New Look
The Regional Transportation Plan

2035 Regional Transportation Plan Update

Background Paper:

A Profile of the Regional Pedestrian System in the Portland Metropolitan Region

Prepared by:

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Clean air and clean water do not stop at city limits or county lines. Neither does the need for jobs, a thriving economy and good transportation choices for people and businesses in our region. Voters have asked Metro to help with the challenges that cross those lines and affect the 25 cities and three counties in the Portland metropolitan area.

A regional approach simply makes sense when it comes to protecting open space, caring for parks, planning for the best use of land, managing garbage disposal and increasing recycling. Metro oversees world-class facilities such as the Oregon Zoo, which contributes to conservation and education, and the Oregon Convention Center, which benefits the region's economy.

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List of RTP Background Research Papers

- **Environmental Justice** in Metro's Transportation Planning Process
- A Profile of **Security** in the Portland Metropolitan Region
- A Profile of the **Regional Trends and Travel Characteristics** in the Portland Metropolitan Region
- A Profile of the **Regional Bicycle System** in the Portland Metropolitan Region
- A Profile of the **Regional Transit System** in the Portland Metropolitan Region
- A Profile of the **Regional Pedestrian System** in the Portland Metropolitan Region
- A Profile of **Regional Travel Options and Parking Management Systems** in the Portland Metropolitan Region
- A Profile of the **Regional Freight Transportation System** in the Portland-Vancouver Metropolitan Region
- **Preliminary Financial Analysis** for the 2035 Regional Transportation Plan Update
- A Profile of **Safety** in the Portland Metropolitan Region
- A Profile of the **Regional Roadway System** in the Portland Metropolitan Region
- A Profile of **Key Environmental Issues and Metro's Mitigation-Related Activities** in the Portland Metropolitan Region

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2035 Regional Transportation Plan Update

A Profile of the Regional Pedestrian System in the Portland Metropolitan Region

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I. Introduction

This paper is one of a series of papers that provide background research and analysis to guide Regional Transportation Plan (RTP) update policy discussions. The papers describe trends and research affecting the regional transportation system, current regional transportation planning policies and regulatory requirements, a profile of the existing transportation system and policy implications to be addressed in the RTP to respond to identified policy gaps and key findings of the background research. Collectively, the background papers will inform future policy discussions by Metro Policy Advisory Committee (MPAC), Joint Policy Advisory Committee on Transportation (JPACT) and the Metro Council and lead to an updated RTP.

This paper provides a profile of the regional pedestrian system in the Portland metropolitan region. It identifies trends and research on pedestrian travel and reports on the existing regional pedestrian system. The trends shaping future pedestrian travel and performance of the current regional pedestrian system are essential considerations for the development of effective goals and strategies to address pedestrian travel needs in the Portland metropolitan region. The paper concludes with a list of key findings and policy recommendations to be considered during the RTP update process.

II. Background

Walking is an activity that supports most other modes of travel. Whether it is accessing a parked car or transit, people walk places to get around even in combination with another mode. The supportive role that walking plays to other modes is one reason the pedestrian system should be complete, safe and enjoyable to use. The pedestrian system should be accessible to everyone regardless of one's ability to walk unassisted.

Pedestrian activities also play a role in economic development by supporting places where people like to visit and live. Walking helps support commercial activity in centers. The pedestrian system when fully developed helps people get around by safely providing links between destinations such as schools, parks, and employment sites, offers opportunities for active living, helps contribute to environmental health, supports other modes like transit, makes communities more inviting and provides a travel option that is inexpensive and accessible to most people.

Currently the regional pedestrian system is incomplete and the sidewalk network in particular has gaps in continuity and quality. This is not only a barrier to people accessing the system as pedestrians to meet their transportation needs safely, it can be a barrier to supporting economic vitality. A complete pedestrian system provides a basic building block for economic vitality in centers and other commercially oriented areas, but when incomplete fails to maximize the connection between transportation and land use that helps contribute to vibrant communities. The fact that the sidewalk network is incomplete makes expenditures to complete system gaps a priority. The existence of gaps prevents the basic system from functioning uniformly throughout the region by inhibiting access to transit, limiting access to centers and other destinations such as parks and schools and reduces the potential for economic development.

The term "walking" as used in this context includes traveling on foot as well as those pedestrians using mobility aids, such as wheelchairs. It is important to remember that sidewalks and pedestrian crossings serve the needs of all mobility levels and should include design elements that help make travel as easy as possible, particularly given that many people with mobility challenges rely on transit and the pedestrian network, including children.

Metro's 2040 Growth Concept emphasizes the development of a multi-modal transportation system, which includes "walkability" as something to strive for throughout the region. This concept is expressed through the 2040 Fundamentals that help guide the region toward the vision for 2040.

Walking is a key component of the 2040 Growth Concept and addresses the six key fundamentals:

- *Healthy Economy*
- *Vibrant Communities*
- *Environment Health*
- *Transportation Choices*
- *Equity*
- *Fiscal Stewardship*

Walking supports a *healthy economy* by increasing commercial viability in places that have lots of foot traffic. Places like NW 23rd Avenue in Portland and Downtown Lake Oswego demonstrate the economic vitality of places that accommodate and encourage walking and benefit from increasing local economic activity. Walking also offers workers a choice of mode for getting to and from work and increases employers' access to labor markets.

More and more people are recognizing the benefits of walking in creating *vibrant communities*. Communities that have good access to services and transit by way of walking offer people a way to be more active, socialize with other people, be safe, and reduce their dependence on the automobile. A pedestrian system that supports these activities helps contribute to the vibrancy of an area. The pedestrian system is particularly effective in contributing to the vibrancy of communities when coupled with compact development.

Reducing auto dependence has the major benefit of improving air quality and thus contributes to *environmental health*. When people are able to make more of their trips by foot or in combination with transit they are able to reduce their vehicle miles traveled and reduce the amount of pollution released into the atmosphere. Walking and bicycling are the "cleanest" modes of travel and it is important that the regional system provides opportunities for walking as one of many *transportation choices.* The pedestrian system provides an important transportation option and one of the necessary elements of an integrated transportation system. A good pedestrian system enables and encourages people to choose walking.

The pedestrian system addresses *equity* by providing one of the most affordable ways to travel – walking. When the pedestrian system is safe, attractive and well connected to destinations and transit, it can be an inexpensive way for people of all means and abilities to get around. A good pedestrian system can serve as a critical component of the transportation system for serving people's transportation needs and by supporting other modes helps contribute to *fiscal stewardship*. The pedestrian system is an element of the public infrastructure that should be considered when making decisions about investing in future growth and demand. It is fiscally responsible to invest in facilities that are available to all people.

III. Trends and Recent Research

Growing aging public

America is aging and the Portland metropolitan region is no exception. It is expected that over the next 30 years, the Portland-Vancouver metropolitan area will experience growth in the proportion of the population aged 65 and older. This amounts to growth over 137 percent and comprising 17 percent of the population in 2030 as compared to 10.5 percent in 2000.[1] These changing demographics could mean that larger numbers of elderly people will seek alternatives to driving as it becomes more difficult to drive safely. According to a recent Portland State University (PSU) study, the share of trips by older people made on foot increases with age, however, older adults still make most trips by private vehicle.[2] While older people still rely on cars for a good portion of their transportation needs it will be crucial that the pedestrian system can meet the needs of the aging public as they transition from cars to walking and transit. The PSU study also pointed out that the elderly population is not a homogenous group. Actions must be taken to assist seniors in good health remain active, while providing additional support to less active seniors.

Universal design

The concept of universal design (also known as *Accessible Design*) has emerged in response to the growing numbers of mobility challenged people in our communities, including mobility limitations arising from age. Universal design refers to facility designs that accommodate the widest range of potential users, including people with mobility and visual impairments and other special needs.[3] Universal design is intended to be comprehensive, meaning that it results in mobility options for the greatest possible range of potential users and considers all possible obstacles in buildings, transportation facilities, sidewalks, paths, roads and vehicles.[4] Universal design can help ensure that facilities are designed to meet the needs of all users by shifting the focus from designing facilities for the "average" person and instead focusing on designing for entire communities.

