

MAKING A
GREAT
PLACE



2014 REGIONAL

ACTIVE TRANSPORTATION PLAN

About Metro

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

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2014 Regional Active Transportation Plan

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Bicyclists turning onto a regional bicycle route. Photo: BikePortland.org

“Community members want to walk and bicycle more. This plan for our young 21st Century will help our area compete for more funding opportunities and implement our community needs and desires.”

~Kathryn Harrington, Metro Councilor

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Public desire for transportation options

Over 65% of residents in Multnomah, Clackamas and Washington Counties would like more walking and bicycling paths and facilities.

~ Opt-In Survey, 2012

A national poll found that most residents would like to drive less, but do not believe it is a realistic option for them. Over 70% feel that they have no choice but to drive as much as they do.

~ Natural Resources Defense Council, September 2012



It is easy for kids to travel actively with facilities such as the Peninsula Crossing Trail, Photo: BikePortland.org

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Pedestrian and bicycle facilities that make it safer and more comfortable to walk, ride a bicycle and access transit, encourage active transportation. Photo: LivetoTravel

Cities, Counties and Partners

Metro serves twenty-five cities and three counties. Knit together, the pedestrian and bicycle networks developed by and within these jurisdictions form the regional active transportation network. Metro partners with the following cities, counties and agencies, as well as bicycle and pedestrian advocacy groups, the public and other stakeholders to develop the regional network and increase levels of walking and bicycling.

Beaverton
Cornelius
Damascus
Durham
Fairview
Forest Grove
Gladstone
Gresham
Happy Valley
Hillsboro
Johnson City
King City
Lake Oswego
Maywood Park
Milwaukie
Oregon City
Portland
Rivergrove
Sherwood
Tigard
Troutdale
Tualatin
West Linn
Wilsonville
Wood Village
Clackamas County
Multnomah County
Washington County
Tualatin Hills Park and Recreation District
North Clackamas Park and Recreation District
Oregon Department of Transportation
TriMet
SMART

Acronyms

ATP	Regional Active Transportation Plan
BTA	Bicycle Transportation Alliance
ECAT	Executive Council for Active Transportation, a Council of the Intertwine
ITE	Institute of Transportation Engineers
HCT	High Capacity Transit Plan
JPACT	Joint Policy Advisory Committee on Transportation
MPAC	Metro Policy Advisory Committee
MTIP	Metropolitan Transportation Improvement Program
MTAC	Metro Technical Advisory Committee
NACTO	National Association of City Transportation Officials
ODOT	Oregon Department of Transportation
RTFP	Regional Transportation Functional Plan
RTP	Regional Transportation Plan
UGB	Urban Growth Boundary
UGMFP	Urban Growth Management Functional Plan
SAC	Stakeholder Advisory Committee for the ATP
SMART	South Metro Area Regional Transit
TGM	Transportation Growth Management
TPAC	Transportation Policy Alternatives Committee
TriMet	Tri-County Metropolitan Transportation District of Oregon
TSMO	Transportation Systems Management and Operations Plan
TSP	Transportation System Plan



Active transportation is getting where you need to go actively. Walking, riding a bicycle, using a mobility device and accessing public transportation are all active travel. Photos: Metro



Active transportation is for all ages and abilities. Connecting walking and bicycle routes to schools is an important strategy to increasing levels of active travel and keeping kids healthy and independent. Photo: Metro

“ODOT and Metro have recognized the need for an Active Transportation Plan. This would put walking and biking on par with driving for transportation planning purposes.”

~Peter Goodkin, MD, Chair, Clackamas County Pedestrian and Bicycle Advisory Committee

Executive Summary: Challenges and Recommendations

The *2014 Regional Active Transportation Plan (ATP)* provides a vision, plan and policies for communities in our region to increase transportation options and support economic development, healthy active living and equity. An agreed upon regional strategy knits together local plans and projects efficiently, consistently and cohesively. Acting on the ATP recommendations will help achieve goals, targets and the region's adopted Six Desired Outcomes.

Active transportation is human-powered transportation that engages people in healthy physical activity while they travel from place to place. People walking, bicycling, the use of strollers, wheelchairs and mobility devices, skateboarding, and rollerblading are all active transportation. Active transportation supports transit.

- **Vision.** A bold vision for the future based on shared values, local plans, existing investments and successes.
- **Plan.** A plan that knits together local projects and routes to achieve complete and seamless regional pedestrian and bicycle networks that make active travel easy, comfortable and safe.
- **Policies.** A set of recommended policies and actions to help achieve goals, targets and desired outcomes.



People walk, ride bikes and use active travel for all types of trips – to catch the bus or train, get to school and work, go to the store and run errands, and visit friends, as shown here in downtown Lake Oswego. Photo: Metro

Vision and desired outcomes

ATP recommendations help achieve a vision of a complete transportation network in 2040 where walking and bicycling are prioritized. The vision is based on shared values and the desire to achieve the region's Six Desired Outcomes.

In 2040, people across the region have been meaningfully involved to create a transportation system that meets their needs. Convenient and safe access to active transportation has helped create and maintain vibrant communities in the region. Connected and safe pedestrian, bicycle and transit networks provide transportation choices throughout the region. People of all ages, abilities, income levels and backgrounds can walk and bike easily and safely for many of their daily needs and the walking and bicycling environment is welcoming to them. A majority of the short trips in the region are made by bicycling and walking. Children enjoy independence walking and biking to school and seniors can age in place and can get around easily without a car. Active transportation contributes significantly to the region's economic prosperity. Household transportation costs are lowered, roadways are less congested and freight experiences less delay. People enjoy clean air and water and are healthier and happier because they incorporate physical activity into their daily routines.

Six Desired Outcomes

1. People live, work and play in vibrant communities where their everyday needs are easily accessible.
2. Current and future residents benefit from the region's sustained economic competitiveness and prosperity.
3. People have safe and reliable transportation choices that enhance their quality of life.
4. The region is a leader on climate change, on minimizing contributions to global warming.
5. Current and future generations enjoy clean air, clean water and healthy ecosystems.
6. Equity exists relative to the benefits and burdens of growth and change to the region's communities.



*Increasing the number of trips made actively reduces auto traffic and keeps roadways running smoothly. The Hawthorne Bridge is an example of how replacing auto trips with walking, bicycling and transit reduces congestion.
Photo: City of Portland*

Challenges

Communities across the region have made major strides in making it easier to walk, ride a bicycle and access transit. Cities, counties and agencies have built and improved facilities, created better connections and supported programs and education, making the region one of the most pedestrian and bicycle friendly places in the country. In 2011, nearly 18% of all trips made in the region were made by walking and bicycling, higher than most other places in America.¹ Since 1994, bicycling for all trips increased 190%.

However, communities in the region still face challenges to increasing levels of walking and bicycling and are missing out on economic, health and social benefits. Performance outcomes in the 2014 Regional Transportation Plan indicate that current levels of investments and policies will not achieve many of the transportation targets.²

Challenges to increasing levels of walking and bicycling in the region and reaching regional safety targets and mode share targets for walking, bicycling and transit include:

¹ 2011 Oregon Household Activity Survey, mode shares are for all trips in Clackamas, Multnomah and Washington counties; bicycling 3.2%, walking 10.4% and bike/walk access to transit 4.2%. The U.S. average for combined walking and bicycle trips according to the 2001 National Household Travel Survey was 9.5% of all trips. Levels of walking, bicycling and transit access vary across the region.

² See Chapter 12.

1. **Major gaps exist in the region's planned pedestrian and bicycle networks.** Gaps in sidewalks, bikeways, trails and street crossings make it difficult, unsafe and unpleasant for people to access destinations that meet daily needs. Gaps in the network impact safety and discourage people from choosing to walk, ride a bike or take transit. Additionally, programs, such as Safe Routes to School, that have demonstrated success in increasing active transportation, are not available to everyone or comprehensive. It is not possible to expect substantial economic, health and mobility benefits associated with active transportation until the pedestrian and bicycle networks are substantially complete and programs are widely implemented.

The regional pedestrian and bicycle networks are not complete.

Regional trails/multi-use-paths: 44% complete

Regional bikeways: 51% complete

Regional sidewalks: 55% of all roadways in the regional pedestrian network (primarily arterials) have sidewalks on both sides of the road and 19% have a sidewalk on at least one side of the road.

Source: Metro regional sidewalk, bicycle and trail data, 2011.

2. **People would like to walk and ride bicycles more for transportation but feel unsafe doing so.** The fears are justified; serious pedestrian and bicycle crashes account for 20% of all serious crashes in the region, and pedestrian and bicycle crash rates are higher than their share of trips. Surveys and polls indicate that people would like to walk and bicycle more for transportation but feel unsafe doing so.^{3, 4} Additionally, the annual comprehensive cost of fatal and incapacitating pedestrian and bicycle crashes in the region is over \$81 million.⁵
3. **Not all communities have access to transportation options, especially those with low-incomes and people of color.** According to Transportation for America's report, *Dangerous by Design*, children, older adults, and racial and ethnic minorities experience

³ Analysis developed by the City of Portland identified that 60% of the population in Portland would like to ride bicycles more for transportation if it felt safer to do so (Geller, Roger. 2005, [Four types of cyclists](#), Portland Bureau of Transportation). Recent research by Dr. Jennifer Dill has confirmed the City of Portland's four types of cyclists definition. Dill, Jennifer and Nathan McNeil. [Four Types of Cyclists? Testing a Typology to Better Understand Bicycling Behavior and Potential](#).

⁴ [Metro Opt-In Active Transportation Survey](#)

⁵ [Benefits of Active Transportation & Considerations for Implementation](#), June 2013

disproportionately high fatality rates from pedestrian crashes.⁶ Regional data indicates that minorities and people with low-incomes use active travel at a higher rate than whites and people with higher incomes.⁷ Some of these people may not have access to a car and are “active transportation” dependent. Supporting populations that are already driving less by making it easier to drive less improves transportation equity and supports transportation choices that benefit everyone. Additionally, women in the region make half as many trips by bicycle as men, indicating that the bicycle network is not as comfortable or accessible for women.

4. **Limited funding dedicated to active transportation.** At historical levels of funding for stand-alone bicycle and pedestrian projects in the region, approximately \$10 million a year, it would take approximately 200 years to complete the active transportation projects identified in the 2014 Regional Transportation Plan.⁸ Limited sources of dedicated funding make it difficult to plan ahead and develop a pipeline of projects.
5. **Federal funding, a major source of funding for active transportation is declining.**⁹ Approximately 80% of funding for regional pedestrian and bicycle projects is from federal funds. Funding for the Federal Transportation Alternatives Program, created in the MAP-21 federal transportation bill is authorized at \$800 million annually, which represents a 33% cut from the \$1.2 billion previously appropriated to programs for walking and biking. And, interim guidance released by the U.S. Department of Transportation in October 2012 requires a new 20% state or local match for any new Transportation Alternative Program projects.¹⁰

Addressing these challenges may seem daunting. However, the region cannot afford not to invest in active transportation. Making it easier to walk, ride a bike and take transit addresses many issues that communities in the region care about: supporting the economy, addressing rising levels of obesity and related health problems, preventing deaths and serious injuries caused to people walking and bicycling on or crossing roadways, reducing costs of transportation by providing adequate alternatives, reducing roadway congestion and green house gas emissions, and protecting water and air quality.

⁶ Dangerous by Design, 2014. Available at: <http://www.smartgrowthamerica.org/documents/dangerous-by-design-2014/dangerous-by-design-2014.pdf>

⁷ 2011 Oregon Household Activity Survey.

⁸ Metro analysis, 2010. There are over \$2 billion of active transportation projects identified on the 2014 RTP financially constrained list of projects.

⁹ Federal funding programs, primarily administered by ODOT, TriMet and Metro, accounts for approximately 85% of the funding for active transportation in the region; state funding from the state gas tax accounts for approximately 7% and local funding sources account for approximately 8%. (Data: Metro 2010.)

¹⁰ Federal funding analysis provided by Transportation for America.

Recommendations

Expanding and completing the regional active transportation network and supporting active transportation programs will provide access to destinations that meet daily needs. Increasing access leads to an increase in levels of walking, bicycling and taking transit and to all of the benefits that are an outcome of active travel – economic vitality, better health and lower health care costs and a healthy environment.



Active transportation builds community and provides independence to those who cannot drive. Women enjoy a walk along the Willamette River and students at Cleveland High in Portland bike to school. Photos: Metro, The Oregonian

The following recommended policies and implementing actions were identified to increase levels of active transportation. The recommendations should be combined with land use and pricing policies to achieve the highest return on investment.

1. **Complete the active transportation network.** Completing the walking and bicycling networks, with access to transit, should be a top transportation priority. First fill gaps and then improve deficient facilities. In areas with high levels of walking and bicycling, deficient facilities should be considered gaps and also prioritized. Focus improvements for active transportation on connectivity, arterials, intersections, and crossings of busy streets.
2. **Make it safe to walk and ride a bicycle for transportation.** Fill gaps, provide more frequent roadway crossings, provide more separation from traffic and design facilities so that walking and bicycling is safe and comfortable for people of all ages and abilities. Increase education and awareness.
3. **Ensure that the regional active transportation network equitably serves all people.** Complete pedestrian, transit and bicycle networks and connect them to destinations that meet daily needs in areas with higher concentrations of environmental justice and underserved communities and where less investment has occurred in the past. Make walking and bicycling safe and accessible for people of all ages and abilities, and for both women and men.
4. **Support populations that are already driving less by making it easier to drive less.** Lower income households, people with disabilities, young people, and people of color

use active transportation and transit more often than other populations in the region.¹¹ Making walking and bicycling more accessible and visible makes it easier to drive less and supports people that are already driving less.

5. **Increase levels of funding dedicated to active transportation projects and programs and develop a pipeline of projects.** Increasing funding levels will allow the regional network to be completed sooner, providing more transportation options. If current funding were tripled to \$30 million per year the planned regional pedestrian and bicycle networks would be upgraded, expanded and completed within fifty years. Dedicated funding for active transportation supports development of a pipeline of projects that are 'ready to go' and can take advantage of funding opportunities.
6. **Better integrate and connect transit, walking and bicycle networks.** Region wide, nearly 85% of all transit trips start as a walking or bicycling trip.¹² Improvements that benefit walking and bicycling also benefit transit when the improvements provide direct and seamless access to transit. Improved access to transit allows people to access destinations across the region without a car.
7. **Make walking and bicycling the most convenient, safe and enjoyable choices for short trips less than three miles.** Nearly 45% of all trips made by car in the region are less than 3 miles.¹³ With complete networks and education and encouragement and other programs, many short trips made by car could be replaced with bicycle or pedestrian trips, increasing road capacity and reducing the need to expand the road system.
8. **Utilize data and analyses to guide transportation investments.** Data on pedestrian and bicycle travel, needs and benefits are not always included in analyses that guide decisions about transportation investments. Transportation analyses should be multi-modal.
9. **Include bicycle and walking improvements in roadway preservation projects whenever possible to make all streets in the region complete streets.** Many bicycle and pedestrian facilities are built when new roadways are constructed and as rural arterials are widened and developed to urban arterials. However, many roadways in the region that are missing sidewalks or bike lanes are not planned to be widened or increase auto capacity. Cities, counties and agencies should seek opportunities to

¹¹ 2011 Oregon Household Activity Survey. People between the ages of 25 and 34 make 25% of their trips actively.

¹² 2011 Oregon Household Activity Survey. Access to transit varies across the region.

¹³ 2011 Oregon Household Activity Survey

include bicycle and pedestrian facilities in preservation projects, such as repaving the roadway as a way to create complete streets.¹⁴

Regional data and transportation modeling indicate that as miles of walking and bicycling facilities increase, the number of trips made by walking and bicycle also increase. The region has already demonstrated that its commitment to active transportation pays off. For example, since 1994, trips made by bicycle in the region have increased over 190% – the fastest growth for any mode. Much of the growth in bicycling occurred in the City of Portland; however, in the areas outside of Portland bicycling mode share increased from 0.7% to 1.5%, which is higher than the national average of 1%.¹⁵

Communities in the region are demonstrating that investing in active transportation has multiple benefits to people, the environment and the economy. While the challenges the region faces to fill gaps and improve safety on the regional ATP bicycle and pedestrian networks and achieve the region’s vision for active transportation are not insignificant, the region and the state has a strong track record supporting investments in bicycling and walking infrastructure and education. Greater levels of investment and commitment to implementing policies will be needed to achieve the transportation targets identified by local and regional leaders.



Regional coordination can help communities implement projects that require strong partnerships, vision and leadership, such as the Three Bridges project on the Springwater Corridor and the Fanno Creek Trail. Photos: Metro, The Oregonian

¹⁴ Recommended by the National Complete Streets Coalition
<http://www.smartgrowthamerica.org/complete-streets/implementation/changing-procedure-and-process>

¹⁵ 2011 Oregon Household Activity Survey

Introduction

The ATP is a modal plan of the Regional Transportation Plan.¹⁶ The ATP pedestrian and bicycle networks, concepts, functional classifications and policies updated those same elements in the 2014 Regional Transportation Plan. Periodic updates of the ATP and performance measurement will be used to inform regional pedestrian and bicycle policy in future updates of the Regional Transportation Plan and Regional Transportation Functional Plan.

What is active transportation?

Active transportation is human-powered transportation that engages people in healthy physical activity while they travel from place to place. People walking, bicycling, the use of strollers, wheelchairs /mobility devices, skateboarding, and rollerblading are active transportation. Active transportation supports transit.

Walkable and bikeable communities are places where it is safe, easy and comfortable to make an active trip. Streets are connected and integrated with walking and biking trails and paths; safe crossings of busy streets are frequent; directional signs make it easy to navigate; pedestrian and bicycle routes connect to destinations.

Active transportation supports public transportation because most trips on public transportation include walking or bicycling. The ATP focuses on increasing pedestrian and bicycle access to transit, making it safer and more comfortable and supporting transit ridership by improving conditions for walking and bicycling near transit stops and stations. The ATP does not plan new or different transit routes; include funding recommendations for building or operating transit or identify deficiencies and recommend transit frequency improvement areas or routes. For brevity, the term active transportation will be used throughout this report and are intended to include all active modes.

What is the purpose of the ATP?

The ATP is not a regulatory document. It is a guidance document intended to support the communities in the region completing and expanding the regional pedestrian and bicycle networks in a connected and comprehensive manner and monitoring performance. Periodic progress updates on implementation of the ATP, including progress towards regional transportation targets will provide an opportunity for regional partners to examine levels of investment and commitment to active transportation. The Regional Transportation Plan and the Regional Transportation Functional Plan include the elements of the ATP that local transportation system plans comply with.

¹⁶ Other modal plans of the Regional Transportation Plan are the High Capacity Transit (HCT) Plan, the Regional Freight Plan and the Transportation Systems Management and Operations (TSMO) Plan. The Regional Travel Options program is a component of the TSMO Plan.



Regional bicycle and pedestrian networks knit together priorities identified in local plans. Making places safe, comfortable to walk, ride a bicycle, use a mobility device, push a stroller and catch a bus or train help implement a complete and integrated regional transportation system. Photo: Metro

What is the regional active transportation network?

The regional active transportation network is comprised of an integrated network of pedestrian and bicycle facilities and districts that are identified on the *Regional Pedestrian and Bicycle Network Functional Classification Maps* in Chapters 7 and 8. Regional pedestrian and bicycle facilities are generally the highest priority walkways and bikeways of cities and counties. The regional pedestrian and bicycle routes and districts form the “spine” for all bikeways and walkways. The regional active transportation network overlaps with the 2040 Growth Concept centers, station communities, main streets and corridors.

The ATP regional bicycling and walking network connects major local bicycling routes and pedestrian corridors to form a coherent, continuous, recognizable and easy to follow regional system. Local plans emphasize the need to provide good pedestrian and bicycle access to destinations that meet daily needs; the ATP emphasizes this need at a regional level and knits together local plans to achieve a comprehensive regional network.

A key outcome and product of the ATP is an update of the regional pedestrian and bicycle network concepts, functional classifications and maps of the Regional Transportation Plan. Network concepts describe the main elements of the regional pedestrian and bicycle networks and their function within the larger transportation system.

- The ATP regional bicycle and pedestrian networks fall primarily within Metro’s jurisdictional boundary, which includes the urban portions of Multnomah, Washington and Clackamas Counties and twenty-five cities. Major bicycle and pedestrian connections to areas outside of the urban growth boundary, such as Sauvie Island, the Columbia Gorge, east Clackamas County and Mt. Hood, the Pacific Ocean and the Willamette Valley are also part of the system. Refer to Chapter 5 for a map of trails that connect outside of the urban area.
- Local networks must be consistent with the regional network. That is, they cannot be less than the regional network, but they can have more local elements.
- To be included in the *Regional Pedestrian and Bicycle Network Functional Classification Maps*, pedestrian and bicycle routes and districts must be identified in an adopted local transportation system plan, bicycle, pedestrian or trail plan. Regional trails should also be included on the *Metro Regional Trails and Greenways Map*. Appendix 1 provides a list of the regional pedestrian and bicycle routes and districts, their level of completion, gaps and deficiencies.
- Regional bikeways, walkways and districts shown on the maps make up the regional active transportation network and are therefore eligible for federal funding. However, to receive federal funding, projects must be on the Regional Transportation Plan project list. Non-regional routes and districts sometimes referred to as local streets and trails, may be shown on some regional maps for context, but are not considered part of the regional ATP network and are not usually eligible for federal funding.

How does the ATP update the Regional Transportation Plan?

ATP pedestrian and bicycle networks, concepts, functional classifications, and policies updated those same elements in the 2014 Regional Transportation Plan. Proposed edits were made to the Regional Transportation Plan based on information and data in the ATP. City, county and agency liaisons for the 2014 Regional Transportation Plan update reviewed the proposed edits and provided feedback and guidance during workgroups and through the public comment period. Any future updates of the ATP will inform subsequent updates of the Regional Transportation Plan.

The following elements are updated in the 2014 Regional Transportation Plan:

1. Pedestrian and bicycle network concepts and functional classifications in Chapter 2.

2. Addition of the integrated active transportation network concept and network guiding principles in Chapter 2.
3. Maps depicting the regional bicycle and pedestrian networks in Chapter 2.
4. Data reference points for the mode share and safety performance targets in Chapter 2.
5. Pedestrian, bicycle and transit policies in Chapter 2 were strengthened and refined.
6. Section 6.7.14 was updated to reflect completion of the ATP and identifies the Regional Active Transportation Work Program as an implementation activity.

Projects that help improve and complete the regional pedestrian and bicycle networks are submitted by cities, counties and agencies to the Regional Transportation Plan. Subsequent updates of the ATP will monitor progress towards completing the regional networks.

Potential changes to the Regional Transportation Functional Plan, the implementing plan of the Regional Transportation Plan may be considered in the 2018 update of the Regional Transportation Plan. The nature of these changes would focus on ensuring that pedestrian and bicycle networks are completed consistently across the region.

How will the ATP be updated?

A regular update schedule for the ATP has not been established. Metro dedicated funding through June 2015, to support finalizing and implementing the ATP. A project update on the program in early 2015 will provide an overview of the status of the work program and could include recommendations for future updates to the ATP. Periodic reviews of progress made on the ATP, either through or in addition to regular updates of the Regional Transportation Plan, are recommended to assess the region's progress in implementing the ATP and to update network maps, policies and strategies to provide even better direction to regional leaders, cities, counties, agencies and other partners in their coordinated efforts to implement the plan.



Active travel means getting to where you need to go actively such as walking and bicycling. Running errands are easy on a bicycle in St Johns Portland. Photo: Metro



Studies show that integrating active transportation into daily routines improves physical health and well being. A family rides on a constructed section of the Tonquin Ice Age Trail that runs along bicycle lanes on SW Boeckman Road connecting to Graham Oaks Nature Park. Photo: Metro

Chapter 1 Planning Process and Stakeholder Engagement

Based on a recommendation from the Metro Blue Ribbon Committee for Trails in [*The Case for an Integrated Mobility Strategy: Walking and Bicycling Offer an Immediate Opportunity to Tackle Key Challenges*](#) (2009), development of a regional active transportation plan was identified as an implementation activity in the last update of the Regional Transportation Plan (2010).¹⁷ The Blue Ribbon Committee recommended that development of the regional trails system should be accelerated, and that it must be done as part of a larger strategy to support active transportation, including well integrated regional bicycle, pedestrian and transit networks.¹⁸ Members of the Blue Ribbon Committee for Trails formed the Executive Council for Active Transportation; the Council provided guidance on the ATP project. Metro, with support from cities, counties, and agencies, secured an ODOT Transportation Growth Management grant to support the project.

The ATP was developed within a broader framework of Metro initiatives and activities. The ATP is informed by and contributes to Metro's regional growth concept and overarching framework of creating a great place. Current initiatives such as the Climate Smart Communities are utilizing information developed through the ATP. Additionally, the ATP was developed with the intent of providing tools to help implement the region's preferred climate scenario upon its adoption.

Planning process

Many stakeholders contributed to the development of the ATP. A Stakeholder Advisory Committee (SAC) composed of staff from cities, counties and agencies, advocates and citizens was the primary stakeholder advisory group and gave substantial time and effort to the project; a list of members is provided in the acknowledgements section. Additional input was provided by the Executive Council for Active Transportation, Metro's advisory committees, the Metro Council, other stakeholder groups and the public.

Early in the planning process the [*ATP Stakeholder Communication Strategy*](#) (February 2012) was developed with the SAC to provide a plan for stakeholder engagement; the document includes additional details on planned stakeholder outreach.¹⁹ To develop the communication strategy a

¹⁷ 2035 Regional Transportation Plan. 6.7.14, section 6.7 Implementation Activities to be Addressed Post-RTP Adoption, Chapter 6, Implementation

¹⁸ Efforts of the Blue Ribbon Committee led to the creation of The Intertwine Alliance, a broad coalition of public agencies, private businesses and nonprofits to working to protect and improve the region's network of parks, trails and natural areas. Completion of the regional trail network is a primary focus of The Intertwine Alliance. <http://rim.metro-region.org/webdrawer/webdrawer.dll/webdrawer/rec/189700/view/>

¹⁹ <http://rim.metro-region.org/webdrawer/webdrawer.dll/webdrawer/rec/296177/view/>

“Metro Community Engagement Strategy Assessment” was completed to help determine the appropriate level of engagement, including considerations of resources and funding; the ATP project had limited resources available for engagement and relied heavily on Metro advisory committees for guidance.

With input from the SAC, the project scope of work was refined. Between January 2012 and June 2013, SAC met eleven times with additional work group meetings on specific topics. Members of the SAC identified key stakeholders that they would update on the progress of the plan. Members of the SAC were provided with materials ahead of meetings and asked to provide input and guidance on each element of the plan.

A project webpage was developed with information and project materials. At the start of the project, Metro staff provided TPAC and MTAC with overviews of the project tasks, communication plan and timeline. Fact sheets and project updates from Metro Councilors were provided at MPAC and JPACT meetings. Figure 1 provides a snapshot of the engagement timeline.

Figure 1: Snapshot of ATP engagement timeline

	2012												2013					
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
SAC and focus group meetings		▲	▲			▲	▲		▲		▲	▲	▲	▲		▲	▲	▲
Public engagement opportunities																●		
Other stakeholder engagement		●	●		●	●			●	●						●	●	
Metro Council							■						■				■	■
TPAC, MTAC, JPACT, MPAC updates		■									■						■	■
Phase 1: Existing Conditions/Frame Choices																		
Phase 2: Network Concepts/Select Alternative																		
Phase 3: Priorities, Implementation Strategy																		

Early on in the planning process staff sought input from the Stakeholder Advisory Committee, Metro Council and the Executive Council for Active Transportation on what a successful planning process and outcomes would look like. Many of the responses were the same. The input was used to help refine the project and guide the planning process.

The ATP planning process will be successful if:

- It is not just about transportation – it is also about healthy people and environment, healthy economy
- An inclusive process that grows a broad base of support
- Regional agreement on priorities, translating into more funding and policy changes
- Leads to projects on the ground
- Equity – everyone shares in the benefits and needs of underserved are addressed
- Is an exciting, living document that tells real stories – not a plan on the shelf
- Benefits both local and regional needs, there is local buy-in
- Clear implementation plan, with projects and implementers clearly defined
- Adopted by Metro Council and JPACT, amended to the Regional Transportation Plan
- Results in more and better data on bicycling and walking
- Support is developed for future action

- Includes bold policies to prioritize bicycling and walking projects
- Health indicators are included in performance measures

The ATP planning process will be unsuccessful if:

- Plan sits on the shelf, does not do anything
- Priorities are not clear
- Lack of ownership, support – plan is unfunded
- Non-inclusive process limited to the usual suspects – does not grow the base of support
- Polarizes community (e.g. bikes vs. ...)
- Miss an opportunity to integrated with other projects in the region
- Project is not focused

A draft plan was finalized in June 2013 to satisfy the requirements of the TGM grant. As part of the project three technical reports were produced. Demographic analysis was included in the [*Existing Conditions, Findings and Opportunities*](#) report (2012) to provide information on levels of bicycling and walking for people of color, people with limited English proficiency, people with low-income populations, people with disabilities, seniors and youth.

Considerable effort from the SAC was given to developing the plan's guiding principles, evaluation criteria and recommended pedestrian and bicycle networks. The SAC had less of an opportunity to influence the development of the policies before they concluded meeting in July 2013. Policies and the overall plan were further refined through public and key stakeholder input and with the guidance of a regional workgroup, prior to the plan being adopted in July 2014.

Review and refinement of the draft ATP

Feedback from Metro's advisory committees made it clear that additional time was necessary to provide more opportunity for feedback and input on the draft plan before it could be adopted. Subsequently, four revised drafts were developed with additional stakeholder input and referred to as Review Draft 2 (September, 2013), Review Draft 3 (January, 2014), Public Review Draft (February 2014), and the final ATP (June, 2014).

Edits based on a set of initial comments from Metro's advisory committees were reflected in Review Draft 2 of the plan. This plan was attached to a resolution passed by the Metro Council in September 2013 acknowledging the draft plan and directing staff to continue to work with stakeholders to finalize a plan that had regional support and incorporate updates to the Regional Transportation Plan.

Metro formed a regional work group to provide opportunity for further review and refinement of the plan.²⁰ The work group met five times and provided verbal and written comments and

²⁰ Participants in the work group are listed in the acknowledgement section of this document.

suggested refinements to the plan. Review Draft 3 of the ATP was produced in January 2014. Members of TPAC and MTAC provided additional comments, which were reflected in the February 2014 Public Review Draft ATP.

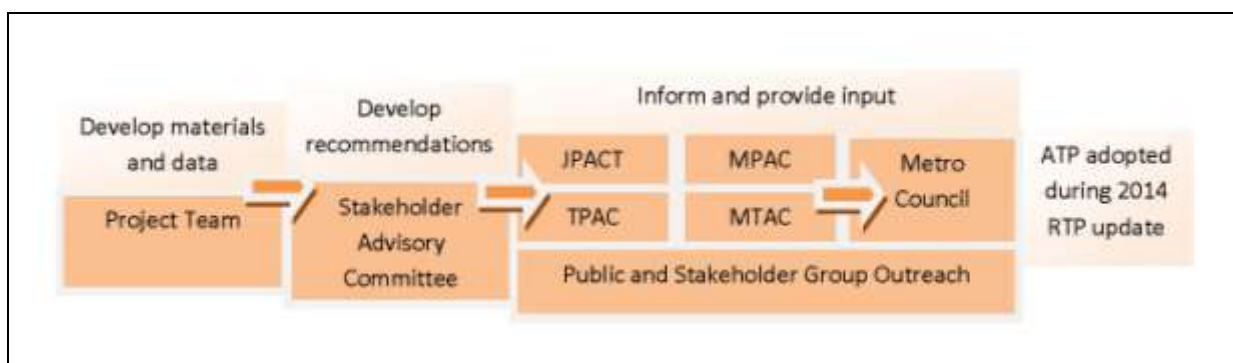
Public comment

Metro sought input on the Public Review Draft ATP during a public review comment period March 21 through May 5, 2014. Metro also sought public comment on updates to the regional pedestrian and bicycle concepts, networks, functional classifications and policies in the 2014 Regional Transportation Plan. Metro responded to input from the public comment period and produced the final ATP in June 2014. The ATP was adopted by resolution in July 2014.

Project partners and stakeholder involvement

This section describes the primary stakeholders involved in the project. Figure 2 illustrates the general relationship between the primary project partners and the planning process.

Figure 2: ATP Stakeholders and Planning Process



Project Team - Metro staff, the ODOT TGM project manager and the consultant. Metro staffed the project, conducted research, technical analysis and produced technical reports and the plan. CH2MHill and Alta Planning and Design provided additional technical assistance. The ODOT TGM project manager ensured that the project fulfilled the TGM grant requirements.

ATP Stakeholder Advisory Committee (SAC) and sub-committees - provided technical and policy guidance for the project and developed the July 2013 draft ATP. The SAC met eleven times. Additional small workgroups met to work on specific topics, such as development of the pedestrian and bicycle networks. The SAC membership included bicycle, pedestrian, trail and transit planners and advocates, and representatives of elders, youth, and health. A list of members is provided in the acknowledgement section.

A **regional work group**, which included many members of the SAC, was formed at the request of JPACT and MPAC and met between October 2013 and January 2014 to provide additional review and refinement of the ATP. The work group had

approximately forty participants who provided verbal and written comments on the plan. Participants are listed in the acknowledgements section.

Joint Policy Advisory Committee on Transportation (JPACT) is a committee of elected officials and representatives of agencies involved in transportation related needs for the region. JPACT members provided policy direction on the ATP. All transportation related actions, such as adoption of the Regional Transportation Plan are recommended by JPACT to the Metro Council.

Metro Policy Advisory Committee (MPAC) is a charter mandated committee of local government representatives and citizens. MPAC members provided policy direction on the ATP. Under state law, the Regional Transportation Plan serves as the region's transportation system plan. As a result, MPAC also has a role in approving the regional transportation plan as a land use action, consistent with statewide planning goals and the Metro Charter. Because the ATP is adopted by resolution and not by ordinance and is not a land use action MPAC is not required to approve the ATP. However, MPAC's approval of the ATP was sought because of the breadth of community representation that is included in MPAC's membership.

Transportation Policy Alternatives Committee (TPAC) provides technical input to JPACT and transportation planning and funding priorities for the region. TPAC received updates and provide input on the development of the ATP.

Metro Technical Advisory Committee (MTAC) is composed of planners, citizens and business representatives and provides detailed technical support to MPAC. MTAC received updates and provide input on the development of the ATP.

Metro Council is the region's directly elected governing body, consisting of a Council President and six district representatives. The Metro Council provided policy direction on the ATP. The Metro Council adopts the stand alone ATP and changes to the Regional Transportation Plan based on the ATP.

Stakeholder groups (listed below) provided input meetings presentations on the project.

Public provided valuable input through an [Active Transportation Opt-In survey](#) (October 2011), which received responses from nearly 4,000 residents in the region. At an Intertwine Summit in October 2013. A public open house for the project on May 23, 2013; materials from the open house were posted on the project webpage and Metro accepted comments for two weeks following the open house. During the public comment period March 21-May 5, 2014; and an open house at the 2014 Oregon Active Transportation Summit, April 21-22, 2014. Materials and information on the project were provided on the public webpage and all meetings were open to the public.

In addition to the stakeholders listed above, members of the project team and the Stakeholder Advisory Committee met with stakeholder groups to provide information on the project, answer questions and receive feedback that was incorporated into the plan.

- Access Recreation (group advocating for developing uniform guidelines for minimum information that should be provided about trails and outdoor recreational facilities, that would benefit people with disabilities)
- Beaverton City Council
- Bicycle Transportation Alliance Project Advisory Committee
- Clackamas County Bicycle and Pedestrian Committee
- Clackamas County Transportation Advisory Committee (CTAC)
- East Multnomah County Transportation Coordinating Committee (EMCTC)
- EMCTC Technical Advisory Committee (TAC)
- Elders in Action Commission
- Executive Council for Active Transportation (ECAT) provided high level guidance in the early stages of the project. ECAT was initially formed to support the development of a regional active transportation network through the Intertwine initiative. A list of members is provided in the acknowledgement section.
- Gresham Transportation Subcommittee
- Multnomah County Pedestrian and Bicycle Advisory Committee
- Northeast Coalition of Neighborhoods, Land Use and Transportation Committee
- OPAL – Environmental Justice Oregon
- ODOT Oregon Bicycle and Pedestrian Advisory Committee
- Oregon Walks
- Portland Bicycle Advisory Committee
- Portland Freight Advisory Committee
- Portland Pedestrian Advisory Committee
- Port of Portland
- Tualatin Hills Park and Recreation District Board of Directors
- Washington County Coordinating Committee (WCCC)
- WCCC Technical Advisory Committee (TAC)
- Washington County Planning Directors
- Westside Economic Alliance Transportation Committee

Engagement opportunities

Public meetings throughout the project, the Stakeholder Advisory Committee meetings and presentations at the Metro Council work sessions and meetings, JPACT, MPAC, TPAC

and MTAC committee meetings were open to the public. Public testimony was provided at some of the meetings.

Regional workgroup (October 2013 and January 2014) over 120 people were invited to participate in a work group to review and refine the draft ATP. Approximately 40 people, primarily staff from cities, counties and agencies and advocacy groups provided verbal and written comments. Updates on the work group process were sent to an email list of over 120 people.

Active Transportation Opt-In Survey (October 2011) over 4,000 residents of Clackamas, Multnomah and Washington Counties responded to survey questions about active transportation. Results from the survey informed the ATP workplan and project.

Intertwine Summit (October 2012), a workshop, held at the Oregon Zoo, with over 100 attendees providing input on the existing conditions analysis for the ATP.

Public Open House (May 2013), held at Metro, over 100 attendees provided input on draft elements of the ATP. Attendees provided comments on comments cards and sticky notes on draft maps and policies. Input directly influenced changes made to the draft ATP.

Open house materials available on-line for extended public input.

Email updates on the ATP were provided at periodic intervals to an interested parties list of over 460 people.

Quarterly Regional Trail Forums – updates and presentations on the ATP provided at each forum.

Oregon Active Transportation Summit (April 2013, Salem and April 2014, Portland) information table, open house and presentation on the ATP; over 300 attendees at the Summits.

Project web page – a project webpage maintained throughout the project with project information and materials.

Project factsheets – four project factsheets were developed to provide information on the project. Individual city and county factsheets were developed for the public comment period and illustrated the projects in the different communities supported by the ATP.

Written comments from individuals and stakeholder groups included feedback and recommended changes that were reflected in drafts of the ATP.

Public comment period for the Regional Transportation Plan and ATP (March 21-May 5, 2014) Metro sought comments on the ATP and updates to the Regional Transportation Plan based on the ATP.



Integrating walking, bicycling and transit makes the combined networks more effective, better serving residents and visitors alike. Bringing your bicycle on board a MAX train is easy and convenient. Bicycle parking at stations and destinations, pedestrian crossings at transit stops, bus stop shelters, wayfinding and lighting are some of the improvements that local governments and the region's transit agencies are making to make a fully supported active transportation network. Photos: Metro, TriMet

"TriMet strongly supports the regional Active Transportation Plan, which will help make walking, biking and transit safer and more attractive. We are especially interested in how the active transportation network complements the regional transit network to improve access and mobility, while using innovative design to ensure safe and efficient operations and interactions between all modes."

~Neil McFarlane, TriMet General Manager

Chapter 2 Benefits of Active Transportation

There are numerous economic, social, health and environmental benefits of active transportation. With relatively low levels of investment the region has constructed miles of pedestrian walkways, bikeways and trails, often connected to transit. And, though the regional pedestrian and bicycle networks are incomplete, they already provide a substantial return on investments.

Increasing levels of walking and bicycling for transportation has contributed significantly to the livability of the region. People are healthier compared to national and state averages. People drive less and shorter distances. More money is kept circulating in the local economy. There are fewer crashes between pedestrians, bicyclists and autos. Air and water are cleaner. With continued and increased investment in infrastructure, education and programs the region will continue to experience the many benefits of active transportation. Refer to the [Benefits of Active Transportation and Considerations for Implementation](#) (June 2013) supplemental report for current research and studies demonstrating the benefits of active transportation.

Walking and bicycling - transportation *and* recreation

Walking and bicycling are transportation and recreation – and very often they are both at the same time. Many people like to ride a bicycle to work because it relaxes them and provides them with exercise. Walking and bicycling to school can give many children the opportunity to gain independence, socialize and encourages healthy activity. Running an errand by way of a park provides time to enjoy nature.

With active transportation the lines between utility and enjoyment are blurred. One more benefit of active travel!



People in the region are more active and have lower rates of obesity compared to national and state levels.²¹ Table 1 illustrates that according to a nationwide survey, people in the Portland-Vancouver region exercise more, have lower levels of diabetes, obesity and report better overall health. Better health translates into healthcare savings. For example, a recent study in a peer reviewed journal found that by 2017, the City of Portland will have experienced a net positive return on investment in its bicycle infrastructure of \$500 million in healthcare savings.²² However, at least 26% of adults in the Portland-Vancouver area are obese and 55% of adults in Clackamas, Multnomah and Washington counties meet the Center for Disease Control’s recommendations for physical activity.²³ Making it safe and easy to walk and ride a bicycle makes it easier for people to live more active lifestyles. Transportation modeling analyses conducted for the ATP indicates that levels of walking and bicycling increase as miles of pedestrian and bicycle facilities are increased.²⁴

Table 1: Percentage of Adults Reporting Selected Health Risks, BRFSS 2010

	Nationwide Median	Oregon	Eugene-Springfield MSA	Portland-Vancouver-Beaverton, OR-WA MSA
Health Status – Reported as fair or poor	14.7%	15.8%	16.6%	13.6%
Exercise – Reported no exercise or physical activity in the last 30 days	23.9%	17.5%	18.2%	15.8%
Diabetes – Told by doctor they have diabetes	8.7%	7.2%	7.0%	6.5%
Obesity – Reported BMI greater than or equal to 30.0	27.5%	27.6%	30.0%	26.0%

Source: Behavioral Risk Factor Surveillance System, BRFSS 2010²⁵

²¹Centers for Disease Control and Prevention, SMART: Behavioral Risk Factor Surveillance System, BRFSS 2010 City and County Data, Quick View Charts. Refer to [Existing Conditions, Findings and Opportunities Report](#), 2012.

²² Gotschi, Thomas. Costs and benefits of bicycling investments in Portland, Oregon. *Journal of Physical Activity and Health*, 2011,8(Suppl 1), S49-S58.

²³ Centers for Disease Control and Prevention. SMART: BRFSS City and County Data and Oregon BRFSS County Combined Dataset 2006-2009; Oregon Health Authority, Oregon Overweight, Obesity Physical Activity and Nutrition Facts, 2012.

²⁴ [Regional Bicycle Network Evaluation](#), 2013 and [Regional Pedestrian Network Analysis](#), 2013.

²⁵ Centers for Disease Control and Prevention. SMART: BRFSS City and County Data, Quick View Charts.

Seniors have more options for active aging and aging in place in the region. Research shows that after the age of 55, fewer than five percent of Americans will change residences. This means thousands of older adults throughout our region are aging in place. As our older populations cease to drive, accessible active transportation become essential in supporting these individuals in accessing resources, facilitating social connections, and staying active.²⁶

Figure 3: Transit Access for Seniors Age 65-79 and Older in 2015²⁷

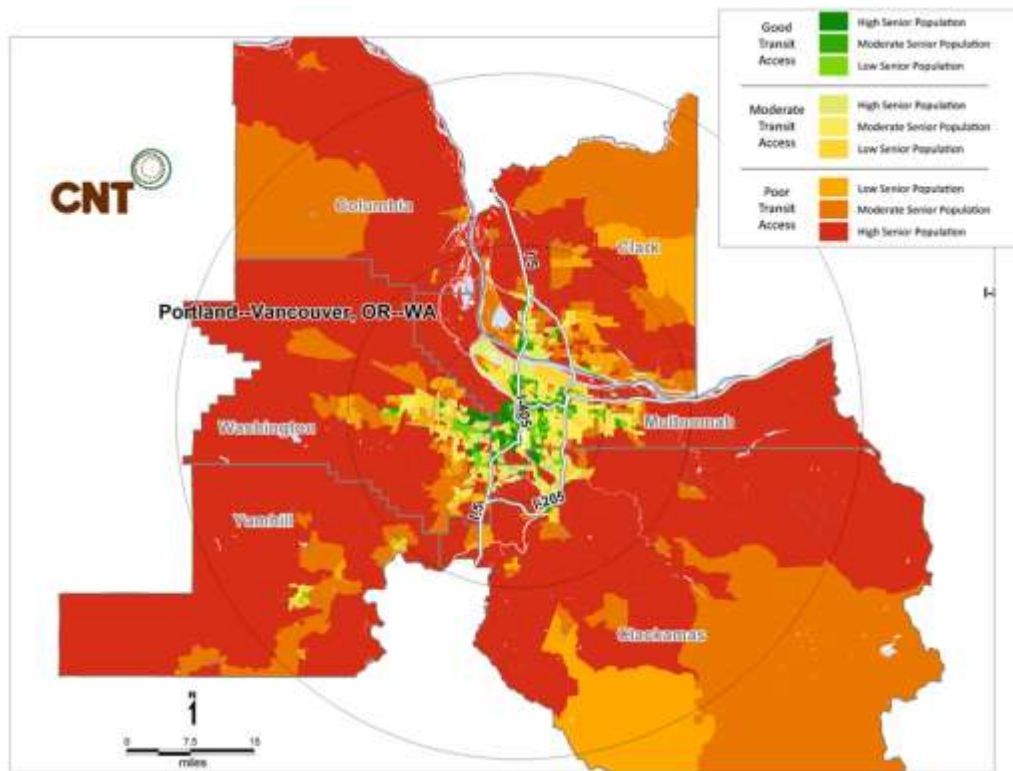


Figure 3 shows density of seniors and level of transit service. Establishing pedestrian and particularly bicycle connections to bus and train stations helps extend the reach of the transit network, making transit commute trips feasible for a broader segment of the population, including seniors. As the region continues to invest in active transportation it will support seniors 'aging in place.' A new action plan developed by the Age Friendly Portland Advisory

²⁶ Frey, William H. (2007), "Mapping the Growth of Older America: Seniors and Boomers in the Early 21st Century." The Brookings Institution, Washington, D.C.

²⁷ The map is color-coded at the Census block group level to show both the intensity of public transportation – whether "poor," "moderate" or "good" levels of service – and the density of seniors. By combining both variables into one scale, these maps show how "aging in place" creates a dramatic mismatch between transit services and senior demand. This map shows the population age 65-79 projected to have poor transit access in 2015. Transportation 4 America and the Center for Neighborhood Technology (CNT) <http://t4america.org/maps-tools/seniorsmobilitycrisis2011/portland/>

Council includes policies related active transportation.²⁸ Action item 2 in the transportation action area states:

Action Item 2 – Active Transportation: Active transportation promotes active aging and is a fundamental aspect of an age-friendly city. Policies must be developed and implemented that result in environments are not automobile-centric, but rather, are developed in a manner that facilitates physical activity and convenient local access. Transportation infrastructure must be built to human scale, developed with universal design principles (above and beyond required minimum accessibility standards), and must ultimately lead to safe, healthy, efficient, and well-maintained systems.



Age friendly bicycle paths in Copenhagen. Photo: BikePortland.org

TriMet's *Coordinated Transportation Plan for Elderly and People with Disabilities* (October 2012) is an example of efforts in the region to make it easy for seniors to age in place in the region.²⁹ The plan includes “Guiding Tenets” and a vision where transportation investments are guided “toward a full range of options for elders and people with disabilities.”

As people in the region drive less, they experience less crashes. States with more auto travel typically exhibit higher fatality rates.³⁰ Filling sidewalk gaps, constructing trails, adding improved

²⁸ Age Friendly Portland website, <http://agefriendlyportland.org/> for a copy of the action plan. The City of Portland adopted the plan in October 2013.

²⁹ TriMet, 2013. <http://trimet.org/pdfs/publications/elderly-and-disabled-plan.pdf>

³⁰ [Metro State of Safety Report](#), 2012.

crossings and separated bicycle facilities provide separation between autos and people walking and cycling and reduces crashes.³¹ Investments in active transportation have been shown to reduce all crashes.³² Metro's 2012 Regional Transportation Safety Plan found that crashes and the resulting injuries and deaths cost the region \$958 million a year in property damage, medical costs, and lost productivity – not to mention the pain and suffering from the loss of life. Over \$81 million of the costs are associated with pedestrian and bicycle crashes alone.³³ As the region makes walking and bicycling safer, the number of crashes, and the cost of crashes, will decline.

Reducing trips made by auto protects the environment and reduces human, environmental and economic costs associated with polluted air and climate change. More transportation choices results in people driving less. This translates into less green house gas emissions. In the Portland region, transportation is responsible for about 25% of the region's green house gas emissions.³⁴ Research shows that for every 1-mile pedaled or walked rather than driven, nearly one pound of carbon dioxide is saved.³⁵ Investing in the active transportation network in neighborhoods with low-incomes and people of color will result in better air quality in these areas, where air pollution is often an issue.³⁶

Access to active transportation increases access to destinations for everyone in the region. Filling gaps in the regional pedestrian network increases the number of people that are within a safe and protected one mile walk of destinations that meet daily needs. This is especially helpful in areas that have historically been underserved. The recommend ATP regional bicycle network contains 60% more network miles than the current regional bicycle network. The increased bicycle network density and connectivity will put more people in the region within access of

³¹ [Benefits of Active Transportation and Considerations for Implementation](#) Report, 2013.

³² *Evidence on Why Bike-Friendly Cities Are Safer for All Road Users*. Environmental Practice 13:16–27 (2011). Wesley E. Marshall, Norman W. Garrick .

³³ [Metro Regional Transportation Safety Plan](#), 2012. And [Benefits of Active Transportation and Considerations for Implementation](#) Report, 2013.

³⁴ Regional Greenhouse Gas Inventory, Metro 2010.

³⁵ US Environmental Protection Agency, 2009 Clean Energy, Calculations and References. An average car emits 11,450 pounds of carbon dioxide a year, or 5.1 metric tons.

³⁶ The Portland Air Toxics Solutions Committee Report and Recommendations mapped census block groups with minority populations above 25 % overlaid with total times above benchmarks for all pollutants observed in the study, including emissions from cars and trucks. Visual inspection of the overlay suggests that there is an overlap between high minority and high impact areas in some areas of the study boundary. Those areas include Forest Grove, Hillsboro, Aloha, Beaverton, North Portland, East Portland and Gresham. <http://www.deq.state.or.us/aq/planning/patsReport.htm>

destinations.³⁷ Improving the pedestrian and bicycle networks to allow for convenient biking and walking access to transit increases access to destinations.

