Proposed policy and LDC language that results from the TSP and TDP planning process is expected to strengthen the City's commitment to integrating land use and transportation decisions. In particular, recommended code language will require better inter-departmental and agency communication as part of the land use application and decision process. Recommended changes will also allow for greater participation by the City's Transportation Services staff at an earlier (pre-application) stage of the development review process. Thus, the LDC changes will only improve coordination related to land use applications and decisions that require land use approval. However, there are no such codified or formalized procedures for projects that need only a building permit but that nonetheless have implications for transit facilities and/or services.

³⁶¹ Technical Memorandum #3: Regulatory Review. <http://corvallistsp.org/library>.



In addition to the TSP/TDP implementation recommendations, the City is intending to undertake a code update to address Statewide Planning Goal 10 (Housing). The City recognizes that code provisions related to transit include discretionary language; there must be clear and objective approval standards for developing proposed needed housing.³⁶² The City will be considering amendments to bring the LDC into compliance with State requirements for clear and objective housing approval standards.³⁶³ This may result in changes to codified transit requirements.

TriMet Service Enhancement Plans

Overview

In 2012, TriMet began a community engagement process to help shape a shared vision for the future of transit in the region. The objective was to identify stakeholder needs, both existing and future, and to propose how to restructure current service and design new service to meet those needs. The visions and recommendations that result from the Service Enhancement Planning process are intended to guide how TriMet provides and grows transit service in the future. The first completed, the 2013 Westside Service Enhancement Plan, is a future transit vision for Beaverton, Hillsboro, Cornelius, Forest Grove, and unincorporated Washington County north of Scholls Ferry Road.

Coordination

For each Service Enhancement Plan, TriMet engaged in discussions with each affected local jurisdiction, including land use planners, for insight into where future employment and residential development will occur, and where and when significant infrastructure will be provided that could support transit service. As articulated in the Westside Service Enhancement Plan,³⁶⁴ implementation of the plan depends on the ability to pay for the costs associated with the service enhancement (e.g., labor, vehicles, etc.). Jurisdictions can influence the timing of service enhancements; local commitments to fund pedestrian and transit priority improvements can help guide which plan recommendations occur first. Ridership growth is most likely to occur if service improvements are packaged with upgrades to the pedestrian environment. TriMet intends to partner with jurisdictions to increase transit service in concert with the pedestrian improvements illustrated in the Service Enhancement Plans.

In addition to service enhancements and improvements, the Service Enhancement Plan identifies opportunities for partnering with the public agencies and the private sector to improve access to transit including walking and biking to bus, MAX, and WES stations. Identified “opportunities for action” commit TriMet to partnering with local cities, Washington County, and ODOT to improve

³⁶² Oregon Revised Statute 197.307: Approval Standards for Certain Housing in Urban Growth Areas, and Oregon Administrative Rule (OAR) 660-007-0015: Clear and Objective Approval Standards Required.

³⁶³ Many cities will be applying to Department of Land Conservation and Development for funding assistance related House Bill 4006, passed by in 2018 by the Oregon Legislature and allocates \$1.73 million in new funding for housing planning. The will be providing technical assistance to cities for the following work: (1) Housing Needs Analysis; (2) Code Audits; (3) Code Updates; (4) Housing Strategies Implementation Plans.

³⁶⁴ TriMet Westside Service Enhancement Plan <https://trimet.org/future/west.htm>.



the pedestrian environment, but clearly place responsibility on cities and counties to make “pedestrian improvements a higher priority and invest more of their transportation funds in improvements.”

The Service Enhancement Plans are not adopted by TriMet’s Board of Directors. However, the visions and recommendations that result from the Service Enhancement Planning process are the basis for the improved transit service envisioned in the Climate Smart Communities Scenarios project and the 2014 Metro Regional Transportation Plan (RTP).³⁶⁵ The RTP is implemented through local plans, policies, and projects. Transit needs are also considered during development permitting at the local jurisdiction level and transit-related improvements can be included as conditions of approval.