Increasing awareness of pedestrian safety

Awareness of the need for increased pedestrian safety continues to grow as walking in many communities has become difficult and unsafe and citizens and governments alike have determined that this is not acceptable. According to the Federal Highway administration a pedestrian is killed or injured every seven minutes in the U.S.[5] The safety of children, the elderly and people with disabilities, as well as safe access to transit for everyone is a growing area of concern throughout the nation. Policies and programs have been developed to address the needs of the non-driving public.

Children

According to the National Highway Transportation Safety Administration (NHTSA), "every day in the United States, an average of 5 children age 14 and younger were killed and 640 were injured every day in motor vehicle crashes during 2005."[6] Also, one fifth (18%) of all children between the ages of 5 and 9 who were killed in crashes where pedestrians and children aged 15

[1] Portland State University, "Age-Related Shifts in Housing and Transportation Demand" p. 8
[2] Portland State University, "Age-Related Shifts in Housing and Transportation Demand" p. 6
[3] Victoria Transport Policy Institute "Universal Design" http://www.vtpi.org/tdm/tdm69.htm
[4] Victoria Transport Policy Institute "Universal Design" http://www.vtpi.org/tdm/tdm69.htm
[5] FHWA, "Pedestrian Safety Campaign" http://safety.fhwa.dot.gov/local_program/pedcampaign/index.htm
[6] NHTSA, "Traffic Safety Facts-Pedestrians"
http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2005/PedestriansTSF05.pdf

and younger accounted for 8 percent of the pedestrian fatalities in 2005.[7] The latest federal transportation legislation emphasizes safety through the Safe Routes to Schools program as well as state level programs focusing on school safety passed in 2001. This legislation reflects increasing concern for safety and calls for more integration of safety considerations in all levels of transportation planning. Funds through this program are available at the State level for local projects. Safe Routes to Schools and other programs addressing children's safety have been developed in response to the numbers of children killed each year in the U.S.

Elderly and people with disabilities

The occurrence of disabilities increases as people age, as does the risk of dying in a pedestrian crash. People ages 65 and older are two to eight times more likely to die than younger people when struck by motor vehicles according to the U.S. Department of Transportation.[8] According to the NHTSA, people aged 70 and over accounted for 16% of all pedestrian fatalities (5% of the total).[9] While these numbers do not identify specific causes of why these crashes occurred, they do suggest that more could be done to reduce factors that may contribute to older pedestrians being killed in crashes.

Increasing awareness about issues relating to mobility and activism on the part of seniors has influenced recent changes in federal transportation legislation (SAFETEA-LU) for elderly and disabled people and now requires that designated recipients of funds that support elderly transportation services must coordinate planning for human and transit services. At the regional level the *Coordinated Human Services Transportation Plan* has been completed to satisfy these federal requirements. This plan highlights walking as a basic option for elderly people and encourages local jurisdictions to make their communities more pedestrian friendly as well as advocate for locating housing for seniors within walking distance of services.[10] TriMet has done additional work on linking land use and transportation options for seniors and the disabled.[11] TriMet's recent release of the *Elderly and Disabled Land Use Study* identifies barriers and opportunities in the region for developing accessible housing for seniors and people with disabilities. Considerations about aging in place, how people get around and what types of facilities best meet the needs of seniors are important for improving safety for the growing elderly population as well as housing options for people with disabilities.

Safe access to transit for all mobility levels and incomes

Transit riders begin and end each trip as a pedestrian,[12] however, there are many places in our cities where it is not easy to be a pedestrian due to a lack of facilities that accommodate walking and can be particularly difficult for elders and people living with disabilities. TriMet research indicates that the majority of riders access transit by walking. Roughly ninety percent of the Metro region's population lives within half-mile of a bus stop or light rail station. However, sidewalks connect only 69 percent of the stops.[13] The pedestrian system can often be a barrier to accessing transit and getting around because gaps in the system, such as missing sidewalks, missing ramps and unsafe crossings, are particularly difficult for the elderly and disabled to

[7] NHTSA, "Traffic Safety Facts –Pedestrians"
http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2005/PedestriansTSF05.pdf
[8] US Department of Transportation "Focusing on the Senior Pedestrian"
http://www.tfhrc.gov/safety/pedbike/facts/oldped.htm
[9] NHTSA "Traffic Safety Facts – Pedestrians"
http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2005/PedestriansTSF05.pdf
[10] TriMet "Coordinated Human Services Transportation Plan"
[11] TriMet "Elderly and Disabled Transportation and Land-Use Study"
[12] TriMet, "Portland Access to Transit Project"
[13] TriMet "2007 Transportation Improvement Program." p. 10

manage. According to the coalition of walking advocates *America Walks,* "there is a particular need for pedestrian facilities to connect transit stops to employment centers and the lack of pedestrian facilities reduces use of the transit system and increases costs for parking and road improvements."[14]

More people are beginning to recognize the importance of fully developing a safe pedestrian system that accommodates everyone regardless of physical ability, age or income to access transit. Improving the pedestrian system to benefit transit services has become a focus of many transit agencies, counties, cities, states and pedestrian advocacy groups, with particular emphasis on system improvements to make pedestrian facilities and transit accessible to people with mobility challenges and all income levels and ages. The transit and pedestrian needs of the transportation disadvantaged and highly transit dependent populations are important to consider when prioritizing improvements. Additional focus and coordination are needed for improving transportation conditions for underserved populations. Resources for improving access to transit through sidewalk improvements are however scarce. Feedback from local jurisdictions indicates that keeping up with sidewalk and ramp improvements is difficult and expensive. Many places have ramps that do not meet ADA standards as a result of scarce resources.

Increasing Emphasis on the Link Between Public Health, Transportation and Land Use in the Active Living Movement

The active living movement has been largely influenced by the national health crisis that obesity has become in the United States. Organizations such as *Active Living by Design* are conducting research on the connections between the transportation system, land use, urban form and activity levels. Walking has become a key focus in the discussion of active living and the improvements to public health that occur when people walk more. It is one of the easiest and safest ways to improve health for people of all ages and the active living community has realized that the transportation system, particularly sidewalks and trails are essential for providing opportunities for people to walk.

The Regional Travel Options program, and others like it, have been working on informing people about alternative modes of travel and promote walking and its benefits to health among other things. The body of work in this area is growing rapidly. Materials are being developed to help encourage walking as an option. A recent partnership between Kaiser Permanente and Clark County Washington produced the *Walkaround Guide* that includes 10 walks around Clark County and includes walks that are accessible to seniors and people with disabilities. The National Highway Transportation Safety Administration developed the *Stepping Out: Mature Adults: Be healthy, Walk Safely* program to encourage older adults to walk and provides information about how to walk safely.[15] Efforts to increase the activity level of people, including all age groups, is important for improving quality of life and has public health benefits as well and addressing obesity as a national health problem.

Increasing Awareness of and Advocacy for Pedestrian Issues

There are many groups and organizations dedicated to pedestrian advocacy and activities throughout the nation and growing. The recognition of the enjoyment of walking and its associated health benefits as well as concerns over pedestrian safety and rights have contributed to the development of these groups. The work being done by groups such as the Willamette Pedestrian Coalition in the Portland Metropolitan region and Feet First in Seattle, WA are helping to shape laws, policies and perceptions about walking. Many advocacy groups have developed

[14] America Walks: http://www.americawalks.org/pedagenda/index.htman
[15] NHTSA "Stepping Out" http://www.nhtsa.dot.gov/people/injury/olddrive/SteppingOut/index.html

pedestrian tools designed to help people assess the walkability of their communities and how to address problems. One such resource is the *Walkability Checklist* available at www.walkinginfo.org, a website with information for citizens and professionals working on pedestrian issues. Other groups such as Elders in Action and AARP have also developed tools for assessing walkability for seniors and people with disabilities and determining solutions that fit their needs. Pedestrian advocacy is a trend that helps support the work of transportation professionals as they work on creating better environments for walking by raising awareness and generating support for walking.