People that drive less have lower household transportation expenses; this keeps more money circulating in the region's local economy. By driving less, household transportation costs are reduced. A vehicle costs about \$10,000 a year to own and operate, second only to housing costs for the typical household.³⁸ The region already keeps an estimated \$800 million circulating in the local economy every year due to less driving.³⁹

Building active transportation infrastructure creates more jobs. Constructing active transportation related projects creates more jobs than road-only projects.⁴⁰ A national study found that bicycling infrastructure creates the most jobs for a given level of spending. For each \$1 million, the cycling projects in the study create a total of 11.4 jobs, pedestrian-only projects create an average of about 10 jobs per \$1 million and multi-use trails create nearly as many, at 9.6 jobs per \$1 million. Infrastructure that combines road construction with pedestrian and bicycle facilities creates slightly fewer jobs for the same amount of spending, and road-only projects create the least, with a total of 7.8 jobs per \$1 million.

Active transportation projects provide a high return on investment. As the benefits associated with active transportation indicate investments in pedestrian and bicycle infrastructure provide a high return on the dollar. Regionally, approximately 3% of federal and state transportation funding for capital projects is spent on pedestrian and bicycle projects, while 18% of all trips are made by walking and bicycling.⁴¹ The City of Portland estimates that its current 300+ mile bikeway network was constructed for the approximate cost of one freeway interchange- \$60 million.⁴² Other jurisdictions have documented even lower costs for building bicycle projects.⁴³

Bicycling tourism contributes \$89 million a year to the region's tourism economy.⁴⁴ A recent state-wide study sponsored by Travel Oregon found that travelers who participated in bicycle-

³⁷ [Benefits of Active Transportation and Considerations for Implementation](#) Report, 2013.

³⁸ [Benefits of Active Transportation and Considerations for Implementation](#) Report. Within the Portland region, working households spent 28 % of their income on housing and 31 % on transportation. On average, working families spend \$10,383 on transportation. Driving includes the cost of owning a personal vehicle, gas, insurance, parking, and maintenance. Driving is more costly than bicycling or walking.

³⁹ *Portland's Green Dividend*, by Joe Cortright. July, 2007. CEO's for Cities.

⁴⁰ *Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts*, 2011. Heidi Garrett-Peltier.

⁴¹ Metro, [Existing Conditions, Findings and Opportunities report](#), 2012.

⁴² The Oregonian *PolitiFact Oregon, 2011 and Build it and they will come*, April 2011. Roger Geller, City of Portland.(\$2008).

⁴³ 2011 Draft- Cost Analysis of Bicycle Facilities (in the Portland metropolitan region), Initiative for Bicycle and Pedestrian Innovation (IBPI).

⁴⁴ The Economic Significance of Bicycle-Related Travel in Oregon, 2012. Dean Runyan and Associates.

related activities while traveling in Oregon spent nearly \$400 million in 2012, representing about 4.4% of the direct travel spending in the state. The Portland region has the most trips in the state, contributing approximately \$89 million to the region's economy.

New businesses and skilled workers are attracted to the region's bikeways and public transit. Providing active transportation infrastructure has been identified as a crucial element to attracting a skilled and quality workforce and new businesses to the region.⁴⁵

Local businesses benefit when people shop by foot or bike. In Portland, 68% of businesses involved in the SmartTrips Business program said that promoting biking and walking helped them market their business.⁴⁶ A study of several different communities in the region, both urban and suburban, found that while people who drive spend more at supermarkets and restaurants than the other transport modes, people who walk, bike or take transit visit the locations more frequently, and thus, over the span of a month, spend more overall.⁴⁷

Development is more successful. Investment in high quality streetscapes, bicycle facilities, and transit service can "tip the scale" in the direction of development feasibility.⁴⁸ People are willing to pay more for homes that allow them to walk or bike rather than drive.⁴⁹ Every point greater than 70 on Walk Score, the website rating the walkability of any address in America, results in increased rent of 90 cents per square foot for commercial property and a rise in value of \$20 per square foot, for residential property. Part of

Health Connection

Evidence connecting health and the built environment is growing. Obesity related health care costs are estimated to cost \$190 billion annually and account for 20.6% of all medical spending.⁽¹⁾ To fight obesity and improve public health, the Centers for Disease Control recommend strategies that make it easier and safer to walk, ride bicycles and access transit. Recommended strategies for communities include:

- Improve access to transit.
- Enhance biking and walking infrastructure.
- Zone communities for mixed-use development.
- Locate schools near residential areas.
- Enhance safety where people are, or could be physically active.
- Enhance personal safety in areas where people are or could be physically active.
- Improve access to outdoor recreational activities.

~ Center for Disease Control, "Recommended Community Strategies and Measurements to Prevent Obesity in the United States, Morbidity and Mortality Weekly Report, Vol. 58, No. RR-7, July 2009.

(1).John Cawley, Chad Meyerhoefer. The medical care costs of obesity: An instrumental variables approach. *Journal of Health Economics*, 2012; 31 (1): 219

⁴⁵ [Benefits of Active Transportation and Considerations for Implementation](#) Report. For an example of a case study, refer to *Downtown Denver: A Magnet for the Future Workforce*. The Downtown Denver Partnership, Inc.

⁴⁶ 2011 City of Portland Smart Trips Business Annual Report.

⁴⁷ Clifton, Kelly J., Sara Morrissey, and Chloe Ritter. "Business Cycles: Catering to the Bicycling Market", TR News, 280, May-June 2012.

⁴⁸ *The Impact of Amenities on Development Feasibility*. December 2010. Metro and Fregonese Associates.

⁴⁹ NY Times. "Now Coveted, a Walkable, Convenient Place to Live." June 5, 2012.

what is fueling this trend is the documented preference of the millennial generation to live in walkable neighborhoods along with growing interest from seniors in active lifestyles.⁵⁰

People have more transportation choices in the region with increased investment in active transportation. Completion of the recommended regional pedestrian and bicycle networks would increase transportation choices, including the choice of taking transit, walking, and bicycling for many more people in the region. Seventy-five percent of respondents to the ATP Opt-In poll indicated that more dedicated bicycle lanes would encourage bicycle riding for transportation on a more frequent basis.⁵¹

Investing in the active transportation network addresses the needs of our most vulnerable residents and those that are “active transportation dependent.” Young people, people with low-incomes and people with disabilities may not have the choice of driving. When the pedestrian and bicycle networks are incomplete, making access to transit more difficult, the most vulnerable suffer and feel unwelcome. In the Portland metropolitan area people of color, people with low incomes and young people walk, bike and take transit more often than other groups.⁵² Nationally, the same is true. For example, a recent report from the League of American Bicyclists, “[The New Majority: Pedaling Towards Equity](#)” finds that the fastest growth in bicycling is among the Hispanic, African American and Asian American populations. With continued increase in investments in active transportation in the region more people are getting equal access.



Source: League of American Bicyclists, “*The New Majority: Pedaling Towards Equity*” (2012); a Portland commuter in the Community Cycling Center’s Create a Commuter Program. Photo: Community Cycling Center

⁵⁰ *Walking as a Way of Life: Movement for Health and Happiness*. By Jay Walljasper. EverybodyWalk.org

⁵¹ Active Transportation Survey Results, Opt-In Survey 2011.

⁵² 2011 Oregon Household Activity Survey

Considerations when implementing pedestrian and bicycle projects

Direct and derived benefits associated with active transportation are numerous. However, implementing active transportation projects can sometimes raise concerns. These concerns are valid and need to be addressed as projects are planned and developed, keeping in mind the benefits that active transportation provides and the trade-offs of not investing in active transportation. Chapter 9 provides more information on the need for context sensitive design. Common concerns include:

- **Environmental impact of new facilities on wildlife habitat.** As transportation projects are planned and developed, impact on the environment must be taken into consideration. Sensitive habitats and resources, such as wetlands, should be avoided when possible. Where not possible, sensitive design should be used to mitigate and reduce impacts.
- **Health impacts on people walking and bicycling in close proximity to auto exhaust.** Breathing polluted air impacts health. Recent health impact analysis for the Climate Smart Scenarios project found that the benefits of increased physical activity outweighs the adverse effects of more exposure to auto pollution.⁵³ Adding buffers of landscaping and trees along walking and bicycling routes helps clean the air, reduce noise pollution and make the experience more pleasant.
- **Reduced roadway capacity for auto and freight.** Adding missing pedestrian and bicycle facilities to roadways can impact other transportation modes, including transit and freight. These impacts should be minimized and the goal should be to integrate all modes so that all can function well. Road diets are one way to reconfigure limited roadway space in a way that allows for the inclusion of wider sidewalks and separated bicycle facilities such as buffered bicycle lanes. Road diets typically reduce the number of lanes from an even number, such as four or six, with two, three, or more lanes traveling in each direction, to an odd number of lanes, such as three or five, with a center turn lane, and usually allocate removed travel lane width to bicycle and pedestrian facilities. Road diets can have multiple safety and operational benefits, such as reducing the number of rear-end collisions, for autos, as well as pedestrians and cyclists.⁵⁴
- **Potential for more walking and bicycling crashes.** There can be a concern that encouraging people to walk and ride bicycles more often and improving infrastructure to make it easier will expose people to a greater risk of being hit by a

⁵³ Oregon Health Authority, Climate Smart Communities Scenarios Health Impact Assessment, 2014
http://public.health.oregon.gov/HealthyEnvironments/TrackingAssessment/HealthImpactAssessment/Documents/CSCS/FINAL_Climate%20Smart%20Communities%20Scenarios.pdf

⁵⁴ [*Benefits of Active Transportation and Considerations for Implementation*](#) Report, 2013.

car. However, studies show that in most cases more people walking and bicycling in greater numbers lowers crash rates and makes the system safer for all users.⁵⁵ Streets that are safer for walking and bicycling are typically safer for people driving too.⁵⁶

- **Low prioritization of pedestrian and bicycle networks.** In order to ensure that the implementation of new sidewalks or bicycle facilities are in alignment with community priorities, communities being considered for active transportation improvements should be engaged from the early stages of planning, with real opportunities to influence decision-making.

⁵⁵ Jacobsen, P. L. (2003). *Safety in numbers: More walkers and cyclists, safer walking and bicycling*. Injury Prevention, 9, 205-209. The report found that the likelihood that a given person walking or bicycling will be struck by a motorist varies inversely with the amount of walking or bicycling. This pattern is consistent across communities of varying size, from specific intersections to cities and countries, and across time periods. Since it is unlikely that the people walking and bicycling become more cautious if their numbers are larger, it indicates that the behavior of motorists controls the likelihood of collisions with people walking and bicycling. It appears that motorists adjust their behavior in the presence of people walking and bicycling. There is an urgent need for further exploration of the human factors controlling motorist behavior in the presence of people walking and bicycling. A motorist is less likely to collide with a person walking and bicycling if more people walk or bicycle.

<http://injuryprevention.bmj.com/content/9/3/205.full.pdf+html>

⁵⁶ Wesley E. Marshall, Norman W. Garrick . *Evidence on Why Bike-Friendly Cities Are Safer for All Road Users*. Environmental Practice 13:16–27 (2011). The study analyzed 11 years of road safety data in 24 California cities. The study found that overall, cities with a high bicycling rate among the population generally show a much lower risk of fatal crashes for *all* road users when compared with other cities in the study. The analysis strongly suggests that the crashes in cities with a high bicycling rate are occurring at lower speeds, agreeing with the finding that street network density was one of the most notable differences found between the safer and less safe cities. Portland increased its bicycle mode share from 1.2% in 1990 to 5.8% in 2000. At the same time, the number of road fatalities went from averaging over 60 per year in 1990 to fewer than 35 per year since 2000.

<http://files.meetup.com/1468133/Evidence%20on%20Why%20Bike-Friendly.pdf>



Designing the transportation network to integrate all modes will help the region achieve its transportation goals and targets. A cycletrack in Portland and the Rose Quarter transit center. Photos: Metro, Jason McHuff

Promoting, encouraging and making it easy to get around actively is critical to the health, economy and well-being of our region. Over 18% of all trips are made by walking and by bicycle within the region.⁵⁷ The benefits of those trips are many. Compared to other places, our region reports better overall health, reducing health care costs and increasing worker productivity.⁵⁸ Providing transportation choices benefits the economy by attracting new businesses and skilled workers. Bicycling tourism and activities generate \$89 million in annual economic activity for the region.⁵⁹

Community profiles in active transportation

Communities across the region acknowledge the value of making it easy and safe to walk and ride bicycles to access destinations that meet daily needs. And as communities complete sidewalk and bike lane gaps, construct trails, improve connectivity, improve facilities and develop programs they are responding to the desires of the community and reaping the benefits of active transportation.

⁵⁷ 2011 Oregon Household Activity Survey. Mode share is for urban and rural areas of Clackamas, Multnomah and Washington Counties. Bicycling 3.2%, walking 10.4% and walk-bicycle access to transit 4.2%. Mode shares are higher for all trips less than three miles made within the urban growth boundary: bicycling 5.1% and walking 19% (2010 Metro transportation modeled data).

⁵⁸ Obesity-related health spending in the U.S. reached \$147 billion in 2009 and accounts for 91% of all medical spending. (U.S. Department of Health and Human Services Secretary Kathleen Sebelius, 2009); Workplace physical activity programs, such as encouraging walking and bicycling to work, can reduce sick leave by up to 32% and increase productivity by up to 52%. (World Health Organization. Southern Australian Workplace Physical Activity Resource Kit. 11/2/10); Regular physical activity, such as walking or riding a bicycle to work, can improve an employee's work performance by up to 15%. (Alberta Center for Active Living).

⁵⁹ *The Economic Significance of Bicycle-Related Travel in Oregon, 2012.* Dean Runyan and Associates.

How communities design and implement projects and programs depends on the unique needs, land use patterns, density and street network design. A 'one-size-fits-all' approach to implementing will not work. For example, a community with a grid street network may implement a network of bicycle boulevards on low traffic streets, while a community with less street network connectivity might develop trails parallel to major continuous streets.



Bicycle parking is full on Portland's South Waterfront at the foot of the aerial tram and OHSU. Photo: American Journal of Health

This section provides examples of actions that different communities in the region are taking to make it easier, more comfortable and enjoyable to walk and bicycle for daily travel. The examples are by no means exhaustive – there is a lot going on in the region!

Beaverton

Beaverton residents identified completing walking and biking connections as the number one priority out of a long list of community building goals in their 2012 Beaverton Community Vision Action Plan. The city has been building projects and supporting programs to achieve these goals. More than four percent of all commute trips are made by walking in Beaverton. Projects such as the Beaverton Broadway Streetscape Improvement Project will create walkable, pedestrian friendly areas. In 2005, Beaverton was awarded a Bronze Award Bicycle Friendly Community designation by the League of American Bicyclists. Plans to add protected bikeways and increase bikeways connectivity could launch the city to a Silver award. Resources such as bicycle parking guidelines help businesses provide adequate parking and events such as Bike Beaverton 2013

make walking and bicycling more accessible to the community. Beaverton staffs a Bicycle Advisory Committee and provides resources such as maps.



*An inset of the Fanno Creek trail from the Beaverton Bike Map and a child improves his bicycle skills at Bike Beaverton!
Photos: City of Beaverton*

Beaverton partners with Tualatin Hills Park and Recreation District (THPRD) to develop a trail network in the city with connections to schools, parks, jobs and transit. THPRD supports a trails advisory committee and has passed successful funding measures that include funding for regional trails.

One example of Beaverton innovation is the city's desire to add HAWK pedestrian signals on busy roadways with limited pedestrian connectivity. The HAWK signal is used at midblock crosswalks on high traffic volume streets and support pedestrian activity. HAWK signals have been found to substantially increase motorist awareness and produce a high motorist stopping rate.



A HAWK pedestrian signal device was installed in Beaverton in January 2014 at Southwest Hall Boulevard near Greenway Boulevard. Photo: Beaverton Police Department

Forest Grove

Forest Grove plans envision a network of trails and connections to promote a sense of community, build connections, serve all ages and abilities, contribute to a strong local economy and establish partnerships. The city supports developing connections, such as the regional Council Creek Trail, to support local trips and regional and state tourism. Downtown Forest Grove is a pedestrian and bicycle friendly area. Elements such as covered bicycle parking and street paving encourage and support walking and bicycling.



Covered bicycle parking structure in Forest Grove. Street paving in crosswalks enhance pedestrian safety. Photos: City of Forest Grove, TriMet

Gresham

Gresham plans envision a community where walking and bicycling is part of everyday life. The city is taking steps to make the vision a reality. Gresham was awarded a Bronze Level Bicycle Friendly Community designation by the League of American Bicyclists in 2010. Investments in projects such as the Gresham-Fairview Trail, the Gresham MAX Path, buffered bicycle lanes on SE Division Street and streetscape improvements on Powell Boulevard provide safe, separated facilities for people to walk and bicycle. The city supports programs such as Safe Routes to School that increase the visibility of active transportation.



Buffered bicycle lanes on SE Division in Gresham and wayfinding are making it easier to get around by bike in Gresham. Photos: Google earth, City of Gresham

Gresham has installed over 100 bicycle wayfinding signs and provides a bicycle map and Gresham Bicycle Guide. Wayfinding and maps encourage and make walking and bicycling more accessible and visible.

Hillsboro

Hillsboro plans include a vision for walkable and bikeable community centers that support economic development and connect people to jobs and transit. The city recently formed a Multimodal Transportation Advisory Committee that includes a sub-committee on active transportation which will provide an important forum for moving active transportation related projects and programs forward. Two examples of bold, large-scale investments in active transportation in Hillsboro are the multi-modal Veterans Drive and the Hillsboro ITF Bikepark.



Wide sidewalks are separated from a raised cycletrack by trees and greenery on Veterans Drive in Hillsboro. The Hillsboro Bikepark makes it easy to combine biking and transit. Photos: Will Vanlue, City of Hillsboro

Veterans Drive, a new east-to-west road from Brookwood Parkway to NE 34th Avenue that links the Washington County Fairgrounds to the Fair Complex MAX is an example of a roadway that gives pedestrians, bicyclists and autos their own designated space. The roadway includes eight foot sidewalks and a raised seven foot cycletrack and is a model for future roadways in the region's suburban areas.

The Hillsboro ITF Bikepark provides members with secure indoor bicycle parking, showers, lockers and bicycle repair. The facility is operated by the city and is located near the SE 8th Avenue Blue Line MAX stop. The facility serves Tri-Met commuters as well as adjacent businesses in Hillsboro's Health & Education District, including Tuality Health Care, Pacific University, Portland Community College and Virginia Garcia Memorial Health Center.

Lake Oswego

Lake Oswego is planning and developing a walkable and bikewable city. The city boasts a pedestrian friendly downtown that supports businesses and creates a unique sense of place.

The city support programs that engage residents with active transportation, such as "The 100 Mile Challenge" challenges people in the community to think about how they get around, especially for trips within two miles of their home and offers incentives for walking, bicycling or taking transit instead of driving.

Development of a loop system of pathways around the community, some of which are regional trails, connects neighborhoods with schools, parks, and commercial centers. Funding for the majority of the system was provided by the bond measure approved by the voters in 1990. The city's transportation and trail plans include projects that will improve connections and safety throughout the city.



Details such as seating, lighting and plantings create a pedestrian friendly environment in downtown Lake Oswego, and quiet tree lined streets are a pleasure to bike on. Photos: Metro, City of Lake Oswego

Milwaukie

Milwaukie has a comprehensive set of initiatives underway that will continue to improve walking and bicycling in the city. The city supports programs such as International Bike and Walk to School Day to encourage active transportation and make it part of the community.



Providing wayfinding and maps is one way the city supports active travel. Photos: City of Milwaukie

The city's adopted transportation plan includes strategies to improve conditions for bicycling, such as filling gaps in the existing bike network, constructing new bike lanes on strategic arterials and collectors, connecting key bicycle corridors to schools, parks, and activity centers, improve crossing safety and connectivity, developing bicycle boulevards and multi-use paths,

maintaining bike lanes, off-street paths, signage, and other facility improvements, and educating cyclists and motorists about bicycle routes, laws, and opportunities. Resources such as a bicycle map and bicycle wayfinding support bicycle riding in the city. Strategically, the city incorporates bicycle improvements into other projects, such as roadway repaving projects.

Two examples of recent projects in Milwaukie supporting active travel in the community are the pedestrian walkway on Adams Street and access to transit improvements on Jackson Street.



Adams Street in Milwaukie will be transformed into a pedestrian walkway and provide connection light rail. Image: City of Milwaukie

Adams Street will be developed as a pedestrian only street in the city. The street runs between Main Street and 21st Avenue and is currently a two-way street that will be closed to autos and turned into a pedestrian walkway from Main Street to the new Light Rail Station. The project will be completed by July 2014.



A new bus shelter on Jackson Street in Milwaukie. Photo: TriMet

Milwaukie and TriMet partnered to rebuild the Jackson Street streetscape from 21st to Main Street. The streetscape consists of new wider sidewalks, street lighting, bike racks, benches, street trees, landscaping, and natural storm water treatment.

Oregon City

Oregon City is transforming roadways, building trails and developing plans to continue to make the city accessible and safe for walking and bicycling. The city's recently updated transportation plan lays out a vision for a multi-modal city, where people can access daily needs by walking and bicycling. Projects to fill bike lane and sidewalk gaps and construct trails are identified in the plan.

Downtown Oregon City provides a good example of efforts the city has taken to improve pedestrian and bicycle comfort and safety that also make the city more inviting to tourists and support local businesses. Not least in the plan for downtown is the Willamette Falls Legacy Project, a visionary project of statewide significance that will transform open the falls up to the downtown.



The city's transportation plan envisions a multi-modal city. Ongoing streetscape improvements create as pedestrian friendly downtown. Photos: City of Oregon City

The city has been implementing a Downtown Streetscape program which is replacing and adding worn out sidewalks, curbs and cross walks, installing streetlights and plantings.



Redevelopment of McLoughlin Blvd.in downtown Oregon City includes a riverfront boulevard that provides separation from autos and an exceptional experience for people walking and bicycling. Photo: City of Oregon City

Portland

Portland is recognized nationally and internationally as a walkable and bikeable city. Investments in pedestrian and bicycle projects and programs have benefitted the economy and the livability of the city. City plans include ambitious targets for increasing levels of pedestrian and bicycle travel and projects and policies to achieve the targets.

Portland's focus on creating a truly multi-modal city gets results. Bicycle travel in the city has increased by more than 190% since 1995, while the rate of crashes involving bicycles continues to drop. More than 36% of all trips made in the central city are made by walking, and Portland is one of the safest cities in the nation for walking and bicycling.

Portland's commitment to programs and education, such as Safe Routes to School, Neighborhood Greenways, SmartTrips, Bicycle Parking and Corrals, Bike Share, Senior Strolls, Women on Bikes, Portland by Cycle, and Sunday Parkways make it easy for people to learn about transportation options and make them part of their daily life. To fund Safe Routes to School the city dedicates a portion of traffic fines is allocated to the education and encouragement part of Safe Routes to School programming, and getting results – more kids are getting to school actively. In schools with the Safe Routes to School Programs, over 40% of children in K-8 grades walk and bicycle to school, more than double the national average of 17.7% (in 2012-2013).

Bicycle and pedestrian way finding and maps make the walking and bicycling networks more accessible, especially since the maps are translated into other languages. The city staffs two citizen committees, a Pedestrian Advisory Committee and a Bicycle Advisory Committee.



Portland pedestrian and bicycle maps are provided for different parts of the city. Spanish language maps are available and the map legends are translated into Russian, Arabic, Burmese, Nepali, and Somali. Wayfinding makes it easy to navigate Portland's bicycle network. Photos: City of Portland

New, innovative bicycle facilities in the city are providing safer and more comfortable bicycle routes. The city is introducing elements such as bicycle signals that prioritize bicycle travel and make it safer, pavement markings and physically separated bikeways on more and more bicycle routes. The unique contexts and area of the bike routes demand creative and flexible solutions to bikeway design. Cities around the region and the country are learning from the new bicycle facilities that the city is introducing.



A cycletrack on Cully in Portland provides physical separation from autos making bicycle travel easy, and a bicyclist combines bicycling and the aerial tram to get to work. Photos: City of Portland, Portland Afoot



Multnomah Boulevard cycletrack in Portland provides a safe direct route making bicycle travel easy. Photo: BikePortland.org

Tigard

Tigard is making strides in active transportation. The city is building projects and supporting programs that make it safer and easier to walk and bicycle. Plans include goals and projects, such as expanding the trail network, improving pedestrian connectivity and safety and adding bike lanes, to make Tigard one of the most pedestrian and bicycle friendly cities in the region. Elements such as the Tigard Bike Map, the Downtown Walking Map and wayfinding make it easy for people to find their way around Tigard actively. Tigard staffs a Bicycle and Pedestrian Advisory Committee. The committee identifies and prioritizes projects, provides input on design and planning issues and is a voice for people walking and bicycling in the community.



Maps and wayfinding make walking and bicycling easy. Photo: City of Tigard

One example of steps the city is taking to improve pedestrian travel is the installation of rapid-flashing beacons at crosswalks within the city. The solar-powered beacons are stationed along both sides of the street. Research shows that crosswalk beacons significantly increase the number of motorists who yield to pedestrians. In one study, rates improved from 18% before beacons to 81% after beacons.



Elements such as rapid flashing beacons help prioritize pedestrian travel and improve safety. Photos: City of Tigard, Rapid Flashing Beacon

Wilsonville

Wilsonville has a strong vision for increasing active transportation options in the community and is developing plans and identifying projects to move the vision forward. The Wilsonville Bicycle and Pedestrian Master Plan (2006) is one of the region's best. Following up on the plan the city

created a Bicycle and Pedestrian Task Force and recently developed a three year action plan that identifies projects for implementation.⁶⁰



The strength of the planning can be seen on the ground. The city was awarded a Bronze level Walk Friendly Community. Sidewalks are completed on both sides of 85% of arterials and 80% of non-arterials in the city, above the regional average.



Winding through Graham Oaks Park, the Tonquin Trail is a beautiful part of Wilsonville Sunday Streets. Photo: City of Wilsonville

Wilsonville programs such as Sunday Streets, Walk SMART and Bike SMART encourage walking and bicycling and strengthen the link between active transportation and transit. Wilsonville's transit provider, SMART, provides maps and secure bicycle parking.

⁶⁰ Visit the action plan webpage for details and a map.
http://www.wilsonvilleconnectivity.com/action_plan.html

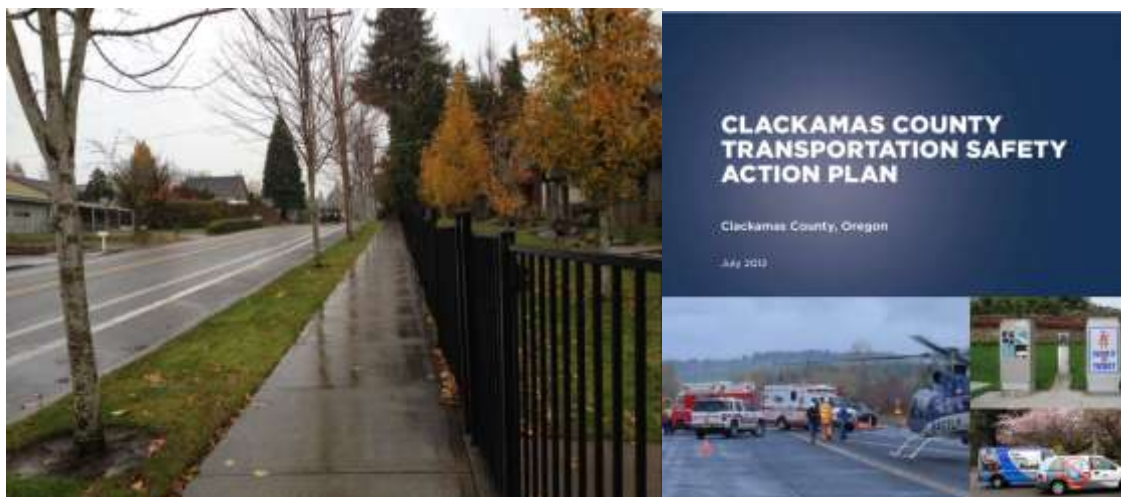
Clackamas County

Clackamas County is updating plans and project lists and developing strategies to fill gaps in sidewalk and bicycle lanes, complete regional trails and improve access to transit. The county staffs a Pedestrian and Bicycle Advisory Committee which provides guidance on plans and projects. A Clackamas County Active Transportation Plan is being developed to identify priority routes in rural and urban Clackamas County, with the goal of increasing connectivity, develop tourism, and increase accessibility and safety.



The Clackamas County Bicycle Tourism studio identified elements and projects, such as bicycle maps, that will support bicycle tourism in the county. Photos: Clackamas County, Matt Picio

The county supported a Bicycle Tourism Studio to tap into the economic development opportunities of bicycle tourism in Clackamas County. Many cities in Clackamas County are popular as destinations for people doing training rides, all-day excursions, and even overnight bike-camping trips.



132nd Ave South of Sunnyside Road in Clackamas County is a regional pedestrian corridor. Actions identified in the county's Transportation Safety Action Plan will make roads safer for people walking and bicycling. Photos: Clackamas County

Streetscape improvements to 132nd Avenue are an example of a county project where the addition of street trees creates a regional pedestrian route that is safe and comfortable. Clackamas County has developed a Transportation Safety Action Plan that, as implemented, will greatly improve pedestrian and bicycle safety.

Multnomah County

Multnomah County supports active transportation through planning, project development and programs. A good example is the county's role in supporting Safe Routes to School Programs. Multnomah County Transportation Planning staff is working with the Reynolds School District to encourage biking and walking to schools serving Fairview, Troutdale and Wood Village elementary and middle school students. Multnomah County also staffs a Bicycle and Pedestrian Citizen Advisory Committee. Providing staff support for citizen committees is a key element to advancing active transportation.

Multnomah County has jurisdiction over six bridges that cross the Willamette River. Good pedestrian and bicycle facilities are especially important on bridges. A key regional pedestrian and bicycle connection was substantially improved with the addition of a separated pedestrian and bicycle path to the Morrison Bridge.



A physical barrier separates people walking and driving from auto traffic on the Morrison Bridge and makes deliveries by bicycle freight easier. Photos: BikePortland, Wikipedia

The recently funded Arata Road Active Transportation Project is an example of the county working with the community to improve a substandard street with safety concerns for pedestrians and cyclists. Once completed, the project will increase access and connect people to many destinations that meet daily needs.

Washington County

Washington County has been dedicating considerable effort to active transportation. Adding a staff position dedicated to active transportation has enabled the county to pursue several projects that will have lasting impacts on the ability of people to walk, bicycle and access transit.⁶¹



A new Bicycle Facility Design Toolkit provides guidance on developing bikeways in urban, suburban and rural contexts with an emphasis on increased safety and comfort. The county is developing several plans that will guide where improvements and new facilities will go, including a Neighborhood Bikeway Plan, the Bicycle and Pedestrian Improvement Prioritization Project, an update of the Transportation System Plan, and locations of mid-block crossings for trails.

Recently, the County Board of County Commissioners approved an allocation of \$3 million from the 2013 Gainshare Funds that will go towards the project development and construction of

⁶¹ Refer to the county's webpage for details on the projects that are underway:
<http://www.co.washington.or.us/bikeandped>

bicycle and pedestrian projects, and since 1986, the Major Streets Transportation Improvement Program (MSTIP) has constructed over 130 miles of bikeways and sidewalks on county roads that lacked or had inadequate facilities before.



SW Tualatin-Sherwood Rd. buffered bike lanes (W. of Baler Way to Teton Ave; three-lane section) is a regional bikeway and walkway, and a map of planned mid-block crossings. Photos: BikePortland.org, Washington County

Washington County is identifying opportunities to increase pedestrian and bicycle safety in cost efficient ways, such as the road re-stripping project on SW Tualatin-Sherwood Road which narrowed auto travel lanes and added a buffered bicycle lane and adding mid-block crossings for trails. Buffered bicycle lanes can provide extra space between sidewalks and autos which benefits pedestrians and the mid-block crossings improve safety and integrate the trail network into the on-street network. The county has already added several mid-block crossings, which may include treatments such as refuge islands, flashing beacons or grade-separated crossings, and has plans to add more.

ODOT, TriMet and SMART

Communities work with regional transit agencies and the state transportation agency to improve pedestrian and bicycle access in the region.

Oregon Department of Transportation

With jurisdiction over more miles of regional trails than any other agency in the region, and with roadways that are key regional bicycle routes and pedestrian corridors, ODOT is an important partner for communities in creating a safe and comfortable regional active transportation network.

ODOT visions, policies and plans emphasize a multi-modal transportation network that is equally safe and comfortable for all modes of travel. Recently, ODOT created an Active Transportation Section to support development of a multimodal transportation system.



ODOT received a Metro Nature in Neighborhoods grant to plant 1,300 native trees and 16,000 native shrubs along the 16.5-mile path that parallels the freeway. New under and overcrossings make crossing busy roadways safe. Photos: ODOT, TriMet

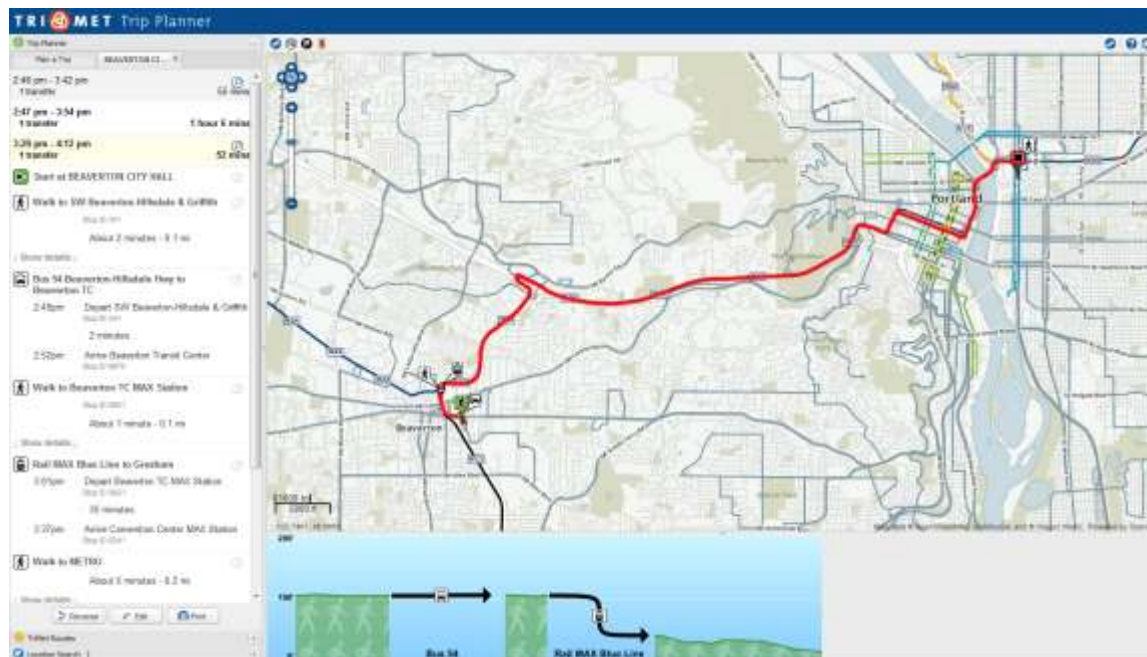
Improving the I-205 Multi-use Path is an example of a project where ODOT has sought funding and built partnerships to make the regional trail a more inviting and safe facility. The path runs 16.5 miles from the Clackamas River in Gladstone north to Vancouver, linking five cities and 10 different neighborhoods. While gaps in the trail still need to be filled the 'greening of the trail' and new street crossings developed with the Green Line MAX project are transforming the trail.

TriMet

TriMet understands the link between pedestrian and bicycle access and safety and effective transit service. TriMet has a planner dedicated to active transportation. A recent project, the Pedestrian Network Analysis is helping the agency, cities and counties determine where investments in pedestrian facilities and bus stops will provide the greatest benefit. Projects such as TriMet's partnership with ODOT building a new undercrossing of SE Division Street for the I-205 Multi-use Path provides a faster and safer route for cyclists and pedestrians traveling north-south, and improves transit connections between buses and the MAX.

TriMet's new [Map Trip Planner](http://trimet.org/howtoride/maptripplanner.htm) makes it easy to plan trips that combine walking, transit and biking. The online tool helps you plan and print an interactive map of routes to destinations, see an elevation chart and get detailed biking/walking directions. These types of tools make combining walking, bicycling and transit easier, more convenient and more accessible.⁶²

⁶² Visit <http://trimet.org/howtoride/maptripplanner.htm> to use the tool and learn more.



TriMet's Trip Planner in action.

Providing secure bicycle parking at transit stops makes linking biking and transit easier. Bicycles can provide the last mile connection between home, transit and destinations. Facilities such as the Bike & Ride at the Beaverton Transit Center are a central element in a complete regional active transportation network.



Well designed, highly visible and secure, the Beaverton Bike & Ride are one way to say thank you to bicyclists for linking transit and biking. Photo: TriMet

SMART

South Metro Area Regional Transit (SMART) provides a variety of services and programs that make it easier to walk, bicycle and access transit in Wilsonville and surrounding areas. Programs such as Bike SMART and Walk SMART make the walk, bike, transit connection. The Wilsonville Bike and Walk Map highlights the best places for biking and walking around Wilsonville .



SMART bicycle and pedestrian maps make getting around Wilsonville easier. Pedestrians and bicyclists wait at a SMART bus stop. Photos: SMART



Safe Route to School kick-off in North Portland. Photo: City of Portland

“The Portland metro region has long been a leader around the country in promoting active transportation. ATP brings together everything we know to date about active transportation and presents a vision of what our region will look like with walking and bicycling as key components of our transportation system. Implementing the ATP is the next step in creating the vibrant, livable, and equitable community that we all seek.

Transportation advocates, partners in other diverse disciplines, policymakers from all the regional jurisdictions, business leaders, and friends in the community can align and focus their work using the guiding principles and recommendations presented in the Plan.

~Philip Wu, MD, Kaiser Permanente Northwest Region

Chapter 3 Supporting Policies

The ATP builds on and was developed within the context of existing state, regional and local visions and policies that support and promote active transportation. The ATP vision, ten network guiding principles, recommended networks, policies and implementing actions were identified to help implement state, regional and local visions, plans, goals and targets. Refer to Appendix 3 for a complete list of policies and plans that support active transportation.

Figure 4: Transportation Planning Framework for the ATP

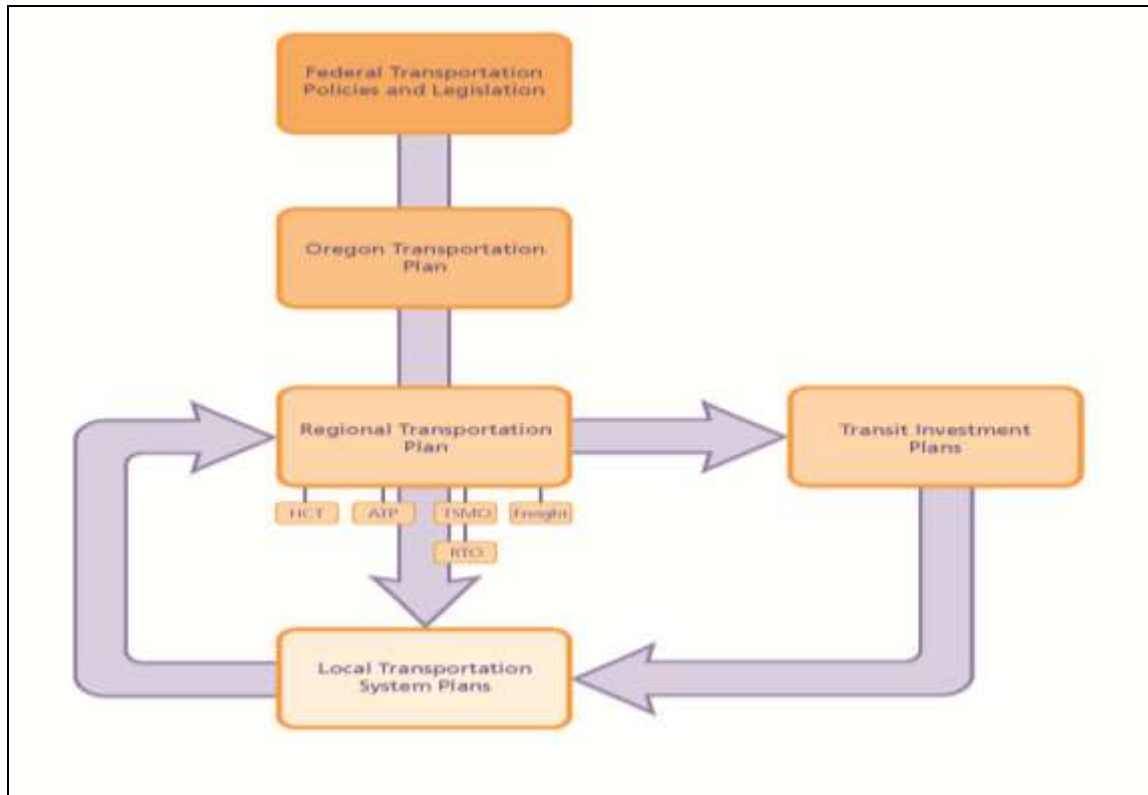


Figure 4, above, shows the ATP as a modal plan that informs the Regional Transportation System Plan, similar to the region’s High Capacity Transit Plan (HCT), Freight Plan, Transportation System Management and Operations Plan (TSMO) which includes the Regional Transportation Options Strategy (RTO).

Federal transportation policies and legislation acknowledge the importance of walking and bicycling as part of a complete transportation network, dictate the level of federal funding available for active transportation, and set national design standards. The following section summarizes key state, regional and local policies that support the ATP.

Oregon Transportation Plan provides a transportation plan for the state and establishes “a vision of a balanced, multifaceted transportation system leading to expanded investment in

non-highway transportation options.”⁶³ Oregon’s landmark law ORS 366.514 - Use of Highway Fund for Footpaths & Bicycle Trails, often referred to as the bicycle bill, has helped make Oregon one of the friendliest pedestrian and bicycle states in the country.

2050 Oregon Statewide Transportation Strategy provides a strategy and vision for reducing green house gas emissions.⁶⁴ The strategy describes a future Oregon that features improved public transportation service, bicycling and walking; fuel efficient and alternative energy vehicles; enhanced information technology; more efficient movement of goods; and walkable mixed use communities.

Regional Transportation Plan provides a vision “to ensure that the Portland region remains prosperous and vibrant by improving safety, expanding transportation choices for everyone, enhancing human health and protecting the natural environment.”⁶⁵ The ATP vision, plan, policies and actions were identified to help implement the goals and objectives of the Regional Transportation Plan and the region’s six desired outcomes. The goals and objectives of the Regional Transportation Plan serve as the goals and objectives of the ATP. The Regional Transportation Functional Plan is the implementing plan of the Regional Transportation Plan.

Metropolitan Greenspaces Master Plan (1992) details the vision, goals and organizational framework of a regional system of natural areas, trails and greenways for wildlife and people in the region. The plan set the foundation for subsequent bond measures and trail plans.

Climate Smart Communities Project will identify a regional approach to meet state mandated reductions in per capita greenhouse gas emissions from cars and small trucks by 2035. The adopted strategy will identify investment levels in active transportation to help meet the targets.

TriMet’s **Transit Investment Plan** includes a vision “to make the Portland region the most livable in the country” and a mission to “build and operate the total transit system,” including easy access to stations and stops.⁶⁶ SMART’s **Transit Master Plan** provides a vision where “transportation and recreation are critical facets of life” and when “planned in unison, these elements offer complete connectivity and interrelated opportunities.”⁶⁷

City, county and agency transportation, pedestrian, bicycle and climate action plans provide visions and aspirations for communities. Local pedestrian and bicycle plans identify priorities that the ATP knits together.

⁶³ Oregon Transportation Plan, Volume 1, September 2006.

⁶⁴ Oregon Statewide Transportation Strategy, A 2050 Vision for Greenhouse Gas Emissions Reduction, Volume 1, accepted March 2013.

⁶⁵ 2035 Regional Transportation Plan, Chapter 2.3.

⁶⁶ TriMet, Transit Investment Plan, FY 2012.

⁶⁷ SMART Transit Master Plan, City of Wilsonville, September 2007.

Chapter 4 ATP Vision and Network Guiding Principles

Expanding and completing the regional bicycle and pedestrian networks and fully integrating them with transit will take time. Projects are completed in increments, sections of sidewalk or bicycle lanes are added as development occurs or roads are modernized, routes are expanded as new funding is identified. Because developing a fully integrated and complete network will take time, a vision for the future is essential. Like most visions, the ATP vision for the region in 2035 describes something perhaps not fully attainable by that year, and yet something we should strive for; a vision to guide the collaborative and collective work across the region so that the pieces join together in a meaningful whole.

Vision

In 2040, people across the region have been meaningfully involved to create a transportation system that meets their needs. Convenient and safe access to active transportation has helped create and maintain vibrant communities in the region. Connected and safe pedestrian, bicycle and transit networks provide transportation choices throughout the region. People of all ages, abilities, income levels and backgrounds can walk and bike easily and safely for many of their daily needs and the walking and bicycling environment is welcoming to them. A majority of the short trips in the region are made by bicycling and walking. Children enjoy independence walking and biking to school and seniors can age in place and can get around easily without a car. Active transportation contributes significantly to the region's economic prosperity. Household transportation costs are lowered, roadways are less congested and freight experiences less delay. People enjoy clean air and water and are healthier and happier because they incorporate physical activity into their daily routines.

Network guiding principles

Ten guiding principles were developed by the ATP Stakeholder Advisory Committee to guide implementation of the regional active transportation network and achieve the transportation vision. Development of a connected, safe and comfortable network is a key element of achieving the 2035 vision for active transportation and Regional Transportation Plan transportation goals and targets. Future evaluations and performance measures can refer to the guiding principles to evaluate how well we are implementing the vision.

The recommended bicycle and pedestrian networks (Chapters 7 and 8), the design guidance (Chapter 9) and the recommended policies and implementing actions (Chapter 12) were identified and developed to be consistent with the ATP Network Guiding Principles in mind.

1. Cycling, walking, and transit routes are integrated and connections to regional centers and regional destinations are seamless.

2. Routes are direct, form a complete network, are intuitive and easy-to-use and are accessible at all times.
3. Routes are safe and comfortable for people of all ages and abilities and welcoming to people of all income levels and backgrounds.
4. Routes are attractive and travel is enjoyable.
5. Routes are integrated with nature and designed in a habitat and environmentally sensitive manner.
6. Facility designs are context sensitive and seek to balance all transportation modes.
7. Increases corridor capacity and relieves strain on other transportation systems.
8. Ensures access to regional destinations for people with low-incomes, people of color, people with disabilities, people with low-English proficiency, youth and seniors.
9. Measurable data and analyses inform the development of the network and active transportation policies.
10. Implements regional and local land use and transportation goals and plans to achieve regional active transportation modal targets.



Across the region people are asking for more travel options for getting to works, school, run errands and be part of the community. Photos: Metro

Chapter 5 Integrated Active Transportation Network Concept

An integrated transportation network responds to the needs of people, understanding that different travel modes satisfy different needs. People want all of their transportation choices to function well and to be integrated so that moving between modes is easy and seamless. Many people in the region incorporate walking, transit and riding a bicycle into daily travel.

Integration of the pedestrian, bicycle and transit networks into the overall transportation system and with each other is a major outcome of the ATP. Recommended policies and implementation strategies of the ATP were developed to help achieve a fully integrated active transportation network, not least by emphasizing the need to coordinate projects and funding across multiple jurisdictions to achieve desired outcomes.

The ATP pedestrian and bicycle networks described in Chapters 7 and 8 provide an integrated active transportation network. The preferred routes and districts shown on the *Regional Bicycle and Pedestrian Network Functional Classification Maps* were identified to provide the highest level of access to destinations that meet daily needs. Refer to Chapter 6 for a description of how the preferred pedestrian and bicycle networks were developed. When completed, the recommended networks will:

- Provide easy access to regional buses and trains;
- Provide access to regional destinations that meet daily needs;
- Improve safety for walking and bicycling;
- Increase walking and bicycling access for people with low-incomes, people of color, youth and seniors;
- Increase levels of walking and bicycling to achieve regional and local transportation plans, goals and targets.



Integrating walking, bicycling and transit puts the region at your feet. The new undercrossing at Division Street makes for easy transit connections between Line 4-Division and the MAX Green Line station. Photos: Metro and TriMet

Integration increases access

An integrated active transportation network optimizes walking, bicycling and transit access. Completing the regional pedestrian, bicycle and transit networks in a coordinated manner extends the ‘reach’ of each of these modes. People already combine modes, such as transit, walking and bicycling to reach destinations. Studies show that people will choose the transportation mode that is the most efficient and easy. Making it easy to reach destinations by walking, bicycling and transit means that people will choose those modes.

The *Regional Destinations Map* on the opposite page shows the combined recommended regional pedestrian and bicycle networks, transit stops and regional destinations. Regional destinations shown on the map were identified by the Stakeholder Advisory Committee. The regional active transportation network reaches most of the destinations identified. In some instances, it is clear that local connections to regional pedestrian, bicycle and transit routes are needed to complete the ‘last mile’ for door-to-door travel.

For active travel, transitioning between modes is easy when wayfinding is coordinated; transit stops have shelters and places to sit; maps and mobile apps are available for all modes; safe and secure bicycle parking is provided at transit and destinations; bicycles are accommodated on-board transit; ample room is provided for bicyclists and pedestrians on shared facilities.

Making it safer and more comfortable to walk and ride a bike increases access to public transportation and encourages the use of public transportation. The region’s public transportation systems, operated by TriMet and SMART, are an integral part of the regional active transportation network and enable long distance active transportation trips. The region has an adopted High Capacity Transit system plan (2010) and TriMet and SMART have plans for transit system improvements which were considered throughout development of the ATP.