Recommendations and Outcomes

TriMet staff is invited to participate in long-range planning at the local level, including during the update of local TSPs and development of town center master plans and concept plans for urbanizing areas. Implementation of these plans typically includes recommended modifications to local land use and development codes. TriMet reviews changes to local land use requirements as they relate to transit either as advisors to the planning process or as noticed reviewers of plan and code amendments. TriMet planners are also invited to participate in development permit review where transit facilities may be directly impacted. This includes where a proposed development is on a bus route or includes an existing stop. The TriMet planner’s role is to ensure that what is proposed complies with both the agency’s long-range plans and short-range service plans. Conditions of approval related to transit can be provided to the jurisdiction to include in the staff report.

While many Metro-area jurisdictions have requirements tied to proximity to existing or planned transit, actual coordination with local development services is not guaranteed where proposed development is not already served by transit. TriMet may not be identified as a stakeholder during local development review where there are not existing transit services or facilities. The notable exception is where there are parking reductions available with the presence of frequent transit service. In Portland, there is a parking exemption (i.e., no parking required) for proposed development within 500 feet of a frequent service transit line, which is defined as 20-minute service during the peak hours.³⁶⁶ In cases where the service does not already exist within the City of Portland, the Portland Bureau of Development Services or the development applicant will contact TriMet regarding the likelihood of future service to the site to determine if the project is eligible for the exemption. This sought-after coordination may be more prevalent in urban areas

³⁶⁵ <https://www.oregonmetro.gov/climate-smart-strategy>;
https://www.oregonmetro.gov/sites/default/files/2015/05/29/11405_091813_climate_smart_communities_fact_sheet.pdf.

³⁶⁶ Similar parking reductions are available in other jurisdictions in the Metro area, including Washington County and the cities of Beaverton and Gresham.



experiencing intense development pressure, but parking reductions where active transportation accommodations are made through development is a well-known tool in the Metro area. Washington County, for example, has long-standing adopted parking code that allows for parking reductions in association with access to transit.³⁶⁷

At the jurisdictional level, stronger coordination between the long-range planners who are familiar with proposed improvements and development services planners could improve the likelihood that current planning projects are consistent with planned enhancements and service. Even where future transit needs are not anticipated or identified by a long-range plan or planned projects, positive outcomes can occur as a result of the development permitting process. During this phase, knowledgeable staff and stakeholders can articulate the opportunities for site improvements related to transit and can influence what ultimately gets built. TriMet benefits from being part of the development review conversation at the local level.

Implementation

Coordination between TriMet and local jurisdictions when implementing capital improvements at the project delivery phase can result in significant efficiencies in delivering transportation projects that benefit transit. There are opportunities for better coordination between TriMet and local jurisdictions. New efforts in planning for transit come with the passage of HB 2017 (Keep Oregon Moving Act) and the establishment of a new dedicated source of funding for expanding public transportation service in Oregon. The Statewide Transportation Improvement Fund, or STIF, provides the impetus for coordinating the prioritization of needed infrastructure. At the local level, enhanced coordination also means ensuring that the needs of transit are considered early enough in the design process, before projects are too far along to make reasonable accommodations.

In areas planned for future urbanization, there is an opportunity for local jurisdictions to explore ways to partner with transit providers and the private sector to better prepare for future transit service. This planning would ideally happen during land use concept planning and could address funding, types of service/phasing, and commitments by participating parties.

A memorandum of understanding with Portland Bureau of Transportation (PBOT) to implement coordinated transportation improvements on 122nd Avenue is an innovative way that TriMet has helped deliver improvements that are consistent with the Service Enhancement Plans concurrently with development. Long-range planning by both parties laid the foundation for these improvements and local activism, including support for a local sidewalk inventory, articulated neighborhood-level support for the changes. Another example of collaboration resulted in recent enhanced bus service to the Troutdale Reynolds Industrial Park. In this case, TriMet, the City of

³⁶⁷ After undertaking a parking “right sizing” project, Washington County requirements were updated to increase allowances and flexibility for granting parking exemptions. Proposed Ordinance No. 827, amending portions of Washington County’s Community Development Code related to parking and loading standards was filed July 13, 2017. See <https://www.co.washington.or.us/lut/divisions/longrangeplanning/parking-code-regulations.cfm>.



