The Oregon Bicycle and Pedestrian Plan
Chapter 2: Trends, Challenges, Opportunities

1. Introduction

Oregon has a strong network for biking and walking in the state, but recognizes that the biking and walking infrastructure has system gaps and maintenance needs, and that safety, accessibility, mobility and other issues exist. This is an important consideration as users and uses of the system continue to evolve. To provide context for how Oregon continues to support and advance biking and walking, it is important to understand the benefits of these modes, as well challenges and opportunities, all of which frame what needs to be achieved moving forward (the vision) and how to get there (policies and strategies). This chapter describes the recognized benefits of biking and walking investments and personal mode choices; provides an overview of existing conditions and trends; identifies who is biking and walking; and illustrates the condition of Oregon's biking and walking networks. This information is important to identify opportunities and challenges, which act as the drivers for the policies and strategies included in Chapter 3.

2. Benefits of Biking and Walking

Bicycling and walking are vital to Oregon's transportation system, helping provide travel choices and support people, places, and the economy. Investing in biking and walking can help to create a safer, more connected and accessible system for those choosing to use these modes. There are also statewide, regional, local, and personal benefits, and while most are universal, solutions may vary in urban and rural parts of Oregon. In some ways, benefits may be greater in smaller towns and cities, where transportation options may be limited and walking and biking are essential modes to travel. Benefits also can be on a statewide scale, such as an improved overall environment or public health, or by an individual user of the system, such as improved fitness or day-to-day mobility for a single pedestrian.

The broader benefits of biking and walking investments throughout Oregon include impacts on economic vitality, healthy communities, and tourism. Existing literature was reviewed to identify demonstrated benefits to the local economy, as well as, to health, safety, sustainability, and accessibility resulting from bicycling and walking networks. Further information can be found in Appendix X: Business Case for Biking and Walking in Oregon.

Economic Growth Benefits

A growing body of research has shown that bicycling and walking can contribute to a healthy economy. Benefits range from relatively direct impacts for users, such as reductions in travel costs, to more indirect impacts, such as growth in businesses that enable or support participation in non-motorized transportation. Increases in biking and walking have potential direct and indirect impacts to businesses in the state or local economy, including:

> *In Portland, bicyclists and pedestrians spend more on average than their car-driving counterparts*
> *-Clifton Research 2013*

- Growth in active transportation related industries (e.g. bike shops, bike and walking tour companies);

A 2012 study, commissioned by Travel Oregon, found that Oregon bicycle tourism brought in nearly $400 million and supported 4,600 jobs within the state. According to the report, the share of total travel expenditures (of bike-related travel) is 4.4% statewide. However, this figure varies across the state—expenditures from bike-related travel make up 11.6% of travel expenditures in Central Oregon and 14.8% of travel expenditures in the Gorge/Mt Hood area.

The same study also found that in 2012 the statewide bicycle industry employed 2,645 jobs, with total earnings of $83.8 million.

- Jobs created through design and construction projects related to bicycle and pedestrian improvements;
- Stronger ability of firms to attract and retain employees due to the presence of transportation choices;
- Attraction of out-of-state spending from visitors who participate in bicycle or walking tourism.

Health Benefits

Physical inactivity is a strong risk factor for chronic disease and premature death in the U.S.[1] The Centers for Disease Control and Prevention (CDC) recommends at least 30 minutes of moderate physical activity five days per week. This threshold is often unmet, as illustrated by 2009 data which shows that 44 percent of Oregon adults did not meet the minimum physical activity recommendations.[2]

Biking and walking modes are often collectively referred to as "active transportation," because people who walk or bike are engaging in physical activity. Some of the main health benefits due to physical activity include improved personal health and increased life expectancy.[3]

Investing in bicycle and pedestrian infrastructure, supporting educational and encouragement programs and supporting active transportation options helps to encourage physical activity for better health, and may reduce health care costs by decreasing rates of chronic disease. Access to transit, which requires safe and connected bicycle and pedestrian infrastructure, is critical to help those who cannot, or choose not, to drive when accessing community services, medical care, and employment.