Shifting Emphasis on Context Sensitive Design Solutions

In the last several years' ideas about how to design transportation solutions have begun to shift. The emergence of context sensitive design provides a viable alternative to the top-down, road centric perspective that has dominated transportation planning. One definition of context sensitive design is **"**the art of creating public works projects that meet the needs of the users, the neighboring communities, and the environment. It integrates projects into the context or setting in a sensitive manner through careful planning, consideration of different perspectives, and tailoring designs to particular project circumstances."[16] Context sensitive design is supportive of policies that encourage transportation demand management practices and new urbanism by promoting the following six principles:

1. Balance safety, mobility, community, and environmental goals in all projects.
2. Involve the public and affected agencies early and continuously.
3. Use an interdisciplinary team tailored to project needs.
4. Address all modes of travel.
5. Apply flexibility inherent in design standards.
6. Incorporate aesthetics as an integral part of good design.[17]

This new focus is influencing the planning and engineering fields to take new approaches to meeting transportation needs and is gaining momentum as more professionals and governments embrace these practices.

Growth in New Urbanism Practices and Neighborhood Revitalization

The movement to return to urban forms that were popular in previous eras for land use and transportation has taken root on a national scale. Developing new communities reminiscent of the early part of the 20th century and revitalizing neighborhoods have been identified as ways to increase economic vitality, improve safety in communities and encourage more active living. Street design and compact urban form encourage walking and are sustained by pedestrian activities. Walking is a central component to the success of neighborhoods and commercial areas be it a new development such Gresham's Civic neighborhood or older areas bouncing back from disinvestment like the Alberta Arts District in Portland. The report *Ten Principles for Achieving Region 2040 Centers* suggests that being able to walk easily and safely is key to helping the success of centers and reinforces the notion that centers thrive when pedestrian traffic is encouraged and made easy.[18] The ten principles in the report are intended to help Metro understand and develop actions for making centers work and are as follows:

1. All centers are not created equal
2. Understanding market impact

[16] Minnesota Department of Transportation "What is Context Sensitive Design?" www.cts.umn.edu/education/csd/index.html

[17] Minnesota Department of Transportation "What is Context Sensitive Design?" www.cts.umn.edu/education/csd/index.html

[18] Metro, Leland Consulting Group, and Parsons Brinckerhoff, "Ten Principles for Achieving Region 2040 Centers

3. Private investment follows public commitment
4. Reward leadership
5. Build communities, not projects
6. Remove barriers
7. Metro as coach
8. Balance the automobile
9. Celebrate success
10. Take the long view

More and more people are choosing to live in areas where they can walk to services and employment. The real estate market, developers, and local governments are responding to this trend. A 2004 study by the National Association of Realtors and Smart Growth America, revealed that six out of ten prospective homebuyers, when asked to choose between two types of communities, chose the area with shorter commutes, sidewalks, and amenities.[19] The decision of where to buy a home is influenced by many factors including affordability and housing type, however people are considering transportation and accessibility to services and amenities as part of the decision making process for where to locate.

Main Streets

The main street concept is a core piece of revitalization and new urbanism strategies. Efforts to develop streets that have commercial opportunities and are multi-modal can spur redevelopment in adjacent areas. The main street concept is being used in large and small cities nationally to create vibrant communities. The main street concept is built on the notion that developing a sense of place that is friendly to pedestrians has benefits beyond just encouraging walking. Sidewalks and pedestrian amenities can enhance place-making efforts.

Green Streets

Green Streets are another example of how thinking about urban form has changed. Green streets use innovative stormwater disposal techniques such as street trees, swales, pervious paving and rain gardens among others. Dealing with stormwater this way has become more and more common, particularly in conjunction with main street area planning and improvements. Adding green street elements to a streetscape can have positive impacts on the pedestrian environment by making it more attractive and creating a buffer from the street with street trees and swales. In some cases green streets and pedestrian needs may compete for space and resources, particularly if there is limited right-of-way for green streets facilities and sidewalk improvements. It has also been mentioned through the stakeholder workshops that pedestrian projects are often saddled with the cost of providing storm water facilities, which can result in sidewalk projects becoming very expensive. Not all green street treatments are appropriate for every environment, but in most cases street trees can be used in most areas. Some treatments, such as sloped sidewalks and certain types of pervious paving materials, may not be compatible with ADA requirements.

Increasing Emphasis on Managing the Existing System and Intelligent Transportation Systems (ITS)

In part due to funding constraints, transportation planners have begun to focus on using resources more efficiently by maintaining the existing transportation system and devising ways to increase efficiency instead of building new infrastructure. This trend has been marked by the emergence of intelligent transportation systems (ITS) and a greater focus on management and operations. Efforts to improve the efficiency of the pedestrian system rely on completing gaps in the sidewalk network, extending sidewalks to pedestrian destinations such as schools, parks, centers and transit

[19] Urban Land Institute, "Higher Density Development: Myth and Fact"

and improving the safety of the sidewalk network for the mobility challenged. Feedback from local jurisdictions indicates the difficulty in finding resources for completing gaps in the sidewalk network and replacing outdated facilities such as curb ramps and street lighting.

Completing the sidewalk network would make it possible to focus on higher-level improvements to make the system function better overall. Efforts to improve the quality and safety of the existing system is important to keep it functioning properly, which includes keeping sidewalks and crossings clear of debris, pooling water and ice and snow and fixing areas where tree roots have breached the surface and vegetation is overgrown, as well as maintaining striping at crossings and providing lighting. Deteriorating sidewalks can discourage walking, prevent use by people with mobility challenges, and reduce the attractiveness of the sidewalk environment overall.

Technology
Technological improvements can improve the functioning of the existing system for pedestrians including count down signals and improved signal timing for pedestrians. The City of Portland among others has installed some count down signals to accompany audible signals at intersections. The countdown signal helps people know much time they have to cross the street and help prevent pedestrians being in crosswalks when autos are signaled to proceed, thus reducing conflicts between cars and pedestrians, minimizing delays for automobiles, and increasing safety for pedestrians. Pedestrian actuated signals are also helpful for improving the usability of crosswalks for pedestrians by giving them more control over when they cross streets. Another safety related improvement is pedestrian signal timing that provides additional lead-time for pedestrians at crosswalks, particularly when there are double right turn lanes. Appropriate lighting can also help improve pedestrian environments and make them more attractive and safe for walkers.

IV. Policy and Regulatory Framework

Federal Context

Intermodal Surface Transportation Efficiency Act (ISTEA)
Congress enacted the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. ISTEA gave Metropolitan Planning Organizations (MPOs) increased funding, expanded authority to select projects and mandates for new planning initiatives in their regions. The purpose of federal transportation policy is to increase nonmotorized transportation to at least 15 percent of all trips and to simultaneously reduce the number of nonmotorized users killed or injured in traffic crashes by at least 10 percent. This policy, which was adopted in 1994 as part of the National Bicycling and Walking Study, remains a high priority for the U.S. Department of Transportation. The act emphasizes to a greater degree than previous legislation the need to provide safe accommodation on non-motorized users and that they be considered throughout the planning, design and construction phases of transportation projects. Bicyclists and pedestrians were to be considered in comprehensive transportation plans developed by each metropolitan planning organization and the State.

The legislation also focused on improving transportation not as end in itself but as the means to achieve important national goals including economic progress, cleaner air, energy conservation and social equity. ISTEA promoted a transportation system in which all modes and facilities were integrated to allow a "seamless" movement of both goods and people. New funding programs provided greater flexibility in the use of funds, supported improved "intermodal" connections and

emphasized upgrades to existing facilities over building new capacity – particularly roadway capacity.

To accomplish these goals, ISTEA doubled funding for MPO operations and required the agencies to evaluate a variety of multimodal solutions to roadway congestion and other transportation problems. MPOs were also required to broaden public participation in the planning process and see that investment decisions contributed to meeting the air quality standards of the federal Clean Air Act Amendments.

Transportation Equity Act for the 21st Century (TEA-21)
The next two reauthorizations of Federal Transportation legislation, TEA-21 and SAFETEA-LU continued the multi-modal emphasis of ISTEA. Congress passed the Transportation Equity Act for the 21st Century (TEA-21) in 1998. It reduced the 15 planning factors from ISTEA to seven and continued the majority of its predecessor's programs. TEA-21 recognized that transportation investments impact the economy, environment, and community quality of life.

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)
In 2005, Congress built on both ISTEA and TEA-21 with the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU addresses the many challenges facing our transportation system today, such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment. SAFETEA-LU promotes more efficient and effective Federal surface transportation programs by focusing on transportation issues of national significance, while giving State and local transportation decision makers more flexibility for solving transportation problems in their communities.