Troutdale, and the developer of the FedEx site worked together to identify and meet the needs of employees at the industrial park.³⁶⁸ This coordination enabled transit enhancements to be considered when needed roadway improvements were determined, in advance of roadway construction.

Enhanced Transit Corridor Planning is another way that TriMet partners with local jurisdictions to implement the ideas in the Service Enhancement Plans.³⁶⁹ Enhanced service relies in part on having the dedicated roadway to accommodate and prioritize transit in crowded, congested corridors (i.e., give preference to transit). This requires close coordination with local land use planners and engineers to communicate the trade-offs to the community and secure the needed right-of-way to execute planned service routes.

Implementation challenges have come from difficulties coordinating with large institutions and other large employers, in particular prior to siting new or relocated operations. Locating employees where there is no current transit service or where the provider cannot justify services is a detriment to employees, limiting their transportation choices and increasing their transportation costs. Other negative outcomes include increased pollution, congestion, and wear on the street system. Transit access should factor into siting decisions, but TriMet is not included in the locational decisions.

While more involvement by the service provider staff and transit planners is beneficial – whether assisting with long-range plans, development review, or site selections – increased involvement has an impact on transit agency and department staffing at the local level. Regardless of whether it is city staff responsible for overseeing transit within a single jurisdiction or a transit agency providing services to multiple jurisdictions, current funding may not support allocating staff time to both long-range and current planning in every instance where transit may be affected.

³⁶⁸ Line 81-Kane/257th, with direct service to Mt. Hood Community College, and to Swigert Way in Troutdale for service to the Troutdale Reynolds Industrial Park (where FedEx and Amazon are located). Also see: <https://trimet.org/alerts/service-change/2018spring/index.htm>; <https://pamplinmedia.com/go/42-news/389926-280249-line-81-route-changes-support-community->

³⁶⁹ For more information, see: <https://www.oregonmetro.gov/event/2018-regional-transportation-plan-regional-enhanced-transit-concept-strategy-table-setting-1>; <https://trimet.org/meetings/board/pdfs/2017-08-09/regional-transpo-plan.pdf>; <https://www.portlandoregon.gov/transportation/73684>.



Regulatory Tools

Overview

Local requirements related to transit services and facilities are found in adopted transportation plans and in zoning or development codes and ordinances. Pursuant to the State’s TPR (OAR 660, Division 12),³⁷⁰ transit is a required element of local TSPs; jurisdictions larger than 25,000, where the area is already served by a public transit system or where a public transit system is feasible, must have adopted land use and subdivision regulations that support transit. Modifications of local requirements that enhance access to transit and mandate transit-related improvements typically occur as part of a long-range planning project. Local transit needs are routinely considered during local TSP development or updates. Updates to a local TSP can be comprehensive, addressing all modes and the entire jurisdictional planning area, or can be more area-focused, such as transportation needs related to master planning for urban areas, neighborhood plans, or revitalization plans. As the SETD Comprehensive Transportation Plan case study demonstrated, updates to transit-related requirements may also be directly or indirectly the result of recommendations from a long-range transit plan.

In local long-range plans (e.g., TSPs and area plans), transit elements include type, location, and, to a lesser extent, design of transit facilities. Development requirements may include conditions or criteria related to multimodal access to transit, coordination with transit providers, transit stop improvements associated with development, and building or site orientation. A summary of available tools that have been used to update local development requirements can be found in Attachment A.