For older adults, having places to walk help maintain muscle mass, which may prevent falls and reduce hospitalizations. Statewide, the population of older adults is expected to increase significantly. By 2040, the population over 75 years of age is predicted to increase anywhere from 70 percent (Baker County) to 400 percent (Deschutes County).[4] These demographic trends indicate that accessibility for aging populations will continue to be a critical issue for Oregon.

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[1] U.S. Burden of Disease Collaborators, *The State of US Health, 1990-2010: Burden of Diseases, Injuries, and Risk Factors*. *JAMA*. 2013; 310(6):591-606.
[2] https://public.health.oregon.gov/PreventionWellness/PhysicalActivity/Documents/Oregon_PANfactst_2012.pdf
[3] U.S. Department of Health and Human Services, 2008 Physical Activity Guidelines for Americans; Maizlish, Neil, PhD. Health Co-Benefits and Transportation-Related Reductions in Greenhouse Gas Emissions in the Bay Area: Technical Report, 2011.
[4] Runyan, 2012, as cited in Bicycling and Walking in the United States; 2014 Benchmarking Report, p.101
http://public.health.oregon.gov/DiseasesConditions/ChronicDisease/Documents/healthyagingreport/healthyagingorecountiesweb.pdf

Some important findings about the correlation of biking and walking to improved health include:

- Active transportation facilities that are designed to be comfortable, safe, accessible, and near desirable destinations are more likely to attract a wide range of users, including people who suffer from an increased health risk due to inactivity.[5]
- Physical activity and health care cost benefits are greatest if people with increased health risks use biking and walking facilities.[6]

Health Facts

Medical costs related to obesity in Oregon were estimated to be $1.4 billion annually—showing a great potential to reduce health care costs by supporting physical activity and other health promoting activities.

- *DHS Strategic Plan*

A 2011 study estimated that Portland, OR could see between $388 and $594 million in health cost savings attributable to new bicycle infrastructure and programs by 2040. Every $1 invested in bicycling yields $3.40 in health care cost savings. When the statistical value of lives is considered, every $1 invested yields nearly $100 in benefits.

- *U.S. 2014 Benchmarking Report*
- *Gotschi, 2011*

Environmental Benefits

Biking and walking are zero to low emission modes that play an important role in reducing fuel consumption, air pollution and carbon emissions; supporting Oregon greenhouse gas reduction goals and the Statewide Transportation Strategy.[7] Not only are these modes carbon neutral, they can also lead to emission reductions when people choose to walk or bike as opposed to driving motor vehicles. Research shows that short motor vehicle trips contribute to disproportionately high levels of per-mile emissions[8] and if short trips shift from driving to walking or bicycling, the amount of air pollutants can be reduced.

Mobility Benefits

For bicyclists and pedestrians, high levels of mobility result from safe and appropriate facilities that offer connections between desirable origins and destinations, and provide end-of-trip facilities such as bicycle parking. These choices are important for those who rely on walking and biking to travel. The mobility benefits of active transportation investments include accessibility to essential destinations and improved connectivity to other modal systems, such as public transit.[9]

For pedestrians, a high level of mobility may result from frequent crossings, short connection points between desirable origins and destinations, and sidewalks wide enough to walk comfortably side-by-side with other pedestrians. For cyclists, enhanced mobility may result from dedicated bike lanes, bicycle parking, and other transit-oriented amenities that make it easier to integrate a bicycling trip with use of public transportation for a portion of the trip. Overall, research indicates that communities can experience a variety of different benefits with connected bicycle and pedestrian networks and options.

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[5] Gotschi, Thomas. "Costs and Benefits of Bicycling Investments in Portland, Oregon." Journal of Physical Activity and Health 8 (Suppl 1) (2011): S51

[6] Litman, Todd. *Evaluating Active Transport Benefits and Costs*. Rep. Victoria Transport Policy Institute, 2014; Pratt M, Macera CA, Wang G. Higher direct medical costs associated with physical inactivity. *Phys Sportsmed*. 2000;28:63–70.