New transportation legislation SAFETEA LU passed in 2005 includes minimal changes for pedestrian planning from ISTEA and TEA 21. New pedestrian activities are focused on safety for workers/pedestrians in highway work zones, additional emphasis on pedestrian representation in transportation planning and environmental stewardship through trail development. There is also more emphasis on mobility for elderly and disabled people through the coordinated planning requirement and child pedestrian safety through Safe Routes to Schools.

Americans with Disabilities Act (ADA)
The Americans with Disabilities Act of 1990 (ADA) is legislation, which prohibits discrimination on the basis of disability. Other Federal laws, which affect the design, construction, alteration, and operation of facilities, include the Architectural Barriers Act of 1968 (ABA), and the Rehabilitation Act of 1973. In July 1999, the U.S. Department of Transportation issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system.

State Context

Executive Order (EO) on Sustainability
Governors Kitzhaber and Kulongoski both issued EO's on sustainability that support increasing sustainable modes of transportation in Oregon, such as walking and bicycling. The legislature codified much of Governor Kitzhaber's EO into statue in 2001 known as the Sustainability Act. Under the EO, ODOT has developed a Sustainability Plan, renewing the agency's vision of a balanced, multimodal transportation system.

Transportation Planning Rule (TPR)
In 1991, the Land Conservation and Development Commission adopted the Oregon Transportation Planning Rule (TPR). The TPR implements State Land Use Planning Goal 12, Transportation[20], which was adopted by the Oregon Legislature in 1974. The TPR requires most cities and counties and the state's MPOs, such as Metro, to adopt transportation system plans that consider all modes of transportation, energy conservation and avoid principal reliance on any one mode to meet transportation needs. By state law, local plans in MPO areas must be consistent with the regional transportation system plan (TSP). In the Portland metropolitan region, the Regional Transportation Plan serves as the regional TSP. Likewise, the regional TSP must be consistent with the OTP.

A major goal of the TPR is reducing reliance on the automobile and encouraging pedestrian, bicycle, and transit facilities as part of a multi-modal transportation system. The state TPR also requires that transportation system plans provide an adequate system of improvements that meet adopted performance measures. These objectives are to be achieved by increasing the share of non-automobile trips (pedestrian, bicycle or transit), reducing the number of single occupant vehicle trips, increasing average vehicle occupancy, or reducing the number of trips and/or length of trips required through more intensive land use and/or a better mix of land uses. TPR requirements for pedestrian planning include:

- Mandates that transportation planning in Oregon reduce reliance on any one mode of transportation.
- Requires vehicle miles traveled (VMT) per capita reduction targets for local jurisdictions. The RTP identifies 2040 Non-SOV modal targets in place of and consistent with the requirement to reduce VMT per capita. As required by the TPR, jurisdictions within the Metro region must adopt policies and actions that support an increase in the share of trips by walking, bicycling, transit and shared ride.
- Requires a region wide network of pedestrian facilities.

Recent updates to the TPR do not affect the requirements for pedestrian planning.

Oregon Transportation Plan (OTP)
Amended in September 2006 by the Oregon Transportation Commission, the OTP includes several policies that address pedestrian travel:

- Policy 1.1 – Development of an Integrated Multimodal System
- Policy 1.2 – Equity, Efficiency, and Travel Choices
- Policy 1.3 – Relationship of Interurban and Urban Mobility
- Policy 3.2 – Moving People to Support Economic Vitality
- Policy 3.4 – Development of the Transportation Industry
- Policy 4.3 – Creating Communities
- Policy 5.1 – Safety
- Policy 5.2 – Security

OTP Strategy 1.2.2
Support local government efforts to plan and provide an adequate system of arterial and collector roadways and bicycle and pedestrian facilities to serve planned land uses and connect communities.

[20] Goal 12 states, "To provide and encourage a safe, convenient, and economic transportation system."

In addition, federal and state highway funds and local revenues help fund local government bikeways and walkways. Bicycle and pedestrian facilities within a street, road or highway right-of way are eligible for funding from the Oregon Highway Trust Fund. ODOT and local governments must spend a minimum one percent of the state Highway Fund they receive on walkways or bikeways. Bicycle and pedestrian facilities are also eligible for federal Transportation Enhancement and Congestion Mitigation and Air Quality funds. The state develops the statewide bicycle and pedestrian plan and constructs and maintains state highway bicycle and pedestrian facilities, focusing on urban highways. Roughly 272 miles of the sidewalks and bikeways are in place, which is approximately half of the State planned network.

Most requirements will be included in specific modal plans. Oregon Bicycle & Pedestrian Plan update is underway. Future RTP updates will be developed to be consistent with the updated state plan.

Oregon State Senate Bill 315 – "Stop and Stay Stopped" Law
Passed in 2003 this bill modifies the Oregon Vehicle Code to stipulate the conditions when a driver is considered to have committed the offense of failure to stop and remain stopped. If a *pedestrian* is proceeding in accordance with a traffic control device or crossing the roadway in a *crosswalk (marked or unmarked)* and is in any of the following locations, the driver must stop and remain stopped:

- In the lane in which the driver's vehicle is traveling
- In the lane next to the lane in which the driver's vehicle is traveling
- In the lane into which the driver's vehicle is turning
- In the lane adjacent to the lane into which the driver's vehicle is turning if the driver is making a turn at an intersection that does not have a traffic control device
- Within six feet from the lane into which the driver's vehicle is turning if the driver is making a turn at an intersection with a traffic control device.
- In a school crosswalk where there is a traffic patrol member and the traffic patrol member signals you to stop.

Generally, pedestrians have the right of way at all intersections. There is a crosswalk at every intersection, even if it is not marked by painted lines.

Regional Context

Metro Charter
In 1979, the voters in this region created Metro, the only directly elected regional government in the nation. In 1991, Metro adopted Regional Urban Growth Goals and Objectives (RUGGOs) in response to state planning requirements. In 1992, the voters of the Portland metropolitan area approved a home-rule charter for Metro. The charter identifies specific responsibilities of Metro and gives the agency broad powers to regulate land-use planning throughout the three-county region and to address what the charter identifies as "issues of regional concern." Among these responsibilities, the charter directs Metro to provide transportation and land-use planning services. The charter also directed Metro to develop the 1997 Regional Framework Plan that integrates land-use, transportation and other regional planning mandates.

Regional Framework Plan
Updated in 1995 and acknowledged by the Land Conservation Development Commission in 1996, the RUGGOs establish a process for coordinating planning in the metropolitan region in an effort to preserve regional livability. The 1995 RUGGOs, including the 2040 Growth Concept,

were incorporated into the 1997 Regional Framework Plan to provide the policy framework for guiding Metro's regional planning program, including development of functional plans and management of the region's urban growth boundary. The Regional Framework Plan is a comprehensive set of policies that integrate land-use, transportation, water, parks and open spaces and other important regional issues consistent with the 2040 Growth Concept. The Framework Plan is the regional policy basis for Metro's planning to accommodate future population and employment growth and achieve the 2040 Growth Concept.

2040 Growth Concept
The 2040 Growth Concept text and map identify the desired outcome for the compact urban form to be achieved in 2040. It envisions more efficient land use and a diverse and balanced transportation system closely coordinate with land use plans. Pedestrian facilities are an important element of the transportation concept envisioned in Region 2040. The 2040 Growth Concept has been acknowledged to comply with statewide land use goals by the Land Conservation and Development Commission (LCDC). It is the foundation of Metro's 1997 Regional Framework Plan.

2004 Regional Transportation Plan
The RTP implements the goals and policies in 1995 RUGGOs and the 1997 Regional Framework Plan, including the 2040 Growth Concept. The region's planning and investment in the regional pedestrian system are directed by current RTP policies and objectives for the regional pedestrian system as shown in Table 1.

An integrated pedestrian system supports and links most other elements of the regional transportation system and complements the region's land-use goals. The RTP currently has three policies that specifically address the pedestrian system and three functional classifications for the regional pedestrian system. The policies cover the development of a safe, attractive and accessible pedestrian system, increasing the number of pedestrian trips and improving access to transit, and providing pedestrian access and connectivity in all transportation projects. The functional classifications are pedestrian districts, which correspond with the 2040 centers, transit/mixed use corridors and multi-use paths with a pedestrian transportation function.