Recommendations

Many jurisdictions currently have code requirements related to coordinating with transit providers and/or provisions requiring development to consider access to, and facilities accommodating, transit. Recommended development requirements associated with TSP updates typically address transit needs and are routinely adopted as part of plan implementation, through the TSP hearing process. Long-range transit plans include direction to local jurisdictions on what policy and code modifications could best implement transit recommendations, but local jurisdiction involvement in developing these plans does not typically include adopting code amendments. Implementing transit-supportive requirements would benefit from a commitment to a timeline for updating local codes and ordinances, memorialized either in the transit plan or as an outcome of the planning process.

Efforts to strengthen local development codes to better support and enhance transit will continue to be a focus of transportation planning. However, from interviews conducted for this paper, the

³⁷⁰ <https://secure.sos.state.or.us/oard/displayChapterRules.action?selectedChapter=124>.



presence or quality of development-related requirements related to transit is not an issue. Enhanced coordination with the transit provider/department as part of the development review is desired, but whether that coordination takes place is not dependent on code requirements, but rather formal and informal relationships and protocol and staff availability.

Revealed through conversations with transit providers/departments and local planners is the fact that there are land use developments that have an impact on transit service, but that are not subject to land use approval. Transit coordination and improvement requirements codified in local zoning ordinance or land development code will not address proposed redevelopment and new development proposals that do not require a land use permit. Another tool is needed to ensure that transit is considered in, for example, change-of-use or building and occupancy permits related to large employers or residential buildings.

The research and interviews also illuminated a potential issue with discretionary requirements in adopted local code, as well as related model language (see tools in Attachment A for examples). Requirements such as providing “reasonably direct” connections to transit and providing transit improvements “where practicable” are not legally defensible.



Conclusions & Next Steps

A number of key findings in this paper confirm the efficacy of many approaches and tools currently employed to coordinate transit and land use planning. In long-range planning, the State continues to support coordinated transportation planning through ODOT guidebooks and TGM resources. Transit representatives and local land use planners – representing both long-range and current/development planning – can be invaluable resources on advisory committees charged with developing and updating long-range transportation and transit plans. Ensuring that local land development includes needed transportation improvements and that uses will support transit ridership will continue to be guided by the implementation recommendations resulting from local TSP and long-range transit plan projects. TSP adoption and implementation often includes related local code update adoption; transit plan recommendations regarding code updates typically lag behind plan adoption with no clear timeline. Model code language and numerous local code examples exist that exemplify transit-supportive development requirements. However, research suggests that existing requirements can be made more clear and objective to support defensible local decisions. Conversely, in some cases there is a need for transit requirements to be flexible. For example, where there is no detailed long-range transit plan governing transit service and future facility needs local guidelines may yield site-appropriate transit improvements through the development process more effectively than codified requirements.

This paper also identifies areas where the needs of the transit provider could be better coordinated with local land use and development. There is clearly a relationship between the level of communication and involvement of transit providers in the local development approval process and the availability of staff and budget. However, there are no specific recommendations that could adequately address the various types of organizational structures represented by the case studies. Personal relationships between transit agency/department staff and local land use planners, as well as contact with local developers and the business community, can help ensure that transit improvements are implemented. Here, too, it is difficult to generalize, standardize, or replicate practices that will work for every agency or jurisdiction. Tools that can formalize roles and responsibilities in providing transit improvements and enhancing service include memoranda of understanding and intergovernmental agreements. These are tools that have been successful for TriMet in getting transit-supportive projects built and, although not widely used, may be applicable in other areas.

The following suggested “next steps” are based on these over-arching themes and supported by the key findings of this white paper. Implemented, they can both demonstrate common practices and leave room for adaptation in different situations around the state.

- **Update model code language.** Explore opportunities to partner with DLCD to update transit-related code language as part of the upcoming housing technical assistance grant program. Clarifying ambiguous and subjective code language (i.e., requirements that are not clear and



objective) will presumably be a focus of DLCD technical assistance grants for code audits and code updates.