[7] http://www.oregon.gov/ODOT/TD/OSTI/docs/STS/Oregon_Statewide_Transportation_Strategy.pdf. Oregon House Bill 3543

[8] deNazelle, A., Morton, B. J., Jerrett, M., and Crawford-Brown, D. (2010). Short trips: An opportunity for reducing mobile-source emissions? *Transportation Research Part D: Transport and Environment*, 15 (8), pp. 451-457.

[9] Litman, Todd. *Evaluating Active Transport Benefits and Costs*. Rep. Victoria Transport Policy Institute, 2014

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3. Biking and Walking in Oregon Today

Many of the benefits of biking and walking mentioned in the section above are, in part, responsible for driving the investments Oregon has made to date. Instrumental is the Oregon Bike Bill (ORS366.514), which since 1971, has required that walkways and bikeways be constructed as a part of roadway improvement projects, and directs at least one percent of the state highway trust fund dollars to be invested in projects that support biking and walking. In addition, the Oregon Bicycle and Pedestrian Advisory Committee (OBPAC) serves as a statewide committee to discuss bicycle and pedestrian issues and provides advice to ODOT about the regulation of bicycle and pedestrian traffic and the establishment of bikeways and walkways.

A Profile of Users

Oregon's provision of biking and walking travel choices has helped elevate Oregon to the walk commute mode share of 4 percent and highest bicycle commute mode share of any state at 2.4 percent.[10] Higher rates of biking and walking were found in Oregon's metropolitan areas, where 12.5 percent of weekday trips were made by walking and 3.1 percent were made by bicycling.[11] This data, representing a snapshot of travel habits of Oregon residents, was further analyzed to understand the characteristics of those that bike and walk today according to various factors such as, urban or rural environment, gender, age, race and income. The following profile of bikers and walkers in Oregon emerges:

- Urban households walk and bike at higher rate than households in rural areas (urban: 21% walk and 7% bike; and rural: 16% walk and 3% bike).
- Women make walking trips at a slightly higher rate than men, especially in urban areas, while men are twice as likely as women to make a bicycle trip.
- School aged people from 10 to 15 years old account for 22 percent of all walking trips made on a typical weekday, while the age of people making bicycle trips is evenly distributed from people in their early teens to those in their fifties.
- Hispanic and Asian households are more likely to make a trip by walking or bicycling than White, African American, and Native American households.
- In rural areas, people with a disability make more walking trips than those without a disability, while the converse is true in urban areas.
- Walking trips are more common among households with higher (above $75,000) and lower (below $15,000) incomes, while bicycle trips are more common among mid to upper income households.
- Household members living in rented apartments are more likely to make a walking trip than those from households owning single family homes, and members of households living in single family homes or duplexes are more likely to make a bicycle trip.

Many different factors influence the mode choices of Oregon residents, and affect a person's decision to walk or bike. The density of the built environment and the distance between destinations greatly influences mode choice. Most walking trips are less than a quarter mile, while the majority of bicycle

[10] American Community Survey, 2013 one-year estimate.
[11] Clifton Research

trips are two miles or less.[12] Additionally, the terrain and amount of hills impact people's choices to bike and walk as does the weather.

Beyond physical factors, perceptions about biking and walking play a role in people choosing to use those modes. The 2015 Oregon Transportation Needs and Issues survey, a statewide random survey of Oregonians conducted by ODOT every two years, found that most respondents feel they have the necessary facilities to walk safely in their community (65%), but less than half felt they had the necessary facilities to bike safely (44%). If improvements were made to biking or walking routes within their community, 35 percent of respondents in the same survey said they would consider biking or walking to school or work. This sentiment was strongest in more populated areas, where respondents were twice as likely to indicate that their mode choices would change. Beyond perceptions impacting use, data from the survey also suggests that support for investing in bicycling and walking facilities is very high, with 75 percent of respondents indicating it is important to fund improvements to bicycling and walking facilities on existing streets. Support for investments was highest among the lower income groups.