Table 1. 2004 Regional Transportation Plan Pedestrian Policies

Policy 17.0. Regional Pedestrian System
Design the pedestrian environment to be safe, direct, convenient, attractive and accessible for all users.

a. Objective: Work with local, regional and state jurisdictions to complete pedestrian facilities (i.e., sidewalks, street crossings, curb ramps) needed to provide safe, direct and convenient pedestrian access to and within the central city, regional centers, town centers, main streets, corridors and to the region's public transportation system.
b. Objective: Work with local, regional and state jurisdictions to provide landscaping, pedestrian-scale street lighting, benches and shelters affecting the pedestrian and transit user near and within the central city, regional centers, town centers, main streets, corridors and along the regional transit network.

Policy 17.1. Regional Pedestrian Mode Share
Increase walking for short trips and improve pedestrian access to the region's public transportation system through pedestrian improvements and changes in land use patterns, designs and densities.

a. Objective: Increase the walk mode share for short trips, including walking to public transportation, near and within the central city, regional centers, town centers, main streets, corridors and LRT station communities.
b. Objective: Work with local, regional and state jurisdictions to improve walkway networks serving transit centers, stations and stops.

Policy 17.2. Regional Pedestrian Access and Connectivity
Provide direct pedestrian access, appropriate to existing and planned land uses, street design classification and public transportation, as a part of all transportation projects.

a. Objective: Among regional pedestrian projects, give funding priority to those projects which are most likely to increase pedestrian travel, improve the quality of the pedestrian system and help complete pedestrian networks near and within the central city, regional centers, town centers, main streets, corridors and LRT station communities.
b. Objective: Integrate pedestrian access needs into planning, programming, design and construction of all transportation projects.

Regional Pedestrian System Functional Classifications

Pedestrian district: Pedestrian districts are areas of high, or potentially high, pedestrian activity where the region places priority on creating a walkable environment. Specifically, the central city, regional and town centers and light rail station communities are areas planned for the levels of compact mixed-use development served by transit needed to generate substantial walking. These areas are defined as pedestrian districts. Pedestrian districts should be designed to reflect an urban development and design pattern where walking is a safe, convenient and interesting travel mode. These areas will be characterized by buildings oriented to the street and boulevard-type street design features such as wide sidewalks with buffering from adjacent motor vehicle traffic, marked street crossings at all intersections with special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. All streets within pedestrian districts are important pedestrian connections.

Transit/mixed-use corridor: Transit/mixed-use corridors (referred to only as corridors in the 2040 Growth Concept) are also priority areas for pedestrian improvements. They are located along good-quality transit lines and will be redeveloped at densities that are somewhat more than today. These corridors will generate substantial pedestrian traffic near neighborhood-oriented retail development, schools, parks and bus stops. These corridors should be designed to promote pedestrian travel with such features as wide sidewalks with buffering from adjacent motor vehicle traffic, street crossings at least every 530 feet (unless there are no intersections, bus stops or other

pedestrian attractions), special crossing amenities at some locations, special lighting, benches, bus shelters, awnings and street trees. This designation includes multi-modal bridges.

Multi-use path with pedestrian transportation function: These paths are paved off-street regional facilities that accommodate pedestrian and bicycle travel and meet the requirements of the Americans with Disabilities Act. Multi-use paths with a pedestrian transportation function are connections that are likely to be used by people walking to work or school, to access transit or to travel to a store or library. These paths are generally located near or in residential areas or near mixed-use centers. Paths that support purely recreational uses are not considered part of this transportation network, although they are important components of the regional parks and greenspaces map. Pedestrian/bicycle-only bridges also are included in this designation.

Regional Pedestrian System Map
The above classifications are shown on Figure 1 (2004 RTP) and represents the current system. It does not account for changes in classifications, new facilities or changes that occur in the 2035 RTP update.

V. Pedestrian System Profile

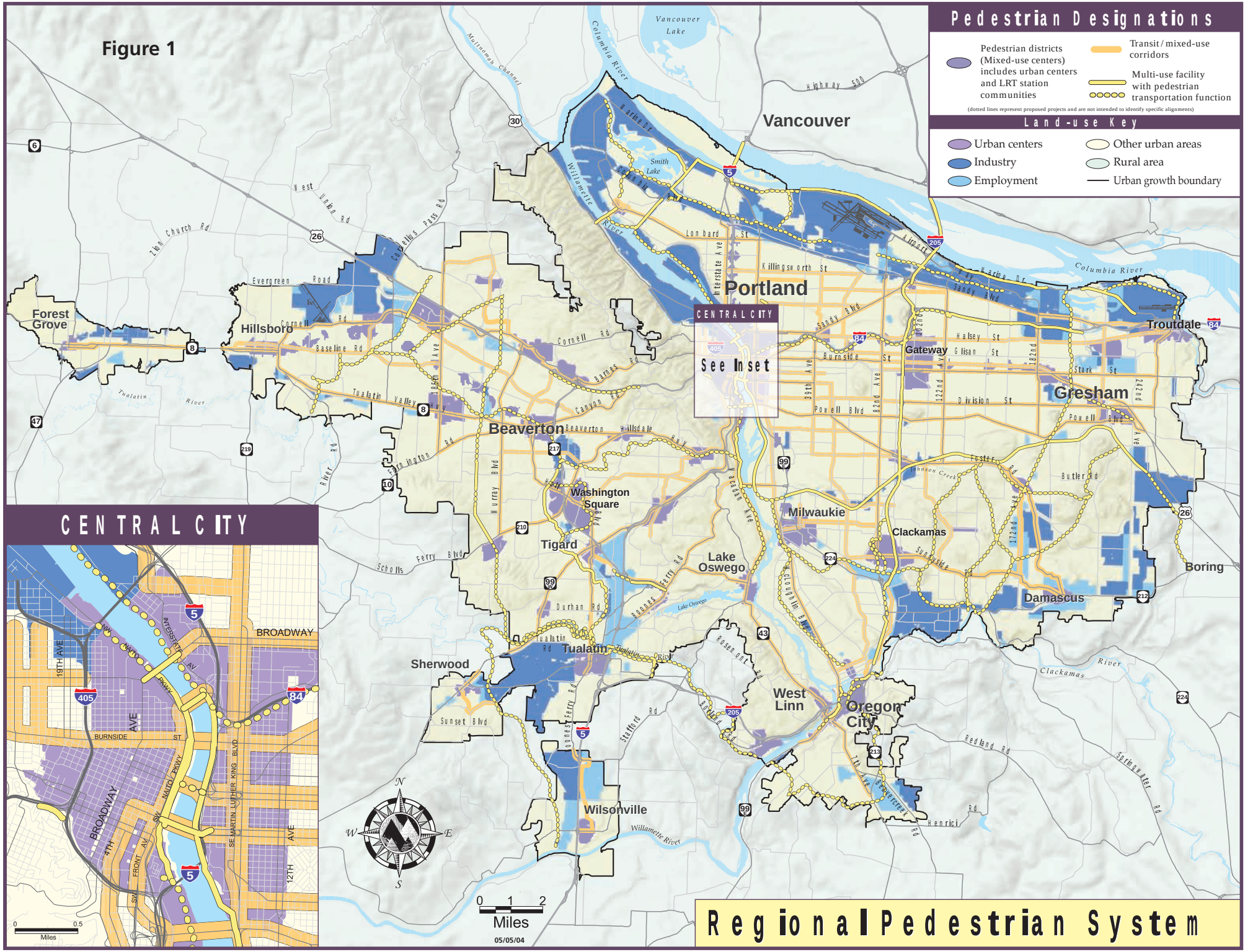
Introduction

The pedestrian system at the regional level is made up of transit mixed-use corridors (which correspond to regional transit routes), pedestrian districts (which correspond to centers), and multi-use path facilities that have a pedestrian transportation function (described in more detail in previous section and shown on Figure 1). Facilities included in the regional system are eligible for federal funds for making improvements and represent the priority areas for channeling regional funds for sidewalks and pedestrian amenities.