- **Create model guidelines for development approval.** Create local land use guidelines to incorporate transit considerations as part of development review. Like the development application review checklist in Transit in Small Cities, these guidelines would ensure that comprehensive lists of transit-related questions are considered. Guidelines could also distinguish typical clear and objective standards and conditions of approval from discretionary “transit-friendly” design elements. Explore other permitting processes (e.g., building permit and occupancy) where transit requirements can be considered and identify logical thresholds for requirements (e.g., projects over a certain square footage, project value, and/or number of employees).
- **Develop long-range transit plan implementation recommendations.** Document model implementation “next steps” to help transit providers and local agencies move forward with their plans. This could take the form of model scope of work language and/or recommended plan language that documents both agency and local steps, following plan completion and, as appropriate, adoption. Specific timeframes for local adoption and strategies for ongoing coordination between transit provider and jurisdiction are not well documented in transit plans currently.
- **Develop a “best practices” local agreement white paper.** Define how memoranda of understanding and intergovernmental agreements can help deliver transit improvements and enhance service. Identify transit providers that have used similar techniques outside of the Metro area. Identify universal elements and develop checklists and model language, if appropriate.
- **Develop a “best practices” coordination white paper.** Explore the formal and informal ways communication occurs between transit agency/department staff, public sector staff (engineering, land use planning, finance, etc.), the development community (developers and business organizations), and non-profit and social service agencies. Best practices could be identified based on agency type and size.



Attachment A

Available Tools

Transit-supportive local development requirements may include conditions or criteria related to multimodal access to transit, coordination with transit providers, transit stop improvements associated with development, and building or site orientation. Available tools that have been used to update local development requirements are summarized below.

Transportation Planning Rule

TPR Section -0045(4)³⁷¹ contains requirements that are focused on supporting transit. These requirements are applicable to urban areas with populations greater than 25,000, where the area is already served by a public transit system or where a determination has been made that a public transit system is feasible. Department of Land Conservation and Development (DLCD) staff's interpretation is that this section is applicable to jurisdictions where public transit is feasible or is already existing or planned, regardless of population size. Where local jurisdictions' development requirements do not already address Section -0045(4), recommended modifications have included a locally-tailored version of the TPR language:

(a) Transit routes and transit facilities shall be designed to support transit use through provision of bus stops, pullouts and shelters, optimum road geometrics, on-road parking restrictions and similar facilities, as appropriate;

(b) New retail, office and institutional buildings at or near major transit stops shall provide for convenient pedestrian access to transit through the measures listed in paragraphs (A) and (B) below.

(A) Walkways shall be provided connecting building entrances and streets adjoining the site;

(B) Pedestrian connections to adjoining properties shall be provided except where such a connection is impracticable as provided for in OAR 660-012-0045(3)(b)(E). Pedestrian connections shall connect the on site circulation system to existing or proposed streets, walkways, and driveways that abut the property. Where adjacent properties are undeveloped or have potential for redevelopment, streets, accessways and walkways on site shall be laid out or stubbed to allow for extension to the adjoining property;

(C) In addition to paragraphs (A) and (B) above, on sites at major transit stops provide the following:

³⁷¹ https://secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID_OARD=fC4EWmMZJy96C-mIRct7pbZNbiuuj_-wleOCz5I6avWStiNb9T6O!-277278532?ruleVrsnRsn=175293.



(i) Either locate buildings within 20 feet of the transit stop, a transit street or an intersecting street or provide a pedestrian plaza at the transit stop or a street intersection;

(ii) A reasonably direct pedestrian connection between the transit stop and building entrances on the site;

(iii) A transit passenger landing pad accessible to disabled persons;

(iv) An easement or dedication for a passenger shelter if requested by the transit provider; and

(v) Lighting at the transit stop.

Model Development Code

For many years, the Model Development Code for Small Cities (“Model Code”),³⁷² a State Transportation Growth Management (TGM) publication, has guided “smart growth” updates to local development requirements. Recommended procedures and community design standards in the Model Code include several areas that explicitly link to transit or that has been modified locally to specifically address transit. A description of these regulatory areas is listed below with an explanation of how requirements may be incorporated as part of a local development code or ordinance.

- Development review procedures.