The Existing System

Oregon's urban area bicycle and pedestrian systems are comprised of sidewalks, crosswalks, pedestrian signals, bike loop detectors, marked bike lanes, urban multi-use paths, and other facilities primarily on local streets but also on county roads and state highways. In rural areas, highway shoulders often serve as bikeways and walkways on highways, and bike lanes and sidewalks may or may not be present in rural communities. Both in rural and urban areas, off road trails can serve as connection points. Even in urban and suburban areas, residential neighborhoods may lack sidewalks or have incomplete sidewalk coverage, and there are recognized gaps in both walking and biking networks. The existing network of bicycle and pedestrian facilities influences the overall safety of users and their ability to access essential destinations such as school, work, medical services, and local businesses.

The presence, condition, and accessibility of bikeways and walkways not only impact the ability of people to walk or bike on these routes, but also impacts access to other modes, such as transit. High quality, well-connected walkways, bikeways, and crossings, can increase the distance people are willing to travel to reach a transit stop,[13] thus increasing the potential for ridership.

Other important facility considerations include lighting, street design, and bicycle parking. Appropriate lighting can encourage a safe and secure atmosphere for pedestrians and bicyclists. Bike parking in the right locations, with well-designed racks, supports those who choose to bike.

Lastly, the existing system should be recognized for its variety of owners. The bicycle and pedestrian systems in Oregon are owned by many jurisdictions, including state agencies, such as ODOT and the Oregon Parks and Recreation Department (OPRD), cities, and counties. The decentralized nature of ownership in transportation infrastructure can cause difficulties in planning, constructing, and maintaining facilities, resulting in system gaps or inconsistencies in quality and deterring use of the

[12] Oregon Household Activity Survey. These results are also supported by the National Household Travel Survey (median walk trip distance was 0.25 miles, as cited by the Victoria Transport Policy Institute). http://www.vtpi.org/short_sweet.pdf

[13] FHWA Course on Bicycle and Pedestrian Transportation, Lesson 18: Bicycle and Pedestrian Connections to Transit; FTA Final Policy Statement on the Eligibility of Pedestrian and Bicycle Improvements under Federal Transit Law (http://www.gpo.gov/fdsys/pkg/FR-2011-08-19/pdf/2011-21273.pdf). Bicycle route choice modeling research demonstrates that bicyclists are willing to travel farther to use a continuous bicycle facility (Hood et al., 2011, http://www.sfcta.org/sites/default/files/content/IT/CycleTracks/BikeRouteChoiceModel.pdf).

system. In contrast, users of bicycling and walking facilities desire a seamless system with high-quality facilities, regardless of jurisdictional ownership.

To help identify and expand known issues of biking and walking systems, extensive outreach was conducted and literature reviewed, to understand the needs today and to identify opportunities to improve the experience of people walking and biking.

4. Issues and Opportunities

Existing plans, policies, programs, and literature was reviewed from across Oregon and different municipalities to identify issues and opportunities that impact the ability to achieve the plan vision. This research was supplemented with stakeholder interviews, listening meetings, and PAC conversations about barriers, gaps, and opportunities to better support biking and walking. The policies and strategies of this Plan were developed to address these primary issue and opportunity areas, among others.

Safety is fundamental to the entire transportation system, and carries unique connotations for those who bike and walk, because they are often referred to as "vulnerable users." While the crash frequency may not be highest for incidents involving bicyclists or pedestrians, the severity is, with higher proportions of fatalities and serious injuries.[14] Over recent years fatalities and serious injuries for bicyclists remained fairly steady, showing a continuing concern for these roadway users. Pedestrian incidents, however, doubled from 2014 to 2015, and have generally been on the rise.[15] These statistics indicate that safety is a continuing, and in many ways growing, concern for Oregon and actions are needed to strive towards eliminating fatalities and serious injuries.

Safety is often described through five components, commonly referred to as the "Five E's": engineering, enforcement, education, encouragement, and evaluation.

