

Benefits of Public Transportation

Oregon Public Transportation Plan

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Acronyms and Abbreviations

AARP American Association of Retired Persons

ODOT Oregon Department of Transportation

OPTP Oregon Public Transportation Plan

POINT Public Oregon Intercity Transit

TOD Transit-Oriented Development

VOC Volatile Organic Compound

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.¹

Oregon's population is expected to increase by 35% by 2045;² meeting travel and freight movement needs for a growing population will create major challenges for the transportation system. 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*

¹ American Public Transportation Association. 2015. *2015 Public Transportation Fact Book*. Accessed at <http://www.apta.com/resources/statistics/Documents/FactBook/2015-APTA-Fact-Book.pdf>.

² Portland State University Population Research Center. 'Oregon's County Population Forecast 2013' Accessed at www.oregon.gov/DAS/OEA/.../County_forecast_March_2013.xls.com



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 2014.³ This trend is reflected in Oregon where public transportation trips have increased by over 90 percent since 1990.⁴ 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

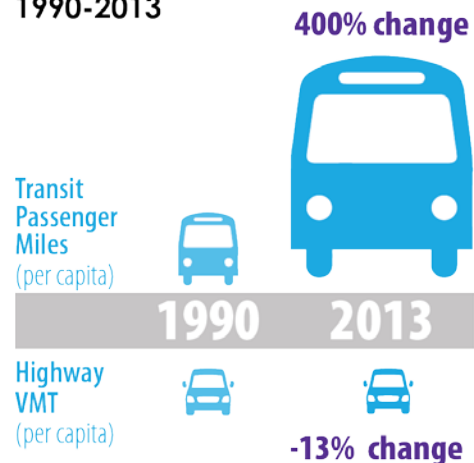
Oregon continues to grow faster than the national average,⁵ increasing demand for all forms of transportation including public transportation. Over the past decade, Oregon's population grew by 10.7 percent while the national growth rate was 8.6 percent.

Oregon's growth rate is accelerating, with the urbanized counties across the state experiencing the fastest growth rates.⁶ 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.⁷

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,

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



OPTP_400_06

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

³ American Public Transportation Association. 2015. *Record 10.8 Billion Trips Taken on U.S. Public Transportation in 2014*.

⁴ Federal Transit Administration. 2013. National Transit Database. Accessed at <http://www.ntdprogram.gov/ntdprogram/>.

⁵ State of Oregon Employment Department. 2015. *Population Growth Rate Increases in Oregon for Third Straight Year*. Accessed at <https://www.qualityinfo.org/-/population-growth-rate-increases-in-oregon-for-third-straight-year>. March 2016.

⁶ Ibid.

⁷ 1000 Friends of Oregon. 2010. *Filling the Transit Funding Gap in Oregon: A Campaign Proposal Executive Summary*. Accessed at <http://www.smartgrowthamerica.org/documents/coalition/2009/11/OR-Executive-Summary-small.pdf>.



Oregonians who are minority or low-income also have a higher propensity to use public transit than the general population. In the Portland Metro area, the percentage of residents who are racial or ethnic minorities has grown from about 11 percent in 1990⁸ to over 22 percent in 2014⁹.

Meeting the needs and desires of older adults

Oregon is aging: 16% of Oregonians are aged 65 and older, compared to the national average of 14.5%.¹⁰ 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.¹¹

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.¹²

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.”¹³ In 2009, older adults accounted for 12 percent of the more than 10.3 billion trips taken on public transportation in the United States.¹⁴ In Oregon, the state helped pay for over 6 million demand-response rides in 2013 for older adults and people with disabilities.¹⁵ 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 2030.¹⁶

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. Millennials now represent 27% of all Oregonians.¹⁷ 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.¹⁸ Surveys have demonstrated that Millennials like the option

⁸ 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>

⁹ U.S. Census Bureau. 2014. Quick Facts Accessed at <http://www.census.gov/quickfacts/table/PST045215/00>

¹⁰ U.S. Census Bureau. 2014. State & County Quick Facts: Oregon, Accessed at <http://quickfacts.census.gov/qfd/states/41000.html>.