Pre-application meetings. The Model Code recommends pre-application meetings between jurisdiction staff and applicants for certain types of land use applications and indicates that jurisdictions may also refer the plan to outside agencies with jurisdiction over some element of the proposal (e.g., ODOT, school district) for their input. Recommended amendments to local pre-application requirements include specifically listing the transit provider for notification and inclusion in the pre-application meeting or conference, where a proposed development would impact facilities or services.

Notice of decision. With the exception of administrative decisions that involve no discretion, the Model Code recommends sending notice of a pending land use decision to interested people and agencies. This provides interested parties the opportunity to submit written comments on the application before the jurisdiction issues the decision. Recommended amendments to local notification requirements include specifically listing the transit provider for notification.

- Parking. The model code encourages parking management where appropriate, including reductions in required parking in areas with frequent transit use. Model Code language allows

³⁷² <https://www.oregon.gov/lcd/tgm/pages/modelcode.aspx>.



for a percentage reduction in the standard number of required automobile parking spaces where a site has a bus stop with frequent transit service located adjacent to it and the site's frontage is improved with a bus stop waiting shelter, consistent with the standards of the applicable transit service provider. Related recommended amendments to local parking requirements have included provisions that allow redevelopment of parking lots for the use of transit facilities. This allowance may or may not be associated with parking standard reductions.

- Building orientation and entrance placement (non-residential). Model Code standards are intended to promote well-placed and well-designed buildings that enhance the public streetscape and pedestrian environment. For proposed commercial and employment development, in particular multi-building or multi-phased developments, Model Code language requires that building entrances orient to the street and that walkways connect the street right-of-way to all primary building entrances and connect all primary building entrances to one another, including required pedestrian crossings through interior parking areas. Related modifications recommended to strengthen local code provisions include specifically requiring access to transit.
- Pedestrian Access and Circulation. Section 3.3 of the Model Code is intended to implement TPR requirements related to pedestrian access and to be consistent with the TPR provisions for multi-modal mixed-use areas. Language requires that walkways within developments provide “safe, reasonably direct, and convenient” connections between primary building entrances and all adjacent parking areas, recreational areas, playgrounds, and public rights-of-way. This model language has been further modified for local code amendments to better meet TPR Section - 0045(3)(b),³⁷³ which requires safe and convenient pedestrian and bicycle access within new subdivisions, multi-family developments, planned developments, shopping centers, and commercial districts to adjacent residential areas and transit stops.

Metro Regional Transportation Functional Plan

Jurisdictions in the three-county Portland metropolitan (Metro) area must have an adopted TSP that is consistent with the Regional Transportation Plan (RTP).³⁷⁴ The Regional Transportation Functional Plan (RTFP)³⁷⁵ contains policies and guidelines to help local jurisdictions implement the policies in the RTP and its modal plans, including those for active transportation and high capacity transit. Metro has provided public agencies and consultants with a “checklist” for reviewing local TSPs, development codes, and comprehensive plans for compliance with the RTFP. The following direction in the checklist related to supporting transit mirrors the requirements of the TPR:

Include Site design standards for new retail, office, multi-family and institutional buildings located near or at major transit stops shown in Figure 2.15 in the RTP:

³⁷³ https://secure.sos.state.or.us/oard/viewSingleRule.action;JSESSIONID_OARD=fC4EWmMZJy96C-mIRct7pbZNbjuui_-wleOCz5I6avWStiNb9T6O!-277278532?ruleVrsnRsn=175293.

³⁷⁴ <https://www.oregonmetro.gov/public-projects/2018-regional-transportation-plan>.

³⁷⁵ <https://www.oregonmetro.gov/regional-transportation-functional-plan>.