Engineering – Practitioners and users of the system both identified pedestrian and bicycle related engineering concerns, which ranged from the security of users to how the system is designed and built. Users want to be able to move efficiently on the system while feeling safe and being seen. Design was raised as a primary concern, with specific interest in separation of facilities on higher speed routes, availability of visible crossings, and lower speeds (both design speeds and posted speeds).

> *From 2009-2013, there was an average of 48 pedestrian fatalities and 9 bicyclist fatalities in Oregon*
> - *National Highway Traffic Safety Administration*

Enforcement – While Oregon has several laws which govern the safe movement of all modes and the movement of different types of devices (e.g. electric bikes) on the biking or walking network, these laws are not always widely known. In addition to knowledge of laws, outreach indicated that enhanced law enforcement would ensure rules are followed by all users of the system and is critical to ensuring maximal safety. Separate from the traditional view of enforcement of rules of the road, the idea of enforcing local codes which govern safety emerged. Most cities and local jurisdictions have in their code, language governing the

[14] Source here
[15] Source here

placement and management of biking and walking facilities, which when enforced can help to keep the system safe.

Education and Encouragement – Education and encouragement were also common issues raised in the plan development process. This includes education of individual groups, such as school aged children or staff at public agencies involved in transportation issues, as well as, education on rules of the road to all users of the system. Safe Routes to School type programs were commonly noted by stakeholders who desired their continued funding and support, especially as these programs no longer receive dedicated federal funding. Education and encouragement are also linked, in that through education to use the road safely could also encourage those to bike and walk more frequently.

Evaluation – Common themes related to the inconsistencies in which safety influences the prioritization of projects and inconsistencies in data collection emerged. Outreach and research indicated that while some jurisdictions prioritize safety, others do not, often indicating a lack of consistency in how safety is considered. Another common theme relates to the collection and application of data. While data sources for bicycle and pedestrian efforts exist, data is collected sporadically and is often housed in a multitude of locations, making it difficult to find and utilize consistently across the state. A common example is the reporting of bicycle and pedestrian crash data, where only incidents with motor vehicles are reported to law enforcement agencies. Near misses and those incidents that do not involve a motor vehicle are often underreported, creating a gap of actual occurrences.

What about data….

Data is a common challenge that touches upon all goal areas. This Plan recognizes that inconsistency in data collection and application provide challenges for bicycle and pedestrian efforts, including, reporting for safety, understanding needs for transportation disadvantaged populations, and identifying critical connections.

Accessibility and Connectivity is well supported by the state's coordinated approach to land use and transportation planning, including the requirements of the Transportation Planning Rule (TPR) and Bike Bill, which both direct some level of coordination and consideration of bicycle and pedestrian modes. However, issues were raised relating to system gaps, for both bicycle and pedestrians, and the need to connect to different modes.

System gaps and the lack of a systematic approach in planning, construction, and maintenance were mentioned throughout the research and in interviews. The construction of biking and walking facilities vary by jurisdiction resulting in confusion regarding system responsibility. For example, some communities require property owner responsibility for maintenance for sidewalks where other communities use a utility fee to help provide sidewalks. At a regional scale, system gaps in connecting communities was an emerging challenge, especially for more rural communities who strive to provide additional options for community to community travel. These locations are recognizing the need for more regional pathways and trail systems that provide travel options for transportation and recreation alike.

Another key challenge was the relation and access to other modes, including transit, air, and rail and the need to recognize the importance of intermodal connections. People who utilize public transportation

(i.e. passenger rail, buses, etc.) often need to walk or bike to the transit stop and their destination, but can find facilities that are poor quality or non-existent.

Mobility and Efficiency addresses how well people are able to *move on* the system, as opposed to accessibility which discusses how people *get to* the system. Background research brought forward several mobility issues related to maintenance, application of Americans with Disabilities Act (ADA) requirements, use of different mobility devices, and balance between modes.

Keeping the existing system maintained so that people can easily move on it was regularly mentioned as a point of concern at both the local and state level. Safety and mobility concerns about regular maintenance activities were raised, such as street sweeping or the use of roadway shoulders as bikeways.