¹¹ 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.

¹² DeGood, K. 2011. *Aging in Place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation*.

¹³ Ibid.

¹⁴ Lynott, Jana and Carlos Figueireda. 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.

¹⁵ Quarterly report data submitted to ODOT Rail and Public Transit Division via OPTIS.

¹⁶ 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 http://www.aoa.acl.gov/Aging_Statistics/index.aspx, December 2015.

¹⁷ Oregon Office of Economic Analysis. 2015 “Population, Demographics and Generations”. Accessed at <http://oregoneconomicanalysis.com/2015/02/05/population-demographics-and-generations/>

¹⁸ Oregon Department of Transportation. 2015. *Oregon Transportation Options Plan*.



of working or using their mobile devices while traveling, and are more likely to use multiple modes of transportation to reach their destination.¹⁹ One study found that 46% of Millennials considered saving money as important to determining how they traveled, and 35% state that they live in a community where it makes more sense to use transit.²⁰

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.²¹ 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.²² 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 (FAST) Act of 2015 will provide increased public transportation funding, in the short-term, to meet some of these growing needs over a five 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.

¹⁹ American Public Transit Association. 2013. *Millennials & Mobility: Understanding the Millennial Mindset*. Accessed at <http://www.apta.com/resources/reportsandpublications/Documents/APTA-Millennials-and-Mobility.pdf>

²⁰ Ibid.

²¹ Government Relations, Oregon Department of Transportation. 2013. *Six trends spell trouble for transportation funding*. Accessed at <http://www.oregon.gov/odot/govrel/pages/news/110811a.aspx>.

²² 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.²³

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 2012.²⁴

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.²⁵

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.²⁶ 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.

²³ US DOT, Rural Public Transportation Systems, at <https://www.transportation.gov/mission/health/Rural-Public-Transportation-Systems>, Accessed March, 2016

²⁴ Streets Blog, 2012. *Mounting Transportation and Housing Costs Devour Household Budgets*. Accessed March, 2016 at <http://usa.streetsblog.org/2012/02/29/mounting-transportation-and-housing-costs-devour-household-budgets/>

²⁵ Oregon Center for Public Policy. 2015. *Share of Oregon Families Who Work But Are Still Poor Increases*. Accessed December, 2015, at <http://www.ocpp.org/2015/12/16/nr201516-families-work-but-still-poor-oregon>.

²⁶ American Public Transportation Association. Accessed at http://www.apta.com/mediacenter/pressreleases/2016/Pages/160121_Transit-Savings.aspx. March, 2016.



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?

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.²⁷ 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.²⁸ 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.²⁹

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.

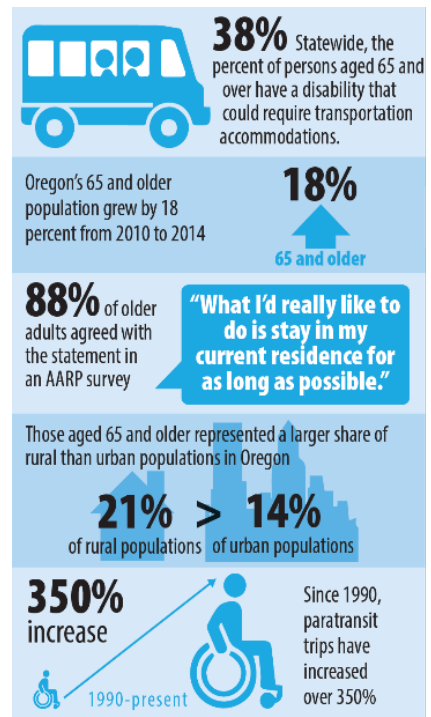


Figure 1. Source: National Transit Database (2014).

²⁷ National Transit Database. 2015. *Integrated National Transit Database Analysis System*.

²⁸ Ibid.

²⁹ TriMet. *Sustainability Page*. Accessed at <http://trimet.org/sustainable/dirtywords.htm>, December 2015.