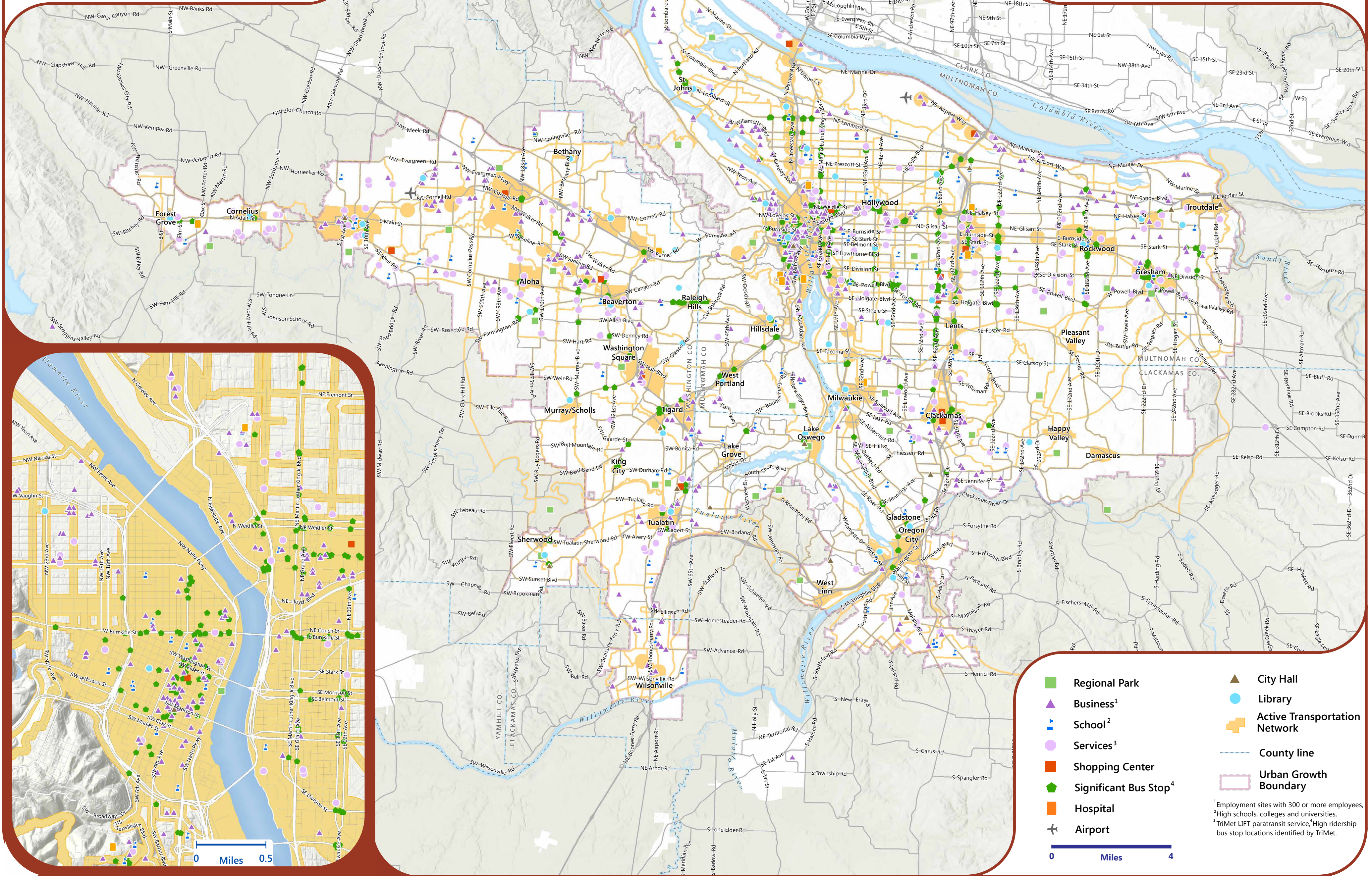
Linking Transit, Biking and Walking

Good pedestrian and bicycle connections extend the reach of the transit network making trips made by transit feasible for more people. Almost all trips on transit include a walking or bicycle trip. Five percent of all trips made in the region are made by transit. Of those trips, 84 % of them start as a walking or bicycle trip. Here are many ways to support the pedestrian, bicycle transit connection:

- Filling sidewalk and trail gaps within a mile of stops and stations.
- Filling bicycle network gaps within three miles of stops and stations.
- Including transit information on bike and pedestrian wayfinding.
- Providing shelters and seating at stops and stations.
- Providing protected crossings at stations and stops.
- Integrating trail connections into transit stations.
- Including secured, covered bicycle parking or Bike & Rides at stations and stops.
- Allowing bicycles on board transit.
- Developing apps to let bicycle riders know if a bus or train has bicycle space available.
- Locating transit stops and stations on bicycle and pedestrian maps.
- Integrating biking, walking and transit on tools such as TriMet’s trip Planner.
- Linking systems in plans.

Active Transportation Plan Regional Destinations

Shows overlap of regional destinations with regional active transportation network, city and town centers and station communities. Regional destinations are major attractors and trip generators that serve many people and include: large employers, colleges and high schools, libraries, regional shopping centers, airports, hospitals and major medical centers, regional parks, major social service sites and bus stops with high volumes of riders.



Special role of trails

Trails and multi-use paths play a special role in the region's transportation network and strategy, providing unique travel experiences and safe, comfortable opportunities for active travel. Many of the region's trails connect people to key regional destinations. Completing, expanding and improving the regional trail network will increase travel options and increase levels of active transportation. Trails provide an opportunity for people to begin walking and bicycling for transportation safely and comfortably. People in the region have indicated that they would like to walk and bicycle more for transportation if they felt safer doing so; providing trails can make walking and bicycling more accessible to people. Trails and multi-use paths can be linear parks, they are roads for active travel and they serve as community gathering places.



Every day thousands of people use the Eastbank Esplanade to get to work, school, run errands, exercise and enjoy the Willamette River. Photo: The Intertwine

The Intertwine is the name for the region's ever-growing network of integrated parks, trails and natural areas.⁶⁸ Most regional trails that are part of The Intertwine are included in the regional active transportation network. Additionally, a goal of the ATP is for the on street parts of the regional active transportation network provide safe and comfortable 'trail-like' connections to The Intertwine, so that people walking and bicycling experience seamless transitions.

⁶⁸ For more information on The Intertwine, visit <http://theintertwine.org/>



The Intertwine Alliance is a coalition of private firms, public agencies and nonprofit organizations working together to develop The Intertwine. All of the members of the Intertwine Alliance will be key partners in tackling the unique challenges of developing regional trails.

The *Regional Trails and Greenways Map* on the following page shows the trail network vision for the region and beyond. Trails that are also on the regional active transportation network are highlighted.⁶⁹ Many of the regional trails on the regional active transportation network connect to cultural and natural destinations beyond the urban area, such as Sauvie Island, Vancouver and Clark County to the North, the Columbia River Gorge, Oxbow Regional Park, Mt. Hood National Forest, and Milo McIver State Park to the East, Henry Hagg Lake, Stubb Stewart State Park, Tillamook State Forest and the Oregon Coast to the West, and Champoeg State Heritage Area and the Willamette River Valley to the South.

Developing connections between the urban active transportation network and inter-regional trails is a key element of a regional and statewide tourism strategy. Bicycle related tourism contributes approximately \$89 million to the region's annual economy.⁷⁰ Bicycle tourism initiatives in Clackamas County and East Multnomah County have identified well developed regional trail networks as an important ingredient to developing local tourism economies.⁷¹ Regional trails can bring economic development opportunities for communities, they provide opportunities for children to connect with nature and foster stewardship of the environment.



Planned regional bicycle and pedestrian connections will make it possible to travel the Banks-Vernonia State Trail and the Historic Columbia River Highway in the Gorge without driving. Photos: The Oregonian, Front Door Adventures

⁶⁹ Refer to maps in Chapters 7 and 8 for maps showing which parts of the regional active transportation network are completed and which sections of regional trails are on-street.

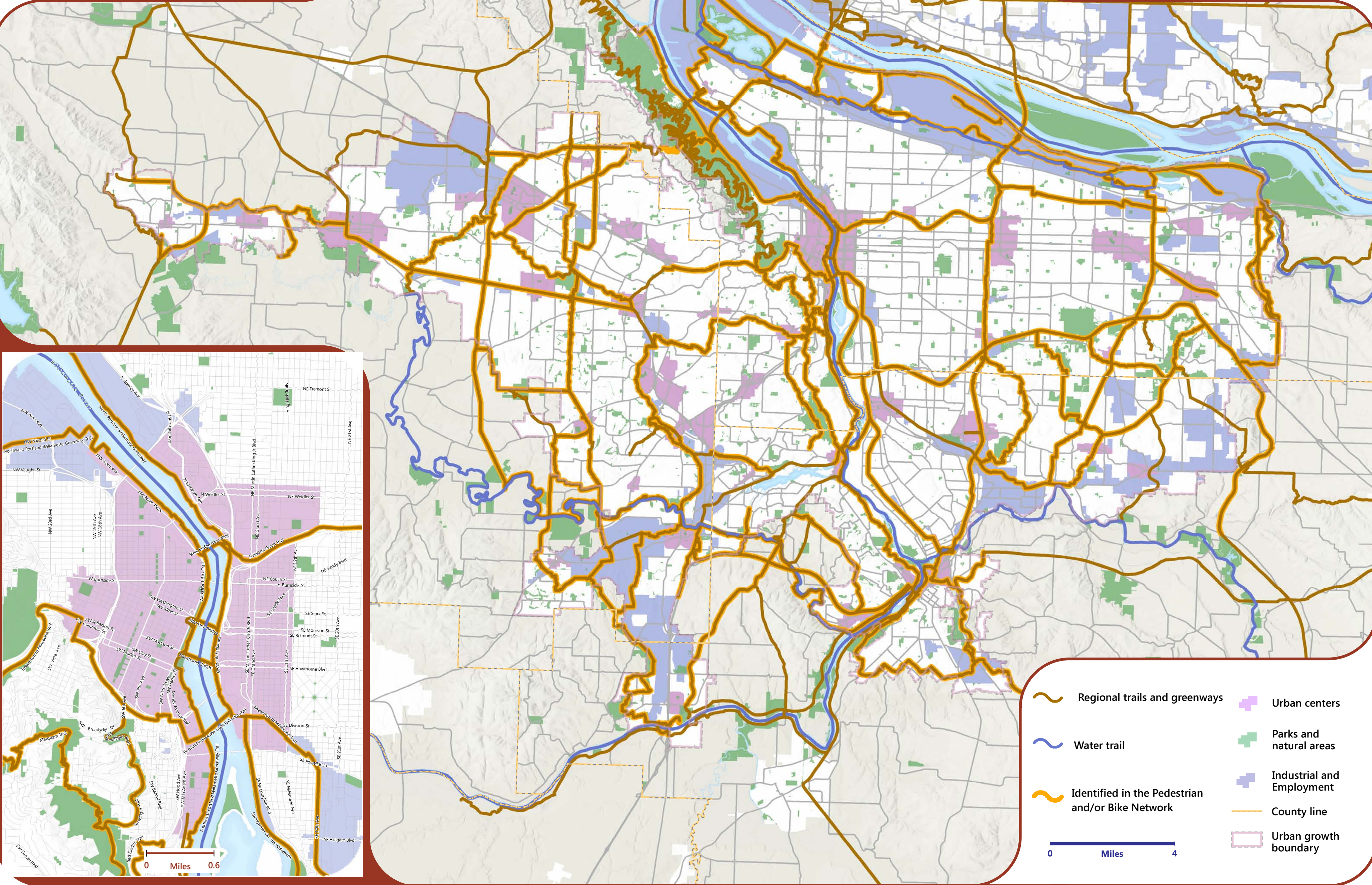
⁷⁰ [The Economic Significance of Bicycle-Related Travel in Oregon](#), 2012. Dean Runyan and Associates.

⁷¹ Clackamas County Bicycle Tourism Studio: <http://industry.traveloregon.com/industry-resources/destination-development/bicycle-tourism-studio/> and East Multnomah County Bicycle Tourism Initiative: <https://sites.google.com/site/gaccbicycletourism/>

Active Transportation Plan

Regional Trails Network Vision

Trails are an important part of the regional pedestrian and bicycle networks and provide connections to the trails systems beyond the urban area. This map shows all the trails that are part of the regional and interregional trails network vision: many of them are also part of the regional pedestrian and bicycle networks.



Chapter 6 Network Evaluation and Development

Metro and the ATP Stakeholder Advisory Committee conducted an extensive process to identify the recommended regional ATP pedestrian and bicycle networks. Results from an evaluation using Geographic Information Systems (GIS) analysis and Metro's bicycle modeling tools provided information that was used to determine the network concepts, where routes might be missing and the functional classification of routes. The resulting recommended regional pedestrian and bicycle networks are described in Chapters 7 and 8.

Evaluation results also provided information on where investments in the networks would increase access for the most people, increase pedestrian and bicycle access in areas with underserved populations and increase levels of walking and bicycling. Chapter 14 lists areas in the region that stood out in the evaluation; this information provides direction on ways that the region and communities can strategically invest in active transportation in the future.

Evaluation and network identification process

1. **The ATP Stakeholder Advisory Committee decided on criteria.** Staff provided overview of criteria used in local transportation system funding decisions, the Regional Flexible Funding allocations, and ODOT funding allocations. The Stakeholder Advisory Committee wanted a limited number of criteria. The purpose of the criteria was to evaluate alternate pedestrian and bicycle network concepts and to evaluate the effect of improvements made to the networks.
 - **Access.** How well does the network improve access to destinations?
 - **Safety.** How well does the network make it safer to walk and ride a bike for all users, regardless of age and ability?
 - **Equity.** How well does the network increase access for people with low-incomes, people of color and other underserved populations?
 - **Increased activity.** How well does the network increase the number of trips made by walking and bicycling?
2. **The ATP Stakeholder Advisory Committee developed network guiding principles.** Building on principles developed by the Blue Ribbon Committee for Trails the Stakeholder Advisory Committee added to and refined the principles. The principles were used to guide the development of the pedestrian and bicycle network concepts and are intended to guide the build out of the recommended networks.
3. **The ATP Stakeholder Advisory Committee developed pedestrian and bicycle network concepts.** The *Regional Pedestrian and Bicycle Network Maps* in the Regional Transportation Plan were used as the base maps for developing the network concepts. Three alternate bicycle network concepts were evaluated to identify the preferred network concept; the purpose of evaluating the bicycle network concepts was to

identify the bicycle parkway network, the spine of the entire bicycle network. The three concepts evaluated were a grid network, a spiderweb network and a parkway in each regional mobility corridor. The three alternate network concepts were developed after a review and discussion of different regional bicycle network concepts from around the world.

The Stakeholder Advisory Committee decided not to develop or evaluate alternate pedestrian network concepts and instead evaluated one pedestrian network concept. The primary reason for this was that the Stakeholder Advisory Committee agreed that the regional pedestrian network needed to mirror the regional transit networks, urban centers and station communities. Development of the pedestrian network concept primarily consisted of refining it, adding all frequent and almost frequent transit routes and new station communities.

4. **ATP Stakeholder Advisory Committee reviewed and refined draft network concept maps.** Three rounds of maps of the pedestrian network concept and the three bicycle network concepts were reviewed and refined by the Stakeholder Advisory Committee.
5. **ATP Stakeholder Advisory Committee developed a methodology to evaluate the pedestrian network concept and the three bicycle network concepts.** Extensive input was given to develop methodologies and data for a technical evaluation of the network concepts. The methodologies and data used are outlined in technical memos developed by Metro and Alta Planning and Design.
6. **Input on the network concepts was sought from stakeholders.** Input on the draft network concepts was provided at a public open house, from transportation coordinating committee Technical Advisory Committees and other stakeholder groups.
7. **Three bicycle network concepts and one pedestrian network concept were evaluated to identify the recommended regional ATP pedestrian and bicycle networks.** To measure the potential effect of the network concepts it was assumed that each of the three bicycle network concepts and the pedestrian network were complete. The evaluation was conducted using geographic information system (GIS) analysis and bicycle modeling tools. Results from the evaluation helped the Stakeholder Advisory Committee determine what the preferred network concepts should be. Results from the evaluations are provided in the 2013 *Regional [Pedestrian Network Analysis](#)* and 2013 *Regional [Bicycle Network Evaluation](#)*.

Results from the evaluation provided information on the effect of improvements such as completing on-street bikeways, sidewalks, filling gaps in trails and multi-use paths and adding pedestrian and bicycle crossings on different areas on the networks. The evaluation results show where improvements provided access for the most people and jobs; provided access for underserved populations, increased safety and increased levels of walking and bicycling. This information is intended to help cities, counties and agencies and other stakeholders prioritize future investments.

8. **ATP Stakeholder Advisory Committee decided on and refined the recommended regional pedestrian and bicycle network concepts.** It also helped identify recommended pedestrian and bicycle route classifications. Chapters 7 and 8 cover the recommended ATP regional bicycle and pedestrian networks.

Regional bicycle network evaluation

Three different bicycle network concepts were evaluated to help determine the recommended regional bicycle network shown in Chapter 7. The existing 2010 bicycle network and the planned bicycle network identified in the Regional Transportation Plan (adopted in 2010) were also evaluated. Detailed descriptions of each of the networks evaluated and the evaluation results are provided in the [2013 Regional Bicycle Network Evaluation](#).

Findings provided guidance to identify the recommended regional bicycle network.

- The evaluation found that as the density of the bicycle network increased so did the level of bicycle activity. In response to this finding, the recommended regional bicycle network is denser than any of the three network concepts evaluated.
- The evaluation found that bicycle mode share increased the most for commuting trips, indicating the need to connect bicycle routes to jobs. The recommended network connects to job centers and major employers.
- The evaluation found that in general, planned investments in the Regional Transportation Plan increased bicycle network density in areas with above average underserved populations (in 2010). However, several areas with underserved populations continue to have lower bike network density than other parts of the region. The recommended ATP network increased the planned network in these areas. Appendix 1 identifies parts of the network that do not yet have projects identified in the Regional Transportation Plan.
- Household and job density provided information on where regional bicycle routes were needed. Density of jobs and households matched up closely with urban centers and indicated the need for adding regional bicycle districts to the network concept.
- The evaluation found that as the miles of protected bicycle facilities, such as trails and cycletracks, increased, the number of bicycle miles traveled on those facilities also increased, while the number of bicycle miles traveled on standard bicycle lanes or routes with no separated facilities decreased. This indicates an increase in bicycling safety since more miles traveled by bicycle are on facilities that provide better separation from autos. The ATP Stakeholder Advisory Committee recommended a regional bicycle network that provides a bicycle parkway approximately every two miles forming a spine for the region's bicycle network. Regional bikeways connect to the bicycle parkways to create a spider web and grid of regional bikeways. The recommended approach to developing these routes is to

strive for separation from traffic and use best practices in design to move more bicycle trips to separated facilities.

- In the evaluation bicycle parkways had about 2.5 times more bicycle traffic than the average bicycle facility, indicating that the importance of these routes on the recommended network. Routes on the perimeter of the urban growth boundary showed lower volumes of bicycle travel due less to population density. This information helped determine the functional classification and density of regional bikeways on the recommended network.
- The evaluation found that diagonal routes, such as Sandy Blvd. and Foster Road in Portland, Barbur Blvd./Hwy 99 in Portland and Washington County, and the Gresham MAX Path, showed a high level of demand for bicycle trips and the potential to increase bicycle travel if they are improved. Many diagonal routes were identified as bicycle parkways on the recommended network.
- The evaluation confirmed that land use is a key factor in the demand and use of bicycle routes. Bike routes in areas with a lot of destinations show higher volumes of trips; even when no bicycle facilities exist or they are unimproved. The recommended network is denser in areas that currently or are planned to have more households, jobs and destinations.
- The evaluation identified areas in the region that showed very high levels of bicycle activity currently and in the future. This information helped determine the location of routes on the recommended network.
- New facilities that overcome barriers saw a relatively large number of bicycle trips. All bridges, existing and added, showed demand for bicycle trips. This information helped determine the location of routes on the recommended network.
- Routes identified in the East Metro Connections Plan were included in the recommended network.



*Connecting people to the places they want to get to is a key strategy in making walking and bicycling attractive.
Photo: Washington County Visitors Association*

Regional pedestrian network evaluation

The regional pedestrian network concept was evaluated to help develop the recommended network in Chapter 8 and to identify areas where investments in the network would impact access, safety and equity. Evaluation results are provided in the [2013 Regional Pedestrian Network Analysis](#).

Geographic information systems analysis estimated the impact of potential improvements to the regional pedestrian network on walking. The analysis compared the potential for walking based on existing pedestrian infrastructure (e.g. sidewalks, trails, signalized crossings) with a future scenario in which gaps and deficiencies in the pedestrian network have been addressed through pedestrian facility projects.

Findings from the analysis provided guidance to identify the recommended network.

- The analysis identified areas where there are concentrations of people (jobs and housing) within close proximity to destinations. The recommended regional network provides at least one regional pedestrian route in these areas. The analysis identified areas where adding pedestrian crossings increase access to jobs and destinations for people. Appendix 1 identifies parts of the network that do not yet have projects identified in the Regional Transportation Plan.
- The analysis identified the percentage of census block groups within each pedestrian area (district, corridor, and trail) that contain an above average share of underserved populations. This allows the ATP to identify, for example, where areas

with high potential to improve access would also serve significant populations of underserved groups.⁷² It is important to note that pockets of low-income communities or people of color reside in areas that in a broad regional equity analysis are ‘washed out’ and do not pop out as areas to pay attention to for equity. Local knowledge and input from communities is necessary for determining investments that improve transportation equity.

- Identification of areas in the region with the greatest projected increase in *total walking trips* between 2010 and 2035 helped guide refinement of the regional pedestrian network. The areas that showed the greatest increase are: Urban Clark County (78,207), Portland Central City (76,109), North Washington County Suburbs (34,765), Clackamas Eastside Suburbs (28,830) and Portland SE to I-205 (20,767).⁷³
- Identification of areas in the region with the greatest projected increase in *percentage* of walking trips between 2010 and 2035 helped guide refinement of the regional pedestrian network. The areas that showed the greatest increase are: Portland East of I-205 (20.4% increase), Portland North (11.8%), Clackamas Eastside Suburbs (11.7%), North Washington County Suburbs (9.2%), and South Multnomah County Suburbs (8.9%).
- Urban arterials identified in the Regional Transportation Plan were recognized as being important corridors in the regional pedestrian network because of the destinations and transit they provide. Urban regional arterials identified in the Regional Transportation Plan were therefore added to the regional pedestrian network.
- Analysis identified frequent and almost frequent transit routes that were not already identified on the Regional Transportation Plan’s regional pedestrian network. The Stakeholder Advisory Committee recommended that all frequent and almost transit routes should be on the regional pedestrian network and identified as pedestrian parkways, the highest functional classification on the ATP recommended regional pedestrian network.
- Regional trail additions were identified through the update of the *Metro Regional Trails and Greenways Map*. Some of these trail additions to the recommended network filled gaps in the regional pedestrian network in areas with few urban arterials and no frequent transit routes.
- Routes identified in the East Metro Connections Plan were included in the recommended network.

⁷² The top 10 corridors, districts and trails with the highest percentage of underserved populations are provided in Table 4 in the Regional [Pedestrian Network Analysis](#) report, June 2013. Since it is not possible to forecast the distribution of future populations by sub-group, the analysis assumes a distribution of population sub-groups for 2035 (the year used for this analysis) similar to 2010.

⁷³ Walking mode share estimates were provided by Metro’s transportation modeling tools.

Chapter 7 Recommended Regional Bicycle Network Concept

The ATP recommended regional bicycle network concept is an interconnected network of bikeways and districts linking every center in the region and destinations that meet daily needs. The recommended regional bicycle network knits together the major bicycle networks of cities and counties and is shown on the *Recommended Regional Bicycle Network Functional Classification Map* at the end of this chapter. The ATP bicycle network concept updates the bicycle network map in the Regional Transportation Plan.⁷⁴ All elements included on the recommended regional bicycle network are eligible for federal funding.⁷⁵

A major outcome of the ATP is the development of new functional classifications and the addition of bicycle districts to the regional bicycle network concept. Functional classifications are no longer tied to facility type (i.e. trails are no longer a functional classification). Bicycle parkways, the highest functional class for regional bicycle routes, were carefully identified based on guidance from the Stakeholder Advisory Committee and the network evaluation described in the previous chapter.

Elements of the recommended regional bicycle network concept includes:

- A bicycle parkway in each of the region's Mobility Corridors within the urban growth boundary to provide high quality bicycle transportation options in these corridors.
- A network of bicycle parkways, spaced approximately every two miles, that connect to and/or through every town and regional center, many regional destinations and to most employment and industrial land areas and regional parks and natural areas (all areas are connected by regional bikeways, the next functional class of bicycle routes).
- A network of regional bikeways that connect to the bicycle parkways, providing an interconnected regional network. Local bikeways connect to bicycle parkways and regional bikeways.
- Regional bicycle districts. Regional and town centers and station communities were identified as bicycle districts, as well as pedestrian districts.

Geographic boundaries for the regional bicycle network concept are consistent with the planning area boundary. Connections to major bike routes outside of the region are shown on the *Regional Trails Map* in Chapter 5.

⁷⁴ Chapter 2, 2035 Regional Transportation Plan, Regional Bicycle Network, page 2-62.

⁷⁵ A project must be included in the Regional Transportation Plan financially constrained project list to receive federal funding.

There are 1,485 miles of bikeways identified on the *Regional Bicycle Network Functional Classification Map*. About 48% of the planned regional bicycle network has an existing facility; approximately 715 miles of the regional bicycle network (on-street and trails) have a facility and 770 miles of gaps remain.

Table 2: Miles built and un-built on the Regional Bicycle Network

Within the Metro planning area boundary and identified on the Regional Bicycle Network Functional Classification Map	Number of Miles
Miles of built on-street	509
Miles of built off-street	206
Miles of un-built on-street	488
Miles of un-built off-street trails	282
Total miles	1485

Source: Metro 2014

Routes with existing facilities and gaps are shown on the *Existing Regional Bicycle Network Map* at the end of this chapter. However, some existing facilities need to be improved to accommodate higher volumes of bicycle riders or to increase safety and level of comfort to attract more bicycle riders and prevent crashes with autos.

The regional Bicycle Comfort Index developed for the [Existing Conditions, Findings and Opportunities Report](#) (August 2012) evaluated existing bikeways based on auto speeds, volumes and number of lanes. The Bicycle Comfort Index identified existing facilities that would benefit from greater separation and protection from traffic.



Improving the regional bicycle network improves the livability of neighborhoods and the vibrancy of commercial districts. Photo/rendering: Foster Road United.

Regional bicycle network concept development

The ATP regional bicycle network builds on the existing regional bicycle network identified in the 2035 Regional Transportation Plan.⁷⁶ About 400 miles of new routes were identified and added to the ATP regional bicycle network (a 37% increase in the number of miles).⁷⁷ New bikeway routes were identified through a process involving the Stakeholder Advisory Committee, other stakeholders and a technical evaluation of three alternate network concepts.

Three alternate bicycle network concepts were developed and evaluated to identify the preferred regional bicycle network. Chapter 6 describes the evaluation process and findings that guided development of the recommended network. The recommended network concept provides a denser network of bicycle parkways than any of the three scenarios tested. Evaluation findings indicated that a denser regional network connecting to more destinations and with more bikeways separated from traffic resulted in more travel by bicycle and more travel on safer facilities. Subsequent to identification of the recommended regional bicycle network, meetings with cities, counties and agencies were held to refine the recommended bicycle network and ensure that the regional network reflected major local bikeways and priorities.

In the process of developing the ATP updates were made to regional trail alignments, the trails database and bicycle network data in the Regional Land Information System (RLIS).

Regional bicycle network functional classifications

Two functional classes are applied to regional bicycle routes and replace the existing functional classes in the Regional Transportation Plan. Applying functional classifications to identified routes helps achieve coherent, continuous, recognizable and easy to follow routes, especially when consistent design practices as described in Chapter 9 are used.

The regional bicycle network has a functional hierarchy similar to that of a street network. Bicycle parkways are the highest functional classification for regional bicycle routes. They form the spine of the regional bicycle network and are connected to and by regional bikeways, the second functional classification for regional bicycle routes. Bicycle parkways and regional bikeways connect to and through bicycle districts.

The recommended regional bicycle network identifies bicycle parkway and regional bikeway routes that demonstrated a high level of demand in 2010 and 2035 in the network evaluation (summarized in Chapter 6), provide connections to destinations that meet daily needs and serve underserved populations (identified in the 2010 US Census). Routes on the edge of the urban

⁷⁶ Fig. 2.18 in Chapter 2.

⁷⁷ Approximately 1,081 miles of planned and existing regional bikeways were on the Regional Transportation Plan bicycle network map in 2010.

area showed less activity compared to other areas. Therefore, routes on the edge of the urban areas are designated as regional bikeways. Regional bikeways may experience less demand than bicycle parkways; however they provide key routes and connectivity on the regional network.

Bicycle districts

Regional bicycle districts have not previously been identified in the Regional Transportation Plan. They are being added to the regional bicycle network for the first time through the ATP. Bicycle districts correspond with 2040 Growth Concept Design Types - the Central City, Regional and Town Centers and Station Communities; bicycle and pedestrian districts are the same.⁷⁸ There are 74 bicycle districts on the regional network. All streets and trails within districts are part of the regional network and are eligible for federal funding.

A bicycle district is an area with a concentration of transit, commercial, cultural, educational institutional and/or recreational destinations where bicycle travel is intended to be attractive, comfortable and safe. Bicycle districts are also areas with current or planned high levels of bicycle activity. All bicycle routes within bicycle districts are considered regional and are eligible for federal funding. Bicycle facilities in bicycle districts should strive to be developed consistent with the design guidance described in Chapter 9.

The bicycle district classification should be refined in future Regional Transportation Plan and ATP updates. Examples of areas to consider further include: bus stops with high ridership, Main Streets on the regional network, and other areas with the potential for high volumes of bicycle travel.

Bicycle transit facilities are often referred to as Bike & Rides and include protected, secure bicycle parking. Some can include showers and bicycle repair, such as the Hillsboro ITF Bikepark. In addition to existing bike and ride facilities at Beaverton Transit Center, Sunset Transit Center and Gresham Transit Center, TriMet is working in partnership with cities and counties to apply for funding to build additional bike and rides. Current planning has focused on Gateway Transit Center in East Portland, Orenco/NW 231st Avenue in Hillsboro, Beaverton Creek in Beaverton, Goose Hollow in Portland and Park Avenue and Tacoma stations along the new Portland-Milwaukie light rail line.

⁷⁸ These are Design Types identified in the 2040 Growth Concept.



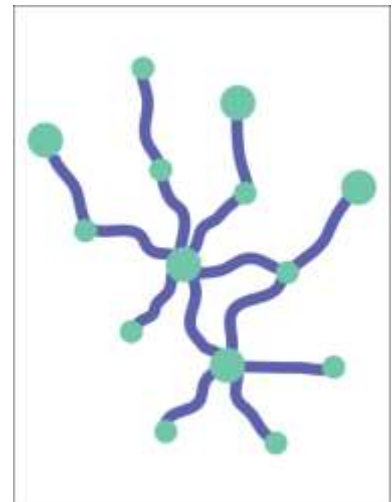
Bicycle districts can include elements such as bike corrals such as this one in NE Portland. An added benefit of the bicycle corral is the buffer it provides for outdoor seating. Photo: BikePortland.org

Bicycle parkways

Regional bicycle parkways are a new functional class for the regional bicycle network and are the highest functional class for bicycle routes. Bicycle parkways are high quality routes and make up the spine of the bicycle network – the highways of bicycle travel. The schematic at the right provides a conceptual representation of bicycle parkways connecting to bicycle districts.

Bicycle parkways provide safe, comfortable and efficient bicycle travel within and between centers. They provide connections to key destinations and routes outside of the region. Based on current research and evaluation of the regional bicycle network bicycle parkway routes were identified because they:⁷⁹

- Provide the most direct and efficient route.
- Link population, employment and regional destinations.



⁷⁹ [Regional Bicycle Network Evaluation](#), April 2013.

- Have the potential to allow for safe and comfortable travel separated from auto traffic.
- Showed high levels of bicycle trips in transportation modeling.
- Overcome barriers to bicycle travel.



Example of a raised cycle track that is a bicycle parkway. Cully neighborhood, Portland. Photo: BTA

Parkways can be on-street or a regional trail. A variety of facility types, such as a buffered bicycle lane, cycle track, bicycle boulevard, or trail, which provides an enhanced bicycle experience that feels safe and comfortable, can be used. Bicycle parkways are often on arterial and collector streets, but can also be on local streets.

Design guidance outlined in Chapter 9 provides examples of the types of designs that can be used to develop bicycle parkways. Bicycle facilities on bicycle parkways should provide separation from traffic and apply best practices in design. Separated in-street bikeways can be designed in many ways including bicycle lanes, wide bicycle lanes, buffered lanes, passing bicycle lanes, and colored bicycle lanes, using parking as a buffer to a raised path alongside the road. Bicycle boulevards are typically low traffic streets that use traffic calming and wayfinding to prioritize pedestrian and bicycle travel, and can serve as parkways if they are direct, have protected crossings, and route signage. Trails and multi-use paths should ensure adequate separation between people riding bicycles and walking and should provide convenient and safe crossings of streets.



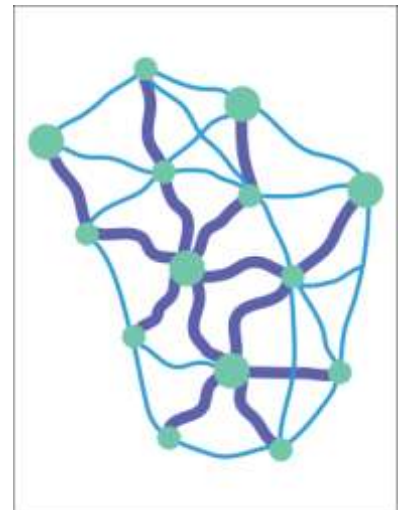
Example of a shared use path that is a bicycle parkway. Ki-a-Kuts Bridge, Tulatain. Photo: The Oregonian

Bicycle parkways are spaced approximately every two miles on the regional bicycle network, and connect to and through every urban center, many regional destinations and to most employment and industrial land areas and regional parks and natural areas; all areas are connected by regional bikeways, the next functional class of regional bicycle routes. Refer to the *Regional Destinations Map* in Chapter 5 which shows regional destinations and proximity to the active transportation network. Each Mobility Corridor within the urban area has an identified bicycle parkway.⁸⁰

Shared use paths identified as regional bicycle parkways are also regional pedestrian parkways. Adequate width and separation between pedestrians and bicyclists are provided on shared use path parkways.

Regional bikeways

Regional bikeways can be any type of facility, including off-street trails and multi-use paths, separated in-street bikeways (such as buffered bicycle lanes) and bicycle boulevards. On-street regional bikeways located on arterial and collector streets are designed to provide separation from traffic. Regional bikeways connect to bicycle parkways and complete the regional level network of bicycle routes. The schematic at the right provides a conceptual representation of regional bikeways connecting to bicycle parkways and bicycle districts to complete the regional bicycle network.



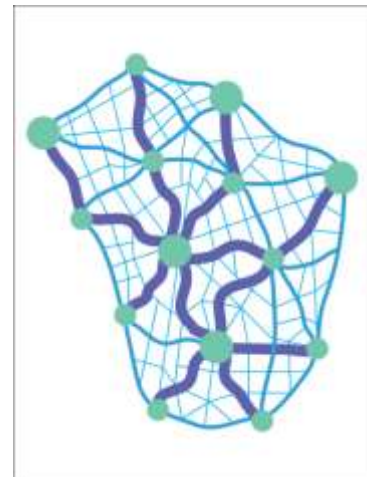
⁸⁰ There are twenty-four Mobility Corridors in the region. The corridors are sub-areas that include all regional transportation facilities within the subarea as well as the land uses served by the regional transportation system. This includes freeways and highways and parallel networks of arterial streets, regional bicycle parkways, high capacity transit, and frequent bus routes.



Example of a regional bikeway. Regional bikeways connect to bicycle parkways. Photo: Metro

Local bikeways

Local bikeways are bikeways that are not part of the regional ATP bicycle network. Local bikeways can be trails and multi-use paths, streets and connections. Local connections are very important to a fully functioning network providing for door to door bicycle travel. Projects on local bikeways are typically not eligible for federal funding nor are they typically included in the Regional Transportation Plan list of projects. The schematic at the right provides a conceptual representation of local bikeways connecting to the regional bicycle network.



Identifying alternate parallel routes

It is anticipated that as plans and projects develop bicycle parkway and regional bikeway routes could change, including moving from a regional arterial to a parallel route of low-stress streets. Bicycle parkways and regional bikeways can make use of various types of facility designs, including off street trails and multi-use paths, low traffic side streets and major urban arterials. If routes are changed, the new route must be equally direct, provide easy access to destinations, prioritize bicycle travel, and provide separation from auto traffic on roadways with higher levels of traffic and speeds.

Changes to the *Regional Bicycle and Pedestrian Network Functional Classification Maps* are made by submitting a map change request to Metro. Maps in the Regional Transportation Plan are updated during each Regional Transportation Plan update. The recommended bicycle and pedestrian maps in the ATP are recommended for inclusion in the update of the 2014 Regional Transportation Plan; the maps in the ATP are draft until finalized during the 2014 update of the Regional Transportation Plan.

Regional bicycle network maps

The following maps illustrate a variety of information about the regional bicycle network:

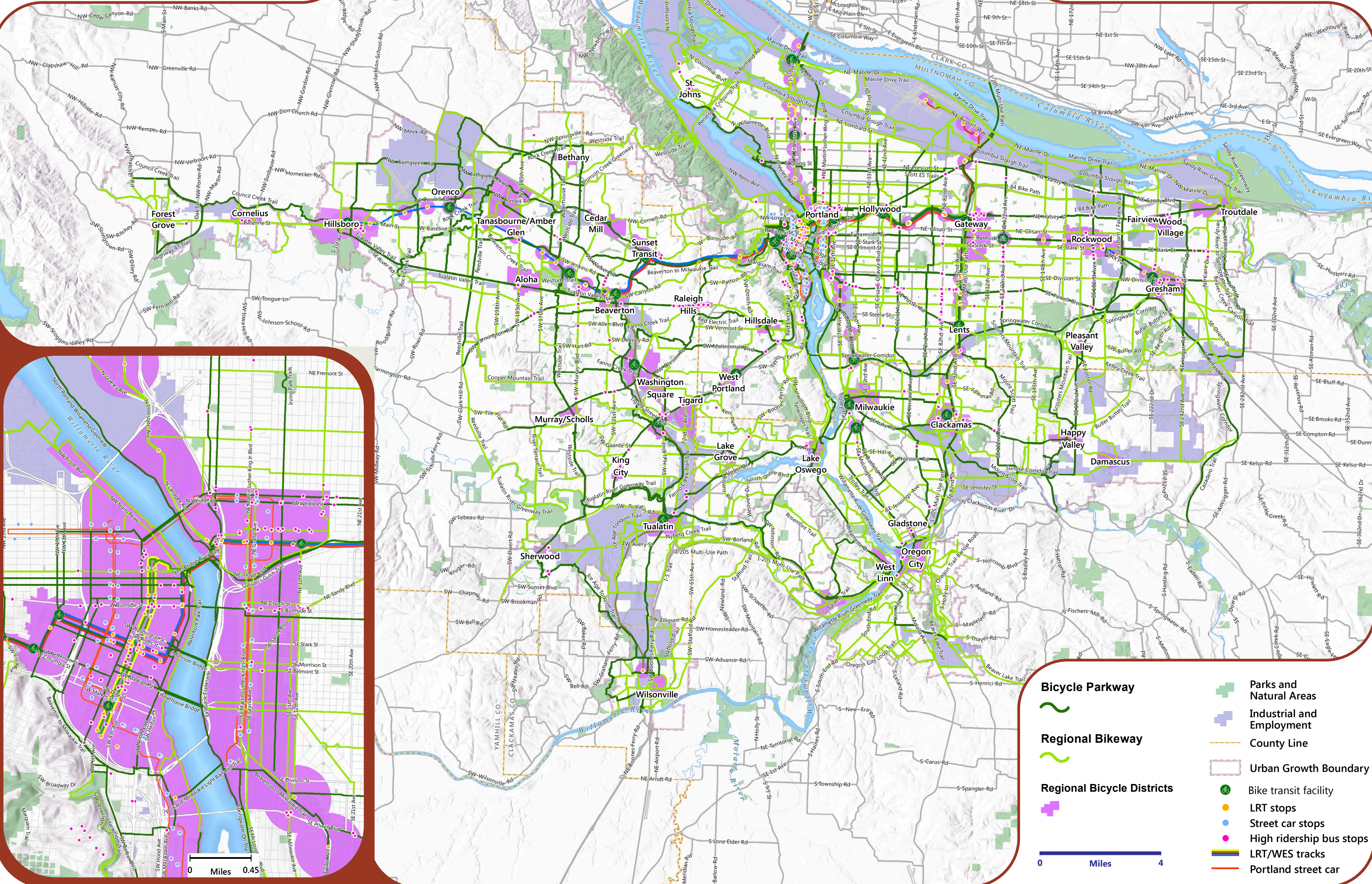
1. *Regional Bicycle Network Functional Classifications Map* shows the functional classifications assigned to bicycle routes on the regional ATP bicycle network. Routes are classified as either bicycle parkways or regional bikeways. The map also shows the location of regional bicycle districts. A [Map Book of the Regional Bicycle Network](#) provides more detail on the network. An interactive map of the network is available at: <http://gis.oregonmetro.gov/rtp/>
2. *Regional Bicycle Network On-Street and Trails Map* shows which routes on the regional bicycle network are on-street and which are off-street trails and multi-use paths.
3. *Existing Regional Bicycle Network Map* shows which parts of the regional bicycle network are completed and where gaps remain. The map does not identify deficiencies in the existing network or existing facilities that are at capacity.

"If we are to meet our regional transportation goals
we must recognize that every bicycle trip is of
regional significance."

~Roger Geller, City of Portland Bicycle Coordinator

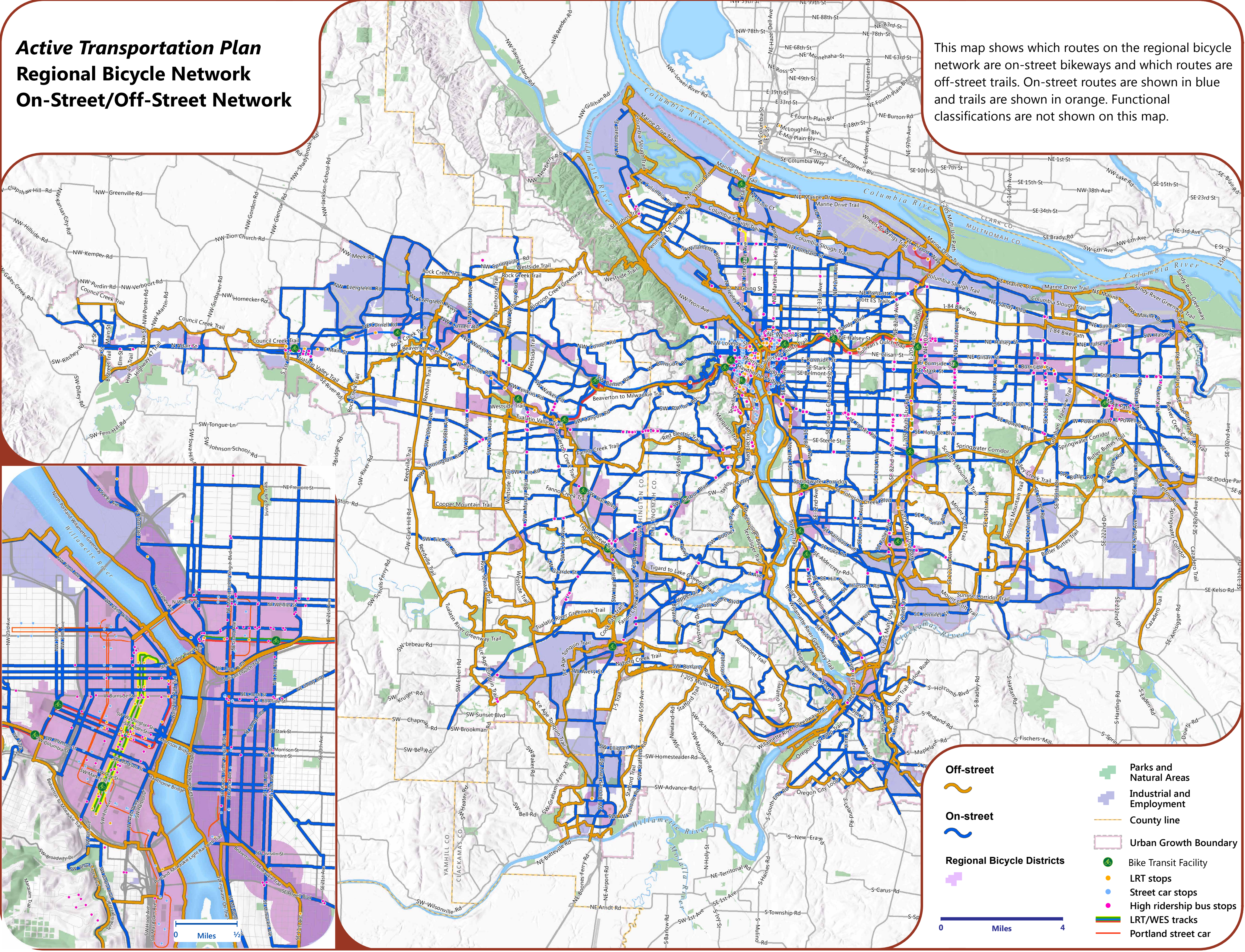
Active Transportation Plan
Regional Bicycle Network
Functional Classifications

The regional bicycle network is composed of bicycle parkways, regional bikeways and bicycle districts. Bicycle parkways are the highest functional classification for regional bicycle routes. Spaced approximately every two miles in a spiderweb-grid pattern, bicycle parkways form the spine of the regional and local bicycle network, connect to and through bicycle districts. Bicycle districts are urban centers and station communities. Regional bikeways are the second highest functional classification of the regional bicycle network.



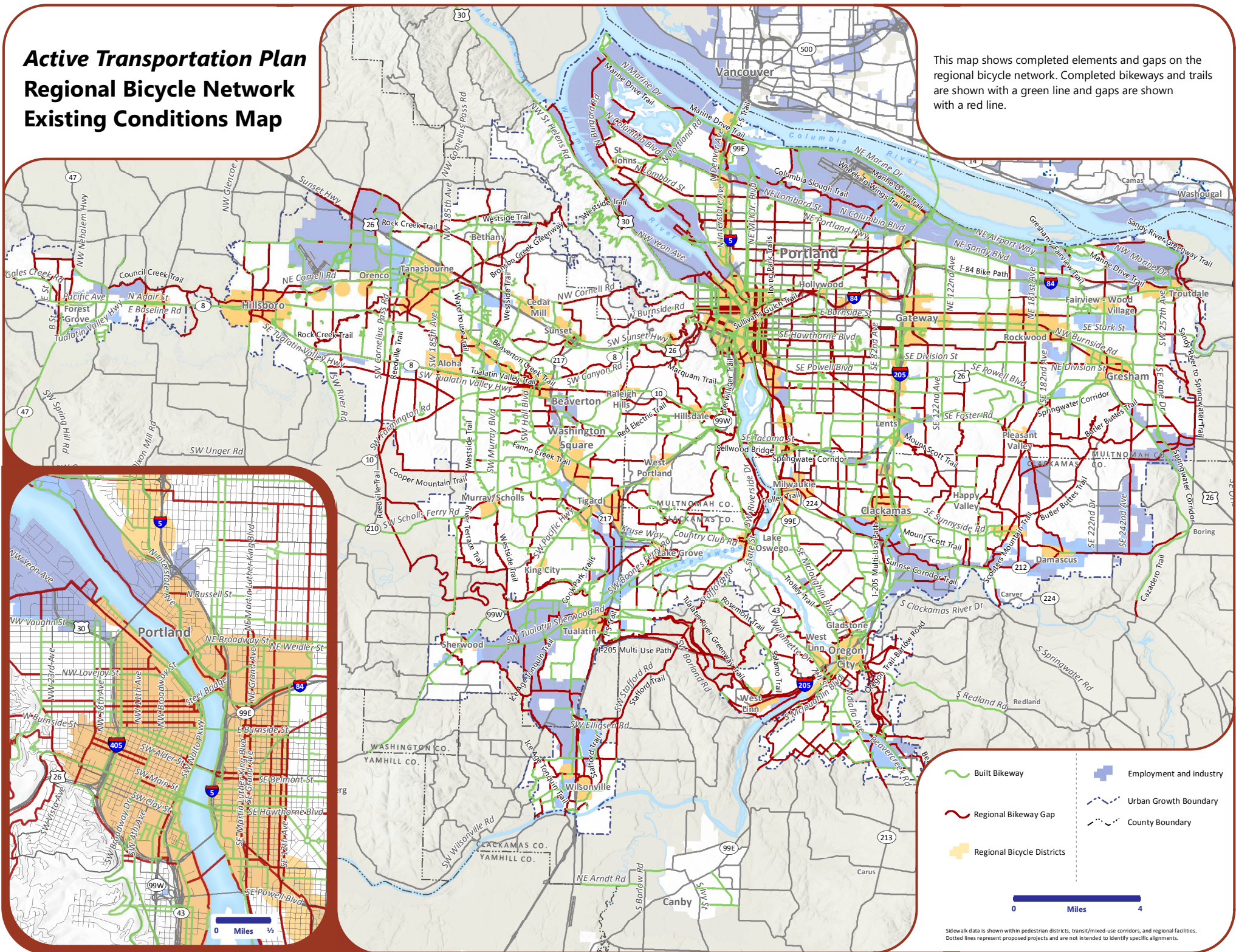
Active Transportation Plan
Regional Bicycle Network
On-Street/Off-Street Network

This map shows which routes on the regional bicycle network are on-street bikeways and which routes are off-street trails. On-street routes are shown in blue and trails are shown in orange. Functional classifications are not shown on this map.



Active Transportation Plan Regional Bicycle Network Existing Conditions Map

This map shows completed elements and gaps on the regional bicycle network. Completed bikeways and trails are shown with a green line and gaps are shown with a red line.



Sidewalk data is shown within pedestrian districts, transit/mixed-use corridors, and regional facilities. Dotted lines represent proposed projects and are not intended to identify specific alignments.

Chapter 8 Recommended Regional Pedestrian Network Concept

The ATP recommended regional pedestrian network concept represents an interconnected network of pedestrian routes linking pedestrian friendly districts and providing access to destinations that meet daily needs. The regional pedestrian network is safe, comfortable, accessible and enjoyable. People walking feel welcomed and prioritized. Key elements of the regional pedestrian network include complete sidewalks, multi-use paths and trails, safe street crossings at regular intervals, illumination and streetscape details.

The regional pedestrian network mirrors the regional transit network recognizing the important relationship of a complete walking network to support transit.

The recommended network is shown on the *Regional Pedestrian Network Functional Classification Map* at the end of this chapter. The recommended regional pedestrian network updates the pedestrian network map and functional classifications in the 2014 Regional Transportation Plan. Districts and routes included on the regional pedestrian network are eligible for federal funding. An outcome of the ATP is the development of new functional classifications for the regional pedestrian network concept and the addition of new routes. Geographic boundaries for the ATP pedestrian network are consistent with the planning area boundary.

Table 3: Miles built and un-built on the Regional Pedestrian Network

Within the Metro planning area boundary and identified on the Regional Pedestrian Network Functional Classification Map	Number of Miles
Miles of roadway with sidewalk complete on both sides	418
Miles of roadway with sidewalk complete on only one side	157
Miles of roadway with less than 50% sidewalk on either side	186
Miles of built off-street regional trails, including pedestrian only	229
Miles of un-built off-street trails/multi-use paths, including pedestrian only	296
Total miles	1286

Source: Metro, 2014

About 62% of the planned regional pedestrian network is complete.⁸¹ There are 1,286 miles of walkways identified on the *Regional Pedestrian Network Functional Classification Map*. Approximately 575 miles have a sidewalk on at least one side of the roadway. Approximately 186 miles of roadway have major gaps in the sidewalks; most of these streets are arterials. Approximately 229 miles of trails are built and nearly 300 miles of trail gaps remain.

⁸¹ Sidewalks on at least one side of the road and completed trail segments. Miles counted as complete may be sub-standard.