- *Provide reasonably direct pedestrian connections between transit stops and building entrances and between building entrances and streets adjoining transit stops;*
- *Provide safe, direct and logical pedestrian crossings at all transit stops where practicable.*

At major transit stops, require the following:

- *Locate buildings within 20 feet of the transit stop, a transit street or an intersection street, or a pedestrian plaza at the stop or a street intersection;*
- *Transit passenger landing pads accessible to disabled persons to transit agency standards;*
- *An easement or dedication for a passenger shelter and an underground utility connection to a major transit stop if requested by the public transit provider;*
- *Lighting to transit agency standards at the major transit stop;*
- *Intersection and mid-block traffic management improvements as needed and practicable to enable marked crossings at major transit stops.*

(Title 1, Transit System Design Sec 3.08.120B(2))

For Metro area jurisdictions, this RTFP language has been tailored for inclusion in local development codes and ordinances.

Other Tools

In addition to the Model Code, other TGM publications are available to assist local jurisdictions with transit planning. *Transit in Small Cities*³⁷⁶ and the *Cool Planning Handbook*³⁷⁷ provide guidance on coordinating with transit providers and addressing transit needs through local development codes. *Transit in Small Cities* is geared towards the transit provider. Chapter 2 gives direction on how to create and strengthen partnerships between transit providers and local, regional, and state transportation and planning agencies. Suggestions include:

- *Identify partners in key departments and agencies. Maintain a reference guide for those with whom you need to work on a regular basis.*
- *Communicate with your land use and transportation partners, whether through formal, scheduled meetings, informal conversations or both. Communicate frequently enough to build a strong relationship, one where either party is*

³⁷⁶ <https://www.oregon.gov/LCD/TGM/docs/fulltransitprimer4-4-13.pdf>.

³⁷⁷ https://www.oregon.gov/LCD/TGM/docs/cool_planning_handbook.pdf.



comfortable enough to pick up the phone and have a candid conversation about land use and transit issues.

- *Put decisions and agreements— such as transit access points — in writing, in the form of intergovernmental agreements and memoranda of understanding. Never let a handshake be sufficient.*
- *Develop bus stop location criteria and agreements for private development. Recommend that local governments include these provisions in their zoning codes.*
- *Engage in project development review at the earliest possible stage, such as at the pre-proposal land use conference, which is often held with city or county planning staff.*
- *Hold workshops to discuss pedestrian safety and other transit-related issues with local jurisdictions, non-profit organizations and the public.*
- *Establish a citizen committee to focus on pedestrian safety, connections to transit facilities, and other relevant topics.*
- *Review existing local city and county transit plans, as well as ODOT statewide transit plans, for identified priorities and potential locations for facility projects.*

Many of these approaches were identified as strategies used in the development and implementation of the case studies explored in this paper or recommended as tools that could strengthen coordination between transit provider/department and land use permitting. This resource book also includes checklists for reviewing local land use and development standards and reviewing development applications.

The Cool Planning Handbook Implementation Strategies section notes that several Oregon communities have adopted policies and zoning to support higher densities of residential infill and mixed uses. The list of key provisions from local transit-oriented development codes include:

- *Bonus density (25-50%) close to transit stops;*
- *Required store fronts along the transit street;*
- *Prohibition of auto-oriented uses (e.g., auto repair);*
- *“Build-to” lines to bring buildings close to sidewalks;*
- *Weather protection (especially important in rainy Oregon!) along walking routes to transit stops;*
- *Wider sidewalks, benches and other pedestrian amenities.*



The handbook advocates for more comprehensive implementation strategies to ensure successful transit-oriented development, beyond the listed zoning requirements. Additional strategies include:

- *Station area framework planning based on community input and on a wider master plan for urban form and development within the transit corridor;*
- *Public investments to improve pedestrian and bike mobility;*
- *Public investments to improve street connectivity;*
- *Zoning changes that would increase the intensity of redevelopment and also encourage good transitions to existing neighborhoods;*
- *Supplemental design standards;*
- *Other actions to improve safety and security at transit stops and stations.*

Other transit-supportive strategies to consider include shared parking and parking management, expedited permits and reviews for transit-oriented development, and joint development ventures.

Key code provisions listed in the handbook are typically explored in transportation-related, or comprehensive, local code updates. Many recommendations, such as build-to lines and prohibition of auto-oriented uses, are featured in the Model Code.