Currently there are many gaps in the regional system with regard to sidewalk continuity and connectivity. Generally, areas with denser development patterns, like Portland's central city, tend to have a more developed sidewalk network as well as an urban form that supports safe and enjoyable pedestrian facilities. However, areas with a largely suburban or rural character tend to have gaps in sidewalk continuity, connectivity, and accessibility. Designated centers/pedestrian districts and new urbanist developments are a general exception and have greater connectivity and more sidewalks. Despite this overall pattern, there are problems with the pedestrian system in largely urban areas as well. Many of the outer areas within cities throughout the region are without sidewalks or improved streets. Large streets throughout the region are unsafe for pedestrian travel, particularly at crossings. The existence and condition of ramps at intersections are also lacking in many places. Jurisdictions often lack the resources to construct or replace ADA compliant ramps or provide adequate lighting and well marked crossings that improve safety.

82nd Avenue is just one example of a street that has many challenges for pedestrians, including high traffic volumes, large number of lanes, lack of medians, long blocks with few crossings, wide intersections and fast moving traffic. 82nd Avenue is also the busiest transit corridor in the region. Dangerous conditions coupled with a large number of people walking have led to many unfortunate crashes resulting in injuries and fatalities. 82nd is however only one of many large streets in the region that have characteristics that make them unsafe for pedestrians.

Figure 1


Pedestrian Designations
Pedestrian districts (Mixed-use centers) includes urban centers and LRT station communities
Transit / mixed-use corridors
Multi-use facility with pedestrian transportation function
(dotted lines represent proposed projects and are not intended to identify specific alignments)
Land-use Key
Urban centers
Industry
Employment
Other urban areas
Rural area
Urban growth boundary
CENTRAL CITY
See Inset
Portland
Vancouver
Forest Grove
Hillsboro
Beaverton
Tigard
Tualatin
Sherwood
Wilsonville
Lake Oswego
West Linn
Oregon City
Milwaukie
Clackamas
Gresham
Troutdale
Damascus
Boring
Washington Square
Gateway
BROADWAY
Columbia River
Willamette River
Clackamas River
Tualatin River
0 1 2
Miles
05/05/04
Regional Pedestrian System

Existing pedestrian system map

The existing pedestrian system map was developed using data collected in a joint effort between TriMet and Metro in 2001. The existing pedestrian system map shows sidewalk gaps on regional facilities. There have been no updates to this data at the regional level to date. Many jurisdictions collect data on sidewalk completion, but the data is not necessarily uniformly collected throughout the region, making a systematic review and map update difficult. Data collection efforts may be hindered by a lack of adequate funding. Metro does not require or recommend that data be collected on the system and provides no guidelines for doing so. Despite this data limitation, the existing pedestrian system map, with some revisions, is still an adequate representation of the regional pedestrian system over all.

The existing pedestrian system map, Figure 2A, has been improved by simplifying the representation of the data. The peripheral streets on the map along each corridor were removed and sidewalk gaps are shown as complete or incomplete to give a general idea of where the regional network is in need of more development. The map has also been simplified by removing regional bus routes that fall outside of the transit/mixed use corridor classifications defined as the regional system. This issue may need to be addressed when developing the Regional Pedestrian System by either by removing the streets that don't correspond or extending a regional pedestrian system designation to these streets. The next update should include a revised system based on updated data either collected in house at Metro or provide direction to local governments on collecting data. It is possible that the 2035 RTP will use a different approach to identifying and defining the pedestrian system and the system maps for the various modes and they may not be presented as they were in the 2004 RTP.

Sidewalk completeness in centers

Figure 2B shows the percent of sidewalks completed in centers and station communities. The areas are color coded according to completeness of sidewalks (low, moderate, high) within each area.

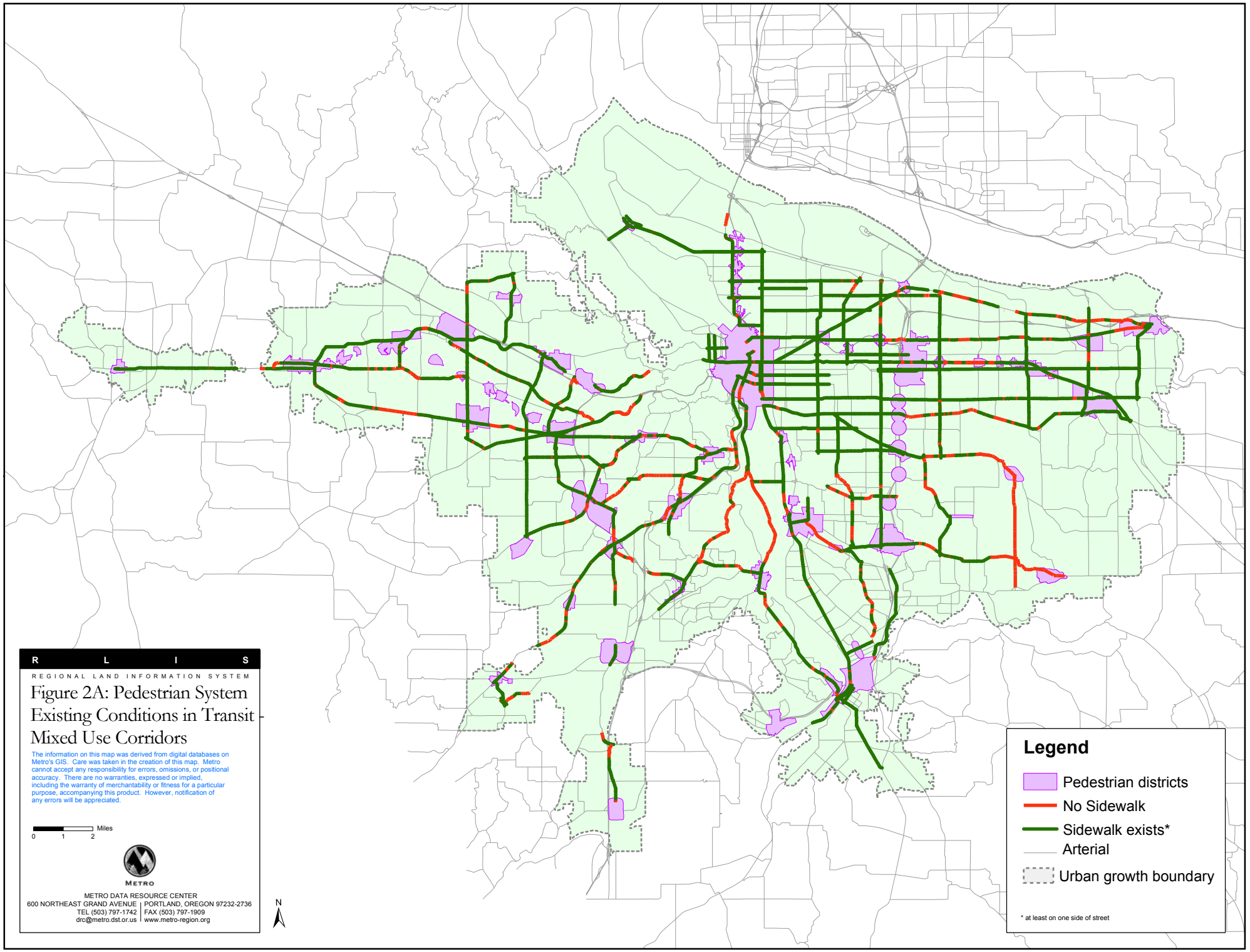
Sidewalk network completeness

Based on the existing data from 2001, the number of miles in the regional pedestrian system in transit/mixed use corridors and pedestrian districts is 1,230 miles. 821 of those miles have sidewalks or 66 percent indicating that there are many areas in the system that are incomplete. This measure refers solely to the presence of sidewalks in areas throughout the region, but does not include measures of quality such as sidewalk width, ADA ramps, traffic calming, good intersection design, which are indicators of how safe and enjoyable the pedestrian system is to use. These elements (or lack of) have not been measured throughout the regional pedestrian system as part of this update.

Future map updates

New tools may be available to Metro's Data Resource Center that may be used to create a new regional sidewalk inventory. More information about the timeframe for starting this work will be known later, but it is likely that work could begin within a year. A description of the tool is provided below.