Routes with existing facilities and gaps are shown on the *Existing Regional Pedestrian Network Map* at the end of this chapter. However, some existing facilities, such as narrow sidewalks, sidewalks without curb ramps, inadequate or missing lighting, or unprotected crossings should be improved to increase safety and level of comfort of pedestrians and prevent crashes with autos. The regional pedestrian network analysis developed for the [*Existing Conditions, Findings and Opportunities Report*](#) (August 2012) evaluated existing roadways and pedestrian districts based on auto speeds, volumes and number of lanes and identified existing facilities that would benefit from greater separation and protection from traffic.

Regional pedestrian network concept development

The ATP recommended regional pedestrian network builds on the regional pedestrian network shown in the 2035 Regional Transportation Plan. Chapter 6 describes the evaluation process used to identify the recommended regional pedestrian network. The recommended network identifies 437 miles of new pedestrian routes (a 51% increase in the number of miles) of which approximately 162 miles are regional trails and multi-use paths. The remaining 275 miles consist of:

- New on-street routes are urban arterials that are part of the Regional Transportation Plan arterial system but not previously identified as part of the regional pedestrian network;
- Frequent or almost frequent transit routes which were not previously included;
- A handful of non-arterial streets to provide a regional pedestrian connection where there was none.

A number of resources were used to identify the 437 miles of new pedestrian routes. For example, regional trail additions were identified through the update of the *Metro Regional Trails Map*. Trail alignments were updated and refined and cities, counties, agencies and other stakeholders had the opportunity to add or remove trails and multi-use paths to the map.

After a draft network was identified meetings with cities, counties and agencies were held to refine the recommended pedestrian network and ensure that major local walkways and priorities were reflected. As part of development of the ATP the regional sidewalk inventory data was updated in the Regional Land Information System (RLIS).



Regional pedestrian routes and districts are places where walking is prioritized, comfortable, safe and convenient, such as this separated path in Lake Oswego. Providing buffers from traffic, convenient and safe crossings of busy roads, lighting and access to destinations are key to making the regional pedestrian network great. Photo: Metro

Regional pedestrian network functional classifications

For the first time, the regional pedestrian network has functional classes associated with routes. These functional classes are:

- Pedestrian parkways - the highest functional classification applied to regional pedestrian routes. They mirror the regional transit network and are also key regional destinations themselves; and
- Regional pedestrian corridors - the second highest functional classification for regional pedestrian routes.
- Pedestrian parkways and regional pedestrian corridors connect to and through pedestrian districts.

Most walking trips in the region are approximately half a mile in length. While the regional pedestrian network identifies continuous routes a majority of pedestrian activity will occur in specific pockets along these corridors, for example when a corridor passes through a town center, station area or serves as a main street. The nature and design of the pedestrian routes will change according to where it is located and the destinations and uses it serves.

More detail on pedestrian districts and the pedestrian functional classifications are provided below.

Pedestrian districts

Pedestrian districts shown on the *Regional Pedestrian Network Functional Classification Map* correspond with 2040 Growth Concept Design Types - the Central City, Regional and Town Centers and Station Communities – shown on the *2040 Growth Concept Map* (January 2012). Pedestrian and bicycle districts are the same. There are 74 pedestrian districts on the regional network. All streets and trails within districts are part of the regional network and are eligible for federal funding.

A pedestrian district is an area with a concentration of transit, commercial, cultural, educational, institutional and/or recreational destinations where pedestrian travel is attractive, comfortable and safe. Pedestrian districts are areas where high levels of walking exist or are planned. Within a pedestrian district, some routes may be designated as pedestrian parkways or regional pedestrian corridors, however all routes within the pedestrian district are considered regional and are eligible for federal funding. Pedestrian facilities in pedestrian districts should strive to be developed consistent with the design guidance described in Chapter 9.



Pedestrian-friendly downtowns support transportation choices for residents to work, shop and play within one area. Beaverton Broadway Streetscape Improvement Project. Rendering: City of Beaverton

Areas designated as pedestrian districts may need to be reevaluated as part of an update of the *2040 Growth Concept Map* or separately in a review or update of the ATP. New pedestrian districts, over time, may need to be added. Since all station communities are currently identified as pedestrian districts, bus stops with high ridership should be considered as potential pedestrian districts. Additionally, some Main Streets on the regional network should also be considered for expansion as pedestrian districts, as well as other areas. For example, Villebois in

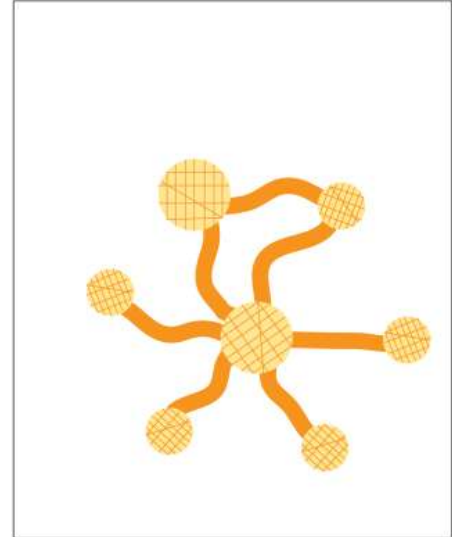
the City of Wilsonville, or Mississippi Avenue in North Portland could be considered as a regional pedestrian district.

Pedestrian parkways

Regional pedestrian parkways are a new functional class for the regional pedestrian network concept and pedestrian routes; they are the highest functional class for pedestrian routes on the regional ATP pedestrian network. Pedestrian parkways are intended to be high quality and high priority routes for pedestrian activity. Pedestrian parkways typically on are major urban streets that provide frequent and almost frequent transit service (existing and planned). Some regional trails and multi-use paths are also identified as pedestrian parkways.⁸²

Key design features recommended for pedestrian parkways are described in Chapter 9. Adequate width and separation between pedestrians and bicyclists on shared use path parkways and separation from traffic on roadways is essential.

The schematic at the right provides a conceptual representation of pedestrian parkways connecting to and through pedestrian districts.



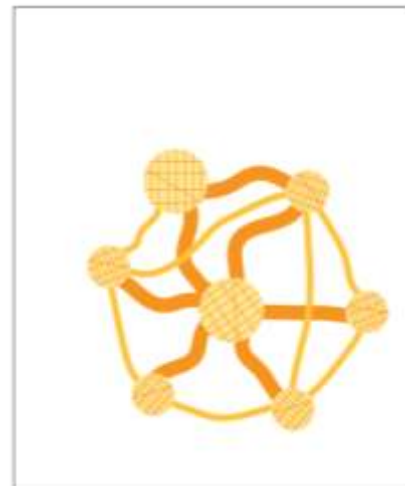
⁸² All regional trails classified as pedestrian parkways are also bicycle parkways.



Pedestrian parkways are great places to walk and are places that have high or planned high levels of people walking to access transit, nature, shops and services. Photo: Metro

Regional pedestrian corridors

Regional pedestrian corridors are the second highest functional class of the regional pedestrian network. Regional pedestrian corridors are any major or minor arterial street or regional trail not designated as a pedestrian parkway. These routes are also expected to see a high level of pedestrian activity, such as school pedestrian traffic. The schematic at the right provides a conceptual representation of regional pedestrian corridors connecting to pedestrian parkways and pedestrian districts.

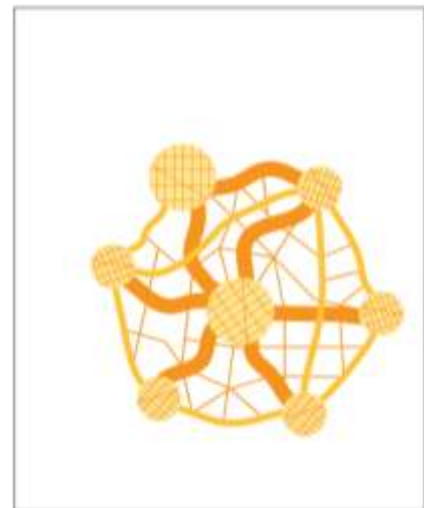




Regional pedestrian corridors are all urban arterials and trails that are not parkways. This arterial in Portland is an example of a regional pedestrian corridor which includes transit and could benefit from a greater level of separation from traffic. Photo: Metro

Local pedestrian connectors

On the regional ATP pedestrian network, local pedestrian connectors are streets and trails not part of on the regional ATP network. Local connectors may experience lower volumes of pedestrian activity and are typically on residential and low-volume/speed roadways or smaller trails, though some may be busier roadways. Though not part of the regional ATP network, connectors are an important element of the regional pedestrian network because they allow for door-to-door pedestrian travel. The schematic at the right provides a conceptual representation of local pedestrian connectors connecting to the regional pedestrian network.





A local pedestrian bridge crosses Trillium Creek near Robert Gray Middle School. Photo: The Oregonian

Regional pedestrian network maps

The following maps illustrate the pedestrian network concept and functional classifications. The maps show which regional pedestrian routes are on-street and which are trails and multi-use paths and show completed parts of the networks and gaps.

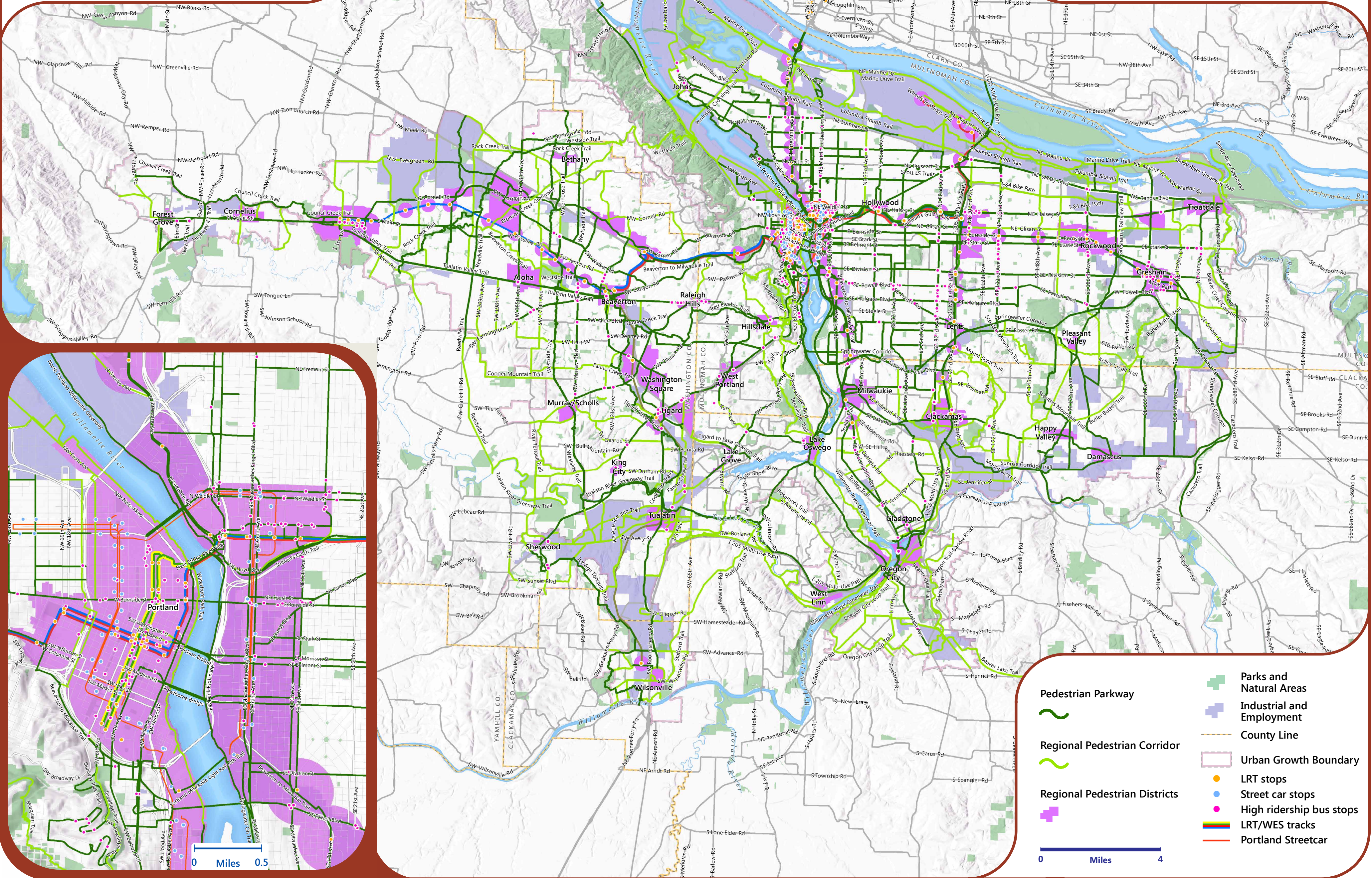
1. *Regional Pedestrian Network Functional Classifications Map* shows the functional classifications assigned to pedestrian routes on the regional ATP pedestrian network. Routes are either pedestrian parkways or regional pedestrian corridors. Shows the location of regional pedestrian districts. A [Map Book of the Pedestrian Network](#) provides more detail. An interactive map of the network is available at: <http://gis.oregonmetro.gov/rtp/>
2. *Regional Pedestrian Network On-Street and Trails Map* shows which routes on the regional pedestrian network are on-street and which are off-street trails and multi-use paths.
3. *Existing Regional Pedestrian Network Map* shows which parts of the regional pedestrian network have a sidewalk on at least one side of the roadway and which regional trails are completed, and where gaps remain. The map does not identify deficiencies in the existing network, such as narrow sidewalks.

Active Transportation Plan

Regional Pedestrian Network

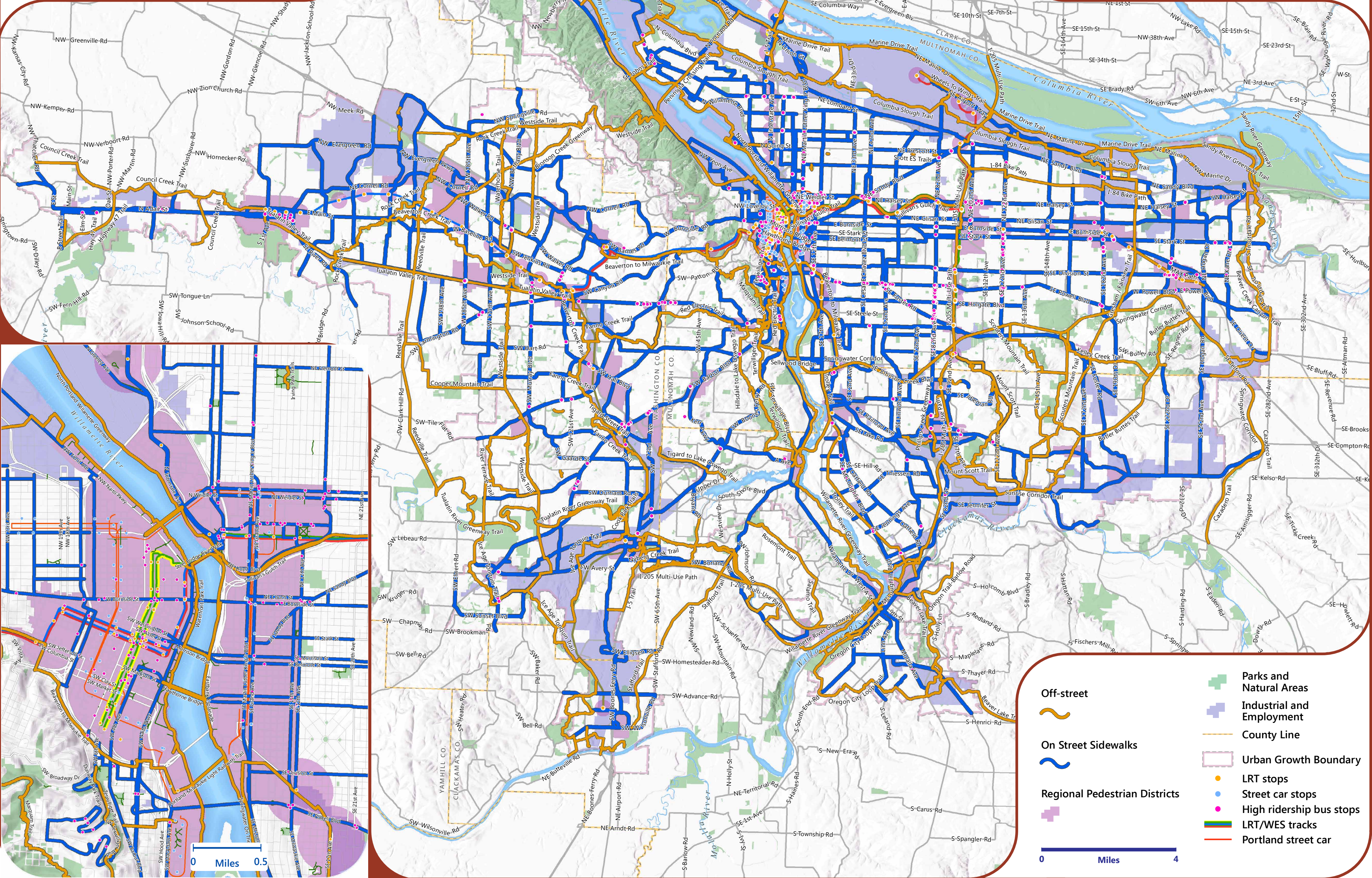
Functional Classifications

The regional pedestrian network is composed of pedestrian parkways, regional pedestrian corridors and pedestrian districts. Pedestrian parkways are the highest functional classification for regional pedestrian routes. Pedestrian parkways form the spine of the regional and local pedestrian network, overlap with the regional transit network and connect to and through pedestrian districts. Pedestrian districts are urban centers and station communities. Regional pedestrian corridors are the second highest functional classification and fill out the regional pedestrian network.



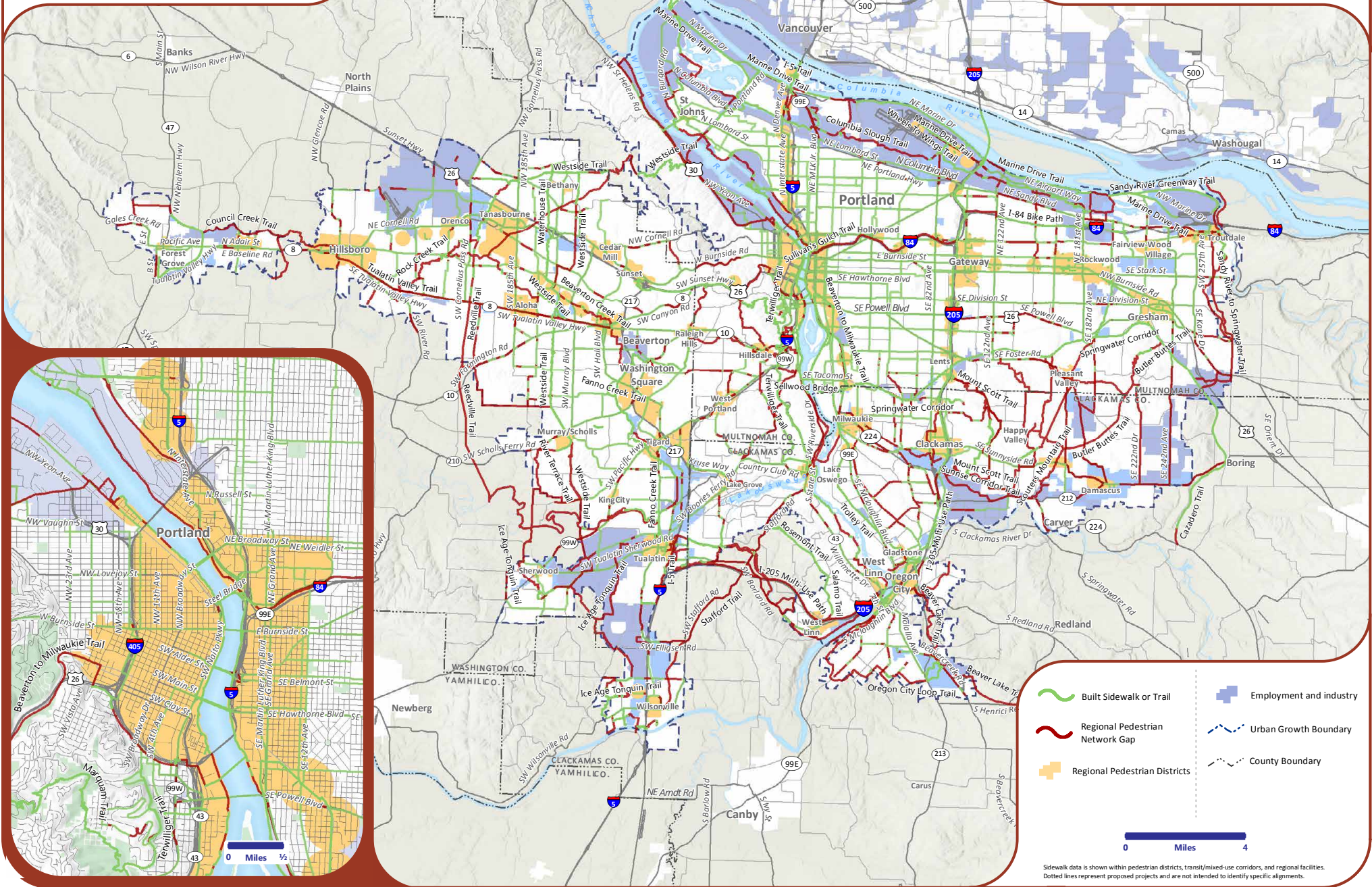
Active Transportation Plan
Regional Pedestrian Network
On-Street/Off-Street Network

This map shows which routes are on-street sidewalks network and which routes are off-street trails. Sidewalks are shown in blue and trails are shown in orange. Functional classifications are not shown on this map.



Active Transportation Plan Regional Pedestrian Network Existing Conditions Map

This map shows completed elements and gaps on the regional pedestrian network. Completed sidewalks and trails are shown with a green line and gaps are shown with a red line.



Sidewalk data is shown within pedestrian districts, transit/mixed-use corridors, and regional facilities. Dotted lines represent proposed projects and are not intended to identify specific alignments.



Women enjoy a walk along a completed section of the Rock Creek Trail in the Bethany area. The trail is a pedestrian and bicycle parkway, and connects households to jobs, schools and transit. Photo: Washington County

Chapter 9 Design Guidance

Design helps make walking and bicycling easy, safe, comfortable and attractive. This chapter provides design guidance for completing, extending and improving the regional active transportation network, highlighting design elements to develop the regional active transportation network consistent with the ATP Guiding Principles described in Chapter 4.

Building on the ATP design guidance, Metro plans to update and expand its street design handbooks to provide additional design guidance for regional pedestrian, bicycle and trail facilities, including addressing interaction with freight and transit movement.⁸³

Filling gaps to complete the regional ATP pedestrian and bicycle networks is the highest priority for developing the regional active transportation network. However, the design of facilities is also important.

As gaps are filled and existing facilities are improved the design of those facilities will affect comfort and access. While having any facility is better than nothing, designing facilities to substantially increase safety and make the experience comfortable and enjoyable leads to an increase in active travel.

Design of facilities is especially important for improving bicycle and pedestrian safety and comfort along or crossing roadways with high traffic volumes and speeds.

In 2010 the U.S. Department of Transportation emphasized the importance of pedestrian and bicycle design issuing a policy statement recommending going beyond minimum design

The U.S. Department of Transportation recommends going beyond minimum design standards for walking and bicycling facilities. Transportation agencies are encouraged, when possible, to avoid designing walking and bicycling facilities to the minimum standards. For example, shared-use paths that have been designed to minimum width requirements will need retrofits as more people use them. It is more effective to plan for increased usage than to retrofit an older facility. Planning projects for the long-term should anticipate likely future demand for bicycling and walking facilities and not preclude the provision of future improvements.

~ Excerpt from the 2010 United States Department of Transportation's Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations

⁸³ Updates to the Best Design Practices in Transportation handbooks will add information on low-volume bicycle boulevards, alternate designs for high volume arterial streets (e.g. cycle tracks) and regional trails. The handbooks will add information on and address guidelines for transit and bicycle interaction, such as transit stops and stations and along light rail and streetcar routes, and include best practices and successful case studies integrating bicycle, pedestrian and freight facilities, especially within constrained roadways.

standards.⁸⁴ In 2013, the Federal Highway Administration issued a memorandum supporting taking a flexible approach to bicycle and pedestrian facility design and the use of new guides, such as NACTO's *Urban Bikeway Design Guide* and ITE's *Designing Urban Walkable Thoroughfares*⁸⁵. Metro may want to consider revising Title 1 of the Regional Transportation Functional Plan to allow for maximum design flexibility for pedestrian and bicycle facility design.



Design of facilities is especially important for improving bicycle and pedestrian safety and comfort along or crossing roadways with high traffic volumes and speeds, crossing barriers such as rivers or railroads and on trails with high volumes of users. Photo: BikePortland.org

Purpose of the ATP design guidance

Regional bicycle, pedestrian and transit routes connect across jurisdictional boundaries. Wayfinding and facility design emphasize the connectedness of the network and support door to door bicycle, walking and transit trips in the region. While cities, counties and agencies are strongly encouraged to employ the ATP design elements, they are not requirements.

⁸⁴ DOT Policy Statement:

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/overview/policy_accom.cfm

⁸⁵ A copy of the memorandum can be found here:

http://www.dot.ca.gov/hq/LocalPrograms/DBE_CRLC/accessibility.pdf

The purpose of the ATP design guidance is to:

1. Provide guidance to encourage construction of the highest quality facilities that create safe, comfortable and attractive conditions for walking and bicycling, especially in regional pedestrian and bicycle districts and on routes classified as parkways on the ATP pedestrian and bicycle network maps in Chapters 7 and 8.
2. Provide a design framework to support development of the regional active transportation network in a consistent and comprehensive manner across jurisdictions.
3. Describe current best practices to implement the regional active transportation network according to the ten ATP Network Guiding Principles defined in Chapter 4.
4. Provide a checklist of key design elements for cities, counties and agencies when they scope, design, construct, maintain and/or operate pedestrian and bicycle facilities that are part of the regional network.
5. Provide a checklist of key design elements for cities, counties and agencies when they create pedestrian and bicycle network concepts and project lists in transportation system plans.
6. Provide direction to Metro and JPACT on pedestrian and bicycle design elements that could be applied to projects funded with Regional Flexible Funds.⁸⁶

Provide direction to Metro when reviewing local transportation plans or other transportation actions that require Metro review; Metro may provide suggestions that relate to the ATP design guidance.⁸⁷

⁸⁶ Criteria for Regional Flexible Funds are a policy decision and are agreed on each MTIP funding cycle by JPACT and the Metro Council. The ATP does not set this policy. In the past design criteria for Regional Flexible Funds have been applied with the understanding that design is context sensitive and designs may need to be modified in constrained rights-of-way or other extraordinary conditions.

⁸⁷ This role may be codified in the 2018 update to the Regional Transportation Functional Plan, in which the Pedestrian System Design and Bicycle System Design sections may be modified to require cities and counties to acknowledge ATP design guidance when developing system elements and project lists.



Design elements at this Hillsboro MAX station make getting to and waiting for the train a pleasant experience. Photo: City of Hillsboro

Design guidance sources

Many manuals and guidelines provide information for planning, design, construction, maintenance, operation, management and signage for pedestrian and bicycle facilities. Design resources specific to this region or recommended by the Federal Highway Administration are listed below. The ATP design guidance highlights key elements of best practices in design.

Design manuals and resources should be referred to for specific facility design types, options for constrained environments and special circumstances, cross-sections and other information. Hyperlinks to the documents are provided by clicking on the title.

- [*Metro Creating Livable Streets: Street Design Guidelines for 2040*](#) are outdated for bicycle designs but have pedestrian design elements for the Regional Transportation Plan's regional street design classifications. Development of the Best Design Practices for Transportation will update regional bicycle design guidelines.
- [*National Association of City Transportation Officials \(NACTO\) Urban Bikeway Design Guide*](#) provides a variety of examples in different contexts and designs are being tested and revised around the country. Trainings are available for engineering and planning staff. Washington County has developed a Bicycle Facility Design Toolkit which utilizes many of the NACTO designs. Clackamas County is developing similar design guidance as part of the Clackamas County Active Transportation Plan.

- [*National Association of City Transportation Officials \(NACTO\) Urban Street Design Guide*](#) focuses on the design of city streets and public spaces. While other national manuals, such as AASHTO's A Policy on Geometric Design of Highways and Streets, provide a general discussion of street design in an urban context, the Urban Street Design Guide emphasizes city street design as a unique practice with its own set of design goals, parameters, and tools.
- [*Oregon Department of Transportation Bicycle and Pedestrian Design Guide*](#) was recently developed and provides comprehensive design guidelines for pedestrian, bicycle and trail facilities.
- [*Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*](#) developed by the Institute of Transportation Engineers provides very thorough and up-to-date designs for pedestrian facilities. The designs are consistent with achieving the region's 2040 land use vision.
- [*AASHTO Guide for the Development of Bicycle Facilities, 4th Edition*](#) is newly revised and includes designs for trails and multi-use paths. The guide is not available electronically.
- [*Designing for Truck Movements and Other Large Vehicles in Portland*](#) (adopted October 8, 2008) provides specific guidelines for maintaining access and mobility in the design of intersections and roadways. This resource includes a helpful section on design considerations in different urban environments. Also included are design considerations for pedestrian, bicycle and transit in freight districts. A checklist of basic engineering and development review considerations to assist roadway designers are applicable both in and outside Portland.
- [*Metro Green Trails: Guidelines for Environmentally Friendly Trails*](#) (2004) provides guidelines for environmentally friendly or green trails that support the goals of Metro's Greenspaces Master Plan. Those goals seek to promote an interconnected system of parks, natural areas, trails and greenways for fish, wildlife and people throughout the region while maintaining biodiversity and protecting water quality. The guidelines are not standards; they are recommendations to complement existing standards and guidelines adopted by local parks and watershed groups in the region.
- [*Wildlife Crossings: Providing safe passage for urban wildlife*](#) Metro handbook provides a resource for enhancing the effectiveness of transportation planning processes to allow the greatest possible movement of fish and wildlife within an urban, suburban, or rural region.
- [*Parks and Recreation Trail Design Guidelines for Portland's Parks*](#) provides guidance on developing and designing regional trails and multi-use paths and pedestrian trails.
- [*Tualatin Hills Park and Recreation District Trail Master Plan*](#) provides guidance on developing and designing regional trails and multi-use paths.

- [*Intertwine Regional Trails Signage Guidelines*](#) (Metro 2012) provides guidelines for designing and fabricating wayfinding signage for regional trails and multi-use paths in the Portland-Vancouver area.
- [*2010 ADA Standards for Accessible Design*](#) provides the scoping and technical requirements for new construction and alterations resulting from the adoption of revised 2010 Standards in the final rules for Title II (28 CFR part 35) and Title III (28 CFR part 36).



Moving the location of parked cars provides a cycle track near Portland State University. Photo: City of Portland

















Importance of context in design

The ATP design recommendations are intended to be applied in a context sensitive manner. In some instances the design recommendations will need to be modified because of constraints, the desires of the community, specific needs, safety concerns and other elements that are project specific.

Considering the context of a project's location, its purpose and the desires of the community is extremely important when determining the type of design for any transportation project. As projects are developed the following types of contextual information should be taken into consideration. For example, a route that could warrant a greater degree of physical separation between pedestrians, bicyclists and auto traffic include areas with: high levels of pedestrian and bicycle activity; routes within a Regionally Significant Industrial Area; or on routes with high auto traffic volumes and with connections to jobs and services.

The following list provides examples of some of the elements that are typically considered and balanced as projects are designed and developed:

- Planned level of bicycle and pedestrian activity
- Land use zoning and 2040 land use designations
- Riparian and upland wildlife habitat
- Right-of way
- Property impacts
- Topographical constraints
- Nearby destinations including transit, schools, jobs, parks and businesses
- Current and planned level of transit service
- Auto traffic volumes and speeds
- Level of freight activity
- Incidences of bicycle and pedestrian crashes with autos
- Needs and desires of the community

Level of Service	Automobile	Bicycle	Pedestrian	Bus
A/B	 A/B	 A/B	 A/B	 A/B >4 buses/hour
C/D	 C/D	 C/D	 C/D	 C/D 2 to 4 buses/hour
E/F	 E/F	 E/F	 E/F	 E/F ≤ 1 bus/hour
				

Source: FDOT Quality/Level of Service Handbook

Tools such as a Comfort Index or multi-modal level-of-service ratings which indicate the quality of convenience, comfort and security experienced by pedestrians, cyclists, transit users and drivers can be used during design to help determine how designs in different contexts will impact different users.

Universal access

Inherent in the ten ATP Guiding Principles (Chapter 4) is that the regional active transportation network should be designed to be accessible to all ages and abilities, including youth, seniors and people with disabilities. ATP design recommendations for the pedestrian and bicycle networks are intended to help achieve universal access. Universal access, or universal design,

refers to transportation facilities and services that accommodate the widest range of potential users, including people with mobility and visual impairments (disabilities) and other special needs.⁸⁸ Designs that promote universal access are comprehensive, meaning that they result in seamless mobility options from origin to destination for the greatest possible range of potential users. Designing a transportation system that works for the widest range of potential users can benefit all users.

Development of the regional active transportation network should be guided by best practices and emerging research that maximize investments and create streets with universal access. As new facility designs and approaches to creating complete streets are constructed many jurisdictions and research agencies are conducting studies to evaluate facilities and improve designs. One area in particular that is benefitting from evaluation is the operation of cycle tracks and buffered bicycle lanes. Currently the [Green Lane Project](#) is assessing existing cycletracks with Portland State University and the Federal Highway Administration has contracted a study of cycletrack planning and design.⁸⁹



Example of pedestrian crossing improvements that make it easier for everyone, including people that need more time, to cross the street. Photo: Portland Bureau of Transportation.

⁸⁸ The federal Americans With Disabilities Act (ADA) includes standards for Accessible Design. Information on these standards is available from the Access Board (www.access-board.gov) and the USDOT Accessibility Website (www.dot.gov/accessibility).

⁸⁹ <http://www.peopleforbikes.org/green-lane-project> and

Regional bicycle network design guidance

ATP recommended design guidance for the regional bicycle network is derived from best practices, especially the NACTO *Urban Bikeway Design Guide*. Designs that emphasize separation of bicycles and auto traffic, improve connectivity and directness of routes, increase comfort and ease of using the bicycle network and increase the attractiveness of bicycling have been shown to encourage bicycling and to increase travel by bicycle.

The ATP regional bicycle network identifies routes on high traffic streets, low traffic streets and regional trails and multi-use paths. Design elements for each of these situations are briefly described below. As noted above the context in which a project is planned and designed should always be considered.

Development of regional bicycle routes classified as bicycle parkways on the *Regional Bicycle Network Functional Classification Map* should especially strive to apply greater separation from traffic and best design practices; this will ensure that a spine of regional bicycle routes approximately every two miles provides for prioritized bicycle travel.

Design elements for regional bicycle routes on streets with higher traffic volumes and speeds

High traffic streets are defined as streets with average daily traffic (ADT) greater than 6,000 autos a day, and/or where the posted speed is 35 miles per hour or higher, and/or a high volume of heavy truck traffic.⁹⁰ This section provides design recommendations for streets with higher traffic speeds and volumes, such as arterial and collector streets. Design elements emphasize separating bicycle and auto traffic, increasing the visibility of bicyclists to autos, and making it easier and more comfortable for people traveling by bicycle to access these routes and the destinations along them.

Separation and protection from traffic - A high degree of separation from vehicle traffic is critical on streets with higher traffic speeds and volumes. Separation makes the roadway safer for all users. Where feasible, protected/raised cycle tracks, a separate parallel path or buffered bicycle lanes should be used. For regional bicycle routes on streets with high traffic volumes and speeds the preferred width for buffered bicycle lanes is a 6' lane with a 3' buffer; if this is not feasible the maximum separation achievable should be considered. Current best practices consider a wide array of circumstances and design considerations. Cycle tracks may be a good option where there is constrained right of way on busy roadways; because they are physically separated the bikeway may be narrower than a buffered bike lane or a two-way cycle track on one-side of the street and may be the most efficient use of limited space.

⁹⁰ Thresholds have not yet been established for 'high volumes of heavy truck traffic.'



The photo on the left is a cycletrack in Amsterdam. The bikeway is distinguished with different color pavement and is separated from auto traffic by paving stones. Pedestrians and bicyclists are separated with trees. The photo on the right is the Multnomah Boulevard cycletrack in the Lloyd District in Portland. Paint and large planters are used to separate the bicyclist from autos. Photos: Alta Planning and Design, BikePortland.org

Safe street and driveway crossings Attention to treatment of intersections and driveways is critical for bicycle safety and for encouraging bicycle travel. Crossing treatments that make it easier and safer to cross a roadway or driveway allow for more efficient, safer and faster bicycle travel. Crossing treatments can include HAWK signals which prioritize bicycle travel and stop traffic with a signal, user activated signals, medians, warning signs and pavement treatments. Lighting of intersections along a bicycle route is also critical.



Shown on the left is a newly installed median along the Going Bicycle Blvd. in Portland, crossing Martin Luther King Blvd. On the right is a green painted bike box which allows cyclists to wait ahead of autos at a street light. An added benefit is the extra buffer provided to pedestrians. Photos: Portland, Human Transport

Preferential bicycle treatments Preferential bicycle treatments are design elements that prioritize bicycle travel on bicycle routes. These types of elements make bicycle travel faster, which improves the desirability of bicycling. These types of treatments can make bicycling competitive with auto travel time for short trips. They are especially necessary on high volume

bicycle routes where additional guidance for drivers and bicycles is needed to increase safety. Treatments such as timing traffic signals for bicycle speed, green pavement coloring, bike boxes, bike signals, turn queue boxes, and advance stop lines should be used as appropriate. A bicycle signal indicates that the bicyclist can cross while traffic remains stopped. This treatment increases the visibility of cyclists and pedestrians and allows cyclists to get ahead of autos.



A bicycle signal in Portland. A sign in Copenhagen indicating that the bicycle route is a “green wave” route where traffic signal timing allows bicyclists to travel at a pace of approximately 12 miles per hour without stopping. This saves the cyclists energy and momentum and can make the roadway safer for all users. Photos: Portland, Streetsblog.org

Arterial traffic calming On higher traffic streets arterial-type traffic calming is desirable. Arterial-type traffic calming reduces traffic speeds and can increase safety for all roadway users. Traffic calming designs are very context sensitive and should be carefully evaluated; some designs are better for low speed/high volume roadways, while others are better for high speed/low volume roadways.

Arterial-type traffic calming treatments include designs such as raised medians, raised intersections (appropriate for high volume/lower speed roadways), textured intersections, gateway treatments, refuge islands, road diets and roundabouts.

A gateway treatment is a physical or geometric landmark that indicates a change in environment from a higher speed arterial or collector road to a lower speed residential or commercial district. Gateways may be a combination of street narrowing, medians, signing, archways, roundabouts, or other identifiable feature.



A refuge island provides a protected crossing of an arterial street for pedestrians and bicyclists to access a multi-use path. Photo: Northfield Non-motorized

Design elements for bicycle routes on streets with lower volumes and speeds

Low traffic streets are defined as streets with average daily traffic (ADT) of less than 6,000 autos per day, and/or where posted speed is 30 miles per hour or less. Where the ADT is less than 3,000 autos per day, bicycle boulevard treatments including traffic calming and diversion measures may be appropriate. Design elements on low traffic streets emphasize prioritizing bicycle travel, creating a seamless and safe travel experience with crossing treatments and making routes easy to identify and follow.

Traffic calming, separation and protection from traffic On very low traffic streets autos and bicycles may share the roadway and traffic calming and auto diversion are used to prioritize bicycle travel on the bicycle boulevard. Where traffic volumes are higher and bike boulevard treatments are not used, a six to seven foot bike lane with bicycle symbol markings or a buffered bicycle lane are preferred to make bicycle travel comfortable and safe.



The photo on the left shows a traffic calming treatment at the entrance to a bicycle boulevard. A bioswale narrows the street. Two way bicycle traffic is allowed while autos may only exit. The photo on the right shows a buffered bicycle lane on a lower traffic street in Bloomington, Indiana. Photos: Portland, City of Bloomington

Roadway intersection crossings Attention to the treatment of intersections is critical. Bicycle routes on low traffic streets are disconnected and less effective when intersections with busy roadways are not safe and comfortable to cross. Crossings at collector and arterial roads should receive the highest attention. Crossing treatments include bicycle HAWK signals, user activated signals, medians, warning signs and pavement treatments. Lighting of intersections is critical. Even simple and inexpensive treatments such as the traffic diverter shown here create seamless routes and provide safe crossings of busy roadways for bicyclists and pedestrians.



The photo on the left shows a bicycle crossing treatment on NE 33rd Avenue in Portland. The crossing treatment also diverts traffic from the bicycle boulevard on Going Street. The photo on the right shows a sign alerting drivers of a pedestrian and bicycle crossing along the Spokane Neighborhood Greenway. Photos: Portland, Greg Raismen

Design elements for *all* regional bicycle routes and bicycle districts

Lighting along bikeways and especially at intersections is critical for bicyclists and driver safety. Poor lighting contributes significantly to crashes between bicyclists and autos. Lighting can also contribute to perceived and actual personal safety and increase the comfort of bicyclists.



A cycletrack and roadway intersection in Denmark that is well lit for dark winter days. The Tamako bicycle path in Tokyo well lit for riding at night. Photos: Copenhagenize.com, Wikipedia

Wayfinding All regional bicycle routes should include wayfinding, pavement markings and route identifiers. Using consistent design of wayfinding signage, route identifiers and street markings across the region links local routes together. Marking routes with on-street markings and signage makes navigating the bicycle network easier and is an inexpensive way to help develop routes and increase connectivity of the regional network. Signage and wayfinding also let drivers and bicyclists know that bicycles are not only allowed, but welcomed. Currently, Beaverton, Gresham, Milwaukie, Clackamas County and Portland are installing wayfinding signs, such as those shown here. Other cities and counties, including Washington County, Hillsboro, Tigard, and Cornelius have plans to add bicycle wayfinding and pavement markings. The goal of the ATP is to sign the entire regional bikeway network. See the design guidance for regional trails for information on the Intertwine regional trail signage and wayfinding.



Example of bikeway signage from Gresham and a bikeway route sign along the Clinton Street bicycle boulevard. Pavement markings are becoming more frequent in the region. Photos: Gresham, Portland.

Bicycle parking, bike stations and end of trip facilities Providing abundant, safe, secure bicycle parking at transit stops and stations and at other destinations including jobs, schools, shops and restaurants is a key element of complete regional bicycle routes and districts. A major benefit of bicycle travel is the ability to travel ‘door-to-door’ and bicycle parking supports that. Bicycle parking design can be as simple as a bicycle staple and as comprehensive as a fully

supported bike station with lockers, showers, bicycle repair and even shops that sell supplies and maps. Bicycle parking that is covered and well lit protects bicycles and enhances bicycle travel. These types of end of trip facilities support active transportation commute options.



Covered bicycle parking at a Fred Meyer in Portland encourages shopping by bike. The Hillsboro ITF Bikepark provides bicycle parking and much more and makes combining transit and bicycling easy. Photos: Fred Meyer, Hillsboro

Public outreach, marketing, education and programs Investments in regional bicycle facilities should be supported by outreach, marketing, education and programs. These elements are essential to making the most of investments in good design so that the public understands the significance of a connected network of regional bikeways and learns how to find regional bicycle routes. Marketing and outreach inform the public and get people excited about available transportation options. Supporting materials such as maps, apps for mobile devices and on-line mapping make using the developed network easy. Bike Share programs have been shown to dramatically increase bicycle ridership and can benefit tourism efforts. Portland is implementing a Bike Share program and businesses such as Intel are developing pilot programs for employees. Education and programs offered by cities, counties and non-profit organizations such as DriveLess.SaveMore, Smart Trips, Create a Commuter, Women on Bikes and Safe Routes to School support people in developing new transportation habits.



Kids bicycling to school in the Portland St. Johns neighborhood through the Portland Safe Routes to School Program. Bike Share programs makes it easy to make a trip by bike. Photos: StJohnsVillage.org, City of Portland

Regional pedestrian network design guidance

ATP recommended design guidance for the regional pedestrian network is derived from best practices, especially the Metro *Creating Livable Streets: Street Design Guidelines for 2040* and ITE's *Designing Walkable Urban Thoroughfares: A Context Sensitive Approach*. Metro's *Creating Livable Streets* handbooks provide design guidance for different design types of regional streets, such as main streets and boulevards.

Designs that buffers pedestrians from auto traffic, that increase safety and comfort crossing roadways, that improve connectivity and connections to destinations, that improve comfort and ease of walking, and that increase the attractiveness of walking have been shown to encourage and increase travel by walking and transit.

Many of the regional pedestrian corridors are on busy roadways that also serve as transit routes. As noted above, the context in which a project is planned and designed should always be considered. Development of regional pedestrian districts and pedestrian routes classified as pedestrian parkways on the *Regional Pedestrian Network Functional Classification Map* should especially strive to apply greater separation from traffic and best design practices; this will support pedestrian access to transit and destinations along these corridors and in the districts.

Design elements for pedestrian routes on streets with higher traffic volumes and speeds

High traffic streets are defined as streets with average daily traffic (ADT) greater than 6,000 autos a day, and/or where the posted speed is 35 miles per hour or higher, and/or a high volume of heavy truck traffic. Design elements emphasize separating pedestrians from auto traffic, increasing the visibility of pedestrians especially crossing the street, and making it easier and more comfortable for people walking to access destinations along and connected to pedestrian corridors.

Separation and protection from traffic A high degree of separation from vehicle traffic is critical to safe and comfortable pedestrian travel, especially on streets with higher traffic volumes and speeds. On regional pedestrian routes with high traffic volumes and speeds, and especially in areas with transit service and high levels of current and planned pedestrian activity such as main streets and in town centers, the recommended width for the pedestrian area is seventeen feet. The pedestrian area includes the sidewalk and a buffer from traffic. The buffer can be provided by on-street parking (though if parking is not fully utilized the buffer is minimized), landscape buffer such as trees, grass, plantings, furnishing zone with planters, benches, or a physically separated bicycle facility such as a raised cycle track or buffered bicycle lane. Physical barriers, such as parked cars or trees reduce noise, exhaust and reduce the possibility of autos hitting pedestrians on the sidewalk. On the sidewalk a pedestrian clear zone of six feet or more is preferred to provide adequate space for walking and maneuvering mobility devices.



Main streets in downtown Beaverton and Gresham that provide a pedestrian area where it is enjoyable and safe to walk. Wide sidewalks, pedestrian scale lighting, and plantings contribute to the comfort of people walking. Photo: Beaverton, Gresham

Crossings and driveways Frequent well marked and pedestrian prioritized crossings improve safety and encourage pedestrian travel. Using context sensitive placement, marked crosswalks should be provided approximately every 530 feet along pedestrian corridors to provide desired regional pedestrian connectivity, as identified in the Regional Transportation Functional Plan. Crossing features such as refuge islands, curb extensions, raised crosswalks, raised intersections (on streets with high auto volumes and low speed), and beacons or signals added where appropriate make it easy and safe to cross the street. Lighting at all crosswalks and intersections is essential. All signals should have pedestrian countdown heads which let pedestrians know how much time they have to cross the street. Short signal cycle lengths of 90 seconds or less, pedestrian-friendly signal timing, and lead pedestrian intervals at signals are desirable because they prioritize and encourage pedestrian travel. Medians enhance crossing safety and are desirable along corridors with four or more lanes. The number and width of driveways along regional pedestrian corridors should be minimized.



A pedestrian activated signal on Tualatin Valley Highway lets drivers know when a pedestrian needs to cross the street. A crosswalk and a cycle track in New York prioritizes people walking. Photos: The Oregonian, Streetsblog.org

Arterial traffic calming Context-based traffic calming on arterials is desirable for pedestrian travel because it slows traffic speeds and makes crossing the street safer and easier. Arterial

traffic calming includes treatments such as raised medians, raised intersections (for low speed/high volume roadways), gateway treatments, textured intersections, refuge islands, road diets and roundabouts.



The photo on the left shows a roundabout that accommodates large vehicles and slows traffic in a residential neighborhood. The photo on the right shows a median on Evergreen in Hillsboro and a connection to the Rock Creek Trail. Photos: Federal Highway Administration, Washington County

Design elements for pedestrian routes on streets with lower traffic volume and speeds

Lower traffic streets are defined as streets with average daily traffic (ADT) of less than 6,000 autos per day, and/or where posted speed is 30 miles per hour or less. Where the ADT is less than 3,000 autos per day, bicycle boulevard treatments including traffic calming and diversion measures may be appropriate.

Separation and protection from traffic Separation from traffic is important on all streets except in instances where traffic calming has reduced traffic speeds to such a degree that pedestrian travel on the roadway is the dominant form of travel. On these streets pedestrians share the space with autos and autos must move very slowly. However, on most streets separation is necessary for safety and comfort. On regional pedestrian routes with lower traffic speeds and volumes the preferred minimum width for the pedestrian area is ten feet. The pedestrian area includes the sidewalk and a buffer from traffic. Buffers can be provided by on-street parking, a landscape buffer, furnishing zone, raised cycle track, or buffered bike lane. A pedestrian clear zone of six feet or more should be provided. Street trees between roadway and pedestrian clear zone are desirable to provide physical separation from traffic. Pedestrian countdown heads at all signals should be provided. Short signal cycle lengths of 90 seconds or less, pedestrian-friendly timing (so that pedestrians do not have to wait a long time for the signal to change), and lead pedestrian intervals at signals, which allow pedestrians to begin crossing the street before traffic starts, are desirable, prioritize the pedestrian and encourage pedestrian travel.



West Tualatin View students walking past the wet cement of a new sidewalk in Cedar Mills. West Linn's Historic Willamette business district includes a boulevard street design. Slower traffic speeds and trees along the sidewalks make it comfortable to walk. Photos: The Cedar Mill News, Wikipedia

Crossings Frequent well marked and pedestrian prioritized crossings improve safety and encourage pedestrian travel. Using context sensitive placement, marked crosswalks should be provided approximately every 530 feet along pedestrian corridors to provide desired regional pedestrian connectivity, as identified in the Regional Transportation Functional Plan. Crossing features such as refuge islands, curb extensions, raised crosswalks, raised intersections (on streets with high auto volumes and low speed), and beacons or signals added where appropriate make it easy and safe to cross the street. Lighting at all crosswalks and intersections is essential. All signals should have pedestrian countdown heads which let pedestrians know how much time they have to cross the street. Short signal cycle lengths of 90 seconds or less, pedestrian-friendly signal timing, and lead pedestrian intervals at signals are desirable because they prioritize and encourage pedestrian travel. Medians enhance crossing safety and are desirable along corridors with four or more lanes.



Curb bulb outs reduce the distance that people walking have to cover when crossing the street. Photo: Federal Highway Administration Pedestrian Safety Plan

Design guidance for *all* regional pedestrian routes and districts

Walkable areas, including transit routes and pedestrian districts, include elements that increase the safety, comfort and ease of walking. Street-fronting retail uses and on-street parking is desirable in centers and along Main Streets.