Providing Rural Connections

Public transportation also provides connections to jobs and vital services in rural areas.³⁰ 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 development by connecting business to customers, goods to markets, and tourists to destinations.”³¹

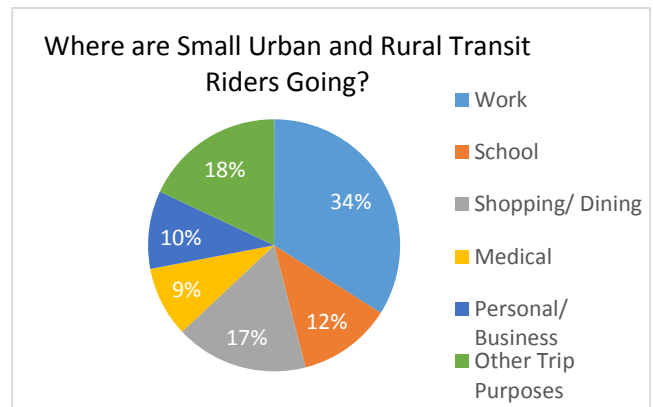


Figure 2. Small Urban vs. Rural Transit Riders. Source: APTA Profile of Public Transportation Passenger Demographics and Travel Characteristics Reported in Onboard Survey.

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 2013.³²

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)³³ and who use mobility devices, public transportation may be the only option available. 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

³⁰ American Public Transportation Association, Rural Communities, at <http://www.apta.com/resources/reportsandpublications/Documents/Rural-Communities-APTA-White-Paper.pdf>.

³¹ Federal Highway Administration, Planning for Transportation in Rural Areas, at http://www.fhwa.dot.gov/planning/publications/rural_areas_planning/page03.cfm accessed March, 2016.

³² Kayak Public Transit Webpage. Accessed at <http://ctuir.org/tribal-services/planning/kayak-public-transit> March 2016.

³³ U.S. Census Bureau. 2014. Census Data. State & County Quick Facts: Oregon, Accessed at <http://quickfacts.census.gov/qfd/states/41000.html>.



percent fewer trips to visit friends and family than drivers of the same age.³⁴ Research shows that isolation can increase the risk of early death by 45 percent and the chance of developing dementia by 64 percent.³⁵ 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 2011³⁶ to 50 percent of total riders in 2013.³⁷

In Oregon, demand-response public transportation trips (many of which serve people with disabilities) have increased over 350 percent between 1990 and 2013.³⁸ 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 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.³⁹ 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;⁴⁰ 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.

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.⁴¹ 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.

³⁴ DeGood, K. 2011. *Aging in Place, Stuck without Options: Fixing the Mobility Crisis Threatening the Baby Boom Generation*. Accessed <http://t4america.org/docs/SeniorsMobilityCrisis.pdf>, June, 2015.

³⁵ Cacioppo, John and William Patrick. 2009. *Loneliness: Human Nature and the Need for Social Connection*. W.W. Norton & Company.

³⁶ Amtrak. 2012. Amtrak Cascades Qualitative Research.

³⁷ Amtrak. 2014. Ridership Profiles for Amtrak Cascades.

³⁸ National Transit Database. 2015. *Integrated National Transit Database Analysis System*.

³⁹ Oregon Department of Transportation "Performance Management: Key Performance Measure Summaries". Accessed at http://www.oregon.gov/ODOT/CS/PERFORMANCE/Pages/PerformanceMeasureSummaries.aspx#Mobility_and_Economic_Vitality, February, 2016.

⁴⁰ Amtrak. 2015. Ridership Report for 2015.

⁴¹ Oregon Department of Transportation. 2014. *Oregon State Rail Plan Passenger Rail Needs Assessment*. Accessed August, 2015.



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.⁴²

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.⁴³ Services like the Mt. Hood Express enable tourism that supports businesses and communities throughout the state.



Figure 4. The Mt. Hood Express, with an attached bicycle trailer, waiting to shuttle residents and recreationalists.

⁴² North by Northwest Connector Website, “How to Ride”. Accessed at <http://www.nworegontransit.org/howtoride> March, 2016.

⁴³ 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.⁴⁴

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.⁴⁵ 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 (i.e. - 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.⁴⁶ 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

⁴⁴ Cortright, Joe. 2007. *Portland's Green Dividend: CEO's for Cities*.