- The Feature Analyst software provides the GIS community with a paradigm shift in feature extraction technology using spatial context and spectral signature to automatically extract user-defined objects from aerial and satellite imagery. Geographic features, such as streets, buildings, vegetation, etc. are used in a GIS to produce maps and perform spatial analyses for planning, transportation analyses, defense, telecommunications, and many other applications.



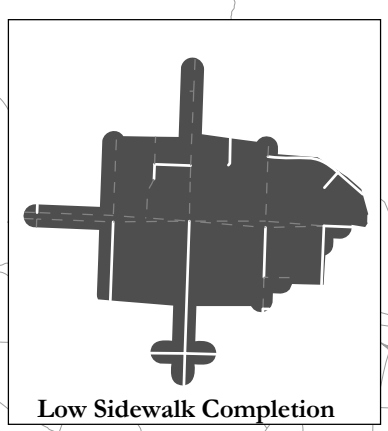
R L I S

REGIONAL LAND INFORMATION SYSTEM

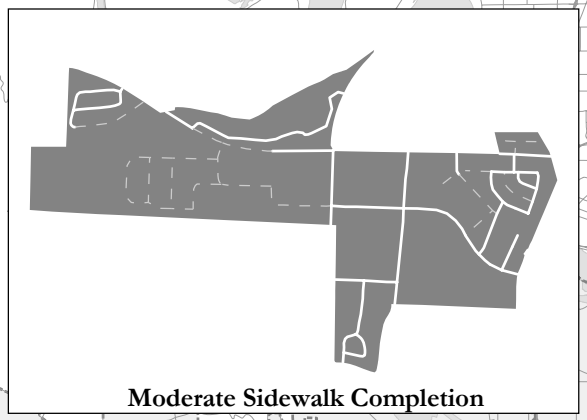
Figure 2A: Pedestrian System Existing Conditions in Transit - Mixed Use Corridors

METRO

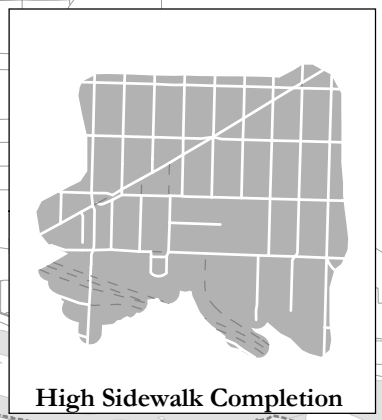
METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org



Low Sidewalk Completion



Moderate Sidewalk Completion



High Sidewalk Completion

R L I S

REGIONAL LAND INFORMATION SYSTEM

Figure 2B: Pedestrian System Existing Conditions in Centers

Miles
0 1 2

METRO

METRO DATA RESOURCE CENTER
600 NORTHEAST GRAND AVENUE | PORTLAND, OREGON 97232-2736
TEL (503) 797-1742 | FAX (503) 797-1909
drc@metro.dst.or.us | www.metro-region.org

N

Legend

Arterial

Urban growth boundary

District Sidewalk's % Complete (adj)

0.00 - 42.39

42.40 - 74.64

74.65 - 100.00

Urban growth boundary

- The Feature Analyst is built on advanced machine learning technology capable of extracting features at a fraction of the labor cost of hand-classifying images.

This tool combined with local data could help update the sidewalk inventory as well as lead to additional "walkability" analysis that can help identify areas where people are more likely to walk/not walk based on the physical features of the pedestrian system. This analysis could be useful in further understanding the areas that are most in need of sidewalk construction and intersection improvements etc.

Existing RTP pedestrian projects from Financially Constrained list

A list of pedestrian projects and projects with pedestrian elements was created from the larger 2004 RTP project list. It does not include every project that may have pedestrian elements such as boulevard or road capacity projects. It has projects specifically designated to be pedestrian or bicycle/pedestrian. The list is available upon request.

Local Outreach on the Regional Pedestrian System

Citizen Pedestrian Advisory Committees Discussions

During the months of September and October Metro staff met with various citizen groups involved in pedestrian committees in the region. Each group was asked what changes have occurred since the last RTP update, what are the barriers to walking in their communities, what types of solutions would be most helpful, and what locations feel unsafe for walking. The following themes emerged from conversations with the Clackamas County Bike/ Pedestrian Advisory Committee, Multnomah County Bike/Pedestrian Advisory Committee, City of Portland Pedestrian Advisory Committee and discussions with the Washington County bike/pedestrian coordinator (they don't have a bike/pedestrian committee). Here is what was heard:

Changes since last RTP

- There is increasing congestion on roadways
- The region is getting bigger – UGB expansions and population growth
- More people are walking and biking
- There has been an increase in negative driver behavior increasing (distracted, aggressive etc.)
- There is more awareness about the need for increasing pedestrian safety

Barriers

- Many places lack connectivity
- The auto dominated culture persists
- Large facilities such as rail yards & freeways are barriers
- Obstructions in sidewalks can serve as barriers
- Lack of driver education for understanding pedestrian issues and safety
- Large intersections are often difficult to get through
- Busy streets with high traffic volumes
- Infrastructure development does not keep pace with population growth
- Safety is an issue that can discourage walking

Solutions

- Traffic calming to reduce speed and complexity of traffic
- More flexible funding to help construct pedestrian facilities in needed areas
- Better design: curb cuts/extensions, medians, safer crossings, signage
- Tie sidewalk (etc) improvements to development

- Increase education for drivers and pedestrians
- Increase maintenance of existing facilities

Places that feel unsafe

Specific locations:
- 82nd Avenue
- Powell Boulevard
- Division
- Sunnyside Road
- McLoughlin Boulevard
- 122nd
- Sandy Boulevard
- Barbur/Capitol
- Burnside
- Scholls/Oleson/Beaverton-Hillsdale Highway

Types of places that feel unsafe:
- Unlit areas/trails
- Areas without sidewalks
- On-ramps to freeways
- Overpasses
- Intersections

Pedestrian Technical Workshop Discussions
In October, Metro held a bike and pedestrian workshop with local pedestrian and bike planners from local and state government, advocacy groups and the private sector. The workshop revealed information about the challenges of developing the pedestrian network to be safe and enjoyable to use and policy gaps at the regional level for doing sidewalk projects at the local level. The major themes of the discussion follow:

- There is a lack of direction from Metro on data collection needs/requirements.
- Recommend focus on short trips in current policy be eliminated.
- Recommend that trip generators or destinations be added to pedestrian system maps.
- There is difficulty to applying general planning policies to all modes.
- Emphasized the importance of adding pedestrian connections in areas with transit dependant populations.
- Transportation Priorities funding is inflexible for supporting needed projects to fill gaps in sidewalks and other safety projects that fall outside of 2040 priority land use areas.

Pedestrian Safety

There are certain elements in the pedestrian environment that the presence of which can determine how safe or unsafe a pedestrian will be in a given environment. Pedestrian risk increases as traffic volumes increase, roadway width increases and the number of travel lanes increases.[21] Further, land use, street connectivity, access management, site design and overall street design affect walkability.[22] These factors combined with the large number of areas without sidewalk infrastructure make the regional pedestrian system unsafe in many places.

[21] Ronkin, Michael "What do Crashes on OR Highways Tell us About Roadway Design" PowerPoint presentation
[22] Ronkin, Michael "What do Crashes on OR Highways Tell us About Roadway Design" PowerPoint presentation

Another indicator of whether a pedestrian environment is safe or unsafe is the number of people walking in a given area. A study by Jacobsen indicates that motorists are less likely to collide with a walker if more people overall are walking.[23] Collisions appear to be reduced in areas where drivers expect pedestrians. Since there is evidence to support the "safety in numbers" concept, efforts can be taken to increase the numbers of people walking as a way to increase safety.

The pedestrian system can also be improved by designing facilities to be safer to use. Good design can provide a more pedestrian friendly environment and thus encourages more people to walk. One study conducted in Eugene, OR found that curb extensions contributed to a significant reduction in the average number of vehicles passing a waiting pedestrian before yielding. The result is due to increased visibility of pedestrians at crossings with the presence of curb extensions.[24] The result of this study on one pedestrian friendly design element demonstrates how design can improve safety for pedestrians and may increase pedestrian activity in an area.