Lighting along pedestrian walkways is important for safety and comfort. Pedestrian-scale lighting should be provided along regional pedestrian corridors and especially at intersections. Pedestrian-scale lights improve walkway illumination for pedestrian traffic and enhance community safety and business exposure. Typically, this lighting is positioned over the sidewalk, rather than the street, at about 12 to 15 feet above the sidewalk.



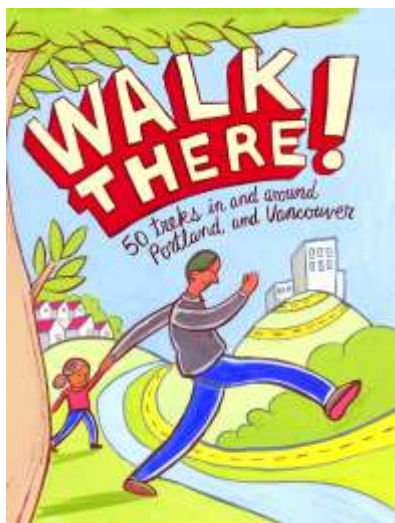
Examples of pedestrian scale lighting in Lake Oswego and at the WES Commuter Rail Station in Tigard. Photos: Lake Oswego, Wikipedia

Wayfinding As appropriate, wayfinding should be part of the regional pedestrian network. Pedestrian wayfinding is especially helpful in urban centers and business districts and for connecting people to transit. Wayfinding can help residents and tourists better navigate communities. Wayfinding also adds to a sense of place. Including wayfinding increases the cohesiveness and integration of the regional pedestrian network.



Examples of pedestrian wayfinding in the Portland Lloyd District and downtown Forest Grove. Photos: Metro, Forest Grove

Public outreach, marketing, education and programs Investments in regional pedestrian facilities should be supported by outreach, marketing, education and programs. These elements are essential to making the most of investments in good design so that the public understands the significance of regional pedestrian routes and districts. Marketing and outreach inform the public and get people excited about available transportation options. Supporting materials such as maps, apps for mobile devices and on-line mapping make accessing transit and other destinations by walking easy. Education and programs offered by cities, counties and non-profit organizations such as DriveLess.SaveMore, Smart Trips, Senior Strolls and Safe Routes to School support people in developing new transportation habits.



Metro's Walk there! provides maps and descriptions of great walks in the region. Kids walk to school in Bethany with Safe Routes to School. Photos: Metro, BikePortland.org

Design guidance for bicycle and pedestrian routes on regional trails

Trails and multi-use paths can provide an exceptional travel experience for bicycling and walking. Many of the region's trails connect to transit and other regional destinations and form an important part of the regional active transportation network. Trails and multi-use paths can provide access to nature while commuting to school or work, blurring the line between transportation and recreation. Most trails are multi-use; providing adequate space for pedestrians, bicyclists and other users is necessary.

Design elements of trails and multi-use paths such as width, wayfinding and access points should carefully consider where the trail is located, the anticipated number of users and environmental and topographical constraints. Ideally trails and multi-use paths on the regional bicycle and pedestrian network are designed to provide a reliable and practical transportation route while maintaining a unique trail-like experience.

Trail width - Regional trails and multi-use paths are generally between 10 and 12 feet wide, but the number of anticipated users should guide trail width. In some instances wider trails will be needed and in areas where use is anticipated to be lower a narrower trail may be sufficient. Additionally, site constraints may prohibit building a trail as wide as desired.

Widths wider than the 10 to 12 feet should be considered for trails in denser urban areas with higher numbers of users, on bridges, when trails intersect or converge and in places where trail users may stop. In these instances widths of 14 feet or more and bifurcation to separate bicyclists and pedestrians may be warranted. If the wider trail width is not possible design approaches such as pavement markings, signage to slow bicycle speeds, or pull outs to allow for passing and stopping should be applied to minimize conflicts among pedestrians and bicyclists. Separation of pedestrians and bicyclists is especially important on trails with a high number of users and on trails that are high bicycle commute corridors.



The Sprigwater Corridor Trail and the Sprigwater Spur in Gresham. Photos: The Oregonian, Greenworks

Crossings of roadways/mid-block crossings- Marked high-visibility crosswalks with lighting at all crossings of collector and arterial roads increase trail use and safety. Additional crossing features should be added where appropriate, such as mid-block crossings. Bike signals and detection at crossings are desirable to allow for uninterrupted travel. To the extent possible, crossings should continue the ‘trail like’ experience of users.



A marked signalized crossing of the Rock Creek Trail in Washington County, a pedestrian and bicycle parkway. The trail is crossing NW Evergreen Parkway, a bicycle and pedestrian parkway. Washington County has developed and is implementing a plan for improving street crossings of trails. Photo: Washington County

Lighting of trails and paths that serve as transportation corridors is desirable. Most trails in the region are not lit. However, those that are seeing more and more travel for transportation purposes may need to be lit to improve safety and continue to increase use. Lighting increases safety and comfort and expands the use. Low impact lighting should be used as necessary to

avoid impacts on neighbors and wildlife. Lighting paths can be expensive, but can make a path more accessible and useful for transportation purposes.



The photo on the left shows lighting along the I-205 Multi-use Path and on the right along Waterfront Park in Portland. A summary of existing best practices and costs for trail and path lighting is needed to provide guidance to trail developers in the region. Photos: The Oregonian, Wikipedia

Wayfinding along a trail provide a better experience, integrate the trail into the on-street network and make connections to transit and other destinations easy. Mile markers should be provided along trails for use in emergency situations. Metro developed the *Intertwine Trails Signage Design Guidelines* to support consistent trail signage across the region. The guidelines complement Oregon’s standard bikeway signs and are developed for pedestrian and bicycle travel on trails and should be used on all regional trails. Using consistent wayfinding across the region creates a sense of connectivity.



Wayfinding signage on the Fanno Creek Trail in Tigard orients trail users and provides directions to connection. It also lets users know that they are on the regional network. Photos: Metro

Bike parking, benches, bike share, bike stations, water fountains and other elements provide a more comfortable and enjoyable experience and make the trail more useable and accessible. These elements should be considered and provided to the greatest extent possible to create exceptional travel experiences for people using the trail. The location, proximity to destinations, and level of use should guide decisions about the type and location of these kinds of amenities.



The photos here shows the integration of a path, bicycle parking and a bus stop in the Netherlands and benches alongside a pedestrian and bicycle separated path in New York. Photos: David Hembrow, BikePortland.org

Design considerations for freight, transit and the environment

Design is a critical element to creating inviting and safe places for people to walk and bike. However, many regional pedestrian and bicycle projects will occur in environments where constraints will need to be balanced with design. Additionally, jurisdictions typically want to make the most of limited available funds, balancing optimal design with longer project extents and connectivity. In these types of instances, a basic facility is preferred to no facility, provided it meets the minimum standards of cities, counties and agencies identified in local plans. For the regional network, which serves as the spine for entire bicycle and pedestrian system, however, this should be a last resort and not a default approach. This section provides information on the needs of freight and transit operations and wildlife habitat that need to be balanced as active transportation projects are developed.



Share the Road mural at the Hawthorne Auto Clinic provides a vision of multiple modes sharing streets. Photo: Hawthorne Auto Clinic.

Freight and transit operation considerations

Adding or improving pedestrian and bicycle facilities to roadways can impact other transportation users such as transit and freight. As shown on the following *Regional Pedestrian and Bicycle Network Overlap of Regional Freight Network Maps*, there is overlap between the regional pedestrian and bicycle and freight networks. Approximately 21% of the regional bicycle network and 28% of the regional pedestrian network overlaps with the regional freight network.

When designing pedestrian and bicycle facilities on these routes, local jurisdictions must facilitate safe and reasonably efficient vehicle operations for freight trucks along with safe and comfortable pedestrian and bicycle travel. Transit buses can encounter come of the same needs as freight trucks and share many of the same routes. Key factors for efficient and safe freight and bus movements include:

- Adequate lane widths. Depending on context, lane widths can range from ten to fourteen feet.
- Buffering between large vehicles and people walking and cycling and visibility through these buffers.

- Adequate turning radii. Pavement paint and mountable truck aprons (see example below) can provide a better pedestrian environment while still providing adequate turning radii.
- Horizontal and vertical clearance and over-dimensional freight.

In some instances it may be preferable to identify separate, parallel routes for bicycle travel. Emerging best practices and up-to-date research in roadway design and case studies of what is working should be used to minimize negative impacts for all transportation users with a goal to create complete streets that are safe and functional.

There are several good examples in the region, described below, where streets have been upgraded to make active travel safer and more comfortable while maintaining freight movement and transit:



Lombard multi-use path in the Rivergate Industrial Area provides a safe, enjoyable pedestrian and bicycle path, increasing safety for all users of the roadway. Photo: Port of Portland

Properties along a stretch of North Lombard Street, a regional freight route, in the Rivergate Industrial Park in Portland, were redeveloped to include a wide pedestrian and bicycle path through the district, providing safe and comfortable access to jobs and regional natural areas. The Lombard Street Path stretches nearly 2 miles through the industrial area. At the southern end of Kelley Point Park, the path makes connects to the Columbia Slough Trail and the Marine Drive Trail. This section of North Lombard is a regional freight route, regional bikeway and regional pedestrian corridor.



NE Cornell Road in front of Orenco Station. Photo: Washington County

North Cornell Road at Orenco Station in Hillsboro is a 4-lane roadway with a median and trees, bike lanes and sidewalks with wide planter strips that provide a buffer. It is a regional freight route, a frequent transit route, a regional bikeway and a regional pedestrian parkway.

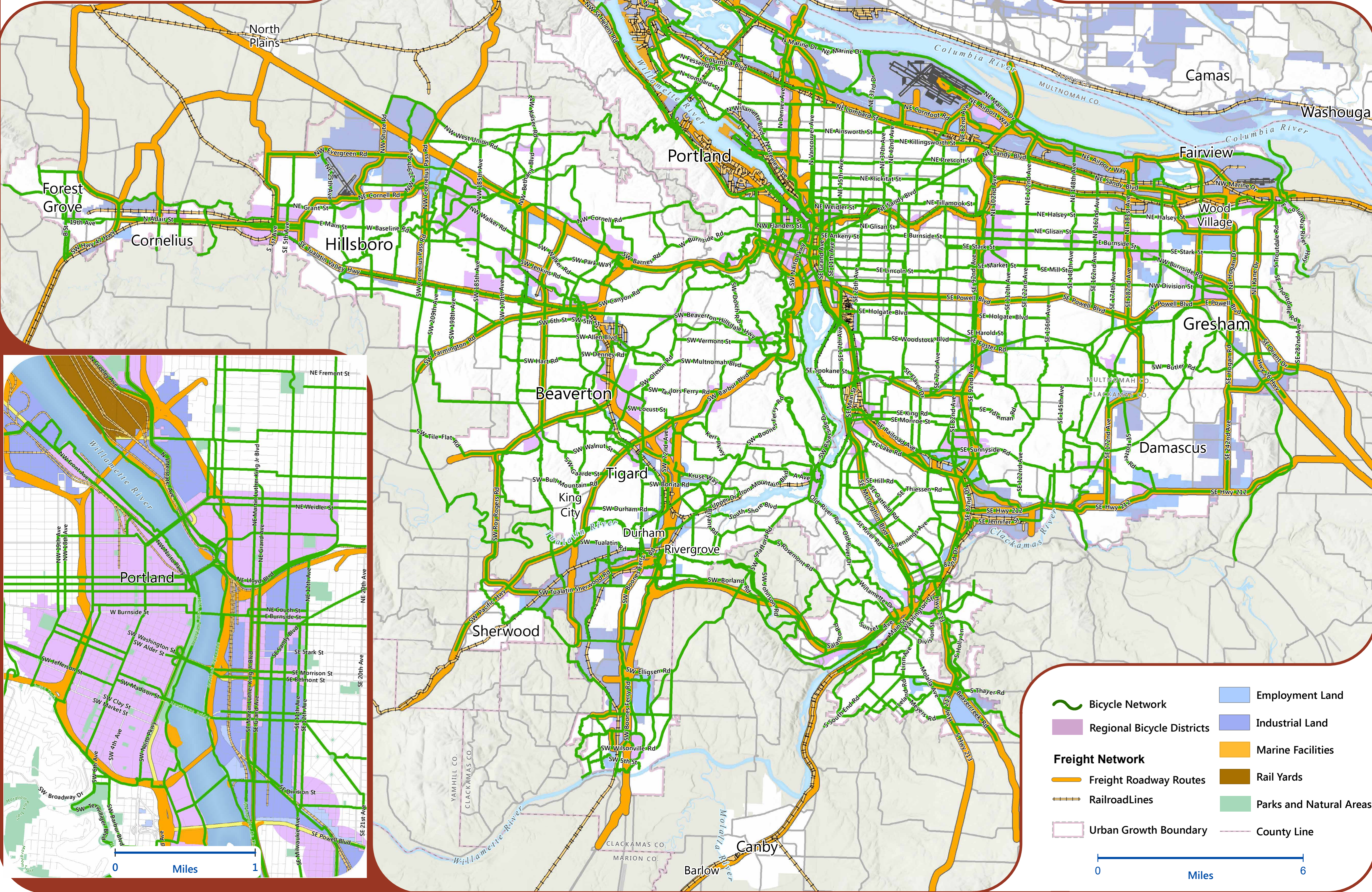


Example of a truck apron, extending the curb making it easier for pedestrians to cross the street, but maintains the turning radius for large trucks which can mount curb. Photo: Michael McKisson.

The St Johns truck strategy in Portland improved a regional truck route while also maintaining or improving the neighborhoods livability with facility improvements such as curb aprons (an area around curbs that truck can drive over but still indicates or provides separation from traffic for pedestrians), mountable curbs and pillows at intersections.

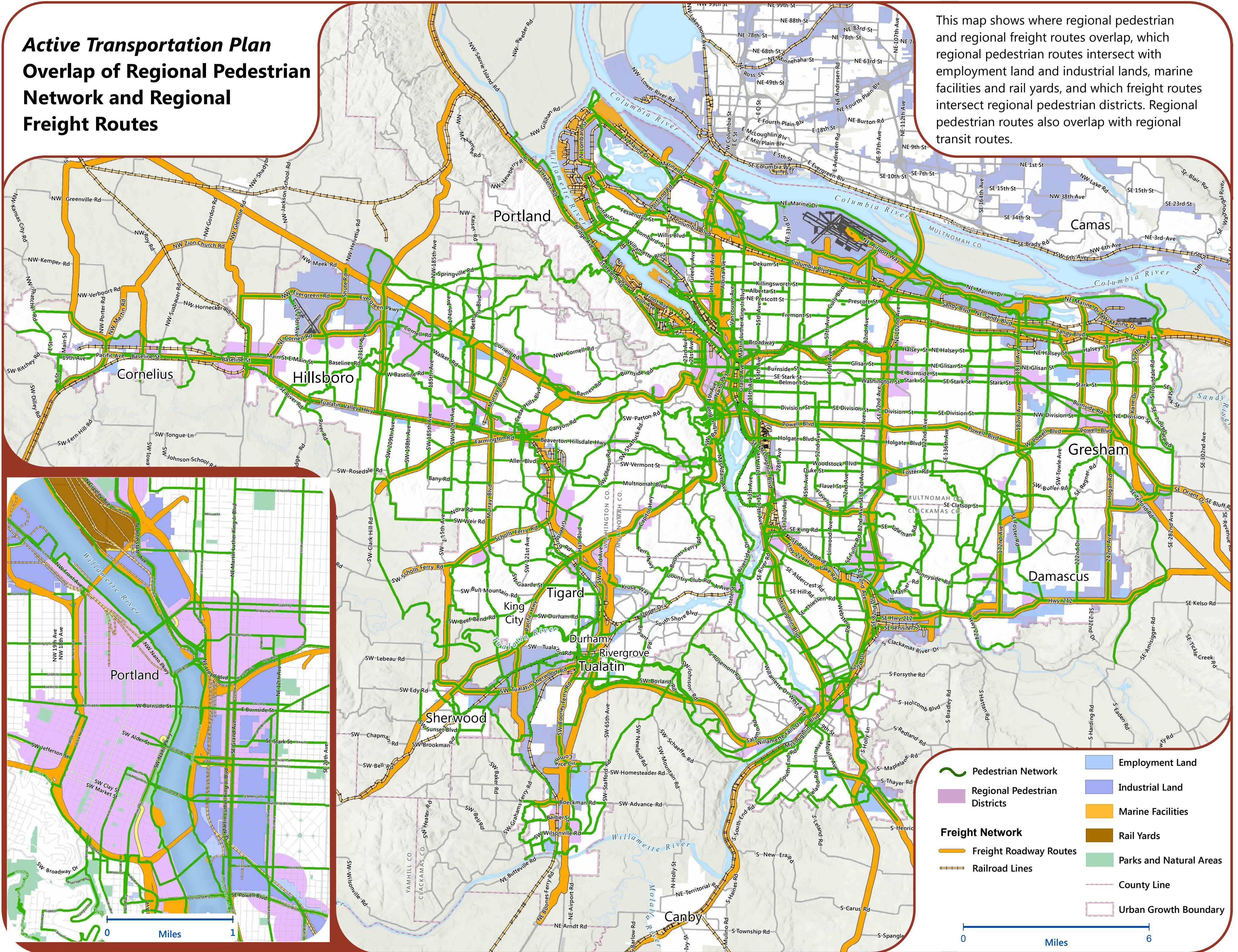
Active Transportation Plan
Overlap of Regional Bicycle
Network and Regional
Freight Routes

This map shows where regional bicycle and regional freight routes overlap, which regional bicycle routes intersect with employment land, industrial lands, marine facilities and rail yards, and which freight routes intersect regional bicycle districts.



Active Transportation Plan
Overlap of Regional Pedestrian
Network and Regional
Freight Routes

This map shows where regional pedestrian and regional freight routes overlap, which regional pedestrian routes intersect with employment land and industrial lands, marine facilities and rail yards, and which freight routes intersect regional pedestrian districts. Regional pedestrian routes also overlap with regional transit routes.



Wildlife habitat and environment considerations

As with all transportation projects, impacts to wildlife in upland and riparian habitat and the environment need to be considered when planning, designing and implementing bicycle and pedestrian facilities. Trails and multi-use paths especially can intersect with areas of high quality upland and riparian areas. Experts such as conservation scientists, biologists and ecologists should be consulted early on in the planning process to identify ways in which trail development can also provide opportunities for restoration, enhancing sensitive habitats and watershed and ecosystem health, or wildlife crossings and to ensure that high quality lands and riparian areas are protected.



Trails like the Fanno Creek Trail can provide unique opportunities to connect with nature. At the same time, trails should be designed and located in ways to protect and if possible enhance wildlife and riparian habitats. Photo: Metro

Bicycle and pedestrian projects can sometimes provide opportunities to benefit wildlife, habitat, and water quality, by replacing a culvert, adding a wildlife crossing or providing new vegetation. These types of opportunities should be looked for and included in projects when possible. Biologists can help determine whether sensitive species such as amphibians, turtles or salmon are present in the trail planning area.

Where there are significant physical environmental constraints, such as steep slopes, landslide hazards, or high value natural resource upland and/or riparian areas, identifying alternative routes should be considered to protect habitat, water quality and reduce landslide hazards. The *Regional Pedestrian and Bicycle Network Overlap of Regional Conservation Strategy Habitat Maps* included in this chapter illustrate the location of high quality upland and riparian areas and where they intersect with the regional active transportation networks. Approximately 17%

of the regional pedestrian network and 12% of the regional bicycle network overlap with sensitive habitat areas. High value habitats and resources, such as wetlands, should be avoided as much as possible.

Active transportation and impacts to wildlife must be carefully balanced. To the greatest extent possible impacts should be avoided, minimized and/or mitigated. For example, avoiding major impacts could include routing the trail along roadways or in lower value habitat; minimizing impacts could include making the trail as narrow as possible, limiting stream crossings and avoiding bisecting large habitat areas. If impacts on high value habitats are unavoidable, minimize the damage and thoughtfully make up for it nearby.

Resources for planning and developing environmentally sensitive and habitat friendly trails and other pedestrian and bicycle projects should be utilized throughout the planning process.

Resources for planning and developing environmentally sensitive and habitat friendly trails

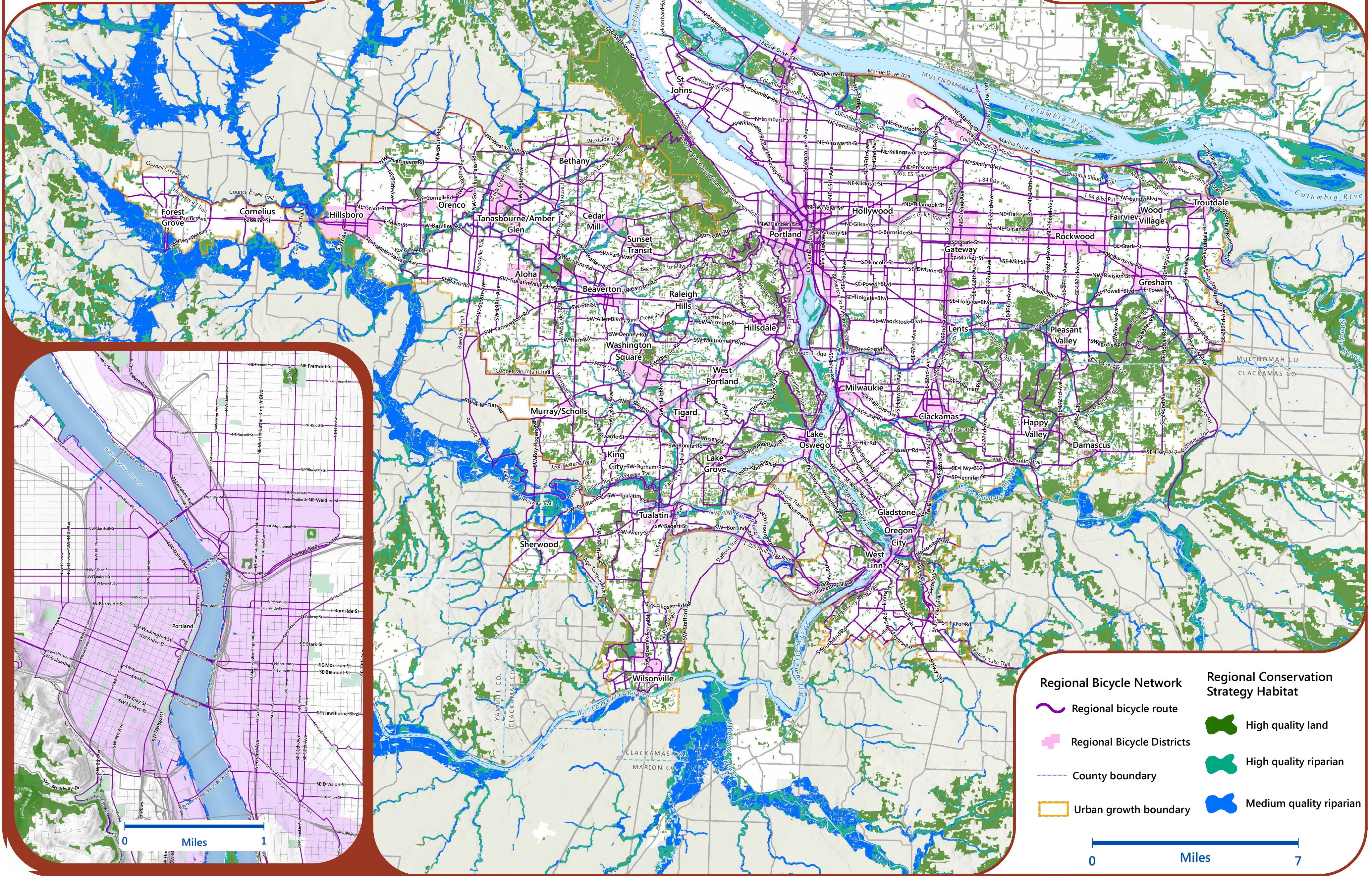
- Green Trails: Guidelines for environmentally friendly trails (Metro)
- Wildlife crossings: Providing safe passage for urban wildlife (Metro, 2009)
- Planning Trails with Wildlife in Mind: A handbook for trail planners (Colorado State Parks)
- For regional data, Regional Conservation Strategy for the Greater Portland Vancouver Metropolitan Area (The Intertwine Alliance and Metro)
- For local planning, resources such as Title 13, local wetland inventories, and local tree cover maps are useful. A new online planning tool is available at www.regionalconservationstrategy.org

Top 10 Natural Resource Considerations for Trails Planners (Metro 2014)

1. Engage natural resource experts and professionals early and often.
2. Identify natural resource information sources.
3. Do you really need a trail there?
4. Early reconnaissance on what wildlife or fish species you might disturb – what surveys will you need?
5. Use complementary funding sources to incorporate more wildlife considerations.
6. Engage wildlife experts for surveys and site-specific information.
7. Avoid impacts on fish, wildlife and their habitats. If you can't avoid it, minimize the harm and make up for the damage.
8. Stay out of the water.
9. Some animals need large, private homes; avoid habitat fragmentation.
10. Fish and wildlife need "trails," too; explicitly consider wildlife corridors and barriers.

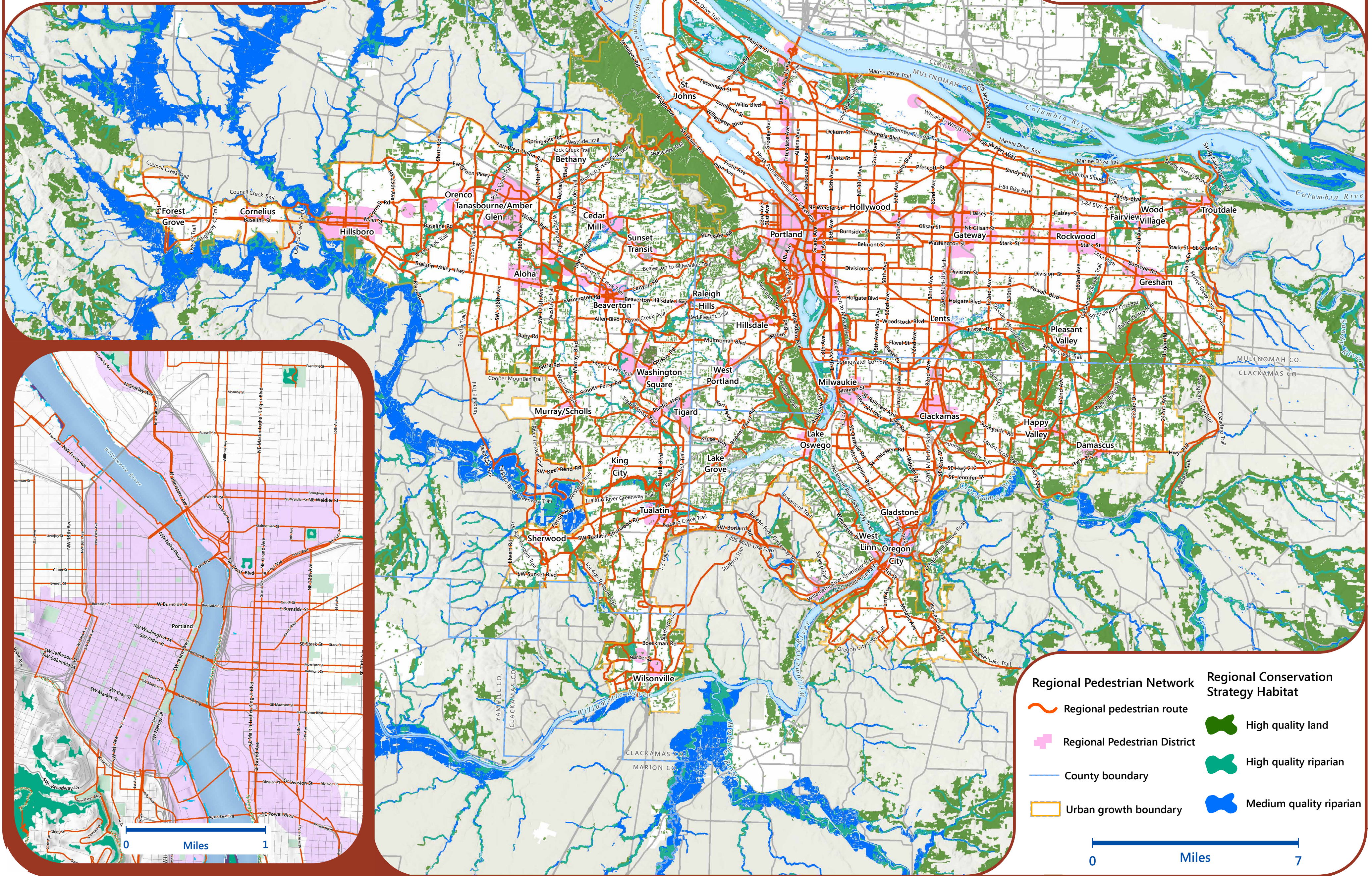
Active Transportation Plan
Regional Bicycle Network
Overlap of Regional Conservation
Strategy Habitat

The regional bicycle network is composed of bicycle parkways, regional bikeways and bicycle districts. This map shows which routes on the regional bicycle network are on-street bikeways and which routes are off-street trails. On-street routes are shown in green and trails are shown in orange. Functional classifications are not shown on this map.



Active Transportation Plan
Regional Pedestrian Network
Overlap of Regional Conservation
Strategy Habitat

The regional pedestrian network is composed of pedestrian parkways, regional pedestrian corridors and pedestrian districts. This map shows which routes on the network are on-street sidewalks and which routes are off-street trails. Sidewalks are shown in blue and trails are shown in orange. Functional classifications are not shown on this map.



Chapter 10 Targets and Outcomes

Performance measures and targets are important for measuring progress and maintaining accountability. A target is a specific level of performance that is desired to be achieved within a certain timeframe; a performance measure is a metric used to assess progress toward meeting an objective or target and provides an indicator of outcomes.⁹¹

Measuring performance in regional transportation plans is now required by the federal government. “[Moving Ahead for Progress in the 21st Century](#)” (MAP-21) is the most recent surface transportation funding legislation. A fundamental element of the legislation is its focus and requirement for performance management. The legislation creates new requirements for state transportation departments, transit agencies, and metropolitan planning organizations to track and report performance for safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduction of project delivery delays.⁹² Performance outcomes related to active transportation will play a role in achieving these targets in the region.

The 2014 Regional Transportation Plan includes targets and performance measures; increasing access to walking and bicycling and increasing levels of active transportation impacts the outcomes for all of the targets. This chapter provides a summary of performance outcomes for the active transportation, safety and basic infrastructure targets.⁹³ Results indicate that with current investments the targets will not be met by 2040. Included at the end of the chapter is a list of potential additional measures that could be addressed in future updates of the ATP.

Active transportation target

The ATP updated the data reference points for the active transportation target in the 2014 Regional Transportation Plan.⁹⁴

⁹¹ Definitions drawn from the Federal Highway Administration *Performance-Based Planning and programming Guidebook* (September 2013)

⁹² Moving Ahead for Progress in the 21st Century (MAP-21) was signed into law in 2012 creating the most significant federal transportation policy shift since the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). See <https://www.fhwa.dot.gov/map21/factsheets/pm.cfm> for information on performance measures.

⁹³ Refer to Chapter 2 and 4 of the 2014 Regional Transportation Plan.

⁹⁴ The 2035 Regional Transportation Plan active transportation mode share target used 2005 modeled transportation data as the data reference points. The ATP recommends using the 2010 transportation modeled data. The 2010 modeled mode share estimates for walking and bicycling are assumed to be better because of new data from the 2011 Oregon Household Activity Survey and the development of Metro bicycling modeling tools. The ATP also recommends measuring pedestrian, bicycle and transit

By 2040, triple the walking, biking and transit mode shares for all trips compared to 2010 modeled mode shares within the urban growth boundary compared to 2010 modeled mode shares.

Modeled transportation data suggests that the 2014 Regional Transportation Plan is not meeting the Active Transportation target. Table 4 shows mode share for bicycling, walking and transit increasing, but not at a rate to achieve the target and desired outcomes.

Table 4: ATP target and current and potential active transportation mode shares for all trips within the 4-county area and the urban growth boundary (UGB)

	Current: 2010 modeled mode share for all trips within the 4-county area and within the UGB on the existing transportation network	2040 RTP Network: modeled mode share for all trips within the 4-county area and within the UGB on the 2035 state Regional Transportation Plan network	Target: Triple 2010 modeled mode share for walking, bicycling and transit trips within the UGB by 2040
Transit	3.8% (UGB 4.4%)	4.9% (UGB 7.6%)	13% in UGB
Walking	8.9% (UGB 8.8%)	9.6% (UGB 10.1%)	27% in UGB
Bicycling	2.8% (UGB 3.1%)	3.1% (UGB 3.7%)	9% in UGB

Data: Metro, 2013 Transportation Model

Current policies and investments may not be aggressive enough to reach the active transportation target. Additionally, modeled data should be taken as only one piece of data. Incorporating pedestrian and bicycle modes into transportation models is still evolving; as models become more sophisticated and better at reflecting pedestrian and bicycle behavior modeled mode share results may change.

Recent analysis conducted by the City of Portland demonstrates that some areas of Portland have the potential to achieve bicycle and pedestrian mode shares that achieve regional targets. The same analysis estimates that if its 25% bicycling mode share target is not reached and bicycling levels remain the same the city will need the equivalent of 18 more Powell Boulevards to accommodate the increase in auto traffic generated by Portland residents alone.⁹⁵

mode shares within the urban growth boundary. Because so few walking, bicycling and transit trips occur outside of the urban growth boundary, including those areas in the performance measure can give a less accurate measure. Table 4 includes mode shares for both the 4-county area and the area within the UGB illustrates the difference.

⁹⁵ *What does the Oregon Household Activity Survey Tell Us About the Path Ahead for Active Transportation in the City of Portland* a white paper by Roger Geller, March 2013.
<http://www.portlandoregon.gov/transportation/article/452524>

An important consideration when measuring progress towards the mode share target is that different parts of the region will have higher or lower walking, bicycling and transit mode shares depending on factors such as land use and population and employment density. The ATP technical reports [2013 Regional Pedestrian Network Analysis](#) and [2013 Regional Bicycle Network Evaluation](#) include mode shares for subareas within the region.

Chapter 2 of the Regional Transportation Plan also includes regional modal targets.⁹⁶ The non-drive alone modal target combines walking, bicycling, transit and trips made by auto with two or more passengers (called high occupancy vehicles); increases in non-drive alone trips are used to demonstrate compliance with per capita auto trip reductions required by the [State Transportation Planning Rule](#).⁹⁷ The non-drive alone target is less useful for measuring active transportation performance because it includes trips made by auto.

Evaluation in the 2014 Regional Transportation Plan found that system wide non-drive alone trips did not increase by more than 2% by 2040.⁹⁸ This is consistent with the findings for the active transportation target described above.

Table 5: Regional modal targets

2040 Design Type	Non-drive alone modal target
Portland central city	60-70%
Regional centers	45-55%
Town centers	
Main streets	
Station communities	
Corridors	
Passenger intermodal facilities	40-45%
Industrial areas	
Freight intermodal facilities	
Employment areas	
Inner neighborhoods	
Outer neighborhoods	

Safety target

Data reference points for the safety target were updated based on the [Regional Transportation Safety Plan](#) (May 2012).

⁹⁶ Page 2-22 in the 2014 Regional Transportation Plan.

⁹⁷ http://www.oregon.gov/LCD/pages/rulemaking_tpr_2011.aspx

⁹⁸ Regional Transportation Plan, Chapter 5, page 5-32.

By 2040, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious injuries each by 50 percent compared to five year levels based on data in the in the Metro State of Safety Report.

Base year data is provided by the [Metro State of Safety Report](#) (April 2012), which includes data for 2007-2011. Table 6 shows the number of crashes for all modes. Pedestrian and bicycle crashes involve a motor vehicle.

Crash data from the [Metro State of Safety Report](#) provides baseline data by which to measure progress towards the target. Metro's [Regional Transportation Safety Plan](#) (May 2012) provides short and long term recommendations to accomplish the 2014 *Regional Transportation Plan* target for reducing fatalities and serious injury crashes by 50% . Many of the recommendations include actions that make walking and bicycling safer and would reduce the number of people struck by autos when walking or bicycling.

Table 6: Number of serious and fatal crashes by mode, within Urban Growth Boundary, and 2040 Target

	All Modes	Pedestrian/motor vehicle crash	Bicycle/motor vehicle crash	Motor vehicle crash
2007-2011	496	63	35	398
2040 Target	248	31	17	199

Data: Metro 2012, [State of Safety Report](#)

Basic infrastructure target

By 2040, increase by 50 percent the miles of sidewalks, bikeways and trails compared to the regional pedestrian and bicycle networks in 2010.

The purpose of the target is to measure progress towards completing basic walking and biking infrastructure that will provide access to essential destinations. Completing and expanding the identified regional networks will increase access to essential destinations.

Table 7, below, illustrates the amount of miles of new sidewalks, trails and bicycle facilities needed to achieve a 50% increase from the existing network. As shown in Chapter 2 of the 2014 Regional Transportation Plan, the region meets the performance target for adding trails and bikeways. The 2014 Regional Transportation Plan includes projects 140 miles of new regional trails, a 61% increase, and projects for 421 miles of regional bikeways, a 68% increase. Data for miles of sidewalks added through 2014 Regional Transportation Projects is not available. As of 2010, 55% of regional pedestrian network has sidewalks on both sides of street, and 209 additional miles of sidewalks are needed by 2040 to meet the target.

Table 7: Example of increase in miles needed to achieve a 50% increase

	Miles in planned regional network	Miles complete 2010	Percent of network complete 2010	Miles needed to reach 2040 target (a 50% increase)	Miles remaining to complete planned network
Regional trails	525	229	44%	114	296
Regional bikeways (on-street)	997	509	51%	254	488
Sidewalks on regional pedestrian network	761	418 (sidewalks on both sides)	55%	209	343

Data: Metro, Regional Active Transportation Plan

Access to Daily Needs

By 2040, increase by 50 percent the number of essential destinations including jobs and education accessible in less than 30 minutes by transit the number of essential destinations accessible within 30 minutes by bicycling and public transit for low income, minority, senior and disabled populations compared to 2010.

Access to daily needs is intended to measure an increase in access to essential daily needs for underserved and environmental justice populations. The target is identified in the 2014 Regional Transportation Plan adopted in 2010, but the data and methodology have not yet been defined. The methodology and data will be developed before the update of the Regional Transportation Plan in 2018. Terminology will also be updated to people with low-incomes, people of color and people with disabilities.

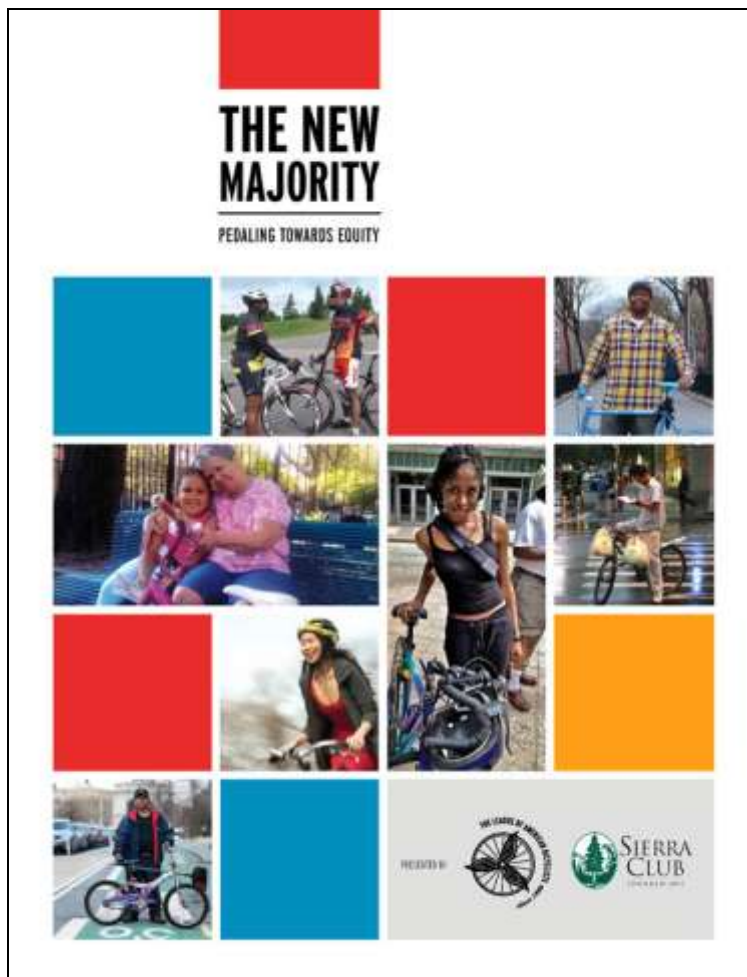
Regional Transportation Plan performance measure outcomes

Performance measures in the 2014 *Regional Transportation Plan* are used to monitor the regional transportation system between updates of the plan. Each of the “investment scenarios” is tested – 2010 base year, 2040 no build, 2040 RTP federal priorities system and the 2040 RTP investment strategy (highest level of investment). Results of analysis using transportation modeling tools and geographic information systems (GIS) indicate that the 2014 *Regional Transportation Plan* does not meet several of these performance measures. Meeting the active transportation target could help meet the performance measures. Results of the eleven performance measures are provided in section 4.3, Chapter 4 of the 2014 *Regional Transportation Plan*.

Additional performance measures recommended for the ATP

Additional performance measures to be included in subsequent updates of the ATP are listed below. Several of these measures are useful for evaluating and monitoring progress in active transportation.

1. Bicycle and pedestrian miles traveled (total and per capita). The 2014 Regional Transportation Plan added measuring increase in bicycle miles traveled to the performance measures.
2. Percent increase in bicycle network separated from traffic.
3. Percent of regional bicycle system with low Bicycle Comfort Index improved.
4. Percent of regional pedestrian network with low Pedestrian Comfort Index improved.
5. Increase in density of regional bicycle network.
6. Increase in connectivity of regional bicycle and pedestrian networks.



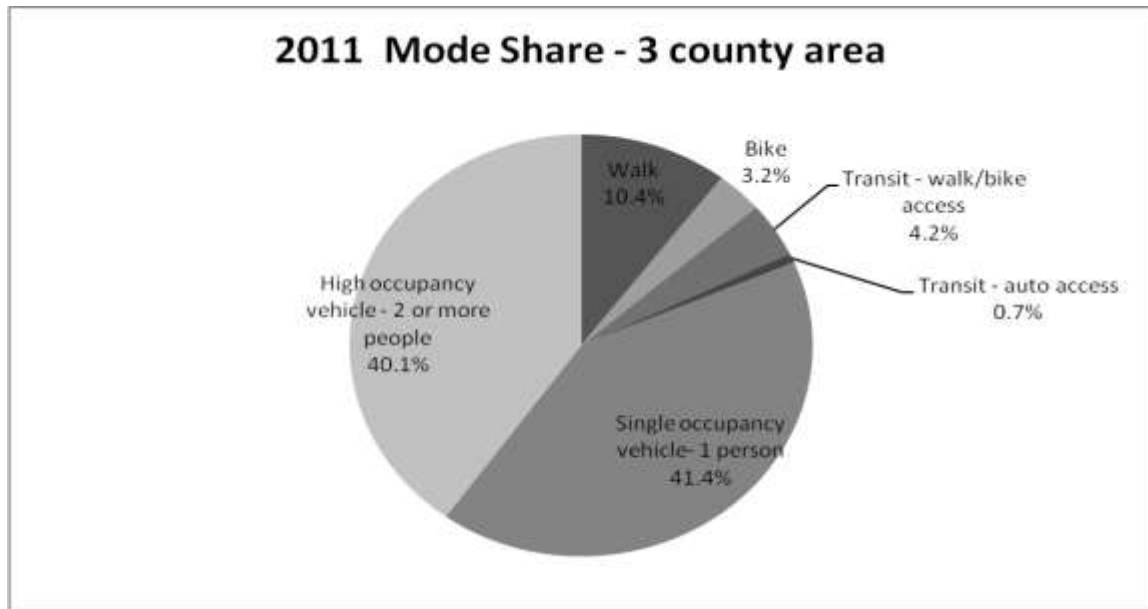
A recent report from the League of American Bicyclists provides data showing more people of color are riding bicycles.

Chapter 11 Trends and Findings to Guide Policies

Development of the supplemental report [Existing Conditions, Findings and Opportunities Report](#) (August 2012) identified existing conditions and trends that guided the development of the ATP recommended policies and implementing actions in the next chapter, and that should be considered as policy decisions are made.

- a) **Regional levels of active transportation are increasing, especially bicycling; continue positive trends with increased investments.** One in six of all trips in Multnomah, Clackamas and Washington counties are made by active transportation and 84 percent of all transit trips are accessed by foot or bicycle. The regional active transportation mode share increased 36% between 1994 and 2011, from 13.1% to 17.8% of all trips.⁹⁹ The regional bicycle mode share increased by nearly 191%, from 1.1% to 3.2%. Walking increased by over 14%. Figure 5 shows regional mode share levels in 2011. The majority of trips made in the region are made by auto.¹⁰⁰ However, continuing and increasing investments in active transportation infrastructure and programs supports positive trends.

Figure 5: 2011 Transportation Mode Share for the 3-County area



Source: 2011 Oregon Household Activity Survey for the 3-county area

- b) **Levels of walking, bicycling and transit vary from community to community and are highly dependent on existing land use and population and employment densities.**

⁹⁹ 2011 Oregon Household Activity Survey and 1994 Travel Behavior Survey

¹⁰⁰ 2011 Oregon Household Activity Survey

Different communities will require different funding and implementation strategies.

Table 8, below provides additional detail on levels of walking, bicycling and transit use in the region.

Table 8: Mode Share for All Trips by Place of Residence, 1994 and 2011

Area	Walk%		Bike%		Transit%		Auto%	
	1994	2011	1994	2011	1994	2011	1994	2011
Portland - Central City	37.6	36.4	2.2	7.1	13.6	18.7	46.5	37.8
Portland - Southwest	12.4	6.7	1.2	1.3	2.6	5.6	83.8	86.3
Portland - Northwest	20.6	24.3	1.4	4.5	4.3	7.8	73.7	63.4
Portland - North	*	10.4	*	4.0	2.8	7.7	84.1	77.9
Portland - Northeast	10.4	15.9	0.8	9.8	4.6	5.8	84.2	68.5
Portland - Southeast	12.3	17.5	2.6	7.5	6.8	5.8	78.3	69.1
Portland - East	6.8	10.3	0.5	1.8	5.1	6.9	87.5	81.0
Oregon - 3 Co Suburbs	6.3	7.4	0.7	1.5	1.7	3.9	91.2	87.2
Washington - Clark Co	6.9	4.7	1.1	1.0	1.0	1.4	91.0	92.8
4-County Area	8.7	9.2	1.1	2.8	2.9	4.2	87.3	83.8
City of Portland	13.0	15.0	1.6	6.0	5.5	6.6	79.8	72.4

*Source: Metro, Travel Behavior Survey and 2011 OHAS. *There were insufficient bike samples in subarea 4 (Portland -North) in 1994-95. Combining bike and walk trips, the bike-walk mode share for subarea 4 households in 1994-95 was 13.1%.*

- c) **Lower income households in the region make more of their trips using active travel, especially walking, than do households with higher incomes. Support continuation of these trends by improving facilities and services in areas where people with low-income live.** As level of income increases, so does the percentage of trips made by auto. Households with annual incomes of less than \$35,000 make up to 25% of their trips walking, bicycling and taking transit.¹⁰¹ Community Cycling Center developed the “Understanding Barriers to Bicycling” project, a community needs assessment, to better understand what people were interested in or concerned about as it related to bicycling. The findings from the *Barriers to Bicycling* report identified areas to focus on to remove barriers.¹⁰²
- d) **Non-white householders in the region make a greater percentage of their trips by walking, bicycling and transit than white householders. Support continuation of these trends by improving facilities and services in areas where people of color live.** Non-white householders make more than 20% of all their trips by walking and bicycling and

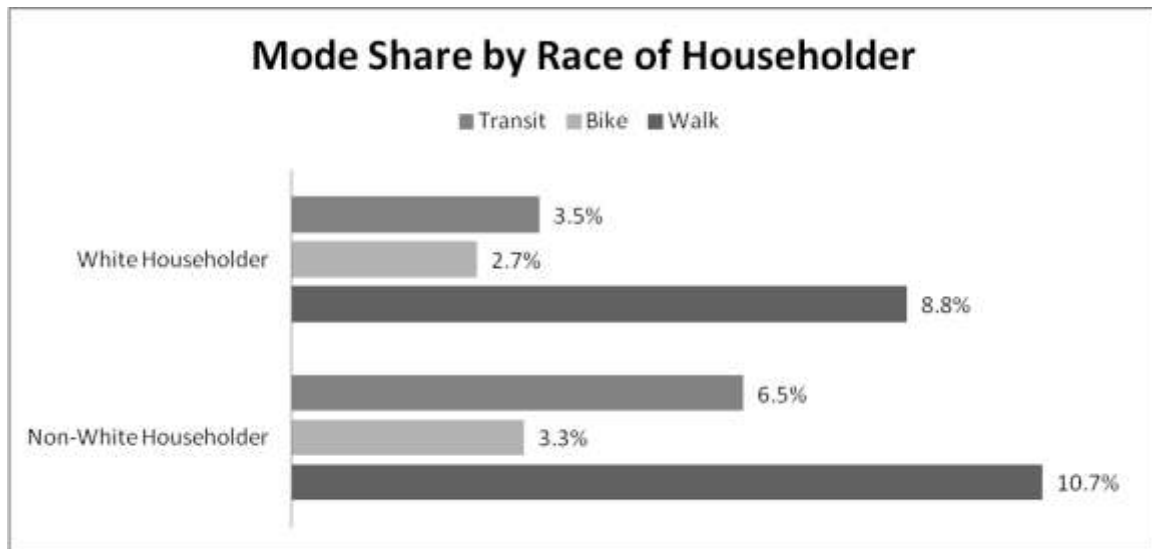
¹⁰¹ 2011 Oregon Household Activity Survey

¹⁰² Community Cycling Center

<http://www.communitycyclingcenter.org/index.php/community/understanding-barriers-to-bicycling/>

transit, while white householders make 15% of all their trips by walking and bicycling and transit.¹⁰³

Figure 6: Transportation Mode Share by Race, 4-county area



Source: 2011 Oregon Household Activity Survey

- e) **Younger people in the region are making more trips by active transportation.** For example, children under the age of 14 make over 23% of all walk trips (the highest of any age group) and over 15% of all bicycle trips in the region.¹⁰⁴
- f) **People between the ages of 25 and 34 make nearly 25% of their trips using active modes, the highest level of any age group.**¹⁰⁵
- g) **People with disabilities rely on transit and walking more than people without disabilities.** Nearly 7% of the population reports having a disability that affects their ability to travel. People with disabilities particularly rely on transit for travel. Access to transit for individuals with mobility impairments is hindered by incomplete sidewalks and curb cuts.¹⁰⁶
- h) **The majority of all trips made by auto in the region are for short trips.** Over 66% of all trips made by autos within the 4-county area are less than six miles in length, nearly 44% are less than three miles in length, and nearly 15% are less than one mile in length.¹⁰⁷ Replacing 6 to

¹⁰³ Oregon Household Activity Survey, 2011

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

¹⁰⁶ Ibid.