Both from a maintenance and construction standpoint, mobility should be assured through adherence to the Americans with Disabilities Act (ADA) requirements. Continuing to assess ADA compliance and developing a process to address deficiencies, such as through an ADA Transition Plan, was recognized as a key component of assuring high mobility for cyclists and pedestrians.

Stakeholders identified several other themes around the use of all types of devices on the bicycle and pedestrian system through outreach efforts. This not only included mobility devices such as wheelchairs, but also devices that relate to alternate methods of travel on the biking and walking system, such as skateboards, non-motorized scooters, electric bikes, or other electric devices. These challenges related to lack of uniform application, such as communities who do or do not allow skateboards on sidewalks, or the understanding of comfort for these users of the system and minimizing physical barriers when possible.

Mobility also includes the balance of mobility needs between other modes, such as transit or freight, similar to the need to balance other goals across modes like safety. The system serves a variety of users, and some stakeholders have raised concerns about the ability to move around the entire transportation system safely and efficiently.

Community and Economic Vitality, in relation to bicycle and pedestrian infrastructure, is identified in a number of state plans and policies, and is an emerging discussion point. A variety of communities throughout the state are recognizing the need to have biking and walking facilities in order to provide people choices for travel and additional recreational opportunities. In addition, communities are more commonly incorporating bicycle and pedestrian requirements within their local code to enhance walking and biking through land use or amenities like bike parking. Stakeholders often noted the importance local communities play in helping Oregon be a more attractive place to bike and walk.

Equity concerns were raised in relation to differences in access to transportation options across communities with different racial, ethic, or socio-economic compositions. When included in plans and policies equity was generally described at a high level in documents from more urban areas, but often did not include any detailed equity analysis to inform decision making. In addition, the need to better identify transportation disadvantaged populations, defined as those who have limited options in travel, often relying on biking, public transit, or walking to get to their destination, was a consistent theme, particularly when prioritization processes are discussed. Overall, there was a general consensus on the need to bring more consistency in the consideration of equity issues for transportation planning, prioritization, and project delivery.

Health is emerging as a consideration in transportation, but it has yet to be well integrated into Oregon's policies or performance measures. While connections between health and transportation are identified, lack of consistent application in transportation decision making was a common theme. There are opportunities to build on the data and information sharing, analysis, and communications work already initiated in this area and to support the integration of health considerations into planning processes.

Sustainability in the context of the Plan is defined as the contribution of biking and walking to the environment. The themes of financial and social sustainability are addressed in other sections, such as Strategic Investment, Equity, and Community and Economic Vitality. Biking and walking modes provide low emission modes of travel and can be seen as ways to assist in the reduction of carbon emissions. The Plan identifies opportunities to strengthen the link between biking and walking modes and issues of air quality and climate change.

Strategic Investments recognizes that funding for the entire transportation system is limited and that all investments should be made to get to the highest returns and greatest benefits. Being strategic is important so that the highest need investments can be made first and holistic funding needs and opportunities are considered. In this way, the idea of strategic investments for biking and walking was identified as the need to develop a project prioritization process and to secure additional funding. In times of funding uncertainty, bicycle and pedestrian projects often compete with other transportation needs, so it becomes more important to recognize the need to leverage funding with other projects or funding sources. Along with funding constraints, prioritization processes vary within different communities, and this lack of consistent prioritization process often makes it difficult for decision-makers and associated advisory bodies (e.g. ACTs) to best prioritize investments.

Coordination, Cooperation, and Collaboration between municipalities and between all levels of government and different agencies is of critical importance to the successful implementation of the Plan. This includes data and information sharing, collaboration, and leveraging of resources. Key issues identified by stakeholders included the need to coordinate efforts between local and state agencies at every level of project development, including planning, design, construction, and maintenance. Training among agency staff, locals and the state alike, was also noted as important, especially as leveraging projects and funds become more necessary. In addition, data collection and sharing were among key issues.

This Plan aims to address a variety of issues as they relate to the above mentioned Goal areas. Chapter 3: Policies and Strategies builds upon how to address some of these identified issues.

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