Work has also been done to assess the walkability of sidewalks for elderly and disabled people. The Elders in Action Commission, *Walkable Neighborhoods for Seniors* report revealed a number of ideas that if implemented could make walking safer for seniors and assist seniors in staying active in their communities. Physical factors identified include, wide sidewalks, completing sidewalk gaps, buffers from streets, curb cuts and benches for resting. Other elements that enhance the pedestrian environment for seniors are, easy access to transit, improving safety of crosswalks by increasing the number of crosswalks on major streets, lengthening signals and adding pedestrian controls, enforcing pedestrian right of way laws, adding audible signals and increasing education, especially for bicyclists. The report also identifies the need for accessible and affordable senior housing close to services.

Pedestrian Crash Locations
There is information available that can help determine the problem areas in the region for pedestrian crashes on some facilities, however the data does not indicate what the underlying causes are. Additional analysis is needed to map these locations and identify whether high crash locations are due to poor design, high frequency of pedestrian use or other causes. The analysis could come in the form of detail corridor analyses in areas identified to have high occurrences of pedestrian crashes.

Regional Studies and Reports

There are two previous Metro documents that provide direction/information to consider during the RTP update. Following are summaries of the relevant material from Metro's 2005 Modal Targets project and Metro's 2004 Performance Measures report.

Metro 2005 Modal Targets Project
This study identifies ways Metro can develop procedures and strategies for implementation by local jurisdictions in complying with RTP targets to reduce drive alone trips in the region. The report makes specific recommendations for the RTP update. First, it is recommended that the RTP continue to require transportation–efficient development, including higher density and mixed-use development. It also recommends bicycle and pedestrian improvements by increasing connectivity and access to transit. There are also recommendations for maintaining a region-wide database of pedestrian data and monitoring progress in planning for and constructing pedestrian improvements. The project also discusses good pedestrian design in the form of sidewalks,

[23] Jacobsen, PL "Safety in numbers: more walkers and bicyclists, safer walking and bicycling "
[24] Johnson, Randal S., "Pedestrian safety impacts of curb extensions"

crossing and bridge improvements and curb installations. These elements are important for increasing pedestrian trips.

Metro 2004 Performance Measures report
The performance measures report provides quantitative data needed to assess the implementation of the 2040 Growth Concept goals and helps determine areas that need additional work and policy development. For transportation the fourth fundamental to provide a balanced transportation system is the most relevant for the pedestrian system. The report presents findings from the review of data collected for analysis. The findings indicate that there was an increase in pedestrian projects during the period reviewed. The number of bicycle and pedestrian projects (1/3 of all projects) demonstrates the region's commitment to non-motorized transportation. Also non-SOV performance in centers showed a positive trend and overall daily VMT per capita declined by 11% between 1996 and 2002, while increasing by 6% nationally. The report also indicated increases in the percentage of people riding transit.

IV. Policy Assessment

This section identifies the implications of the existing policy and regulatory framework for doing pedestrian system planning and identifies the policy implications of the key trends/research findings.

Implications of Federal Policy

Existing federal regulations overseeing pedestrian planning were set by ISTEA/TEA 21 and the ADA. SAFETEA LU does not provide many additional requirements for pedestrian planning that were not already addressed in previous iterations of the RTP. The new components of SAFETEA LU that pertain to pedestrian planning are largely carried out by the State, including the Safe Routes to Schools program. The coordinated planning requirement for elderly and disabled and low income transportation does not add specific requirements for pedestrian planning, however pedestrian issues are integrated into this planning and there is a MPO coordination role for creating this plan. Metro has participated in the coordinated planning for the Portland Metropolitan region. Additional policies pertaining to elderly and disabled mobility should be considered for the pedestrian system update in the RTP, including the integration of policies in the coordinated plan.

Implications of State Policy

State policies focus on increasing the number of people walking as an element in reducing the growth of VMT in the region and increasing the physical infrastructure to serve land uses and encourage walking. They also focus on the safety of pedestrians and consequences for drivers that don't observe the "stop law." The implication of these laws on the RTP update is to continue to implement VMT reduction efforts by continuing to increase pedestrian mode share as required by state law. The Modal Targets project identifies ways to improve these efforts at the regional level and also has implications for developing policies that increase pedestrian travel.

Implications of Regional Policy

Currently the functional classifications for the pedestrian system identify the elements that make up the regional pedestrian system. These classifications describe what the system is and will be once completed. Facilities in new urban areas brought in by urban growth boundary expansions may need to be given classifications. Feedback from stakeholders on the RTP classifications indicated that some members of local government find the current classifications limited in their effectiveness for completing gaps in the sidewalk network. In particular, the feedback indicated

that the focus on centers often makes completing gaps in needed areas difficult. Most felt that the current classifications provided a good basic foundation, but could be enhanced.

The current transit/mixed-use corridor designation does not include all regional transit routes. Additional consideration may be needed to determine whether the pedestrian system designations should be extended to these transit routes or an additional designation be developed to add them to the pedestrian system. Also, RTP policies have helped focus investments to enhance transit, however additional emphasis on prioritizing improvements that make the pedestrian environment complete, safe and complement transit investments may be necessary to help complete the regional pedestrian system.

Summary of Key Findings and Implications

Key Finding	RTP Implication
1. Accessibility Increasing emphasis on needs of the elderly and disabled at federal level Awareness of safety issues related to increasing aging population Sidewalk network is incomplete Increasing demand for safe access to transit for all mobility and income levels Increasing focus on managing existing system	• Increased pedestrian system improvements to new and existing facilities needed for the elderly and disabled; emphasize Universal Design throughout planning process • Complete gaps in the pedestrian system, sidewalks, ADA compliant facilities, safe crossings; gaps that inhibit access to transit on new and existing facilities • Emphasize design for whole communities • Encourage enforcement of "stop laws" • Prioritize pedestrian connections in areas with transit dependant populations and the transportation disadvantaged. • Emphasize management of the existing system and integrate technology to improve functioning of the system.
2. Safety Increasing public awareness and demand for safety Pedestrian advocacy focused on increasing safety for pedestrians	• Enhance pedestrian safety policy: education for walkers and drivers, physical improvements based on elements that make the pedestrian environment safer (traffic calming, medians etc). • Build on existing RTP safety policy.
3. Local needs Local jurisdictions have priorities for completing the pedestrian system in areas with heavy pedestrian use that may not be in a center	• Define priority for adding pedestrian access to regional bus stops as part of the regional system.
4. Data needs Desire from locals for more direction from Metro on data collection Modal Targets Project encourages joint data collection efforts Refinements to pedestrian maps needed Better pedestrian access near transit is needed	• Increase data collection efforts: update system data, pedestrian counts - pedestrian use surveys, safety. • Partner with other agencies/universities to collect and track data on pedestrian system; before /after counts for facility improvements. • Add destinations or trip generators to pedestrian maps, consider refinements to transit/mixed use corridor designations along regional transit routes.
5. New urban areas RTP policies don't currently cover new UGB areas	• Identify pedestrian facilities and designations in planning for new UGB areas.
6. Active living Active living movement gaining momentum	• Develop a policy that supports active living/public heath/transportation/land use connection.
7. Transportation/land use connection Emergence of context sensitive design Increasing new urbanism and neighborhood revitalization activities Acknowledgement of benefits of compact development on demand management, safety, economic vitality, and active living	• Encourage holistic approach to designing transportation and land use system. • Support concept of *Complete Streets*: roadways that are designed to accommodate all modes, including walking. • Acknowledge the importance of compact development in supporting pedestrian activities.

VII. Conclusion

The pedestrian system in the Portland Metropolitan region is still being completed. It is important that efforts be taken to address completing system gaps because the pedestrian system supports most other modes, provides a building block for successful economic development, and is important for the safety of pedestrians of all ages and abilities. The previous RTP set a basic framework for improving the pedestrian system, but can be developed further to include a additional focus on meeting the needs of a greater number of people. It is clear that walking is becoming more widely recognized as important for health, creating vibrant places and providing equitable access to transportation. There are a number of opportunities to support the further development of the pedestrian system including enhancing policies for supporting elderly and disabled pedestrians and transit dependent populations, completing the sidewalk network, improving the quality of existing pedestrian environments through better street design, and focusing on an integrated transportation system that safely meets the needs of all modes as well as all mobility levels.