¹⁰⁷ Oregon Household Activity Survey, 2011

21% of short trips under three miles made by auto with walking and bicycling would avoid 21- 52 billion miles of driving annually in the U.S.¹⁰⁸

- i) **Current transportation plans do not achieve regional transportation targets.** The Regional Transportation Plan project list adopted in 2010 does not achieve many of the region's adopted transportation targets, including a decrease in drive alone trips and reductions in greenhouse gas emissions, congestion and vehicle miles traveled and travel delay. An increase in active transportation would help achieve all of these targets.¹⁰⁹
- j) **Levels of investment in active transportation do not match demand or need.** Nearly 18% of all trips in Multnomah, Clackamas and Washington counties are made by walking or bicycle, while stand-alone bicycle, pedestrian and trail projects have received approximately 3% of transportation capital funds.¹¹⁰
- k) **Many of the region's busiest and widest streets are also regional pedestrian and bicycle routes.** Arterials often provide the most direct and efficient route for travel for all modes, especially in suburban areas where there may not be alternative parallel routes. Many essential destinations and services and transit stops are located on arterials. Regional trails and other pedestrian and bicycle routes intersect with arterials.¹¹¹
- l) **Most serious pedestrian and bicycle crashes occur on arterials, at intersections and mid-block crossings.** Over 52% of all serious bicycle crashes and 67% of all serious pedestrian crashes occur on arterials. Arterials have the highest crash incident rate of any facility type for all modes. Nearly 80% of serious and fatal pedestrian crashes occur at intersections and mid-block crossings and 52% of serious and fatal bicycle crashes occur at intersections.¹¹²
- m) **Women are still making fewer trips by bicycle than men, but that is changing.** Women and girls are often seen as an "indicator species" for comfort of the bicycling environment. As the comfort and safety of the bicycling environment increases, so do the number of women and girls riding bicycles. Women in the region make 1.8% of their

¹⁰⁸ Rails to Trails Conservancy, Active Transportation for America, 2008

¹⁰⁹ 2035 Regional Transportation Plan performance targets and measures.

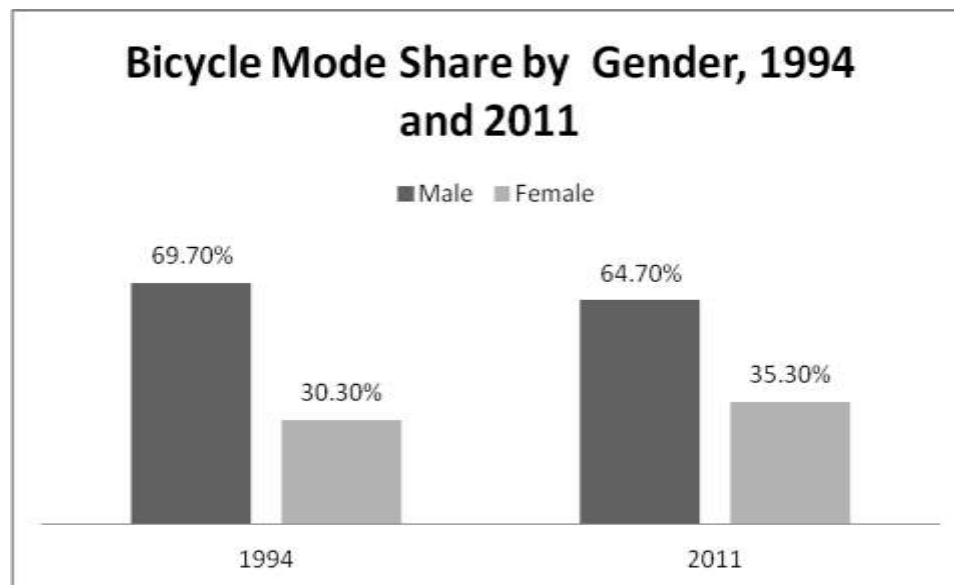
¹¹⁰ 2010 Metro.

¹¹¹ 2012 Regional Transportation Safety Plan.

¹¹² Ibid.

trips by bicycle, compared to 4% for men. However, the proportion of women riding bicycles is up 16.5% since 1994.¹¹³

Figure 7: Bicycle Mode Share by Gender, 1994 and 2011, 4-county area



Travel Behavior Survey and 2011 Oregon Household Activity Survey

- n) **Existing conditions for cycling vary across the region and present different opportunities and challenges to increasing bicycle ridership.** Large differences exist for factors that influence cycling such as road connectivity, road density, topography, permeability, land use mix/density, as well as the existing bikeways in the region in terms of bike network density, bike network connectivity and bikeway comfort. Urban and suburban areas may need different strategies to increase bicycling.¹¹⁴
- o) **Major regional pedestrian and transit corridors and districts lack sidewalks, have high levels of traffic and high traffic speeds.** These corridors often provide the most efficient and direct routes and access to services and destinations.¹¹⁵
- p) **People want to make more trips by bicycle and foot.** National, regional and local polls indicate that people support investment in active transportation. In Multnomah, Clackamas and Washington counties 86-91% of respondents in each county were

¹¹³ Oregon Household Activity Survey, 2011

¹¹⁴ [Existing Conditions, Findings and Opportunities report](#), 2012.

¹¹⁵ Ibid.

interested in using a bicycle more often for transportation and between 70-79% stated that they were interested in walking more for transportation purposes.¹¹⁶

- q) **Lack of data on walking and bicycling, especially accurate counts of pedestrian and bicycle activity, make it difficult to adequately measure demand and performance.** What does not get counted, does not count. Current transportation models do not adequately represent walking and bicycling. Adequate data will make sure that investments in bicycling and walking are cost efficient.
- r) **Regional investment in walkable and bikeable communities is a contributing factor to people engaging in more physical activity and lower rates of obesity compared to national and state levels.** Among other factors, the built environment, such as street connectivity/density and density and quality of pedestrian and bicycling infrastructure contribute to how much people, walk, ride bicycles and take transit.¹¹⁷
- s) **Programs and education help reduce the number of trips made by auto in the region.** Nearly 19% of the region's population has reduced their car trips as a result of Drive Less. Save More campaign, resulting in a conservative estimated 21.8 million reduction in vehicle road miles traveled, which translates into a reduction of about 10,700 tons of CO2. The City of Beaverton's Findley Elementary School reduced the number of autos dropping and picking up students from 800+ a day to 400 cars by introducing a Safe Routes to School Program.¹¹⁸
- t) **There are areas of the region with incomplete bicycling and walking facilities, less access to essential services and destinations, and higher concentrations of environmental equity issues and underserved communities,** including communities in East Multnomah County; City of Portland east of I-205; areas of North Portland; areas along McLoughlin Blvd. and 82nd Avenue; areas of unincorporated Clackamas County; including the North Clackamas Revitalization Area; Forest Grove; Cornelius; Aloha and Beaverton.¹¹⁹
- u) **Crashes and the resulting injuries and deaths cost the region \$958 million a year in property damage, medical costs, and lost productivity.** Studies have found that more people walking and riding bicycles make it safer to walk and ride a bicycle and increase road safety records for all users.¹²⁰

¹¹⁶ Metro Opt-In Survey, 2011

¹¹⁷ [Existing Conditions, Findings and Opportunities report](#), 2012.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

¹²⁰ [Metro State of Safety Report](#), 2012.

- v) **Investments in active transportation have provided a high return on investment and multiple benefits to the region.** Comparatively small investments in active transportation projects and programming have benefitted the region on multiple levels, including cleaner air and water, healthier people, lower transportation costs, increased development feasibility and safer streets.¹²¹
- w) **Active transportation trips are being made for a variety of purposes, not just commuting.** Active transportation trips are consistently undercounted due to a reliance on U.S. Census data which only collects information on travel to work. In the region, 19% of all trips to work, 15% of all trips to school, and 16% of all errands, entertainment and social trips are made by walking or bicycling.¹²²



Data is essential to effective planning, implementation and measurement. Accurate use counts are a key piece of data that is needed. Photo: BikePortland.org

¹²¹ [Existing Conditions, Findings and Opportunities report](#), 2012.

¹²² 2011 Oregon Household Activity Survey



Oregon Walks' "Getting Around on Foot Action Plan" identifies priorities for making the region safer and more accessible. Findings in the action plan are supported by the ATP findings. Photos: Oregon Walks

Chapter 12 Recommended Policies and Implementing Actions

The ATP recommends **five policies**. Pedestrian, bicycle and transit policies in the 2010 adopted Regional Transportation Plan will be edited to reflect the spirit and intent of the ATP recommended policies. Edits to the policy language in Chapter 2 of the 2010 adopted Regional Transportation Plan are based on the five ATP recommended policies and are reflected in the 2014 Regional Transportation Plan.

The purpose of the ATP policies is to help communities in the region achieve active transportation targets, aspirations and desired outcomes in adopted state, regional and local plans, including the performance targets described in the previous chapter.

The policies respond to information and analysis from the existing conditions review, the evaluation of the regional network concepts, input from the ATP Stakeholder Advisory Committee, the public and other stakeholders and a review of current regional active transportation related policies. Active transportation plans in other parts of the country were reviewed to identify policies that other places are adopting to increase levels of walking and bicycling and achieve active transportation related outcomes.



Future bicycle boulevards in Milwaukie will provide connections to trails, transit, schools and urban centers and will help complete the regional active transportation network. Photo: Bike Milwaukie

Corresponding policy implementing actions identify steps and actions that Metro, working in partnership with cities and counties, agencies and other stakeholders can take to implement the regional pedestrian, bicycle and transit policies. Many of the implementing actions will require engagement and discussion. Policy implementing actions that relate directly to implementation

of the Regional Transportation Plan, as opposed to the work program of the Metro Active Transportation Program, are recommended for inclusion in Chapter 6 of the 2014 Regional Transportation Plan.



High levels of walking, bicycling and transit activity are one indicator that pedestrian and bicycle routes are accessible and safe. Photo: Metro

Policy 1. Make walking and bicycling the most convenient, safe and enjoyable transportation choices for short trips less than three miles. Nearly 45% of all trips made by auto in the region are less than three miles in length and approximately 15% are less than one mile.¹²³ Replacing short trips made by auto with walking, bicycling and transit is a huge opportunity for the region to reduce the number of auto trips. Walking trips account for 19% and trips made by bicycle account for 5% of all trips less than three miles within the urban growth boundary. Increasing the comfort and perceived and real safety of walking, bicycling, and access to transit will make it easier for people to drive less and walk, bicycle and take transit more often for short trips.

Metro, working with partners, should take the following actions to help implement Policy 1.

- 1.1 Provide regional planning, technical assistance in best practices, regional data, transportation modeling and regional coordination, to implement the regional active transportation network according to the Guiding Principles for the Regional Active Transportation Network.
- 1.2 Support adding pedestrian and bicycle projects to the Regional Transportation Plan that improve safety and connect people to destinations that serve daily needs, especially in areas where there is high demand for walking, bicycling and transit service and/or in underserved communities. Utilize the *ATP Network Completion, Gaps and Deficiencies List* in Appendix 1 to identify and track projects.

¹²³ 2011 Oregon Household Activity Survey.

- 1.3 Encourage inclusion of wayfinding, street markings and other elements in projects and plans that enhance connections and make the regional pedestrian and bicycle networks consistent, integrated and easy to navigate on foot, by bicycle and transit.
- 1.4 Seek opportunities to implement the recommendations of Metro's *2012 Regional Transportation Safety Plan*, including: 1) supporting regional safety workgroups; 2) maintaining and analyzing data; 3) developing safety performance measures; 4) researching best practices for pedestrian and bicycle facility lighting, safe crossings, protected bikeways, and generally improving pedestrian and bicycle safety; 5) adding safety projects to the Regional Transportation Plan; 6) and incorporating design best practices into new projects.
- 1.5 Support the inclusion of education and encouragement in transportation projects in order to raise awareness, increase safety and increase the use of completed projects.
- 1.6 Support projects and programs in opportunity areas where short trips made by auto might be easily replaced by walking, bicycling and transit.
- 1.7 Encourage bicycle, pedestrian and transit integration by supporting development of bicycle parking plans, transit access analysis, and processes to prioritize bus stop shelter improvements and safe crossings at transit stations and stops.
- 1.8 Provide technical assistance and encourage use of the ATP design guidance in planning and project development.



Lighting is crucial for pedestrian and bicycle safety. Lighting intersections and routes makes it easier for pedestrians and bicyclists to be seen. Photo: Michael Ronkin

Policy 2. Develop well-connected regional pedestrian and bicycle routes and districts integrated with transit and nature that prioritize safe, convenient, accessible and comfortable pedestrian and bicycle access for all ages and abilities. Well connected pedestrian and bicycle routes and districts do not have gaps and are comfortable and safe for people of all ages. Universal design ensures that even the most vulnerable users, such as seniors and people with disabilities can easily get around without an automobile. Routes connect to and through urban centers and make accessing daily needs safe. Regional trails and transit function better because they are integrated with pedestrian and bicycle routes. Wherever possible, routes connect to and through nature and trees and other green elements are planted along routes.

Metro, working with partners, should take the following actions to help implement Policy 2.

- 2.1 Encourage use of complete streets checklists in transportation system plans and during project development. Develop an example checklist that could be used for regionally funded projects. Many cities are using checklists to better integrate all transportation modes into projects and to ensure that environmental impacts of projects are being considered.
- 2.2 Work with cities, counties and lead agencies on transportation plan updates, corridor plans and policy making to prioritize pedestrian, bicycle and access to

transit projects in plans and for funding in areas where the state, region, cities and counties are actively trying to encourage multi-modal travel.

- 2.3 Encourage the use of new flexible bicycle and pedestrian design guidelines in transportation system plans, including those endorsed by the Federal Highway Administration: AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004); AASHTO Guide for the Development of Bicycle Facilities (2012); NACTO Urban Bikeway Design Guide; ITE Designing Walkable Urban Thoroughfares: A Context Sensitive Approach. Consider adding language to the Regional Transportation Functional Plan that allows for the use of emerging flexible and context sensitive design.
- 2.4 Work with TriMet, SMART, Portland State University, cities, counties, agencies and other stakeholders to develop design guidelines for transit and bicycle interaction in transit corridors and at transit stops and stations, especially where physically separated bikeways exist or are planned. Guidelines do not currently exist and are needed as bicycle facilities become more sophisticated and carry larger volumes of cyclists.
- 2.5 Develop design and operation guidelines for regional trails and multi-use paths as transportation facilities. Include conservation experts to provide guidance on planning and designing trails and multi-use paths that protect and enhance the natural environment.
- 2.6 Work with cities, counties, agencies and other stakeholders to identify best practices, design guidance and successful case studies integrating bicycle, pedestrian, transit and freight facilities, especially within constrained roadways, to help guide future planning and project development.
- 2.7 Work with cities, counties, agencies and other stakeholders to update the pedestrian and bicycle networks, concepts, functional classifications and policies in the Regional Transportation Plan with recommendations from the ATP.
- 2.8 Work with cities, counties, agencies and other stakeholders on potential changes to the Regional Transportation Functional Plan that support implementation of the ATP.
- 2.9 Work with state and local jurisdictions and other stakeholders on transportation system plan and comprehensive plan updates to be consistent with the ATP regional bicycle and pedestrian networks adopted in the Regional Transportation Plan.
- 2.10 Provide outreach and engagement to inform partners about Metro's Regional Travel Option program grants; encourage cities, counties and agencies to seek opportunities to combine planned pedestrian, bicycle and transit investments with Regional Travel Option program grants. Combining investments in facilities

with education, marketing and outreach makes projects more successful and delivers complete corridors for active travel.

- 2.11 Keep partners informed about opportunities with Metro's Transportation System Management Options program; work with partners through the TSMO committee and other avenues to seek funding for TSMO projects and coordinate pedestrian, bicycle and transit investments with the Transportation System Management Options program grants to deliver complete corridors for active travel.
- 2.12 Work with partners, including the Oregon Department of Transportation, TriMet and SMART during the next policy update of the Metropolitan Transportation Improvement Plan (MTIP) to consider implementing recommendations of the ATP through development of the MTIP project list and Regional Flexible Funds policies.

Policy 3. Ensure that the regional active transportation network equitably serves all people.

All people in the region, regardless of race, income level, age or ability should enjoy access to the region's walking, bicycling and transit networks and the access they provide to destinations that meet daily needs. Currently the regional active transportation network is incomplete in many areas of the region, including places where people with low-incomes, people of color and people with low-English proficiency live. Transportation is the second highest household expense for the average American; providing transportation options in areas with low-income populations helps address transportation inequities. Future planning, design and construction of the networks must include consideration of the benefits and burdens of transportation investments to underserved and environmental justice populations.

Metro, working with partners, should take the following actions to help implement Policy 3.

- 3.1 Share Metro's *Public Engagement Guide* with partners and continue to develop best practices on engaging underserved communities on topics related to active transportation.
- 3.2 Work with cities, counties, agencies, Transportation Management Associations, Safe Routes to School programs and other partner organizations to seek funding to provide programs that increase awareness and use of transportation options and to develop programs that address physical, economic, cultural and other barriers to active transportation.
- 3.3 Encourage the implementation of pedestrian and bicycle projects that increase safety and access to transit and other destinations that meet daily needs in areas where people of color, people with low-incomes, , youth and seniors, people with disabilities and people with low-English proficiency live.

Policy 4. Complete the regional pedestrian and bicycle networks. Approximately 45% of roadways on regional pedestrian corridors are lacking complete sidewalks, only 44% of the planned regional trail network is complete and only 51% of the identified regional bicycle network has a completed bicycle facility. Gaps in the networks limit safe and easy access to destinations that meet daily needs. This policy identifies completing gaps as a priority.

Metro, working with partners, should take the following actions to help implement Policy 4.

- 4.1 Work with cities, counties, agencies and other stakeholders in the 2014 and future updates of the Regional Transportation Plan to refine existing Regional Transportation Plan performance measures and targets to better meet active transportation goals and new federal performance measure requirements under MAP-21, the federal transportation bill.
- 4.2 Work with cities, counties, agencies and other stakeholders to develop and adopt a 'complete network' policy and performance target where the regional pedestrian and bicycle networks are completed to match roadway network percentage of completeness.
- 4.3 Work with cities, counties, agencies and other stakeholders to identify and increase funding for active transportation at a level consistent to achieve desired mode shares for walking, bicycling and transit.
- 4.4 Further develop data and methodologies for Metro's regional Bicycle Comfort Index and Pedestrian Comfort Index developed in the existing conditions review for the ATP to identify areas in the regional pedestrian and bicycle network that do not provide a comfortable level of service for people of all ages and abilities to access transit and other destinations.
- 4.5 Work with cities, counties, agencies and other stakeholders to develop a policy in the Regional Transportation Plan and Regional Transportation Functional Plan to complete pedestrian and bicycle networks through roadway maintenance projects.

Policy 5. Utilize data and analyses to guide transportation investments. Metro, local governments and research institutions coordinate and work in partnership to collect and maintain pedestrian and bicycle related data. Consistent, timely and accurate data is essential for making informed decisions. State, regional and local governments are working towards utilizing more pedestrian and bicycle related data for planning and developing active transportation projects and programs.

Metro, working with partners, should take the following actions to help implement Policy 5.

- 5.1 Support the collection and maintenance of regional pedestrian, bicycle and crash data by:
- working with cities, counties, agencies, research institutions and other stakeholders to identify desirable and practical data to be collected and maintained at a regional level;
 - developing a regional plan for bicycle count locations to support the regional bicycling modeling tools and other planning and project activities;
 - developing a method to count and estimate pedestrian activity to support development of regional pedestrian modeling tools and other planning and project activities;
 - continuing to support and develop Metro's leadership on regional trail counts;
 - providing data in an open format to support third-party pedestrian, bicycle and transit mobile applications and map development.
- 5.2 Collaborate with local, state, and federal partners to develop new and refine existing transportation models and forecasting tools. Use tools to accurately predict pedestrian and bicycle travel demand generated by capital and programmatic improvements, model system performances that include bicycling and walking, and demonstrate the effect of increased active transportation on auto traffic volumes.
- 5.3 Work with ODOT and other partners to fund and support the Oregon Household Activity Survey; increase survey questions related to pedestrian and bicycle activity, including the relationship between bicycle and transit travel and travel to school. Ensure the Oregon Household Activity Survey reaches a broad cross-section of transportation users by breaking down barriers to participation such as foreign language and lack of a home telephone.
- 5.4 Work with local cities, counties and agencies, health organizations and other stakeholders to explore collecting data and conducting analyses such as Health Impact Analysis, and incorporating health outcomes, such as levels of physical activity, to inform regional plans.
- 5.5 Support research efforts to help build appropriately sized bike parking at transit stations, and to better understand potential barriers to usage.
- 5.6 Work with cities, counties, agencies and other stakeholders to encourage the use of transportation impact analyses tools, such as Multi-Modal Level of Service analysis, in planning, project development, development review, etc. that take into account transit and active transportation needs and consider land use context in all recommendations.

- 5.7 Utilize the data, analysis, findings and recommendations from the ATP to inform actions in regional and corridor planning and investment strategies to help address climate change and economic development.
- 5.8 Provide, utilize and encourage partners to include data from the Regional Conservation Strategy, including habitat, riparian and sensitive land inventories when developing pedestrian and bicycle plans, master plans and projects.



Secure bicycle parking at Wilsonville's SMART Central Station and WES Commuter Rail Service. Bicycle parking is a key element to making an integrated active transportation network work. Photo: Wilsonville



Downtown Gresham. Photos: city of Gresham

“An Active Transportation Plan for the Metro region is more than just a planning exercise; it will result in achieving goals we have set to enhance quality of life and economic development opportunities by defining a quality regional system for walking and biking.”

~Katherine Kelly, City of Gresham
Transportation Planning Manager

Chapter 13 Funding the Active Transportation Plan

Funding for developing and maintaining pedestrian and bicycle facilities and programs comes from a variety of federal, state, regional and local revenue sources. Typically, various revenue streams are combined to plan, build and maintain projects and fund programs.

Historically, in the Portland metropolitan region, active transportation and transit projects and programs have been more dependent on federal funding than other transportation projects. Federal funding for active transportation was targeted for cuts in the most recent federal transportation bill MAP-21 and federal funding for transportation overall could be declining. Without other funding identified this could pose a challenge to increasing walking and bicycling connectivity and safety. Other states, regions, cities and counties in America are increasingly identifying local revenues to fund active transportation projects and programs.¹²⁴

Historically, approximately 3 % of federal and state transportation funding allocated for capital projects in the region each year has been spent on active transportation projects. This equals out to roughly \$10 million per year out of \$433 million spent annually on capital transportation projects in the region.¹²⁵ These investments have shown a high return on investment; since 1994 bicycling mode share increased 191%, walking increased 14% and transit mode share increased 52%, while drive alone trips have decreased.¹²⁶ However, historical funding patterns and strategies do not match plans for investments in active transportation. For example, cities counties and agencies have identified over \$2 billion dollars of active transportation projects in the 2014 Regional Transportation Plan's financially constrained system (approximately 13% of the plan's \$16 billion dollar cost). At historic rates of investment in active transportation, approximately \$10 million annually, it will take over 200 years to complete the active transportation projects identified in the 2014 Regional Transportation Plan.

Metro's role

Long term regional funding policy is identified in the Regional Transportation Plan. The RTP describes which projects will be funded to complete the regional transportation network. Many

¹²⁴ For example, in 2011 SANDAG, the regional government in San Diego, has allocated \$2.58 billion of their thirty-year regional plan for bicycling and pedestrian infrastructure improvements. The funding is derived from a local sales tax called TransNet.

¹²⁵ Costs are general estimates based on average annual revenue allocations in the region between 1995 and 2010. Revenues for active transportation projects include funds specifically dedicated to pedestrian, bicycle and trail projects.

¹²⁶ 2011 Oregon Household Activity Survey. Mode shares are for all trips within Multnomah, Clackamas and Washington Counties.

of the projects needed to complete the ATP pedestrian and bicycle networks are listed in the RTP.

Metro coordinates the Metropolitan Transportation Improvement Program, or MTIP, the federally required documentation of transportation investments scheduled for the region during a four-year cycle. The MTIP comprises projects and programs administered by Metro, ODOT, TriMet and SMART. The MTIP is incorporated without change into the State TIP, or STIP, which identifies the state's four-year transportation capital improvements.

Funding priorities are mapped out through local Capital Improvement Plans, the MTIP and the State Transportation Improvement Program (STIP). The ATP does not identify funding priorities, but does provide information and strategies, based on existing best practices and best available information, that can be used at the discretion of cities, counties and agencies to develop funding priorities that respond to public desires, achieve transportation targets and goals, are cost effective, efficient and provide transportation choices.

Metro allocates Regional Flexible Funds (RFF), federal funding that historically has provided over 40% of all funding for regional trails and over 20% of all funding for other regional pedestrian and bicycle projects. Funding policy for the Regional Flexible Fund Allocation (RFFA) by Metro as a part of the MTIP process is adopted by JPACT and the Metro Council. Information in the ATP can be used to inform funding policy discussions.

Metro also uses regional bond revenues to acquire right-of-way for trails. Metro's regional focus provides an opportunity to link local efforts together into a comprehensive regional network. Keeping in mind the regional focus, Metro's role should be to fund and support projects that are identified on the regional network, require regional coordination, are large or complex, have an impact on regional targets and goals, or need strategic partnerships and long-range planning.

Pedestrian and bicycle routes and districts identified on the *Regional Bicycle and Pedestrian Network Functional Classification Maps* are *eligible* for federal funding, including Regional Flexible Funds. However, to receive federal funding active transportation projects must be on the Regional Transportation Plan project list.



Investments in active transportation, such as the Fanno Creek Trail in Tigard, provide benefits beyond increasing access to destinations. Benefits such as better health, access to nature and community building. Photo: Metro.

Funding strategy approach

Metro can also take a role in coordinating a funding strategy to develop the regional active transportation network. The funding strategy should use a multi-pronged approach that:

- **Is flexible.** Projects are aligned with different funding opportunities and strategically advanced to make the most of the funding opportunities. Historically, active transportation projects (and transit) have relied much more heavily on federal funding sources than roadway projects; approximately 85% of all funding for active transportation projects in the region is from federal sources.¹²⁷ Declining federal transportation dollars point to the need for flexible funding solutions for active transportation, including more local sources.
- **Leverages existing investments.** Projects that fill critical gaps and link existing facilities making them work more effectively can provide a high return on investment.
- **Is coordinated with other projects to maximize efficiencies.** Integrating active transportation into projects from the beginning (e.g. sewer, roadway maintenance) rather than tacking them on at the end will maximize efficient use of tax payer dollars.

¹²⁷ [Existing Conditions, Findings and Opportunities Report](#), August 2012, Chapter 9: Current Funding.

- **Develops a pipeline of projects.** Projects need to be lined up to receive funding for the next stage of development, either from regional flexible funds or other opportunities. Lack of projects that are “shovel ready” – or a pipeline of projects - has been cited by agencies as a barrier to applying for competitive federal grants such as the federal TIGER program or federal sustainability and health related programs.¹²⁸ In a resource scarce financial environment, however, local agencies are reticent to risk spending on development of active transportation projects without some funding assurance for construction. A strategy to support project development of priority projects and development of funding processes that provide some funding assurance for active transportation projects will accelerate implementation of the active transportation system.
- **Is strategic.** Active transportation projects can be ‘bundled’ with larger roadway and transit projects to achieve efficiencies and reduce costs, complete streets and improve transit access. Opportunities to make all transportation projects ‘complete’ should be sought out. At the same time, it can be critical to ‘unbundle’ pedestrian and bicycle projects from larger projects if the timeline, cost or size of the larger project may delay the project getting off of the ground for many years. In those instances, opportunities to complete pedestrian and bicycle access should be sought.

Existing funding opportunities

Active transportation projects are developed using a variety of funding sources; sometimes several different funding programs are needed to complete a project from concept to construction. The ATP proposes a funding strategy that aligns projects with different funding opportunities and examines how those opportunities can be utilized most effectively for developing the pedestrian, bicycle and access to transit networks. Different funding and implementation strategies are needed for urban areas where most roads are already built but may be deficient for walking and bicycling and urbanizing areas where new local roads are being built as part of new subdivisions and arterials are being widened from rural to urban multi-modal.

1. **Large federal funding opportunities such as TIGER and sustainability grants.** For active transportation projects to be competitive for these types of funding opportunities regional collaboration is essential. Regional partners come together to support active transportation projects of regional significance. Public and private partnerships need to be fostered and projects need to be readied for development. This type of funding opportunity should be sought for projects that are complex, high-profile, cross multiple jurisdictions and require more funding. Examples of such projects include the Hwy 26 Trail, Sullivan’s Gulch Trail and the Council Creek Trail.

¹²⁸ TIGER(Transportation Investment Generating Economic Recovery) a discretionary grant program of the Federal Department of Transportation, has funded several region wide active transportation networks, including in Indianapolis and Philadelphia.

2. **Oregon Department of Transportation Enhance and Fix-It programs.** ODOT administers several streams of funding for which active transportation projects are eligible. Federal and state funding sources (including ODOT's portion of 1% of gas tax revenues dedicated to bike and pedestrian projects in the road right of way) are organized into two main programs, Enhance and Fix-it.¹²⁹ New pedestrian and bicycle capital projects (including trails and multi-use paths) are funded primarily through the Enhance program.

The Fix-it program is focused on maintaining the existing infrastructure and safety. Retrofitting roadways to add pedestrian and bicycle facilities are not funded under this program. Many roadways do not provide adequate pedestrian and bicycle facilities, including trail crossings of roadways, and therefore impact safety for all users. The Fix-it program could be considered for funding roadway maintenance that includes adding missing facilities, such as sidewalks and bike lanes to improve safety. These types of projects are not currently eligible for Fix-it and would require a change in policy. Non-infrastructure funding, including transportation education programs such as Safe Routes to school, is allocated through ODOT's Transportation Safety Division.

State gas tax funds cannot be spent outside the road right-of-way; projects, such as trails and multi-use paths, use flexible funds. The Statewide Transportation Improvement Plan, known as the STIP, is Oregon's four-year transportation capital improvement program. It is the document that identifies the funding for, and scheduling of, transportation projects and programs. It includes projects on the federal, state, city, and county transportation systems, multimodal projects (highway, passenger rail, freight, public transit, bicycle and pedestrian), and projects in the National Parks, National Forests, and Indian tribal lands.

3. **Statewide trail funding programs.** Though MAP-21, the federal transportation bill, eliminated the federal Recreational Trails Program (RTP), states could choose to continue funding for the program. Oregon chose to continue the program which is administered by Oregon State Parks. The Oregon Department of Transportation administers the Urban Trail Fund. The Urban Trail Fund is currently unfunded, but along with the Recreational Trails Program, presents an opportunity to seek new funding for regional trails. For the first time active transportation projects are eligible for Connect Oregon funds (funds generated by the lottery). Approximately \$42 million was allocated through ConnectOregonV; pedestrian and bicycle projects not in the road right of way were eligible for funding.¹³⁰ ODOT received 108 proposals totaling \$129 million. Demonstrating demand across the state, bicycle and pedestrian project requests accounted the largest funding request by mode - \$47.5 million.

¹²⁹ Oregon's landmark "Bike Bill" requires that a minimum of 1% of all collected gas tax revenues be dedicated to bicycle and pedestrian projects. Maintenance of projects is allowed. The state, cities and counties are allowed to spend more than 1% of gas tax revenues on bicycle and pedestrian projects.

¹³⁰ Eligible projects include trails, wayfinding, bicycle parking, bridges, tunnels, bikesharing, and bus bike racks. A 20% local match is required.

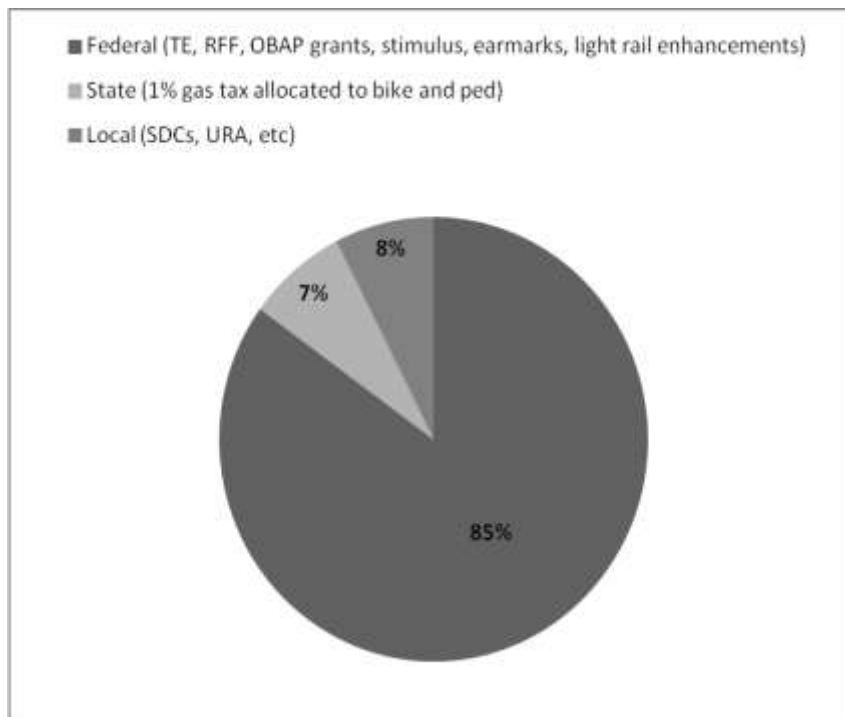
4. **Transit related funding.** TriMet and SMART directly receive and allocate federal funding from the Federal Transportation Authority (FTA). Under new FTA rules, pedestrian and bicycle projects within a 3-mile radius of transit stops are eligible for some of these funds, particularly New/Small Starts funding. This funding presents an opportunity to support access to transit. Because these funds are managed by transit agencies and incorporated into larger transit capital projects, the costs of administering the projects can be lower than smaller stand alone pedestrian/bicycle capital projects. Identification and consideration of pedestrian and bicycle access to transit needs by agencies and project partner local agencies during planning and project development is important to increasing progress of the active transportation network.
5. **Regional Flexible Funds.** Metro allocates federal funds, including Congestion Management and Air Quality (CMAQ) funds and Transportation Alternative Program (TAP) funds, which fund a substantial amount of active transportation projects in the region. Strategically utilizing these types of funds is key to a successful funding strategy. The funds present the opportunity to develop a pipeline of projects and to complete and expand the existing network to reach regional and local goals. Funding continuity and certainty can help develop a pipeline of projects. Regional Flexible funds have been used in this way to implement complex transit projects in the region.
6. **Special and short term funds.** These types of funds are usually one-time fees, taxes or bond measures that target specific projects and outcomes. They can include property taxes, bond measures, and local improvement districts. Creating new funding sources may be a possibility in the future to support development of active transportation projects. This approach would need more exploration and substantial support. The region has already passed several regional and local bond measures have passed that have provided funding for active transportation. Metro and Tualatin Hills Park and Recreation District bond measures have been used to acquire land for trails and to construct trails.
7. **Local sources of transportation funding.** Local funding is crucial to the active transportation funding strategy, for filling gaps, enhancing access to transit and providing the local matching funds needed to be competitive for grants. Figure 8 below illustrate how heavily the region depends on federal funds for active transportation. Local funding revenues for transportation (including trails and multi-use paths) include sources such as:
 - City and county allocations of the statewide gas tax. Cities and counties are required to dedicate 1% of the gas tax for bicycle and pedestrian projects. The funds can be used for capital construction or maintenance. Cities and counties are not prohibited from allocating more than 1% of statewide gas tax revenues to bicycle and pedestrian projects. This source of funding has been instrumental in developing the region's bicycle and pedestrian network.

- System development charges (SDCs) are tied to new development and can be used for a wide range of projects, including transportation, parks and trails.
- Traffic impact fees (TIFs)
- Street utility fees
- Registration fees
- Vehicle parking fees
- Urban renewal funds
- Property taxes. Washington County's MSTIP funds are an example of property taxes used for funding.

While eligible, active transportation projects are not always included in the identified capital needs lists for these types of funding. Local jurisdictions may want to consider setting a pedestrian and bicycle project 'need rate' for local funding sources to include identified pedestrian, bicycle and transit stop capital projects as part of local transportation system fee structures.

8. **Development community** also provides funding for pedestrian and bicycle improvements through conditions of approval, right-of-way dedication and frontage improvements. These are an important way that communities improve areas for walking and bicycling. The value of pedestrian and bicycle improvements provided by developers by frontage improvements are difficult to determine.
9. **Pedestrian and bicycle projects part of larger roadway or transit projects.** Pedestrian and bicycle projects can be funded and built as part of larger projects. Oregon's landmark 'bicycle bill' states that roadway projects that increase capacity for auto travel must include pedestrian and bicycle facilities. It is difficult to tease out the amount of funding that goes to the active transportation elements of these projects.

Figure 8: Breakdown of federal, state and local funding sources for active transportation, 1995-2010, Portland metropolitan region



Source: Metro, 2010

Cost assumptions for the regional active transportation network

Planning level cost estimates for developing the regional pedestrian and bicycle networks were developed for the ATP. The planning level cost estimates provide very general costs for completing, improving and extending the planned regional network. The purpose of the cost estimates is to provide a general cost target to guide investment assumptions and funding decisions.

Shown in Table 9, the estimated total cost of the completing, expanding and upgrading the regional bicycle and pedestrian networks was developed by adding the cost of the pedestrian, bicycle and trail projects identified in the 2014 Regional Transportation Plan with planning level cost estimates for gaps in the planned pedestrian and bicycle parkways without projects in the Regional Transportation Plan. The total estimated cost for completing, improving and expanding the regional ATP pedestrian and bicycle networks is approximately \$3.3 billion.

Table 9: Planning Level Cost Estimates for the ATP Regional Active Transportation Network

	Cost (millions)
Cost of bicycle, pedestrian and trail projects in the 2014 Regional Transportation Plan (federal and state lists) ¹³¹	\$2,413 M
Additional pedestrian and bicycle projects identified in the Regional Active Transportation Plan, including upgrades to existing facilities and planned projects ¹³²	\$867 M
Total	\$3,280 M

Source: Metro, 2014

Total costs for bicycle, pedestrian and trail projects identified in the 2014 Regional Transportation Plan by cities, counties and agencies is approximately \$2.4 billion and includes projects on both the financially constrained 'federal' list and the state list.¹³³ While the projects identified in the 2014 Regional Transportation Plan go a long way towards completing the regional bicycle and pedestrian networks, not all of the gaps are filled. Additional costs for completing, expanding and improving the ATP network are estimated to be approximately \$867 million, making the total estimated cost for completing the regional active transportation networks at \$3.3 billion.

Bicycle and pedestrian projects planned to be constructed as part of a larger roadway or transit project are not included in these cost estimates; these types of projects are also important in helping to complete the network. The costs for those projects are included in the roads and bridges cost estimates in the 2014 Regional Transportation Plan.

Current levels of funding

Federal and state capital transportation investments represent an important source of funding for active transportation. Approximately \$10 million is spent annually on stand-alone pedestrian, bicycle and trail projects, 3% of the \$433 million federal and state capital

¹³¹ Projects identified as an active transportation project in the 2014 Regional Transportation Plan financially constrained (federal) and state project lists. Financially constrained (\$2,077,630,499), state (\$335,317,782), total (\$2,412,948,281)

¹³² Cost assumptions are planning level only and include sidewalks, regional trails, separated bicycle facilities such as cycle tracks and buffered bicycle lanes, bicycle boulevards and pedestrian/bicycle crossings. Acquisition of right-of-way is not included. Refer to Appendix 2 for more information.

¹³³ Most, but not all, of these projects help complete the regional pedestrian and bicycle networks. Over time effort should be made to reconcile the bicycle, pedestrian and trail projects in the Regional Transportation Plan with the ATP network; ideally, the Regional Transportation Plan project list is completing the ATP networks.

transportation funds spent annually on transportation in the region.¹³⁴ Additionally, cities and counties allocate between approximately 1% and 6% of local transportation dollars, such as gas tax revenues, system development charges or urban renewal funds, to bicycle and pedestrian projects.

Many pedestrian and bicycle projects are also completed as part of larger roadway projects or as part of complete streets projects. Determining the level of funding going towards active transportation elements included in larger projects is challenging. Some jurisdictions assume that pedestrian and bicycle elements account for approximately 25% of the total project cost. Better data is needed to adequately understand the level of investment going towards active transportation, but it is fair to assume that it is currently below levels of investments for other modes.

At the historical rate of funding for stand-alone bicycle and pedestrian projects in the region, approximately \$10 million a year, it is estimated that it would take over 200 years to complete the pedestrian and bicycle projects identified in the 2014 Regional Transportation Plan.¹³⁵ Table 10 shows historic levels of investment for various “modes” and the estimated time it will take to complete identified projects in the 2014 Regional Transportation Plan based on that historic level of investment. Table 10 illustrates that patterns of funding and investment do not always reflect plans. However, since 1995, investments in active transportation have continued to increase, and the funding pattern for active transportation could be changing.

Table 10: Estimated years to implement 2014 RTP projects by mode, based on historic annual levels of federal and state capital transportation investments

2014 RTP Mode Area	Annual average investment of state and federal capital transportation \$\$*	2014 RTP financially constrained project costs by mode area	# years	2014 RTP additional aspirational project costs by mode area (“state plan”)	# years
Active transportation	\$10 million/yr	\$ 2,077,630,499	208	\$ 335,317,782	34
Roads, Bridges, Freight, Throughways	\$225 million/yr	\$ 9,799,512,747	44	\$ 3,610,038,883	16
Transit	\$141 million/yr	\$ 3,776,594,400	27	\$ 2,640,500,901	19

**Federal and state capital transportation investments in the Portland region, 1995-2010*

¹³⁴ Metro, 2010. Based on historical funding 1995-2010. See Appendix 5.

¹³⁵ Projects are assigned a mode in the 2014 RTP. Pedestrian, bicycle, trail projects are grouped under the active transportation category.

As funding increases for walking and bicycling infrastructure and programs so do levels of walking and bicycling, providing a high return on investment; people drive less in the region than in most other places in the country.

Maintenance costs

While bicycle and pedestrian facilities require much less maintenance than other transportation facilities, funding for active transportation should include assumptions for maintenance of facilities, such as sweeping bicycle lanes, replacing sidewalks or trails damaged by tree roots, replacing signage, removing trash and graffiti, servicing signals and counters, and caring for trees and foliage that serve as buffers. Maintenance of pedestrian and bicycle facilities is an important part of encouraging and supporting walking and bicycling and providing good access to transit.

Average maintenance costs vary depending on the type and design of the facility and how much maintenance a jurisdiction performs. Annual maintenance costs for sidewalks can range from \$1,000 to \$4,000/mile, bicycle lane maintenance can average at about \$2,000/mile, and shared use paths/trails can average between \$2,000 and \$8,000/mile.¹³⁶ These costs are often folded into general street maintenance costs. For general network cost discussions the following planning level per mile maintenance costs were developed. Using an average cost of \$2,000/per mile for sidewalks, bicycle facilities (e.g. bike lane, bike boulevard), and trails a general estimated cost to provide maintenance for the existing regional active transportation network is approximately \$3 million per year in 2012 dollars.

Table 11: Estimated Annual Maintenance Costs, Existing 2010 Regional Pedestrian and Bicycle Network

	Sidewalks	Trails	Bikeways	
Miles in regional network	946	121	450	
Cost at \$2,000/mile	\$1,892,000	\$242,000	\$900,000	
Total				\$3,034,000

Using the same approach, estimated maintenance costs for the completed active transportation network in 2035 are approximately \$6 million per year in 2012 dollars. The estimated cost in 2035 would be approximately \$12 million per year.

¹³⁶ Based on a summary review of maintenance costs in various cities.

Table 12: Estimated Annual Maintenance Costs, Planned 2035 Regional Pedestrian and Bicycle Network

	Sidewalks	Trails	Bikeways	
Miles in regional network	1462	460	972	
Cost at \$2,000/mile	\$2,924,000	\$920,000	\$1,944,000	
Total				\$5,788,000



Bicycling along the Trolley Trail. Multiple partners and funding opportunities were needed to complete this regional trail connecting Milwaukie to Portland, Gladstone and Oregon City. Photo: BikeMilwaukie

Chapter 14 Implementation and Project Prioritization Strategies

Focusing limited investments strategically to get the highest return on investment is important. Strategic investments often require that projects be prioritized. Most cities and counties have identified priority pedestrian and bicycle projects for their communities and these can be added to the *Regional Transportation Plan* project list to be eligible for state and federal funding. Projects added to Capital Improvement Plans are identified as the highest priority since they are much more guaranteed to be funded.

Bicycle and pedestrian projects added to the *Regional Transportation Plan* project list and routes on the *Regional Bicycle and Pedestrian Network Functional Classification Maps* reflect regional priorities. Additional prioritization that develops a pipeline of projects may help to develop the ATP networks, especially projects that are more challenging and will require regional cooperation and support to complete.



Walking along the Fanno Creek Trail. Photo: Wendy Kroger

Recommended implementation strategy

The ATP recommends the following implementation strategy for completing the recommended regional ATP networks.

1. **The first priority in the implementation strategy should be to add facilities where none exist today so that they are connected and safe.** This should be one of the region's highest overall transportation priorities and key focus for transportation improvements in the region. To the greatest extent possible facilities should follow best design practices (see Chapter 9 Design Guidance and Appendix 4 for a list of design resources).
2. **Gaps in areas where a high demand for walking and bicycling and transit use exist should be prioritized first.** In instances where pedestrian and bicycle levels and demand exceed the capacity of an existing facility and impact safety, deficient facilities should be considered gaps and prioritized.
3. **The next highest priority should be to focus investments on improving and upgrading deficient facilities so that they are safe and comfortable for all ages and abilities.** Areas where a high demand for walking and bicycling and transit use already exist should help guide investments in upgrading deficient facilities.

Until the networks are complete it is not possible to expect substantial outcomes, except in discrete sub-areas, or walking and bicycling “sheds.” In sub-areas where there is a high level of completion, connectivity and supporting land uses and levels of walking and bicycling and transit use can be quite high. A helpful analogy is to consider how effective our highway or rail systems would be if they had gaps or entire missing sections.



Making places more walkable and bikeable is a strategy to increase active transportation. Photo: Metro

Recommended strategies to prioritize projects

1. **Prioritize all transportation modes together in local and regional plans.** Many transportation plans and Capital Improvement Plans have separate prioritized lists for different modes or purposes, such as auto, transit, freight, bicycle and pedestrian. Prioritizing all modes together in one list allows for thinking about transportation systems holistically and will focus on outcomes of the transportation system, rather than on the outcomes associated with individual modes. Such a list, for example, may have a transit/roadway improvement project as the first priority, a freight access project as the second priority and a pedestrian and bicycle bridge as the third priority.
2. **In suburban areas where destinations are farther apart and road connectivity is lower, prioritize projects that connect to and along transit routes and that provide the most connected and direct bicycle travel.** The diversity of communities, land uses, roadway network patterns and population and employment densities in the region requires that a wide range of approaches be employed to make active transportation feasible. Many communities that have suburban style land use patterns are experiencing success with active transportation. Disconnected roadway networks can be one of the biggest hurdles to bicycle travel; constructing trails or protected facilities along major roadways can provide convenient connections.
3. **Prioritize projects that fill gaps in the ATP bicycle network in areas that showed high to moderate levels of modeled bicycling activity in 2035 with a complete network.** Evaluation of improvements to the regional bicycle network described in the [Regional Bicycle Network Evaluation](#) identified areas in the region with high to moderate levels of bicycling activity when the ATP bicycle network was completed. It is assumed that filling gaps and fixing deficiencies would support increased levels of bicycling and increased access to destinations.
4. **Prioritize projects that fill gaps in the ATP pedestrian network in areas that showed a high number of people with increased access to destinations in 2035 with a complete pedestrian network.** Evaluation of improvements to the regional pedestrian network, filling sidewalk gaps, completing regional trails and adding pedestrian crossings, identified areas in the region where improvements increased access for the most people. The [Regional Pedestrian Network Analysis](#) describes the evaluation and includes maps and tables detailing the results of the analysis.
5. **Prioritize projects that increase access and safety for underserved populations.** The [Regional Bicycle Network Evaluation](#) and the [ATP Regional Pedestrian Network Analysis](#) identify areas in the region where adding improvements have the potential

to increase access for underserved populations.¹³⁷ Increasing access improves safety, especially when projects address issues such as those identified in the Metro *2012 Regional Transportation Safety Plan*, including crosswalk and intersection lighting, pedestrian crossings on arterials and multi-lane roadways and protected bicycle facilities along roadways with high motor vehicle traffic volumes, speeds and/or high volumes of trucks.

6. **Prioritize projects that improve access to transit. Refer to priorities identified in TriMet's *Pedestrian Network Analysis and access to transit priorities identified in SMART's Transit Master Plan*.** TriMet, in partnership with cities, counties, agencies and other stakeholders, identified ten initial focus areas for improving access to transit.¹³⁸ The recommendations target pedestrian access, but the improvements will benefit all types of active travel. The ATP recommends focusing investments on the identified focus areas to improve access to transit, including adding secured bicycle parking if possible.
7. **Prioritize projects in regional pedestrian and bicycle districts identified on the ATP pedestrian and bicycle networks.** Bicycle and pedestrian districts are urban centers with existing or planned high concentration of transit, commercial, cultural, institutional and/or recreational destinations where walking and bicycle travel is attractive, comfortable and safe. Implementation of pedestrian and bicycle infrastructure should be coordinated with land use and development that provide destinations to walk and bike to.
8. **Prioritize projects that remove barriers to pedestrian and bicycle travel, especially if there is limited access across the barrier.** These types of projects are often challenging and more expensive, therefore prioritization can help move them forward. Projects that provide crossings of major barriers are identified in the ATP project list.

New light rail bridge in downtown Portland
Lake Oswego to Portland Bridge
Hwy 26 Trail
Trolley Trail Bridge
Sellwood Bridge
St. John's Bridge
Steel Bridge
Broadway Bridge

¹³⁷ 2010 U.S. Census data was used to identify census tracts with underserved populations. Minority, low-income and low English proficiency populations may move and the distribution in census tracts may change by 2035.

¹³⁸ The analysis provides a framework and methodology for identifying additional focus areas once the ten areas are improved.