⁴⁵ Oregon Department of Transportation. 2011. "Oregon Freight Plan – An Element of the Oregon Transportation Plan".

⁴⁶ Economic Development Research Group. 2007. *The Cost of Highway Limitations and Traffic Delay to Oregon's Economy*. Accessed at http://www.portofportland.com/PDFPOP/Trade_Trans_Studies_CostHwy_Lmtns.pdf.



Oregon’s metropolitan regions, including investment in and expansion of public transportation, would generate 8,300 jobs, \$1.1 billion in benefits, and a \$2.40 return for every \$1 invested by 2040.⁴⁷

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.⁴⁸ 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”.⁴⁹

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.⁵⁰ 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



Figure 6. 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.

⁴⁷ 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 <http://valueofjobs.com/pdfs/2014-cost-of-congestion-FINAL.pdf>.

⁴⁸ Oregon Department of Transportation. 2015. *Oregon Transportation Options Plan*. Accessed at <http://www.oregon.gov/ODOT/TD/TP/Plans/TransportationOptionsPlan.pdf>.

⁴⁹ Federal Highway Administration “21st Century Operations Using 21st Century Technologies” Webpage. Accessed at http://ops.fhwa.dot.gov/publications/mitig_traf_cong/nike_case.htm, March 2016.

⁵⁰ Ibid.



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 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.⁵¹

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

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.

⁵¹ “Sustainable Apartments for Rent in Portland, OR” webpage. Accessed at <http://hassalooneighth.com/>, December 2015.



development activity.^{52,53} Metro’s TOD projects also help to implement the regional centers and station communities of its 2040 Growth Concept.⁵⁴ In Eugene-Springfield, areas near bus rapid transit stations flourished despite the recent economic 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.⁵⁵

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.⁵⁶ Also in King County, parking is estimated to comprise 10-20% of the cost of multifamily building construction while only 6% of that cost is recovered through parking charges; therefore the rest of the cost must be charged via rents.⁵⁷

⁵² Oregon Metro. 2014. *Transit-Oriented Development Program 2014 Annual Report*. Accessed at <http://www.oregonmetro.gov/sites/default/files/TOD-program-AnnualReport-2014.pdf>.

⁵³ 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.

⁵⁴ Metro, 2014, 2040 Growth Concept, Accessed at <http://www.oregonmetro.gov/2040-growth-concept>.

⁵⁵ 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*.

⁵⁶ Shoup, Donald 2014, “The High Cost of Minimum Parking Requirements,” page 100. Accessed at <http://shoup.bol.ucla.edu/HighCost.pdf>

⁵⁷ King County Metro, 2015. Right Size Parking Final Report, page 8. Accessed at <http://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

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

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.

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.⁵⁸ Studies have found that close to one-third of transit users meet the activity recommendations through walking and biking to transit⁵⁹. 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% lower for those who achieve physical activity targets (\$1,019 per year) than those who are sedentary (\$1,349 per year).⁶⁰



Figure 8. Buses with bicycle racks expand access and increase physical activity.

⁵⁸ Raynault, E. and E. Christopher. 2013. *How Does Transportation Affect Public Health?*

⁵⁹ 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>.

⁶⁰ Litman, Todd. "Evaluating Public Transportation Health Benefits". 2010. *Victoria Transport Policy Institute* Accessed at http://www.apta.com/resources/reportsandpublications/Documents/APTA_Health_Benefits_Litman.pdf



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.⁶¹ Compared to private vehicles, public transportation produces 95 percent less carbon monoxide, 90 percent less volatile organic compounds (VOCs),⁶² and about half as much carbon dioxide and nitrogen oxide per passenger mile. 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.⁶³

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

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.⁶⁴ 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.⁶⁵ 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.⁶⁶ These regional strategies all would require additional focus and support in terms of transit investments.

⁶¹ American Public Transportation. 2007. Public Transportation: Benefits for the 21st Century. Accessed at http://www.apta.com/resources/reportsandpublications/Documents/twenty_first_century.pdf

⁶² 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.