Morrison Bridge
Burnside Bridge
Hawthorne Bridge
Crossings of Hwy 26, including the Westside Trail
Gaps in the I-205 Trail
Crossings of I-84
Crossings of I-205

9. **Fund education programs, encouragement programs and initiatives such as Bike Share and Safe Routes to School programs.** Just as important as on-the ground projects are programs that make it easier for people to walk, ride bikes and access transit. Funding decisions should consider the importance of these types of programs and pair them with infrastructure projects.
10. **Build coalitions for and fund ‘game changing’ projects that will build on the potential to increase levels of walking and bicycling.** Support high priority impact projects, such as those identified in the BTA’s Blueprint for Bicycling and priority areas for walking, safe crossings, access to transit and connectivity, as identified by Oregon Walks in the *Getting Around on Foot Action Plan*.



Game changing projects, such as this bridge crossing on the East Bank Esplanade in the City of Portland, provide a high return on investment. Thousands of people use the crossing each day to access jobs, education, shopping and services on both sides of the river. Photo: Metro

Project investment areas

The ATP network evaluation described in Chapter 6 provides information on where in the region access to destinations, access for underserved populations and levels of activity would increase if the regional pedestrian and bicycle networks were completed and expanded. The evaluations provide broad brush results at a regional scale and can provide general guidance as projects are prioritized.

Bicycle

Areas with above average underserved populations that have lower bike network density, compared to other parts of the region, in 2035:

Forest Grove
Cornelius
Hillsboro South
Hillsboro Central
Beaverton – East/Raleigh Hills/Washington Square
Beaverton- South /Aloha South
Tigard
Milwaukie – North/ Clackamas Regional Center
N. Portland – St. Johns
NE Portland – Cully/Rose City Park/Rocky Butte
Happy Valley
Central Gresham/Wood Village/Fairview

Areas in the region that show the highest level of bicycle activity in 2035 with a completed ATP bicycle network (other areas show substantial activity, and all areas of the region show bicycling activity):

Downtown Portland
Inner SE Portland
Outer East Portland/West Gresham
Central Gresham/Wood Village/Fairview
SW Portland
Beaverton - South/Aloha-South
Beaverton North
Tigard
SE Portland – Eastmoreland/Woodstock/Foster
Inner NE Portland

Bikeway routes that show high to moderate bicycle volumes in 2035 with a completed ATP bicycle network:

17th Avenue connection between Trolley Trail and Springwater Corridor
40's and 50's Bikeways, Portland
Barbur Blvd./99 W in Portland and Washington County

Burnside in East Multnomah County
 Capitol Highway and Kerr Parkway, Portland and Washington County
 Clinton Bike Boulevard in inner SE Portland
 Cully Blvd. Portland
 Division Street, Portland to Gresham
 Downtown Portland
 Foster Road in Portland
 Going Street, Portland
 Hall Blvd. Beaverton to Fanno Creek Trail, Washington County
 Hogan Road, Multnomah County
 Iron Mountain Road, Lake Oswego/Washington County (parallel Surf to Turf Trail)
 Kruse Way, Washington County (assumed crossing over I-5)
 Lake Road in Milwaukie
 Main Street, Hillsboro
 Monroe Blvd. Clackamas County
 NE 15th Ave and 20's Bikeway, Portland
 NE Airport Way
 NE Halsey, Multnomah County
 NW Evergreen Rd, Washington County
 Pacific Hwy/Willamette Falls Drive, Clackamas County
 Pimlico Drive, West Linn
 Powell Blvd., especially in inner SE Portland
 Sandy Blvd. in Portland
 Scholls Ferry Road, Washington County
 SE 122nd Ave, East Multnomah County
 SE 136th Multnomah County
 SE 148th Ave, East Multnomah County
 SE 162nd, Multnomah County
 SE 181st Ave, East Multnomah County
 SE Hawthorne Blvd. Portland
 SE Johnson Creek Road, connecting to I-205 Path, Clackamas County
 SE Lincoln, SE Market, SE Mill, Portland/East Multnomah County
 SE Linwood Avenue Clackamas County
 SE Stark St., I-205 to SW 257th, Multnomah County
 SE Sunnyside Road, Clackamas
 SE Thiessen Rd., Clackamas County
 SW 257th, Multnomah County
 SW 5th and 6th Avenues, Beaverton
 SW 72nd, Washington County, between SW Bonita and 99W
 SW Baseline, Washington County
 SW Beaverton Hillsdale Hwy.
 SW Boones ferry Road, Fanno Creek to Wilsonville
 SW Brockman St. Washington County
 SW Canyon Road
 SW Cedar Hills Blvd., Washington County
 SW Dosch Road, Washington County
 SW McDonald, SW Gaard St, Washington County
 SW Multnomah Blvd. Portland/Washington County

SW Oleson Road, Washington County
SW Tualatin Sherwood hwy.
SW Western Avenue, Beaverton
Tualatin Valley Highway, Washington County
Warner Milne Road, Linn Ave, Central Point Road, Oregon City
Williams/Vancouver, Portland

Trails that show high to moderate bicycle volumes in 2035:

Beaverton Creek Trail, Washington County
Bronson Creek Greenway, in the North Hillsboro/Bethany areas
Council Creek Trail
East Buttes Powerline Corridor Trail, Clackamas, connecting to the
Gresham Fairview Trail
Fanno Creek Trail, Washington County
Gresham MAX Path
Gresham-Fairview Trail
Hwy 26 Trail connecting Portland and Washington County
I-205 Path
I-405 trail in Portland (connects to Hwy 26 Trail)
I-84 Path, Multnomah County
Lake Oswego to Portland Trail
Mt. Scot/Scouter Mtn. Trails that connect to the East Buttes Powerline
Corridor Trail, Clackamas and Multnomah County
Oregon City Loop, Clackamas County
Phillips Creek Trail, connecting to I-205 Path, Clackamas County
Red Electric Trail/Capitol Highway
Rock Creek Trail, Hillsboro
Springwater Corridor Trail
Sullivan's Gulch Trail in Portland
Sunrise Corridor Trail in Clackamas County
Surf to Turf Trail, parallel to Iron Mtn. Road, Lake Oswego
Tonquin Trail, Washington County
Trail along McLoughlin Blvd and the future Portland to Milwaukie Light Rail
Trolley Trail in Clackamas County
Tualatin River Greenway Trail between Fanno Creek and Westside Trail
Waterhouse Trail, Washington County
Westside Trail
Willamette River Greenway/Hwy43, south of Lake Oswego, Clackamas County
Willamette River Bridges

Pedestrian

Pedestrian districts that when the pedestrian network is completed show a high number of people with increased access to destinations within a 1 mile walk in 2035:

122nd Avenue Station
148th Avenue Station
Aloha Town Center

Beaverton Creek Station
Beaverton Town Center
Cedar Mill Town Center
Clackamas Town Center
Cornelius Town Center
Division St. Station
Elmonica Station
Expo Center Station
Forest Grove Town Center
Fuller Rd. Station
Gateway Town Center
Gresham Town Center
Hawthorn Farm Station
Hayden Island Station
Hillsdale Town Center
King City Town Center
Lake Grove Town Center
Merlo Rd Station
Millikan Way Station
Milwaukie Town center
Murray/Scholls Station
Oregon City Town Center
Orenco Station
Overlook Station
Park Ave P&R
Parkrose Station
Portland Central City
Powell Blvd. Station
Raleigh Hills Town Center
Rockwood Town Center
Sherwood Town Center
Sunset Transit
Tacoma P&R
Tanasbourne Station
Tigard Town Center
Troutdale Town Center
Tualatin Town Center
Washington Square Town Center
West Portland Town Center
Willow Creek Station

Pedestrian corridors that when the pedestrian network is completed show a high number of people with increased access to destinations within a 1 mile walk in 2035:

122nd Avenue Portland (SE Foster to NE Sandy)
181st/182nd Avenue Portland (Powell to NE Sandy)
5th/Warner Milne/Beavercreek Rd.
82nd Avenue Portland/Clackamas County

Aloha to Beaverton – Hwy 8 (SW 185th to Hwy 217)
 Aloha to Hillsdale – Beaverton Hillsdale Hwy (Hwy 10)
 Barbur Blvd./99W (SW Hall to Downtown Portland)
 Beaverton to Barbur Blvd. (SW Allen, SW Garden Home Rd, SW Multnomah Blvd)
 SW Canyon Road (Beaverton to Hwy 26)
 Beaverton to Tualatin (SW Hall Blvd, SW 85th, SW Boones Ferry Rd.)
 Boones Ferry Road (Pilkington Rd. to SW Macadam Ave)
 Burnside, Portland to Gresham
 Capitol Hwy – SW 49th in West Portland to SW Macadam Avenue
 Cedar Mill to Portland – (SW Barnes Road/W Burnside Rd)., NW Cornell Rd to NW 23rd.
 Clackamas TC to Damascus –(SE Sunnyside Rd/Hwy 212 (Clackamas Boring Hwy)) from I-205 to Hwy 212 at UGB
 Division – SE Grand Ave to NE Kane Drive
 Forest Grove to Cornelius (Hwy 8) – Pacific/19th Ave to Cornelius
 Halsey St. – Hollywood District to Troutdale
 Hillsboro TC to Willow Creek MAX station – (E Main Street/W Baseline Rd) from SW Oak St (Hillsboro) to SW 185th Avenue
 Hillsboro to Aloha (Hwy 8)
 Hillsboro to Cedar Mill –(NE Cornell Road) to SW Murray Blvd in Cedar Mill
 Holgate – 99 E to SE Powell Blvd. via 136th
 Hwy 43 - Portland to Oregon City- 99 E to SE Powell Blvd.
 HWY 8 to Orenco (NW 231st Avenue)
 Interstate Avenue (N Denver Ave, N Interstate Ave, N Russell) Steel Bridge to Hayden Island
 Johnson Creek Blvd. - SE Harney Drive to SE 92nd Ave
 N/NE Killingsworth - N Greeley Ave to Cascade Hwy (NE 82nd Ave)
 Kruse Way - Tigard at I-5 to Boones Ferry Rd.
 McLoughlin Blvd. (UGB to SE Powell)
 Milwaukie to Clackamas TC (SE Harrison/Milwaukie Expy/SE Harmony/SE Sunnyside/SE Lake Rd./SE McLoughlin) 99E at Holgate to I-205 Clackamas TC
 Molalla Ave - 99E/7th Ave Oregon City to Hwy 213
 Murray Scholls to Cedar Mill – (SW Murray Blvd.) HWY 210 to NW Cornell Rd.
 Murray Scholls to Ralieg Hill - Hwy 210 (Scholls Ferry Rd) SW Murray Blvd. to Hwy 10
 NW Bethany Blvd. NW Cornell to the UGB
 NW Evergreen
 Orenco to Tanasbourne – (NW 229th/Evergreen) NE Brookwood Pkwy to NW Cornell Rd
 Portland to Damascus (SE Foster Rd.) SE Powell Blvd. to SE Sunnyside Rd.
 Portland to Oregon City – (SE 52nd/SE Flavel/SE Linwood/Webster Rd.)
 SE Powell Blvd. to SE McLoughlin Blvd. (99E)
 Powell Blvd. – Ross Island Bridge to Gresham
 Prescott – NE 42nd Ave to NE 122nd Ave
 Sandy Blvd. NE Couch to SW 257th Avenue
 SE 155th/Milmain

Sherwood (99W, SW Sherwood Blvd, SW Oregon St.) Tualatin Sherwood Road to SW Oregon St at SW Murdock Rd.
 Sherwood to Tigard (99W) - Tualatin Sherwood Road to SW Hall Blvd
 SE Stark St. (w/SE Washington couplet) SE 50th Ave to NE Kane Drive.
 SW 185th Avenue to PCC – (SW 185th Ave) Aloha at Hwy 8 to NW Springville Rd. to NW Bethany Blvd.
 SW 206th
 SW Cedar Hills Blvd. Beaverton at SW Farmington Rd. to Hwy 26, Cedar Mill
 SW Oleson Rd./SW Greenburg Rd - Washington Square at Hall Blvd to 99W
 SW Parkway Ave to Wilsonville - SW Boones Ferry at SW Day Rd to SW Town Center Loop
 SW Scholls Ferry Rd.
 Swan Island to St John's Bridge – (Going, Greeley, N Peninsula, N Willis, N Alaska, Fesseden, N Lombard) Going St on Swan Island to St John's, Lombard and N Commando Ave
 Tanasbourne to Beaverton (Walker Road) - SW 185th Ave to SW Canyon Rd.

Trails that when the pedestrian network is completed show a high number of people with increased access to destinations within a 1 mile walk in 2035:

Beaverton Creek Trail
 Bronson Creek Greenway
 Columbia Slough Trail
 Council Creek Trail
 East Buttes Power Line Corridor Trail
 Fanno Creek Trail
 Gresham / Fairview Trail
 Highway 47 Trail
 Hillsdale to Lake Oswego Trail
 Hwy 26 Bike Path/Sunset Transit Center Trail
 I-205 Corridor
 I-84 Bike Path
 Ice Age Tonquin Trail
 Kruse Way Path
 Marine Drive Trail
 Milwaukie LRT Trail
 Mt. Scott and Scouter Mountain Trails
 North Clackamas Greenway
 North Portland Willamette Greenway
 Northwest Portland Willamette Greenway Trail
 Oregon City Loop
 Reedville Trail
 Phillips Creek Trail
 Red Electric Trail
 Rock Creek Trail
 Southwest Portland Willamette Greenway Trail
 Springwater Corridor
 Sullivan's Gulch Trail

Terwilliger Trail
Trolley Trail
Tualatin River Greenway Trail
Waterhouse Trail
Westside Trail
Willamette River Bridges

Pedestrian districts with higher percentages of underserved populations in 2010:

122nd Avenue Station
148th Avenue Station
82nd Avenue Station
Aloha Town Center
Beaverton Town Center
Beaverton Creek Station
Bethany Town Center
Clackamas Town Center
Cornelius Town Center
Division St. Station
Elmonica Station
Fairview Town Center
Flavel St. Station
Forest Grove Town Center
Fuller Rd. Station
Gateway Town Center
Gresham Town Center
Happy Valley Town Center
Hillsboro Town Center
Hillsboro Airport Station
Killingsworth Station
King City Town Center
Lents Town Center
Merlo Rd. Station
Millikan Way Station
Overlook Station
Parkrose Station
Pleasant Valley Town Center
Powell Blvd. Station
Prescott Station
Rockwood Town Center
St. Johns Town Center
Troutdale Town Center

Pedestrian corridors with higher percentages of underserved populations within one mile in 2010:

122nd Avenue Portland (SE Foster to NE Sandy)
181st/182nd Avenue Portland (Powell to NE Sandy)

52nd to MLK via Columbia
 82nd Avenue Portland/Clackamas County
 NE Alberta – NE MLK to NE 33rd Ave
 Aloha to Beaverton – Hwy 8 (SW 185th to Hwy 217)
 Aloha to Hillsdale – Beaverton Hillsdale Hwy (Hwy 10)
 Beaverton to Hwy 26 (SW Canyon Road)
 Beaverton to Tualatin (SW Hall Blvd, SW 85th, SW Boones Ferry Rd.)
 Burnside (Portland to Gresham)
 Clackamas Hwy (Hwy 224)- Hwy 212-224 to Eagle Creek Hwy
 Clackamas TC to Damascus –(SE Sunnyside Rd/Hwy 212 (Clackamas Boring Hwy)) from I-205 to Hwy 212 at UGB
 Division – SE Grand Ave to NE Kane Drive
 (Fairview to Gresham – (NE 223rd Avenue) - NE Sandy Blvd to E Powell Blvd
 Forest Grove to Cornelius (Hwy 8) – Pacific/19th Ave to Cornelius
 NE Glisan - Sandy Blvd. to NE 102nd Ave
 N Going St.- N Interstate Ave to NE MLK
 NE Halsey St. - Hollywood to Troutdale, SW 257th Ave
 Hillsboro TC to Willow Creek MAX station – (E Main Street/W Baseline Rd) from SW Oak St (Hillsboro) to SW 185th Avenue
 Hillsboro to Aloha (Hwy 8) - Hillsboro UGB to SW 185th Ave
 Hillsboro to Cedar Mill –(NE Cornell Road) to SW Murray Blvd in Cedar Mill
 Holgate – 99 E to SE Powell Blvd. via 136th
 N/NE Killingsworth - N Greeley Ave to Cascade Hwy (NE 82nd Ave)Kruse Way
 N Lombard St., N Columbia - St John's Bridge, West end to NE Martin Luther King Blvd.
 Mississippi/Albina - Fremont and Vancouver to Mississippi to Lombard
 N 1st Avenue
 SW Naito/NW Naito Parkway - SW Barbur to Steel Bridge
 NE 25th/SE 32nd
 Portland to Damascus (SE Foster Rd.) SE Powell Blvd. to SE Sunnyside Rd.
 Powell Blvd. – Ross Island Bridge to Gresham
 Prescott – NE 42nd Ave to NE 122nd Ave
 Rosa Parks, Willamette Blvd (W. Portsmouth connection to Lombard) from N Vancouver Ave to N Richmond Avenue
 NE Sandy Blvd. - NE Couch to SW 257th Avenue
 SE 155th/Milmain
 SE 172nd – SE Foster to Hwy to Hwy 212
 SE 242nd Ave - SE Butler Rd. to SE Roberts Rd.
 SE 242nd/SE Hogan
 SE Stark St. (w/SE Washington couplet) SE 50th Ave to NE Kane Drive.
 SW 185th Avenue to PCC – (SW 185th Ave) Aloha at Hwy 8 to NW Springville
 SW 206th
 SW Cedar Hills Blvd. - Beaverton at SW Farmington Rd. to Hwy 26, Cedar Mill
 Swan Island to St John's Bridge – (Going, Greeley, N Peninsula, N Willis, N Alaska, Fesseden, N Lombard) Going St on Swan Island to St John's, Lombard and N Commando Avenue

Troutdale to Gresham (NE Kane Drive, SW 257th) - NE Division St. to E Columbia River Hwy
Vancouver/Williams – Rose Quarter to Rosa Parks
Woodstock – SE 39th to SE Foster Rd.

Trails with higher percentages of underserved populations within one mile in 2010:

Beaverton Creek Trail
Clackamas River Greenway Trail
Columbia Slough Trail
Council Creek Trail
East Buttes Power Line Corridor Trail
Fanno Creek Trail
Gresham / Fairview Trail
Highway 47 Trail
I-205 Corridor
I-405 Trail
I-84 Bike Path
Kelley Creek Trail
Kruse Way Path
MAX Path
Mt. Scott and Scouter Mountain Trails
Reedville Trail
Peninsula Crossing Trail
Phillips Creek Trail
Southwest Portland Willamette Greenway Trail
Springwater Corridor
Sunrise Multi-Use Path
Waterhouse Trail
Westside Trail
Willamette River Bridges

Current ATP conditions– completed, gaps and deficiencies

Pedestrian and bicycle routes and districts that make up the ATP network are listed in Appendix 1. The purpose of the gaps and deficiencies, or network status list, is to provide more detail on what is needed to complete the ATP pedestrian and bicycle networks. Historically, number of miles of gaps in the network has been the primary data for measuring needs for the regional active transportation network. Data for identifying gaps and deficiencies is provided by the ATP existing conditions analysis, local transportation system plans and the Regional Transportation Project list.

The ATP gaps and deficiencies list assigns a unique ID to routes and districts shown on the *Regional Bicycle and Pedestrian Functional Classification Maps*; identifies where they are located; the owner of the facility(ies); the name and extent; the functional classification; the

status of the route or district; related *2014 Regional Transportation Plan* projects that address a gap or deficiency and recommendations to address gaps and deficiencies.



Gaps in the regional pedestrian and bicycle network make it difficult and unsafe to get around. Photos: T-4 America, The Oregonian



Artwork in Tampa, FL captures the freedom and joy of riding a bicycle. Artwork by: co-lab Studio / TBAG public art

Glossary

This section provides definitions of terms used in the ATP. Refer to the *2014 Regional Transportation Plan* for a comprehensive glossary of terms related to regional transportation planning. New terms not included are identified with an asterisk (*).

Accessibility – The ability or ease to reach desired goods, services, activities and destinations with relative ease, within a reasonable time, at a reasonable cost and with reasonable choices. Many factors affect accessibility (or physical access), including mobility, the quality, cost and affordability of transportation options, land use patterns, connectivity of the transportation system and the degree of integration between modes. The accessibility of a particular location can be evaluated based on distances and travel options, and how well that location serves various modes. Locations that can be accessed by many people using a variety of modes of transportation generally have a high degree of accessibility.

Active Living - Lifestyles characterized by incorporating physical activity into daily routines through activities such as walking or biking for transportation, exercise or pleasure. To achieve health benefits, the goal is to accumulate at least 30 minutes of activity each day.

***Active transportation** - Non-motorized forms of transportation including walking and biking, people using wheelchairs or mobility devices and skateboarding. Transit is considered part of active transportation because most transit trips start with a walking or bicycle trip.

*** Active transportation network** – Combined network of streets, trails and districts identified on the *Regional Pedestrian and Bicycle Network Functional Classification Maps* and identified as pedestrian and bicycle parkways, regional bikeways, regional pedestrian corridors and regional pedestrian and bicycle districts, which include station communities. The active transportation network also includes frequent bus routes, all of which are designated as pedestrian parkways, and high ridership bus stops.

Arterial – A class of street. Arterials are intended to provide general mobility for travel within the region. Correctly sized arterials at appropriate intervals allow through trips to remain on the arterial system thereby discouraging use of local streets for cut-through travel. Arterial streets are usually spaced about one mile apart and are designed to accommodate bicycle, pedestrian, truck and transit travel.

***Arterial traffic calming** - Designed to manage traffic at higher speeds and volumes, but still minimize speeding and unsafe speeds. Treatments can include raised medians, raised intersections, gateway treatments, textured intersections, refuge islands, road diets, and roundabouts.

Barrier – A condition or obstacle that prevents an individual or a group from accessing the transportation system or transportation planning process. Examples include a physical gap or impediment, lack of information, language, education and/or limited resources.

Bicycle – A vehicle having two tandem wheels, a minimum of 14 inches in diameter, propelled solely by human power, upon which a person or persons may ride. A three-wheeled adult tricycle is considered a bicycle. In Oregon, a bicycle is legally defined as a vehicle. Bicyclists have the same right to the roadways and must obey the same traffic laws as the operators of other vehicles.

Bicycle boulevards - Sometimes called a bicycle priority street, a bicycle boulevard is a low-traffic street where all types of vehicles are allowed, but the street is modified as needed to enhance bicycle safety and convenience by providing direct routes that allow free-flow travel for bicyclists at intersections where possible. Traffic controls are used at major intersections to help bicyclists cross streets. Typically these modifications also calm traffic and improve pedestrian safety.

***Bicycle comfort index (BCI)** - analyzes the auto volumes, auto speeds and number of auto lanes on existing bikeways and within defined ‘cycle zones’ and assigns a comfort rating to the bikeway. Generally off-street paths receive the highest rating because they are completely separated from auto traffic. Results help identify existing bikeways on the regional bicycle network that could be upgraded to increase bicyclists comfort. Metro’s BCI analysis was used in the existing conditions step of developing the ATP. Additional data would be useful to refine the tool.

***Bicycle district** - an area with a concentration of transit, commercial, cultural, institutional and/or recreational destinations where bicycle travel is attractive, comfortable and safe. Bicycle districts are areas where high levels of bicycle use exist or a planned. Within a bicycle district, some routes may be designated as bicycle parkways or regional bikeways, however all routes within the bicycle district are considered regional. A new concept for the *Regional Transportation Plan* and added to the regional bicycle network through the ATP. The Central City, Regional and Town Centers and Station Communities are identified as bicycle districts.

Bicycle facilities – A general term denoting improvements and provisions made to accommodate or encourage bicycling, including parking facilities, all bikeways and shared roadways not specifically designated for bicycle use.

***Bicycle Routes** –Link bicycle facilities together into a clear, easy to follow route using wayfinding such as signs and pavement markings, connecting major destinations such as town centers, neighborhoods and regional destinations.

***Bicycle Parkway** - A bicycle route designed to serve as a bicycle highway providing for direct and efficient travel for large volumes of cyclists with minimal delays in different urban and suburban environments and to destinations outside the region. These bikeways connect 2040 activity centers, downtowns, institutions and greenspaces within the urban area. The specific design of a bike parkway will vary depending on the land use context within which it passes through. These bikeways could be designed as an off-street trail along a stream or rail corridor, a

cycletrack along a main street or town center, or a bicycle boulevard through a residential neighborhood.

***Bikeable** - A place where people live within biking distance to most places they want to visit, whether it is school, work, a grocery store, a park, church, etc. and where it is easy and comfortable to bike.

Bike lane – A portion of a roadway that has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists.

Bike-transit facilities - Infrastructure that provide connections between the two modes, by creating a “bicycle park-and-ride,” a large-scale bike parking facility at a transit station.

***Bikeway** – Any road, street, path or right-of-way that is specifically designated in some manner as being open to bicycle travel, either for the exclusive use of bicycles or shared use with other vehicles or pedestrians.

***Congestion Mitigation and Air Quality Improvement (CMAQ) Program** – A federal transportation funding program. The MAP-21 provides just over \$2.2 billion in CMAQ funding for each year of the authorization-2013 and 2014. While project eligibility remains basically the same, the legislation places considerable emphasis on diesel engine retrofits and other efforts that underscore the priority on reducing fine particle pollution (PM 2.5).

***Complete Streets** - A transportation policy and design approach where streets are planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.

***Complete Streets project checklist** - With the realization that street design affects so much more than traffic flow, leading Complete Streets programs have been successful in part because they endeavored to break down silos between city departments. In addition to regular meetings between departments, some cities have instituted a Project Checklist that is circulated for a sign-off from each interested department when street designs are in process. The best known example comes from the City of Seattle. Some Metropolitan Planning Organizations also use project checklists to ensure funding for street improvements adhere to Complete Street goals. Examples include the Bay Area’s Metropolitan Transportation Commission, and the Mid-Ohio Regional Planning Commission.

Creating Livable Streets handbook – Developed by Metro provides specific tools that complement strategies and policies identified in the Regional Transportation Plan and the 2040 Growth Concept. Street design elements such as sidewalks, crosswalks, bikeways, street trees, landscaping that separates the sidewalk from the street, street lighting, bus shelters and corner curb extensions provide a safer environment that can slow traffic and encourage walking, bicycling and transit use. Some of the designs are now outdated.

***Cycletrack** – Bicycle lanes that are physically separated from motor vehicle and pedestrian travel. A cycle track is an exclusive bike facility that has elements of a separated path and on-road bike lane. A cycle track, while still within the roadway, is physically separated from motor traffic and is distinct from the sidewalk. Cycle tracks may be one-way or two-way, and may be at road level, at sidewalk level, or at an intermediate level. They all share in common some separation from motor traffic with bollards, car parking, barriers or boulevards.

Cyclist – Person riding a bicycle.

Environmental justice populations - People living in poverty, people with low-income as determined annually by the U.S. Department of Health and Human Services Low-Income Index, people of color, elderly, children, people with disabilities, and other populations protected by Title VI and related nondiscrimination statutes.

Essential destinations – In the *Regional Transportation Plan* defined as: hospitals and medical centers, major retail sites, grocery stores, elementary, middle and high schools, pharmacies, parks/open spaces, major social service centers (with more than 200 monthly LIFT pick up counts), colleges and universities, employers with greater than 1,500 employees, sports and attraction sites and major government sites.

Equity – In transportation, a normative measure of fairness among transportation system users.

Frequent bus – Frequent bus service offers local and regional bus service with stops approximately every 750 to 1000 feet, providing corridor service rather than nodal service along selected arterial streets. This service typically runs at least every 15 minutes throughout the day and on weekends though frequencies may increase based on demand, and it can include transit preferential treatments, such as reserved bus lanes and transit signal priority, and enhanced passenger infrastructure along the corridor and at major bus stops, such as covered bus shelters, curb extensions, special lighting and median stations.

Gap - Missing links or barriers in the “typical” urban transportation system for any mode that functionally prohibits travel where a connection might be expected to occur. A gap generally means a connection does not exist at all, but could also be the result of a physical barrier such as a throughway, natural feature, weight limitations on a bridge (e.g., Sellwood Bridge), or existing development.

***Greenways** - Greenways generally follow rivers and streams and may or may not provide for public access. In some cases, greenways may be a swath of protected habitat along a stream with no public access. In other cases, greenways may allow for an environmentally compatible trail, viewpoint or canoe launch site. The greenways that are identified in Metro’s regional trails plan do not presently offer public access. Usage of the term “greenway” can be ambiguous because it is sometimes used interchangeably with the word “trail.” For example, “Fanno Creek Trail”, “Fanno Creek Greenway”, and “Fanno Creek Greenway Trail” are used with equal frequency for the same trail. Trail and greenway professionals prefer to make the technical

distinction that the “trail” refers to the tread or the actual walking service, while the “greenway” refers to the surrounding park or natural corridor. The term is also ambiguous because the City of Portland recently began referring to its bicycle boulevards as “neighborhood greenways.” Neighborhood greenways differ from traditional greenways in that they generally do not follow an open space corridor aside from local streets.

Health Impact Analysis (HIA) - A combination of procedures, methods, and tools by which a policy, program or project may be judged as to its potential effects on the health of a population, and the distribution of these effects within the population.

***Local Bikeways** - Trails, streets and connections not identified as regional bicycle routes, but are important to a fully functioning network. Local bikeways are the local collectors of bicycle travel. They are typically shorter routes with less bicycle demand and use. They provide for door-to-door bicycle travel.

***Local Pedestrian Connectors** – All streets and trails not included on the regional network. Local connectors experience lower volumes of pedestrian activity and are typically on residential and low-volume/speed roadways or smaller trails. Connectors, however, are an important element of the regional pedestrian network because they allow for door-to-door pedestrian travel.

Moving Ahead for Progress in the 21st Century Act (MAP-21) – The federal transportation bill, was signed into law by President Obama on July 6, 2012. Funding surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014, MAP-21 is the first long-term highway authorization enacted since 2005.

***Metropolitan Greenspaces Master Plan (1992)** - Details the vision, goals and organizational framework of a regional system of natural areas, trails and greenways for wildlife and people in the region, and set the foundation for subsequent bond measures and trail plans.

Mobility corridor – Mobility corridors represent sub-areas of the region and include all regional transportation facilities within the subarea as well as the land uses served by the regional transportation system. This includes freeways and highways and parallel networks of arterial streets, regional bicycle parkways, high capacity transit, and frequent bus routes. The function of this network of integrated transportation corridors is metropolitan mobility – moving people and goods between different parts of the region and, in some corridors, connecting the region with the rest of the state and beyond. This framework emphasizes the integration of land use and transportation in determining regional system needs, functions, desired outcomes, performance measures, and investment strategies.

Modal targets – Targets for increased walking, biking, transit, shared ride and other non-drive alone trips as percentages of all trips. The targets apply to trips to, from and within each 2040 Design Type. The targets reflect mode shares for the year 2040 needed to comply with Oregon Transportation Planning Rule objectives to reduce reliance on single-occupancy vehicles.

Mode – A type of transportation distinguished by means used (e.g., such as walking, bike, bus, single- or high-occupancy vehicle, bus, train, truck, air, marine).

Mode choice – The ability to choose one or more modes of transportation.

Mode split – The proportion of total person trips using various modes of transportation.

Metropolitan Transportation Improvement Program (MTIP) - The MTIP includes all federally funded transportation projects in the Portland Metropolitan area, including projects planned by TriMet, the Oregon Department of Transportation and local agencies receiving federal funds allocated by Metro. The MTIP is incorporated in the Statewide Transportation Improvement Program (STIP), which identifies the state’s four-year transportation capital improvements.

Multi-modal – The movement of people or goods by more than one mode.

***Multi-modal level of service** - Multimodal level of service (MMLOS) is an analytical tool that measures and rates users’ experiences of the transportation system according to their mode. It evaluates not only drivers’ experiences, but incorporates the experiences of all other users, such as cyclists and pedestrians.

***Network** – Connected routes forming a cohesive system.

Non-motorized - Generally referring to bicycle, walking and other modes of transportation not involving a motor vehicle.

Pedestrian – A person on foot, in a wheelchair or in another health-related mobility device.

***Pedestrian comfort index (PCI)**- Uses data such as auto volumes, auto speeds, number of auto lanes, sidewalk existence and width, number of pedestrian crossings on existing roadways and assigns a comfort rating for pedestrians. Results help identify roadways on the regional pedestrian network that could be upgraded to increase bicyclists comfort. Metro has collected and analyzed initial data for the regional pedestrian network but has not created a PCI. Additional data and analysis is needed.

Pedestrian connection – A continuous, unobstructed, reasonably direct route between two points that is intended and suitable for pedestrian use. Pedestrian connections include but are not limited to sidewalks, walkways, accessways, stairways and pedestrian bridges. On developed parcels, pedestrian connections are generally hard surfaced. In parks and natural areas, pedestrian connections may be soft-surfaced pathways. On undeveloped parcels and parcels intended for redevelopment, pedestrian connections may also include rights-of-way or easements for future pedestrian improvements.

***Pedestrian Corridor** - The second highest functional class of the regional pedestrian network. On-street regional pedestrian corridors are any major or minor arterial on the regional urban arterial network that is not a pedestrian parkway. Regional trails that are not pedestrian

parkways are regional pedestrian corridors. These routes are also expected to see a high level of pedestrian activity, though not as high as the parkways.

Pedestrian district – A comprehensive plan designation or set of land use regulations designed to provide safe and convenient pedestrian circulation, with a mix of uses, density, and design that support high levels of pedestrian activity and transit use. The pedestrian district can be a concentrated area of pedestrian activity or a corridor. Pedestrian districts can be designated within the following 2040 Design Types: Central City, Regional and Town Centers, Corridors and Main Streets. Though focused on providing a safe and convenient walking environment, pedestrian districts also integrate efficient use of several modes within one area, e.g., auto, transit, and bike.

Pedestrian facility – A facility provided for the benefit of pedestrian travel, including walkways, crosswalks, plazas, signs, signals, illumination and benches.

*** Pedestrian Parkway** – A new functional class for pedestrian routes in the Regional Transportation Plan and the highest functional class. They are high quality and high priority routes for pedestrian activity. Pedestrian parkways are major urban streets that provide frequent and almost frequent transit service (existing and planned) or regional trails. Adequate width and separation between pedestrians and bicyclists should be provided on shared use path parkways.

Pedestrian-scale – An urban development pattern where walking is a safe, convenient and interesting travel mode. The following are examples of pedestrian scale facilities: continuous, smooth and wide walking surfaces, easily visible from streets and buildings and safe for walking; minimal points where high speed automobile traffic and pedestrians mix; frequent crossings; and storefronts, trees, bollards, on-street parking, awnings, outdoor seating, signs, doorways and lighting designed to serve those on foot; all well-integrated into the transit system and having uses that cater to pedestrians.

Performance measures – Also called indicators. A measure of how well the transportation system is performing that is used to evaluate the success of the objective with quantitative or qualitative data and provide feedback in the plan's decision-making process. Some measures can be used to predict the future as part of an evaluation process using forecasted data, while other measures can be used to monitor changes based on actual empirical or observed data. In both cases, they can be applied at a system-level, corridor-level and/or project level, and provide the planning process with a basis for evaluating alternatives and making decisions on future transportation investments. They can also be used to monitor performance of the plan in between updates to evaluate the need for refinements to policies, investment strategies or other elements of the plan.

***Planning area boundary** – a boundary used by Metro for planning purposes. Included within the boundary are all areas within the Metro Jurisdictional Boundary, the 2010 Census Urbanized Area, Urban reserves and the Urban Growth Boundary.

Physically separated bicycle lanes— These types of facilities provide a physical buffer between a person riding a bicycle and auto traffic and can be referred to as cycle tracks, trails, paths and buffered bicycle lanes. Buffers can be provided by parked cars, landscaped strips, raised pavement, bollards, planters, etc.

Regional Bike-Transit Facility - The hub where the spokes of the regional bikeway network connect to the regional transit network. Stations and transit centers identified as regional bike-transit facilities have high-capacity bike parking and are suitable locations for bike-sharing and other activities that support bicycling. Criteria for identifying locations are found in the TriMet Bicycle Parking Guidelines.

***Regional bikeway** – Designated routes that provide access to and within the central city, regional centers and town centers. These bikeways are typically located on arterial streets but may also be located on collectors or other low-volume streets. These bikeways should be designed using a flexible “toolbox” of bikeway designs, including bike lanes, cycle tracks (physically separated bicycle lanes) shoulder bikeways, shared roadway/wide outside lanes and bicycle priority treatments (e.g. bicycle boulevards).

***Regional destinations** –Include the following types of destinations: employment sites with 300 or more employees (includes regional sports and attraction sites such as Oregon Zoo, OMSI, Jen Weld, Rose Stadium); high ridership bus stop locations; regional shopping centers; Major hospitals and medical centers; Colleges, universities and public high schools; Regional parks; major government centers; Social services; Airports; and Libraries.

***Regional Flexible Funds (RFF)** - Regional flexible funds come from three federal grant programs: the Surface Transportation Program, the Congestion Mitigation/Air Quality Program and the Transportation Alternatives Program. The regional flexible fund allocation process identifies which projects in the *Regional Transportation Plan* will receive funding. Regional flexible funds are allocated every two years and are included in the Metropolitan Transportation Improvement Program.

***Regional Trails** - Regional Trails are defined by Metro as linear facilities for non-motorized users that are at least 75% off-street and are regionally significant. Bicycle/pedestrian sidewalks on bridges are also included in this definition. The term “non-motorized” is used instead of “multi-use” or “multi-modal” because some Regional Trails are pedestrian-only. Trails must meet two levels of criteria to be considered “regionally significant.” The criteria are adopted by the Metro Council in the *Regional Trails and Greenways Plan*. Regional trails are physically separated from motor vehicle traffic by open space or a barrier. Bicyclists, pedestrians, joggers, skaters and other non-motorized travelers use these facilities.

While all trails serve a transportation function, not all regional trails identified on Metro’s *Regional Trails and Greenways Map* are included in the RTP. The RTP includes regional trails that support both utilitarian and recreational functions. These trails are generally located near or in residential areas or near mixed-use centers and provide access to daily needs. Trails in the RTP

are defined as transportation facilities and are part of the regional transportation system. Regional trails in the RTP are eligible to receive federal transportation funds. Trails that use federal transportation funds need to be ADA accessible according to the AASHTO trail design guidelines. There are some pedestrian only trails or trails near sensitive habitat on the RTP network that would most likely not be paved. Regional bicycle connections are planned parallel to pedestrian only regional trails. Colloquially, terms like “bike path” and “multi-use path” are often used interchangeably with “regional trail”, except when referring to pedestrian-only regional trails.

***Regional Trails and Greenways Map** – a map developed and maintained by Metro. The map was first developed as part of the *Metropolitan Greenspaces Master Plan*. The map includes the existing and proposed trails and greenways in the regional system. Many of the regional trails are included in the Regional Transportation Plan.

Regional transit system - The regional transit system includes light rail, commuter rail, bus rapid transit, frequent bus, regional bus, and streetcar modes.

Regional Transportation Functional Plan – A regional functional plan regulating transportation in the Metro region, as mandated by Metro’s Regional Framework Plan. The plan directs local plan implementation of the *Regional Transportation Plan*.

Regional transportation plan (RTP) - The official multimodal transportation plan that is developed and adopted through the metropolitan transportation planning process for the Portland metropolitan region.

Regional transportation system – The regional transportation system is identified on the regional transportation system map(s) in Chapter 2. The system is limited to facilities of regional significance generally including regional arterials and throughways, high capacity transit and regional transit systems, regional multi-use trails with a transportation function, bicycle and pedestrian facilities that are located on or connect directly to other elements of the regional transportation system, air and marine terminals, as well as regional pipeline and rail systems.

***Regional Conservation Strategy for the Greater Portland Vancouver Metropolitan Area, Intertwine and Metro** - Identifies high quality land and riparian areas in the region. The strategy was developed by The Intertwine Alliance, Metro and a broad coalition of conservation organizations to pull together 20 years of conservation planning and create an integrated blueprint for regional conservation. The plan will help government, nonprofit and private organizations work together to care for and restore thousands of acres of natural area land and create habitat for wildlife.

Right-of-way (ROW) – Land that is publicly-owned, or in which the public has a legal interest, usually in a strip, within which the entire road facility (including travel lanes, medians, sidewalks, shoulders, planting areas, bikeways and utility easements) resides. The right-of-way is usually

acquired for or devoted to multi-modal transportation purposes including bicycle, pedestrian, public transportation and vehicular travel.

***Road diet** - Road Diets are one way to reconfigure limited roadway space in a way that allows for the inclusion of wider sidewalks and separated bicycle facilities such as buffered bicycle lanes, which can provide space for all users to operate safely in their own “zones”. Road diets can have multiple safety and operational benefits for autos, as well as pedestrians and cyclists. On existing roadways, separated in-roadway facilities may be implemented by narrowing existing travel lanes, removing travel lanes, removing on-street parking or widening the roadway shoulder. If constraints, such as narrow existing right-of-way, prohibit providing optimally desired bicycle facility widths, then interim facility improvements can be used.

***Regionally Significant Industrial Area (RSIA)** – 2040 land use designation; RSIA's are shown on Metro's 2040 map. Industrial activities and freight movement are prioritized in these areas.

Regional Transportation Functional Plan (RTFP) – A regional functional plan regulating transportation in the Metro region, as mandated by Metro's Regional Framework Plan. The plan directs local plan implementation of the Regional Transportation Plan.

***Regional Travel Options (RTO)**- Metro program guided by a five-year strategic plan, developed with stakeholders, and is funded primarily by grants from the U.S. Department of Transportation. The program includes: a coordinated marketing effort to efficiently use public dollars to reach key audiences; an employer outreach program to save employers and employees money; a regional rideshare program that makes carpooling easier and helps people with limited transit access have options to get around; a grant program that funds partner efforts, such as the BTA Bike Commute Challenge, TMA's work with employers, local transportation options projects, TriMet's multi-modal trip planner and Sunday Parkways, to name a few.

Regional Transportation Plan (RTP) - The official multimodal transportation plan that is developed and adopted through the metropolitan transportation planning process for the Portland metropolitan region.

Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU) - Signed into federal law in 2005, SAFETEA-LU authorizes the federal surface transportation programs for highways, highway safety, and transit through 2009. SAFETEA-LU refined and reauthorized TEA-21.

Safe Routes to School – Safe Routes to School is a national program that works to nationally, regionally and locally to create safe, healthy, and livable urban, suburban and rural communities. The program works with parents, school districts, local governments, government, police and community partners to make it easy and safe for kids to walk and bike to school. Results are achieved through investments in small capital projects, educations and outreach such as walking school buses.

***Short trip** – In the Regional Active Transportation Plan, generally defined as a one-way trip less than three miles.

Sidewalk – A walkway separated from the roadway with a curb, constructed of a durable, hard and smooth surface, designed for preferential or exclusive use by pedestrians.

Stakeholders – Individuals and organizations with an interest in or who are affected by the transportation planning process, including federal, state, regional and local officials and jurisdictions, institutions, community groups, transit operators, freight companies, shippers, the general public, and people who have traditionally been underrepresented.

Station Communities - Areas generally within a 1/4- to 1/2-mile radius of a light rail station or other high capacity transit stops that are planned as multi-modal, mixed-use communities with substantial pedestrian and transit-supportive design characteristics and improvements.

State Transportation Investment Plan (STIP) - identifies the state's four-year transportation capital improvements.

State Transportation Plan - The official statewide intermodal transportation plan that is developed through the statewide transportation planning process. See also Oregon Transportation Plan.

***Surface Transportation Program (STP)** – A federal transportation program that provides flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the National Highway System, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities.

Traffic calming – A transportation system management technique that aims to prevent inappropriate through-traffic and reduce motor vehicle travel speeds on a particular roadway. Traditionally, traffic calming strategies provide speed bumps, curb extensions, planted median strips or rounds and narrowed travel lanes.

***Transportation Alternatives Program** - The Transportation Alternatives Program (TAP) was authorized under Section 1122 of Moving Ahead for Progress in the 21st Century Act (MAP-21) and is codified at 23 U.S.C. sections 213(b), and 101(a)(29). Section 1122 provides for the reservation of funds apportioned to a State under section 104(b) of title 23 to carry out the TAP. The national total reserved for the TAP is equal to 2% of the total amount authorized from the Highway Account of the Highway Trust Fund for Federal-aid highways each fiscal year. The TAP provides funding for programs and projects defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities, and environmental mitigation; recreational trail program projects; safe routes to school projects; and projects for planning, designing, or constructing boulevards and other roadways largely in the right-of-way of former Interstate System routes or other divided highways.

Transportation disadvantaged/persons potentially underserved by the transportation system

– Individuals who have difficulty in obtaining important transportation services because of their age, income, physical or mental disability.

Transportation management associations (TMA) – Non-profit coalitions of local businesses, residential such as condo Home Owner Associations and/or public agencies dedicated to reducing traffic congestion and pollution and improving commuting options for employees.

Travel options/choices– The ability range of travel mode choices available, including motor vehicle, walking, bicycling, riding transit and carpooling. Telecommuting is sometimes considered a travel option because it replaces a commute trip with a trip not taken.

Underserved communities – Populations that have historically experienced a lack of consideration in the planning and decision making process. It describes communities of concern in addition to those that are defined in the federal definition of Environmental Justice. These populations are seniors, persons with disabilities, youth, communities of color, low-income communities, and any other population of people whose needs may not have been full met in the planning process.

***Universal access**- Universal access is the goal of enabling all citizens to reach every destination served by their public street and pathway system. Universal access is not limited to access by persons using automobiles. Travel by bicycle, walking, or wheelchair to every destination is accommodated in order to achieve transportation equity, maximize independence, and improve community livability. Wherever possible, facilities are designed to allow safe travel by youth, seniors, and people with disabilities who may have diminished perceptual or ambulatory abilities. By using design to maximize the percentage of the population who can travel independently, it becomes much more affordable for society to provide paratransit services to the remainder with special needs.

Walkable neighborhood - A place where people live within walking distance to most places they want to visit, whether it is school, work, a grocery store, a park, church, etc.

***Walk Score**- an online tool that produces a number between 0 and 100 that measures the walkability of any address. Similar tools for transit and bicycling - Transit Score and Bike Score.

Walkway – A hard-surfaced transportation facility designed and suitable for use by pedestrians, including persons using wheelchairs. Walkways include sidewalks, hard-surfaced portions of accessways, regional trails, paths and paved shoulders.

***Wayfinding**- Wayfinding helps people traveling to orient themselves and reach destinations easily. Wayfinding includes signs, maps, street markings, and other graphic or audible methods used to convey location and directions to travelers.

List of Supplemental Reports and Materials

Information and analyses produced for or used in the development of the ATP are available on Metro's active transportation web page: www.oregonmetro.gov/activetransportationplan

Click on each title for a hyperlink to the document.

- 1 [Existing Conditions, Findings and Opportunities Report](#), August 2012
- 2 [Pedestrian Network Analysis Report](#), June 2013
- 3 [Regional Bicycle Network Evaluation](#), April 2013
- 4 [Benefits of Active Transportation & Considerations for Implementation](#), June 2013
- 5 [Intertwine Trail Use Snapshot Report](#), June 2013
- 6 [Active Transportation Survey Results](#), Opt-In Survey, October 2011
- 7 [Stakeholder Communication Strategy for the ATP](#), February 2012
- 8 [Regional Transportation Safety Plan](#), May 11, 2012
- 9 [Metro State of Safety Report](#), April 2012
- 10 [ATP Bicycle Network Map Book](#), February 2014
- 11 [ATP Pedestrian Network Map Book](#), February 2014

Appendices

1 Active Transportation Network Status - Completion, Gaps and Deficiencies

- A working draft and still under development, Appendix 1 lists bicycle and pedestrian routes and districts on the ATP networks. Gaps and deficiencies are being identified on the networks, and 2014 Regional Transportation Plan projects that address gaps and deficiencies are listed.

2 Planning Level Cost Estimate Assumptions for the ATP

- Describes the assumptions and unit costs used to develop planning level costs for gaps and deficiencies on the ATP networks that do not currently have projects identified in the 2014 Regional Transportation Plan.

3 Supporting Policies and Plans

- Lists policies and plans that provide the policy context for the ATP.

4 Facility Design and Other Resources

- Lists design guides and other resources of best practices for developing bicycle and pedestrian facilities.

5 Federal/State Capital Transportation Investments in the Portland Region, 1995-2010

Appendix 1: ATP Network Completion, Gaps and Deficiencies (*DRAFT*)

ATP ID #	RTP network	County	Jurisdiction(s)	Route or district facility owner	ATP bicycle and pedestrian route and district name	Route/district extent - from	Route/district extent -to	Functional classification, ATP and RTP policy maps	Status (to be completed over time)	Related 2014 RTP projects that address gap or deficiency (not all cells complete)	Recommendations to address gap or deficiency (This section to be completed over time)
B	Bike	Washington	Beaverton		Hocken Avenue	SW Farmington	SW Jenkins	Bicycle Parkway	Bike lanes on roadway		
B1	Bike	Washington	Washington County	Washington County	Jackson School Road	Evergreen	Council Creek Trail/TV Hwy	Bicycle Parkway		10826: Road project	Roadway will be improved in next five years; consider adding bike/ped project to road project.
B10	Bike	Washington	Beaverton	Beaverton	SW Hall Blvd	SW Broadway	Fanno Creek Trail, south of Hunziker	Bicycle Parkway		10619: Crescent extension, 11220	Critical on road section of the Crescent Connection.
B11	Bike	Washington	Beaverton	Beaverton	SW Greenway/SW Brockman/SW Beard/SW Nora	Hall Blvd /Fanno Creek Trail	Westside Trail	Bicycle Parkway		10654:Project on Nora, sidewalks/ bikelanes; exisitng bikelanes on Broackman and Beard	
B12	Bike	Washington	Beaverton/ Portland	Beaverton/ Portland	Scholls Ferry Rd.	Tile Flat	Hall Blvd.	Bicycle Parkway		11213:Bridge crossing of Scholls Ferry Road by the Westside Trail.	Need project from Westside trail to Tile Flat. Upgrade existing bike lanes from Hall to Westside Trail.
B13	Bike	Washington /Multnomah	Portland/ Multnomah County	Portland	Multnomah Blvd./SW Garden Home	SW Oleson	SW Barbur	Bicycle Parkway		11351: Reconstruct street to urban standards, including curbs, sidewalks, storm sewers and upgraded street lights, Barbur to 45th Ave.	Upgrade exisitng bike lanes.
B15	Bike	Washington / Multnomah	Portland/ Beaverton	Portland/ Beaverton	SW Scholls Ferry Road/SW Oleson Rd	Scholls Ferry from Hwy 26 to Beaverton- Hillsdale Hwy	SW Oleson from BH Hwy to Hall Blvd.	Bicycle Parkway		10188: Humphrey to County line, multimodal improvements. Upgrade existing bike lanes on SW Oleson from Hall to BH Hwy	Need project from County line to Beaverton Hillsdale Hwy. Bike lanes on Schools Ferry from Hwy 26 to Sheridan.
B16	Bike	Multnomah	Portland	Portland	Downtown Portland Parkways			Bicycle Parkway		10232: Bicycle Facility on Flanders, NW (Steel Bridge to Westover)	
B17	Bike	Washington/ Clackamas	Wilsonville	Wilsonville	SW Boones Ferry Road	Eligsen in Wilsonville	Tualatin River Greenway	Bicycle Parkway			
B18	Bike	Washington/ Clackamas	Wilsonville	Wilsonville	SW Boeckman Rd.	Tonquin Trail	SW Wilsonville Rd.	Bicycle Parkway		10092 is connected to project at Tonquin Trail endpoint	
B19	Bike	Clackamas	Clackamas County, Milwaukie	Clackamas County	Lake Road/ SE Harmony Rd/ SE Sunnyside Road	Trolley Trail (near SE McLoughlin and SE 17th)	Scouter Mtn. Trail	Bicycle Parkway		10003 (Clackamas) Harmony Road Improvements, Hwy 224 to SE 84th, Widen to three lanes, add bike lanes and sidewalks where needed. 10094 (Milwaukie) Lake Rd. Improvements SE 21st to Hwy 224 - address gap in bike and ped system. 1000 (Clackamas County) grade separated crossing of UPRR at Harmony and Linwood. Related project - 10109 (Milwaukie) Kellog Creek Bike/Ped Bridge	Project to upgrade existing bicycle facilities from Oatfield to intersection with Scouter Mtn. Trail - current facilities have low BCI. Include route signage, signals.
B2	Bike	Washington	Washington County	Washington County	NW Evergreen	NE Jackson School Rd.	NW Cornell Road	Bicycle Parkway	10597, 10814		Consider adding bikeway project
B20	Bike	Multnomah	Portland	ODOT/ Portland	SE Powell/ Foster	SE 17th Ave	I-205 Path	Bicycle Parkway		10259 (Portland): Ross Island Bridge to SE 92nd. Retrofit existing street with multimodal and safety improvements including enhanced pedestrian and	
B22	Bike	Multnomah	Gresham	Portland	NE Hogan Drive	MAX Path	Stark St.	Bicycle Parkway			

Not all routes have an ATP ID assigned. To be completed over time.