⁶³ U.S. Environmental Protection Agency. Retrieved 10/23/2015 "Smart Growth and Transportation" webpage. Accessed at <http://www.epa.gov/smartgrowth/smart-growth-and-transportation>, October 2015.

⁶⁴ Oregon Metro. 2014. *Climate Smart Strategy for the Portland Metropolitan Region*. Accessed at <http://www.oregonmetro.gov/sites/default/files/ClimateSmartStrategy-FinalVersion-2014.PDF>.

⁶⁵ Ibid.

⁶⁶ Corvallis Area MPO. 2014. *Campo Strategic Assessment: Policy Bundles and Levels of Ambition Evaluated as Part of Additional Analysis (i.e. Sensitivity Testing)*. Accessed at http://www.corvallisareampo.org/files/Policy%20Bundles_Levels_Handout.pdf.



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.

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.⁶⁷ 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.⁶⁸

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.⁶⁹ Those who do own cars tend to have older, less reliable and less fuel-efficient vehicles which can make commuting expensive and unreliable.⁷⁰ 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.⁷¹

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.⁷² This can be attributed to both smaller family budgets as well as the common location of affordable housing farther from activity and job centers.⁷³ Affordable public transportation alternatives help alleviate the cost burden for households that struggle to make ends meet.

⁶⁷ PolicyLink and the Prevention Institute. 2009. *Healthy, Equitable Transportation Policy: Recommendations and Research*. Accessed at http://www.policylink.org/sites/default/files/HEALTHTRANS_FULLBOOK_FINAL.PDF.

⁶⁸ Portland State University, 2015. "Oregon Public Transportation Plan Quantitative Studies: Propensity to Use Public Transit Modes" presentation.

⁶⁹ PolicyLink and the Prevention Institute. 2009. *Healthy, Equitable Transportation Policy: Recommendations and Research*. Accessed at http://www.policylink.org/sites/default/files/HEALTHTRANS_FULLBOOK_FINAL.PDF.

⁷⁰ Ibid.

⁷¹ Portland State University, 2015. "Oregon Public Transportation Plan Quantitative Studies: Propensity to Use Public Transit Modes" presentation.

⁷² PolicyLink and the Prevention Institute. 2009. *Healthy, Equitable Transportation Policy: Recommendations and Research*. Accessed at http://www.policylink.org/sites/default/files/HEALTHTRANS_FULLBOOK_FINAL.PDF.

⁷³ Center for Neighborhood Technology. *Housing and Transportation Cost Index Webpage*. Accessed at <http://htaindex.cnt.org/>, December 2015.



Providing Safer Travel and Secure Communities

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.

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.⁷⁴

When use of public transportation increases in a community, crash rates tend to decline for all users of the transportation system, including those of pedestrians, bicycle riders, motorists and transit passengers. A one percent increase in transit mode share is associated with a 2.75 percent decrease in total fatalities per 100,000 residents.⁷⁵

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.⁷⁶ 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.⁷⁷ Research shows policies that increase walking, bicycling, and travel by public transportation typically reduce total crime in the area.⁷⁸

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.⁷⁹ Redundancy ensures that people have other options and ways to transport themselves during a crisis, such as buses, vans, or trains.

⁷⁴ Litman, Todd. 2014. "A New Transit Safety Narrative." *Journal of Public Transportation*, Vol. 17, No. 4, pp.121-142.

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷ Ibid.

⁷⁸ 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 www.sciencedirect.com/science/article/pii/S0739885912000777.

⁷⁹ Oregon Department of Transportation. 2015. *Oregon Transportation Options Plan*. Accessed at <http://www.oregon.gov/ODOT/TD/TP/Plans/TransportationOptionsPlan.pdf>.



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.⁸⁰ 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 evacuation zone, where their neighborhood emergency reception center is located, and how to get there by transit.



Figure 9. Buses can be mobilized during disasters to aid in evacuations.

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.

⁸⁰ Schwartz, Michael and Todd Litman. "Evacuation Station: The Use of Public Transportation in Emergency Planning", *ITE Journal on the Web*. January 2008.



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.