Appendix 1: ATP Network Completion, Gaps and Deficiencies (*DRAFT*)

ATP ID #	RTP network	County	Jurisdiction(s)	Route or district facility owner	ATP bicycle and pedestrian route and district name	Route/district extent - from	Route/district extent -to	Functional classification, ATP and RTP policy maps	Status (to be completed over time)	Related 2014 RTP projects that address gap or deficiency (not all cells complete)	Recommendations to address gap or deficiency (This section to be completed over time)
B23	Bike	Multnomah	Gresham, Troutdale	Gresham	NE Kane Dr./SW 257th Ave	NE Division	SW Halsey	Bicycle Parkway		10403 (Multnomah Co.): Ped improvements on 257th between stark & cherry park (partial extent of B23)	Ped improvements limited to intersections and mid-block crossings. Consider adding sidewalk improvements and improve existing bike facilities.
B24	Bike	Multnomah	Portland, Troutdale	Gresham, Portland	NE Halsey/NW Halsey	I-205 Path	257th in Troutdale	Bicycle Parkway		10317; 10320	
B25	Bike	Multnomah	Portland, Gresham	Portland/ Gresham	Burnside/Stark	I-205 Path to 188th to Yamhill to MAX Path	SW 257th Ave.	Bicycle Parkway		10321(Portland). 10459 (Gresham): sidewalk improvements at 172nd, 197th, glisan, and stark. 10519 (Gresham): ped improvements from 162nd/burnside to 181st/burnside; 10319	
B26	Bike	Multnomah	Portland	Portland	181st/182nd Ave	Stark St.	Springwater Corridor Trail	Bicycle Parkway			
B27	Bike	Multnomah	Portland	Portland	SE Clinton	SE 50th	Clinton St. Path	Bicycle Parkway			
B28	Bike	Multnomah /Clackamas	Portland, Milwaukie, Clackamas	Portland, Milwaukie, Clackamas	Cully to Springwater to Harmony, via 50's bikeway and Linwood, Webster to I-205 Path	Killingsworth (NE Portland)	I-205 Path (Clackamas County)	Bicycle Parkway		10102 (Milwaukie): address bike/ped gap on Linwood from Johnson Creek to Harmony road; 10181(Portland) Fifties Bikeway NE/SE Tillamook to Woodstock	new project(s) needed to address continuous bicycle parkway connecting jurisdictions. Segments of corridor may be updated with refined parallel routes.
B29	Bike	Multnomah	Portland	Portland	Sandy Blvd.	Sullivan's Gulch Trail	Hogan Rd. in Troutdale	Bicycle Parkway		10180: (Portland) 47th to 101st, multi-modal improvements	
B3	Bike	Washington	Cornelius, Hillsboro, Beaverton, Aloha	ODOT	Tualatin Valley Hwy (Hwy 8)	Council Creek Trail (TV Hwy Trail) connection at S 1st Ave	Westside Trail	Bicycle Parkway		10846: project covers Hillsboro section. Related project: 11210 (THPRD) grade separated crossing of TV Hwy by Westside Trail	
B30/P	Bike/Ped	Multnomah	Portland	Portland	Broadway/Wiedler	Interstate	NE 38th crossing	Bicycle Parkway		10256: (15th - 28th): Multi-modal Improvements	
B31	Bike	Multnomah	Portland	Portland	50's Bikeway	SE Powell Blvd.	Broadway	Bicycle Parkway			
B32	Bike	Multnomah	Portland	Portland	NE 9th and 9th Ave crossing of I-84	Caruthers (Willamette River Bridge Crossing)	Mason Bikeway	Bicycle Parkway		Related to B65	
B33	Bike	Multnomah	Portland	Portland	Vancouver/Williams	Rose Quarter	MLK Blvd. to I-5 Bridge	Bicycle Parkway			
B34	Bike	Multnomah	Portland	Portland	Going Street	Interstate	Basin	Bicycle Parkway		10267: Interstate to Basin	
B35	Bike	Multnomah	Portland	Portland	Twenties Bikeway (20's) (28th)	Broadway	Powell	Bicycle Parkway		10230: Portland Design & implement bikeway along SE 29th,30th/NE 26th/28th / NE Oregon, Wasco, from SE Clinton to NE Lombard using bike blvds. & bike lanes.	
B36	Bike	Multnomah	Portland	Portland	Seventies Bikeway - 72nd, 71st, 76th, 74th	NE Killingsworth	Clatsop Street	Bicycle Parkway		10220: Portland, pedestrian greenway and bike blvd.	
B37	Bike	Multnomah/ Clackamas	Clackamas	Clackamas	SE Johnson Creek Blvd.	Springwater Trail/SE Bell Ave.	I-205 Path	Bicycle Parkway			
B38	Bike	Clackamas	Milwaukie	Milwaukie	SE King Road/SE Harrison	I-205 Path	Trolley Trail	Bicycle Parkway			Project to upgrade existing facilities, including connection to I-205 trail, crossings at SE 82nd Ave, and SE Harrison Ave connections into the Trolley Trail. Route signage, signals.

Not all routes have an ATP ID assigned. To be completed over time.

Appendix 1: ATP Network Completion, Gaps and Deficiencies (*DRAFT*)

ATP ID #	RTP network	County	Jurisdiction(s)	Route or district facility owner	ATP bicycle and pedestrian route and district name	Route/district extent - from	Route/district extent -to	Functional classification, ATP and RTP policy maps	Status (to be completed over time)	Related 2014 RTP projects that address gap or deficiency (not all cells complete)	Recommendations to address gap or deficiency (This section to be completed over time)
B39	Bike	Multnomah	Portland	Portland	Interstate Ave	Going St	Lombard	Bicycle Parkway			
B4	Bike	Washington	Hillsboro	Hillsboro	NE Grant/NE Veterans	NE Jackson School Rd.	Brookwood	Bicycle Parkway		10833: construct new road connecting to Brookwood.	Project for upgrading Grant needed.
B5	Bike	Washington	Washington County	Washington County	NW Walker	Amberglen	SW Canyon Road	Bicycle Parkway		11233, 11235: projects widens Walker from two to five lanes with bike lanes from 185th to Hwy 217.	Update project to include bicycle parkway.
B6	Bike	Washington	Hillsboro	Hillsboro	Brookwood	Evergreen	Rock Creek Trail	Bicycle Parkway		11140: project includes parallel bicycle path.	Extend project to include extent of Parkway.
B60	Bike	Clackamas	Lake Oswego	Lake Oswego	Iron Mtn. Road/SW Boones Ferry Road	N State Street, via A Ave	Tualatin River Greenway	Bicycle Parkway		11081 (Lake Oswego/Clackamas County): SW Boones Ferry Rd to North city limits	Route signage, signals.
B61	Bike	Clackamas	West Linn	West Linn	Salamo/Pimico	Willamtte Drive	Willamette falls Drive	Bicycle Parkway			Route signage, signals.
B62	Bike	Clackamas	Clackamas County	Clackamas County	SW Stafford Road	Willamette River Trail via McVey	Tualatin River Greenway	Bicycle Parkway		10029 (Clackamas) - Stfford Rd. Improvements, I-205 to Rosemont, widen to 3 lanes and include bike and ped. Related project 10132 (Wilsonville) Boeckman Road - I-5 overcrossing improvements - Stafford Road connection	Needs project for segment from Rosemont to to Willamette River Trail and I-205 to I-5 Trail in Wilsonville. Add bike elements to RTP 10030 - I-205 to Boeckman Road. Include route signage, signals. May be developed as on-street or parallel trail.
B63	Bike	Clackamas	Oregon City	Oregon City	Oregon City Spine, Bridge, 5th Ave, Warner Milne, Beavercreek Road	Oregon City Bridge	Beavercreek road past Community College	Bicycle Parkway	Parts of the route have bicycle lanes; improvment s needed		Route signage, signals, increase seperation of cyclists and auto traffic.
B64	Bike	Washington	Beaverton	Beaverton	SW 6th & 5th	Westside Trail	Crescent Connection	Bicycle Parkway			
B65	Bike	Multnomah /Portland	Portland	Portland	9th Ave	Clinton St. path	Mason	Bicycle Parkway		Related to B32	
B7	Bike	Washington	Beaverton	Beaverton	NW Cornell/SW Barnes	Evergreen	Hwy 26 Multi Use Path connection	Bicycle Parkway		10559: widen to 5 lanes from Murray to Hwy 26	
B21	Bike	Multnomah	Gresham	Portland	SE/NW Division Street	SE 50th in Portland	SE Troutdale Road in Gresham	Bicycle Parkway/Regional Bikeway		10193: (Portland) Grand to SE 60th, multi-modal improvements; 10289: Portland 60th-1-205 multimodal; 10290 (Portland) Division St., SE (I-205 - 174th) Multimodal Improvements, Phase II; 10440: (Gresham) Wallula to West City limits, multi-modal improvements; 10258: Portland - 7th to city center bikeway.	
BTF1	Bike	Clackamas	TriMet	TriMet	PMLR Park Ave. Bicycle transit facility			Bicycle transit facility	In development, funding identified. Expected opening 2015		Add project.

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BTF2	Bike	Clackamas	TriMet, Milwaukie	TriMet	PMLR Milwaukie TC Bicycle transit facility (12 electronic bike lockers)			Bicycle transit facility	In development, funding identified. Expected opening 2015		Add project
BTF3	Bike	Clackamas	TriMet	TriMet	PMLR Tacoma TC Bicycle transit facility			Bicycle transit facility	In development, funding identified. Expected opening 2015		
T2	Bike/Ped	Washington	Forest Grove	Forest Grove	Hwy 47 Trail	Pacific Ave.	Hwy 47/B street	Bicycle/Pedestrian Parkway	Trail constructed; improvements needed	10783	Add projects for wayfinding, surface
D1	Bike/Ped	Washington	Forest Grove	Forest Grove	Forest Grove Bicycle and Pedestrian District	Center		Bicycle/Pedestrian District		10784, 10783, 10782, 10781: RTP projects improve connectivity to the town center, additional projects needed within town center to fill sidewalk and bikeway	
D10	Bike/Ped	Washington	Beaverton	Beaverton	Merlo Rd Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D11	Bike/Ped	Washington	Beaverton	Beaverton	Beaverton Creek Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D12	Bike/Ped	Washington	Beaverton	Beaverton	Millikan Way Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D13	Bike/Ped	Washington	Beaverton	Beaverton	Aloha Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D14	Bike/Ped	Washington	Beaverton	Beaverton	Beaverton Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10619/10616: Biggi extension, crescent St. Multi-modal extension; 10646: Hall Blvd. / Watson Ave. pedestrian improvements. 10630 Hall Blvd. extension; 10628: Center Street and 113th Ave. safety, bike, and pedestrian improvements	
D15	Bike/Ped	Washington	Beaverton	Beaverton	Cedar Mill Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		Possibly 10809 (THPRD): trail from bronson creek trail from bronson creek park/cornell rd to laidlow rd	
D16	Bike/Ped	Washington	Beaverton	Beaverton	Sunset Transit Center Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D17	Bike/Ped	Washington /Multnomah	Hillsboro	Hillsboro	Raleigh Hills Bicycle/Pedestrian District			Bicycle/Pedestrian District			

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D18	Bike/Ped	Washington	Portland	Portland	Washington Square Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10749 (Tigard): sidewalk and trail infill to access transit. 10763 (Tigard): complete gap in washington square loop trail. 10766 (Tigard): infill gaps in regional trail system including washington square.	
D19	Bike/Ped	Washington	Portland	Portland	Murray/Scholls Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D2	Bike/Ped	Washington	Cornelius	Cornelius	Cornelius Bicycle and Pedestrian District	Center		Bicycle/Pedestrian District		11095, 10785, 10788, 10795, 10796, 10797, 10798, 10799, 10800, 10801, 10802. RTP projects: main	
D20	Bike/Ped	Washington	Tigard	Tigard	Tigard Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10760 (Tigard): Tigard Town Center ped improvements like sidewalks, lighting, crossings, bus	
D21	Bike/Ped	Multnomah	Portland	Portland	West Portland Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10287: (Portland), West Portland Town Center, SW: Pedestrian Improvements	
D22	Bike/Ped	Multnomah	Portland	ODOT, Portland,	Hillsdale Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10274 (Portland), 10278 (Portland):improvementns to Hillsdale district. RTP projects cover Portland	
D23	Bike/Ped	Multnomah	Portland	Portland	Washington Park Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D24	Bike/Ped	Washington	King City	King City	King City Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D25	Bike/Ped	Clackamas	Lake Grove	Lake Grove	Lake Grove Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D26	Bike/Ped	Clackamas	Lake Oswego	Lake Oswego	Lake Oswego Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D27	Bike/Ped	Washington	Sherwood	Sherwood	Sherwood Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10706 (Sherwood): complete ped gaps on 99w. 10707 (Sherwood) 99w ped/bike bridges over 99w at sunset, meinecke, edy. Possibly 10854 (Metro): Tonquin Trail?	
D28	Bike/Ped	Washington	Tualatin	Tualatin	Tualatin Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10737 (Tualatin): Central Design District Pedestrian Improvements. Possibly 10745 (Tualatin): ped trail from 65th to martinazzi	
D29	Bike/Ped	Clackamas	Wilsonville	Wilsonville	Wilsonville WES Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D3	Bike/Ped	Washington	Hillsboro	Hillsboro	Hillsboro Bicycle and Pedestrian District	Center		Bicycle/Pedestrian District		10847 (Hillsboro): Regional Center Ped Improvements, infill and enhance missing ped sidewalks and lighting	
D30	Bike/Ped	Clackamas	Wilsonville	Wilsonville	Wilsonville TC Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D31	Bike/Ped	Clackamas	West Linn	West Linn	West Linn - WillametteBicycle/ Pedestrian District			Bicycle/Pedestrian District		RLIS shows bike path on Willamette currently	
D32	Bike/Ped	Clackamas	West Linn	West Linn	West Linn - Bolton Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			

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D33	Bike/Ped	Clackamas	Oregon City	Oregon City	Oregon City Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		11185 (Oregon City): Downtown Ped Improvements. Sidewalk, ramp, and streetscape. 10122 (Oregon City): Oregon City TMA Startup Program, implements a transportation management association program with employers. 10123: (Oregon City) Willamette Falls Drive, 10th to S 2nd along the River	
D34	Bike/Ped	Clackamas	Gladstone	Gladstone	Gladstone Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D35	Bike/Ped	Clackamas	Milwaukie	Milwaukie	Park Ave Park and Ride, Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D36	Bike/Ped	Clackamas /Multnomah	Milwaukie	Milwaukie	Milwaukie Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10100 (Milwaukie): streetscape reconstruction in downtown station area on 21st and Main. 11126 (Milwaukie): streetscape and bike/ped improvements on main, harrison, and 21st in milwaukie town center. Maybe, 10098 (Milwaukie): address gaps in regional bike and ped system on 99E between Kellog Creek Bridge and River Rd. Maybe 10099 (Milwaukie): bike blvd on Monroe between 21st and Linwood Ave. 10101 (Milwaukie) Kellogg Creek Dam Removal and Hwy 99 Underpass; 10109 Kellog Creek Bike/Ped Bridge. 10113(Milwaukie) connections between Island Station neighborhood and Milwukie TC.	
D37	Bike/Ped	Multnomah	Portland	Portland	Tacoma P&R Bicycle/Pedestrian District			Bicycle/Pedestrian District		10295 (Portland): bike/ped improvements on milwaukie between yukon and tacoma	
D38	Bike/Ped	Multnomah	Portland	Portland	Bybee Blvd. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10295 (Portland): bike/ped improvements on milwaukie between yukon and tacoma	
D39	Bike/Ped	Multnomah	Portland	Portland	Holgate Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			Incomplete sidewalks within district
D4	Bike/Ped	Washington	Hillsboro	Hillsboro	Hillsboro Airport Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D40	Bike/Ped	Multnomah	Portland	Portland	Downtown Portland Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10248: Portland - South Waterfront District, bike/ped improvements; 10260: Portland, Clay/2nd, SW: Pedestrian/Vehicle Signal	
D41	Bike	Multnomah	Portland	Portland	Overlook Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D42	Bike	Multnomah	Portland	Portland	Prescott Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10300: Prescott station area improvements	

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D43	Bike	Multnomah	Portland	Portland	Killingsworth Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10200 (Portland): ped improvements for Killingsworth ped district. Maybe 10296 (Portland): ped improvements to Killingsworth bridge over I-5; 10294	
D44	Bike	Multnomah	Portland	Portland	Rosa Parks Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D45	Bike	Multnomah	Portland	ODOT, Portland	Lombard Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10299 (Portland): ped improvements on Lombard between I-5 and Denver	
D46	Bike	Multnomah	Portland	Portland	Kenton Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D47	Bike	Multnomah	Portland	Portland	Delta Park/Vanport Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D48	Bike	Multnomah	Portland	Portland	Expo Center Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D49	Bike	Multnomah	Portland	Portland	Hayden Island Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D5	Bike	Washington	Hillsboro	Hillsboro	Orenco Station Bicycle and Pedestrian District			Bicycle/Pedestrian District			
D50	Bike	Multnomah	Portland	Portland	Hollywood Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10268 (Portland): Hollywood ped district; 10312	
D51	Bike	Multnomah	Portland	Portland	60th Ave. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10312	
D52	Bike	Multnomah	Portland	ODOT, Portland, Multnomah	NE 82nd Ave. Station Bicycle/Pedestrian District	On Red Line MAX at SE 82nd and I-84		Bicycle/Pedestrian District		10312	
D53	Bike	Multnomah	Portland	Portland	Portland Airport Bicycle/Pedestrian District			Bicycle/Pedestrian District		Maybe 10330 (Portland): bike improvements on 148th between marine dr and glisan	
D54	Bike	Multnomah	Portland	Portland	Mt Hood Ave. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10312	
D55	Bike	Multnomah	Portland	Portland	Cascades Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10312	
D56	Bike	Multnomah	Portland	Portland	Parkrose Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10312	
D57	Bike	Multnomah	Portland	Portland	Gateway Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10326; 10328; 10205 (Portland): Gateway Regional Center collector street and ped improvements; 10312	

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D58	Bike	Multnomah	Portland	Portland	Division St. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10290 (Portland) Division St., SE (I-205 - 174th): Multimodal Improvements, Phase II; 10312	
D59	Bike	Multnomah	Portland	Portland/TriMet	Powell Blvd Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		11572: Powell Division access to transit; Possibly 10271 (Portland): 92nd ave from Powell to city limits. Sidewalks, crossings, and bike lanes; 10312	
D60	Bike	Multnomah	Portland	Portland	Lents Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10187 (Portland): Implement Lents Town Center Business District Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, street lighting, and on-street parking as appropriate. 10185 (Portland): Implement Lents Town Center Business District Plan with new traffic signals, pedestrian ameneities, wider sidewalks, pedestrian corssings, street lighting, increased on-street parking. 10186 (Portland): Implement Lents Town Center Business Distric Plan with new traffic signals, pedestrian amenities, wider sidewalks, pedestrian crossings, and street lighting.	
D61	Bike	Clackamas	Portland	Portland	Flavel St. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D62	Bike	Clackamas	Portland	Portland	Fuller Rd. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		1009, Provide access to Fuller Road park and ride station.	
D63	Bike	Multnomah	Portland	Portland	Clackamas Regional Center Bicycle and Pedestrian District	Center		Bicycle/Pedestrian District		10017 (Clackamas): bike/ped connections in regional center; 10019, Multi-use Path connection to NC Aquatic Park	
D64	Bike	Multnomah	Portland	Portland	122nd Ave. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D65	Bike	Multnomah	Portland	Portland	148th Ave. Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D66	Bike	Multnomah	Gresham	Gresham	Rockwood Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D67	Bike	Multnomah	Gresham	Gresham, ODOT, Multnomah	Gresham Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10429 (Gresham) Powell Valley area improvements	
D68	Bike	Multnomah	Fairview	Fairview	Fairview Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			
D69	Bike	Multnomah	Troutdale	Troutdale	Troutdale Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District			

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D7	Bike	Washington	Hillsboro	Hillsboro	Bethany Station Bicycle/Pedestrian District			Bicycle/Pedestrian District		10554 (Washington) bike/ped improvements on bethany between kaiser and west union road. 11120 (Washington County): bike/ped improvement on bethany between west union road and bronson	
D70	Bike	Multnomah	Pleasant Valley	Pleasant Valley	Pleasant Valley Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		Multiple road/bridge projects with bike/ped facilities for improving access to and congestion relief for Pleasant Valley (10451, 10463-10466, 10468-10471, 10530, 10533-10543) not highlighted/marked on RT_ATPproject list	
D71	Bike	Clackamas	Happy Valley	Happy Valley	Happy Valley Bicycle/Pedestrian District			Bicycle/Pedestrian District		Not certain where Bike/Ped District is.	
D72	Bike	Clackamas	Damascus	Damascus	Damascus Bicycle/Pedestrian District			Bicycle/Pedestrian District		Not certain where Bike/Ped District is.	
D73	Bike	Multnomah	Portland	ODOT, Portland, Multnomah	St. Johns Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10182(Portland): improve access to transit	
D74	Bike	Washington	Hillsboro	Hillsboro	Hawthorn Farm Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D8	Bike	Washington	Hillsboro	Hillsboro	Willow Creek Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D9	Bike	Washington	Beaverton	Beaverton	Elmonica Station Bicycle/Pedestrian District			Bicycle/Pedestrian District			
D6	Bike	Washington	Hillsboro	Hillsboro	Tanasbourne Bicycle/Pedestrian District	Center		Bicycle/Pedestrian District		10848 (Hillsboro): tanasbourne/amerglen ped improvements. Infill missing ped sidewalks	
B14/ P20/ P21	Bike	Washington / Multnomah	Portland, Tigard, Washington County	ODOT	Barbur Blvd. /Pacific Hwy (99 W)	Portland	Tonquin Trail in Sherwood	Bicycle/Pedestrian Parkway		10283 (Portland): Construct Improvements for transit, bikes and pedestrians. Transit improvements include preferential signals, pullouts, shelters, left turn lanes and sidewalks. SW 3rd-Terwilliger. 11205 (Portland): SW Portland sidewalk infill includes Barbur; 10282 (Portland): Construct safety improvements, including traffic signals, at the intersection of Capitol Hwy, Taylors Ferry, Huber, and Barbur. Provide better sidewalks and crossings. 11324 (Portland): Barbur Bridges. 10287 (Portland) improvements to West Portland town center; 10285 (Portland) SW Terwilliger to City Limits, multi-modal.	<u>Upgrade exisitng bike lanes, complete bridges.</u>

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B9/P 11	Bike/Ped	Washington/Multnomah	Beaverton/port land	Beaverton/P ortland	Beaverton Hillsdale Hwy	SW Farmington (west of Hwy 217)	SW Barbur Blvd.	Bicycle/Pedestrian Parkway		10274 (Portland), 10278 (Portland):improvemetns to Hillsdale district. 10279 Portland: Capitol to 65th multi-modal. RTP projects cover Portland segments. Project(s) needed for rest of corridor,	
T1	Bike/Ped	Washington	Forest Grove, Cornelius, Hillsboro, Washington County,	Forest Grove, Cornelius, Hillsboro, Washington County,	Council Creek Trail	NW Thatcher Road (connects to segment to Banks)	TV Hwy	Bicycle/Pedestrian Parkway		10806: Master lanning for trail underway	project needed for next phase of development.
T10	Bike/Ped	Washington /Clackamas	Tualatin, Washington County	Tulatain	Tualatin River Greenway Trail (segment)	Westside Trail	Willamette Falls Drive	Bicycle/Pedestrian Parkway		10742: (Tualatin) Ped/bike bridge over the river at SW 108th Ave connecting trail to neighborhoods	
T12	Bike/Ped	Washington /Clackamas	Tigard, Beaverton	THPRD, Tigard, Washington Countv	Fanno Creek Greenway	SW Denny Road	Tualatin River Greenway	Bicycle/Pedestrian Parkway			
T15	Bike/Ped	Washington/Multnomah	Portland, Beaverton, ODOT	ODOT	Hwy 26 Bike Path/Sunset Transit Center Trail	I-405 Path	SW Barnes Road	Bicycle/Pedestrian Parkway			Project needed for master planning, scoping
T20	Bike/Ped	Washington /Multnomah	Portland, Washington County	Portland, Washington County	Red Electric Trail (Fanno Creek Trail)/Bertha Blvd.	SW Oleson Rd.	Willamette River Greenway	Bicycle/Pedestrian Parkway		10354 (Portland) - SW Dover to Willamette Park, construct trail; 10277: Portland, Bertha, B-H Hwy to Barbur, multimodal	Need projects for rest of route
T23	Bike/Ped	Multnomah	Portland	ODOT (?) Portland	I-405 Trail			Bicycle/Pedestrian Parkway			Need project for planning and construction
T24	Bike/Ped	Multnomah	Portland	Portland	Goose Hollow Trail			Bicycle/Pedestrian Parkway	constructed ?		
T25	Bike/Ped	Clackamas /Multnomah	Portland/Lake Oswego	ODOT	Portland to Lake Oswego Willamette Greenway Trail/Hwy 43 Corridor	Ross Island Bridge	Lake Oswego, A Ave	Bicycle/Pedestrian Parkway		10087 (Lake Oswego): Portland to Lake Oswego trail along the river. 11172 (Lake Oswego): Hwy 43 bike connection, Terwilliger to McVey, Bike Lanes north and south bound. Improve access and connectivity to the Foothills area to enhance the future operation of the streetcar. 11286 (Lake Oswego) G Ave. to 500 ft. past Terwilliger, Improve bike/ped and vehicular access and safety. 10127 (West Linn) Holly St. to Arbor Dr., fill bike and ped gaps.	Bicycle and pedestrian improvements along Hwy 43
T26	Bike/Ped	Multnomah	Portland	Portland	Southwest Portland Willamette Greenway Trail	Steel Bridge	Ross Island Bridge	Bicycle/Pedestrian Parkway		10162: (Portland) South Waterfront portion of the trail, Marquam Bridge (overhead) to SW Lowell	need projects for missing segments in Sotuth Waterfront and improvements up to Ross Island Bridge
T29	Bike/Ped	Multnomah	Portland	ODOT	St. Johns Bridge			Bicycle/Pedestrian Parkway			Improvements for bike and pedestrian access
T3	Bike/Ped	Washington	Hillsboro	THPRD, Hilsboro	Rock Creek Trail			Bicycle/Pedestrian Parkway			
T30	Bike/Ped	Multnomah	Portland	Portland	North Portland Willamette Greenway	Steel Bridge	Columbia Slough Trail	Bicycle/Pedestrian Parkway			
T34	Bike/Ped	Multnomah	Portland	ODOT	I-5 Bridge Trail			Bicycle/Pedestrian Parkway			

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T35	Bike/Ped	Multnomah	Portland	Portland	Southeast Portland Willamette Greenway	Steel Bridge	Springwater Corridor Trail	Bicycle/Pedestrian Parkway			
T36	Bike/Ped	Multnomah/Clackamas	Portland	Portland	Milwaukie LRT Trail	New Willamette River Light Rail Bridge	Springwater Corridor Trail	Bicycle/Pedestrian Parkway			
T37	Bike/Ped	Multnomah	Portland	Portland	Sullivan's Gulch Trail	Steel Bridge	I-205 Path	Bicycle/Pedestrian Parkway			
T38	Bike/Ped	Multnomah	Portland, Gresham, Clackamas County	Portland, Gresham, Clackamas County	Springwater Corridor Trail	Sellwood Bridge	Hwy 212	Bicycle/Pedestrian Parkway	Complete except for gap	10159(Portland) Sellwood Gap	
T39	Bike/Ped	Clackamas	Milwaukie, Gladstone, Clackamas County	North Clackamas Park and Recreation District	Trolley Trail	17th Ave (connects to 17th Ave Path)	Oregon City, including proposed bridge connecting to Oregon City	Bicycle/Pedestrian Parkway		10085 (Lake Oswego): Build trail linking Lake Oswego to Milwaukie. 10151 (Oregon City): Regional trail would connect the proposed Trolley Trail to the Clackamas River Trail via old railroad bridge. 10104 (Milwaukie): Construct sidewalks, improve bus stops, and correct gaps in bike lanes on 17th ave to provide connection to Trolley Trail and Springwater Corridor. 10113 (Milwaukie): crossing of 22nd Ave and McLoughlin; 10151 (Oregon City) Trolley Trail Bridge	
T40	Bike/Ped	Clackamas	Clackamas County	Clackamas County	Clackamas River Greenway Trail	I-205 Path	McLoughlin Blvd.	Bicycle/Pedestrian Parkway		Related projects: (10067 (Clackamas Co.): build trail through Clackamas Town Center for access to light rail. 10069 (Gresham): Build trail linking Gresham and the Clackamas River.)	
T42	Bike/Ped	Multnomah	Portland	Multnomah County	Hawthorne Bridge			Bicycle/Pedestrian Parkway			
T42	Bike/Ped	Multnomah	Portland	Multnomah County	Steel Bridge River Walk			Bicycle/Pedestrian Parkway			
T42	Bike/Ped	Multnomah	Portland	Multnomah County	Morrison Bridge			Bicycle/Pedestrian Parkway			
T42	Bike/Ped	Multnomah	Portland	Multnomah County	Sellwood Bridge Trail	Springwater Corridor	Southwest Portland Willamette Greenway Trail	Bicycle/Pedestrian Parkway			
T43	Bike/Ped	Multnomah /Washington /Clackamas	Portland, Clackamas County	ODOT	I-205 Multi-Use Path	Columbia River	Tualatin (trail)	Bicycle/Pedestrian Parkway		10050 (Clackamas County) improve access to the trail along Johnson, Clackamas and McKinley Roads.	Projects to improve connectivity and safety at interchanges, signage. Missing segments of trail. (New segment in Washington added as Trail Map update)
T46	Bike/Ped	Clackamas	Lake Oswego, Milwaukie	Lake Oswego, Milwaukie	Lake Oswego to Milwaukie Trail (Bridge) across the Willamette River	Lake Oswego	Milwaukie	Bicycle/Pedestrian Parkway		10085 (Lake Oswego): Build bridge linking Lake Oswego to Milwaukie.	
T47	Bike/Ped	Clackamas	Clackamas County	Clackamas County	Sunrise MultiUse Path	I-205	Rock Creek Junction	Bicycle/Pedestrian Parkway		11347 (Clackamas County) Sunrise Multi-Use Path	Add bike as secondary mode to RTP project list. Add multi-use path to ODOT project 11301 to ensure that project is completed with throughway project.
T48	Bike/ped	Clackamas	Gresham	Gresham	East Buttes Power Line Corridor Trail			Bicycle/Pedestrian Parkway		10069 (Gresham): trail within Gresham city limits	

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T49	Bike/Ped	Clackamas	Clackamas	Clackamas	Mt. Scott/Scouter's Mt. Trails			Bicycle/Pedestrian Parkway		10070 (North Clackamas PRD): trail connecting Mt. Talbert with Springwater. 10071 (blank): trail to/on Scouter's Mt. Although the start and end locations are Springwater Corridor. 10082 (Happy Valley): improvements to streets leading to Mt. Scott but no mention of bike/ped facilities. 10081 (Happy Valley) 122nd/129th improvements from Sunnyside to King Road.	
T5	Bike/ped	Washington	Hillsboro, Washington County	Hillsboro, Washington County	Reedville Trail (Parkway until UGB, then Regional, also known as the Pearl-Keeler Powerline Trail or BN Powerline Trail)	Rock Creek Trail	Cooper Mountain Trail	Bicycle/Pedestrian Parkway			Masterplanning, design, construction
T54	Bike/Ped	Multnomah	Gresham	Gresham	Gresham / Fairview Trail			Bicycle/Pedestrian Parkway		10437 (Gresham)	
T56	Bike/Ped	Multnomah	Gresham	Gresham	MAX Path			Bicycle/Pedestrian Parkway			
T8	Bike/Ped	Washington	Beaverton, Hillsboro	THPRD	Waterhouse Trail	Beaverton Creek Trail/Westside Trail at SW Jenkins Road	SW Springville Road	Bicycle/Pedestrian Parkway			
T9	Bike/Ped	Washington / Multnomah	Washington County, Beaverton, Tigard, King City, Portland, THPRD, Clean Water Services,	THPRD, Tigard, Washington County	Westside Trail	Rock Creek Trail (south of NW Springville Road)	99W/Tualatin River Greenway Trail	Bicycle/Pedestrian Parkway		10766: (Tigard) trail gaps in multiple regional trails. 10810: (THPRD) complete trail from Hwy 26 to THPRD nature park. 10813 (THPRD): complete trail Farmington to Scholl's Ferry Road. 11134 THPRD): complete trail from Bronson Creek to Rock Creek Trail. 11210 (THPRD) grade separated crossing of trail at TV Hwy. 11211 (THPRD) bridge crossing of Hwy 26. 11212 (THPRD) crossing of Farmington Road. 11213 (THPRD) bridge crossing of Scholl's Ferry Road. 11214 (THPRD) Westside Trail/Watershouse Trail Connection; 10221: (Portland) shoulder improvements to Skyline	Clarify locations for RTP 10766. Add missing project for segments through Washington County.
T42	Bike/Ped	Washington	Wilsonville		French Prairie Bicycle/Pedestrian/Emergency Bridge	Boones Ferry Road	Butteville Road	Bicycle/Pedestrian Parkway		10133(Wilsonville) construct bridge	
T42	Bike/Ped	Clackamas	Oregon City		Trolley Trail Bridge	Portland Ave	Oregon City Clackamas River Trail	Bicycle/Pedestrian Parkway		10151: cosntruct trail	
T11	Bike/Ped	Washington /Clackamas	Sherwood, Wilsonville, Tigard, Washington County	Sherwood, Wilsonville, Tigard, Washington County	Ice Age Tonquin Trail	Downtown Sherwood	Boones Ferry Landing/ French Prarie Bridge in Wilsonville	Bicycle/Pedestrian Parkway(Wilsonville to 99W), Regional Pedestrian Corridor/Regional Bikeway		10092: (Wilsonville) Washington County/Clackamas County line to Boones Ferry Landing. 10701 (Sherwood): Oregon Street to Roy Rogers Road	Need projects for segments in unincorporated Washington County

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B65/P56	Bike/Ped	Multnomah	Portland	Portland	122nd	Marine Drive Trail	SE Foster Rd.	Bicycle/Pedestrian Parkway/Regional Bikeway/Regional Pedestrian Corridor		10223 (Portland): at-grade ped crossing improvements; 10225: Portland - sidewalk infill SE Harold to SE Ramona	
T13	Bike	Washington /Clackamas	Tigard	Tigard	Kruse Way Path (segment)	Iron Mountain Road	I-5	Bicycle/Pedestrian Parkway; Regional Pedestrian Corridor/Regional Bikeway			Entire trail could be parkway if connection over I-5
	Ped	Multnomah /Washington /Clackamas	Multiple	Multiple	Urban arterials			Commnity Pedestrian Corridor			Designate existing urban arterials identified on the RTP Arterial and Throughway Network system map as Regional Pedestrian Corridors
T42	Bike/Ped	Multnomah	Portland	Multnomah County	Ross Island Bridge Trail			Not currently on ATP maps			
54.a	Ped	Multnomah	Portland	Portland	72nd Ave. Loop	SE Woodstock	SE 82nd. Ave	Pedestrian Parkway		Possibly 10187, 10184 because of proximity. Not enough information on exact location of loop.	
P1	Ped	Washington	Forest Grove, Cornelius, ODOT	ODOT, Forest Grove, Cornelius	Pacific Ave, 19th Ave; N Adair St./Baseline St.	Forest Grove, C St.	Cornelius - to Hillsboro city limits	Pedestrian Parkway		10805 (Cornelius) ped sidewalk infill on TV hwy. 11094 (Foreset Grove) Boulevard/pedestrian treatments in sidewalklks on baseline. 10779, 10846.	
P10	Ped	Washington			SW Murray Blvd.	HWY 210	NW Cornell Rd.	Pedestrian Parkway		10559 (Washington Co.): widen to 5 lanes with bike lanes and sikewalks; 11240 (Washington Co.): bikelane and sidewalk form Farmington to TV Hwy.	
P11	Ped	Washington /Multnomah	Portland, Beaverton, Washington County	ODOT	HWY 10 (Beaverton Hillsdale Hwy) and 185th and SW Farmington Triangle	SW 185th to Kinnaman at SW Farmington	SW Farmington, Beaverton Hillsdale Hwy to SW Capitol Hwy	Pedestrian Parkway		10274, 10279. RTP: Beaverton-Hillsdale /Bertha/Capitol Hwy, SW: Intersection Improvements. 10278: improvemetns to Hillsdale district; 10617 Beaverton: fill sidewalk gaps and signlize. Murray to Hocken	Need project on BH between Beaverton and Portland.
P11.a	Ped	Washington			185th and SW Farmington Triangle	Kinneman to SW Farmington	to Kinneman	Pedestrian Parkway			
P12	Ped	Washington			SW 185th Ave.	Aloha at Hwy 8 to NW Springville Rd.	NW Bethany Blvd.	Pedestrian Parkway			
P13	Ped	Washington			NW Bethany Blvd.	NW German Town Rd	NW Cornell	Pedestrian Parkway			
P13.a	Ped	Washington			NW Union Rd./NW 143rd Ave.	NW Bethany	NW Cornell	Pedestrian Parkway			
P14	Ped	Washington	Beaverton		SW Cedar Hills Blvd.	Beaverton at SW Farmington Rd.	Hwy 26, Cedar Mill	Pedestrian Parkway		10634: Walker to Farmington	
P15	Ped	Washington /Multnomah			SW Barnes Road/W Burnside Rd.	NW Cornell Rd	NW 23rd.	Pedestrian Parkway		10166(Portland): NW Bunside at Skyline, intersection improvements	

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P16	Ped	Washington	Beaverton, Tigard, Tualatin		Hall Blvd; includes SW Hunzikier Rd spur; via Washington Square and Tigard	SW Farmington	SW Sagert St.	Pedestrian Parkway		10646: Hall Blvd. / Watson Ave., add pedestrian improvements at intersections and amenities (lighting, plazas). RTP 11220: Tigard, Locust to Durham. 10630:	
P17	Ped	Washington /Clackamas			SW Parkway Ave	SW Boones Ferry at SW Day Rd	SW Town Center Loop	Pedestrian Parkway			
P18	Ped	Washington	Washington County	Washington County	Scholls Ferry Rd (Hwy 210)	SW Murray Blvd.	Beaverton Hillsdale Hwy (Hwy 10)	Pedestrian Parkway		10577: Road widening with bike lanes and sidewalks from BH Hwy to Allen Blvd.	
P19	Ped	Washington			SW Oleson Rd./SW Greenburg Rd.	Washington Square at Hall Blvd	99W	Pedestrian Parkway			
P2	Ped	Washington	Hillsboro, Washington County /Aloha	ODOT	Tualatin Valley Hwy	Hillsboro (UGB)	Aloha (SW 185th Ave)	Pedestrian Parkway			
P20	Ped	Washington	Sherwood, Tigard, Washington County	ODOT	Pacific Coast Hwy (99 W) - Sherwood to Tigard	Tualatin Sherwood Road	SW Hall Blvd (Tigard)	Pedestrian Parkway		10703: Pedestrian upgrades, new sidewalks, sidewalk infill a Old Pacific Hwy. connecting to Sherwood town center. 10707 (Sherwood)Ped/bike bridges over 99W at Sunset, Meinecke, Edy. 10706 (Sherwood) gaps in ped system on 99 W. 10743 (Tualatin) Install sidewalks from Cipole to Tualatin River.	
P21	Ped	Washington /Multnomah	Portland, Tigard, Washington County, Multnomah	ODOT	99 W/ Barbur Blvd. (Tigard to Portland)	SW Hall Blvd (as Pacific Coast Hwy)	Downtown Portland, Hawthorne Bridge	Pedestrian Parkway		10703 (Portland), 11324 (Portland): Barbur Bridges. 10287 (Portland) improvements to West Portland town center.	Projects for sidewalks and pedestrian improvmeents/access to transit. Many included in SW Corridor plan.
P22	Ped	Clackamas /Multnomah	Clackamas	Clackamas	Boones Ferry via Lake Grove	Pillkington Rd	SW Macadam Ave	Pedestrian Parkway			
P23	Ped	Clackamas	Tigard	Tigard	Kruse Way	Tigard at I-5	Boones Ferry Rd.	Pedestrian Parkway			
P24	Ped	Clackamas	Lake Oswego	Lake Oswego	Country Club Road to downtown Lake Oswego	Boones Ferry Rd	SW Riverside Dr.	Pedestrian Parkway			
P25	Ped	Clackamas /Multnomah	Lake Oswego, Portland, Oregon City, Clackamas County	ODOT	Hwy 43 - Portland to Oregon City	99E in Oregon City	SE Powell Blvd. (Hwy 26)	Pedestrian Parkway		1172 (Lake Oswego): Terwilliger to McVey, Bike Lanes north and south bound. Improve access and connectivity to the Foothills area to enhance the future operation of the streetcar. 11286 (Lake Oswego) G Ave. to 500 ft. past Terwilliger, Improve bike/ped and vehicular access and safety	
P26	Ped	Clackamas	Oregon City	Oregon City	Molalla Ave	99E/7th Ave Oregon City	Hwy 213	Pedestrian Parkway		10121 (Oregon City): OC transit center to Clack Comm College - improve access to transit. 10125 (Oregon City): Beavercreek to Hwy 213, phase 4 Streetscape improvements. 10124(Oregon City): phase 3 streetscape improvements for Mollala Ave. Boulevard	

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P27	Ped	Clackamas /Multnomah	Portland, Milwaukie, Oregon City, Clackamas and Multnomah Counties	ODOT	McLoughlin Blvd. /99E	SE Powell Blvd., Portland	UGB (Old Canemah Park), Oregon City	Pedestrian Parkway		10024 Milwaukie to Gladstone (Clackamas Co); 10118 10th to Railroad tunnel in Oregon City (Oregon City); 10146 Dunes Drive to Clacakams River Bridge;(Oregon City); 11186 S 2nd Street to UGB (Oregon City); 11189 multi use path from Singer Hill to Tumwater in Oregon City (Oregon City); 11198 shared-use path in the McLoughlin right-of-way between 17th Avenue and the Springwater Corridor Trail, (Portland); 10145 upgrade to Blvd from 10th to 1-205 (Oregon City). 10098 (Milwaukie) Kellogg creek Bridge to River Road, Construct sidewalks and bike lanes, median strips, planter strips, and pedestrian scale lighting. Reconfigure or construct new signal for entrance to Riverfront Park.	Add project(s) for bike and ped improvments consistent with the Mcloughlin Area Plan
P28	Ped	Multnomah	Portland	Portland	SE Grand Ave	Powell Blvd (Hwy 26)	NE Weidler St.	Pedestrian Parkway		10257: Grand/MLK Jr, SE/NE: CEID/Lloyd District Streetscape Improvements	
P29	Ped	Multnomah	Portland	Portland	Martin Luther King Blvd.	Powell Blvd (Hwy 26)	NE 6th Drive via NE vancouver Way	Pedestrian Parkway			
P3	Ped	Washington	Hillsboro	Hillsboro	Baseline, E. Main St., W. Baeline Rd.	SW Oak St (Hillsboro)	SW 185th Ave.	Pedestrian Parkway			
P30	Ped	Washington /Multnomah			Beaverton to Barbur Blvd.	SW Murray Blvd.	SW Barbur Blvd.	Pedestrian Parkway			
P32	Ped	Multnomah	Portland	Portland	NW 23rd Ave.	W. Burnside St.	NW Nickolai St.	Pedestrian Parkway			
P33	Ped	Multnomah	Portland	Portland	NW 21, 22, 20th ave	W. Burnside St.	NW Thurman	Pedestrian Parkway			
P34	Ped	Multnomah	Portland	Portland	NW Lovejoy	I-405	NW Cornell	Pedestrian Parkway			
P35	Ped	Washington	Sherwood		99W, SW Sherwood Blvd, SW	Tualatin Sherwood Road	SW Oregon St at SW Murdock Rd.	Pedestrian Parkway			
P36	Ped	Multnomah	Portland	Portland	Oregon St.	Hawthorne Bridge, Downtown Portland	SE Powell Blvd. (Hwy 26)	Pedestrian Parkway			
P37	Ped	Multnomah	Portland	Portland	Belomont St.	Morrison Bridge, Downtown Portland	SE 50th Ave.	Pedestrian Parkway			
P38	Ped	Multnomah	Portland	Portland	Burnside	Burnside Bridge, Downtown Portland	Intersection with SE Powell Blvd in Gresham	Pedestrian Parkway			
P39	Ped	Multnomah	Portland	Portland	Stark	SE 50th Ave	NE Kane Drive.	Pedestrian Parkway		10319	
P4	Ped	Washington	Washington County /Aloha, Beaverton		Tualatin Valley Hwy	SW 185th Ave (Aloha)	Hwy 217 (Beaverton)	Pedestrian Parkway			
P40	Ped	Multnomah	Portland	Portland	Halsey St.	Hollywood	Troutdale, SW 257th Ave	Pedestrian Parkway		10320	
P41	Ped	Multnomah	Portland	Portland	Naito Parkway	SW Barbur	Steel Bridge	Pedestrian Parkway		10263: Portland, Broadway Bridge to north of Terminal one, ped improvements	

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P42	Ped	Multnomah	Portland	Portland	Weidler	West end of Broadway Bridge	Hollywood Town Center	Pedestrian Parkway			
P43	Ped	Multnomah	Portland	Portland	Interstate Ave	Steel Bridge	Hayden Island	Pedestrian Parkway		10194: Construct street improvements to improve pedestrian connections to Interstate MAX LRT and to establish a main street character promoting pedestrian-oriented activities.	
P44	Ped	Multnomah	Portland	ODOT	Lombard	St John's Bridge, West end	NE MLK	Pedestrian Parkway		10299 (Portland): Lombard, I-5 to N Denver, Establish a landscaped boulevard to promote pedestrian-oriented uses and to create a safe, pleasant pedestrian link over I-5 w/ new traffic light and road access to Fred Meyer development.	
P45	Ped	Multnomah	Portland	Portland	Killingsworth	N Greeley Ave	Cascade Hwy (NE 82nd Ave)	Pedestrian Parkway		10294	
P46	Ped	Multnomah	Portland	Portland	Alberta	NE MLK	NE 33rd Ave.	Pedestrian Parkway			
P47	Ped	Multnomah	Portland	Portland	Going St.	N Interstate Ave	NE MLK	Pedestrian Parkway			
P48	Ped	Multnomah	Portland	Portland	Prescott	NE 42nd Ave.	NE 122nd Ave.	Pedestrian Parkway		10300: Prescott station area improvements	
P49	Ped	Multnomah	Portland	Portland	Fremont	NE MLK	NE Sandy Blvd.	Pedestrian Parkway		10293	
P5	Ped	Washington	Beavertson		SW Canyon Road	SW Beaverton Hillsdale Hwy	Hwy 26	Pedestrian Parkway			
P50	Ped	Multnomah	Portland	Portland	Cesar Chavez Blvd	SE Woodstock	NE Columbia	Pedestrian Parkway		10315	
P51	Ped	Multnomah	Portland, Gresham	Portland, Gresham	SE/NW Division Street	SE Grand Ave. (99E)	NE Kane Drive.	Pedestrian Parkway		10192: (Portland) SE 6th to SE 39th, Streetscape improvement; 10193: (Portland) grand to SE60th, multi-modal improvements; 10290 (Portland) Division St., SE (I-205 - 174th): Multimodal Improvements, Phase II; 10440: (Gresham) Wallula to West City limits, multi-modal improvements; 10289: Portland 60th-I-205; 10290: Portland, I-205 to 174th	
P52	Ped	Multnomah	Portland, Fairview, Troutdale	Portland, Fairview, Troutdale	Sandy Blvd.	intersecton with NE Couch	SW 257th Ave.	Pedestrian Parkway		10180: (Portland) 47th to 101st, multi-modal improvements	
P53	Ped	Multnomah	Portland	Portland	Cully	NE Killingsworth	SE Powell Blvd. (Hwy 26)	Pedestrian Parkway			

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P54	Ped	Multnomah / Clackamas	Portland, Clackamas County	ODOT	SE 82nd Ave.	Clackamas RC at SE Sunnyside Rd.	NE Killingsworth	Pedestrian Parkway		10014 (Clackamas County): Widen to add sidewalks, lighting, central median, planting strips and landscaping, Clatsop to Monterey Ave. 10018 (Clackamas County): Improve multi-modal access within the Clackamas Regional Center (Monterey to Sunnybrook); 10291 (Portland): Schiller to Portland City limits, Expand into fully curbed, 4-lane, 60-foot wide roadway w/ continuous left-turn lane, sidewalks, street trees, storm drainage improvements, street lighting, & ROW acquisition. 11326: ? 10187 (Portland): lents Center Improvements. 10228 (Portland) intersection at Columbia Blvd.; 10022: Evelyn to Lawnfield, complete bike/ped gap.	Add bus stop improvement projects. Add pedestiran sidewalk improvements
P54.a	Ped	Multnomah	Portland	Portland	Mt. Scott Blvd. spur	SE 82nd Ave.	SE 112th Ave.	Pedestrian Parkway			
P55	Ped	Multnomah	Portland	Portland	Glisan	Sandy Blvd.	NE 102nd Ave	Pedestrian Parkway		10203: Portland, pedestrian improvements, 122nd to city limits; 10318	
P57	Ped	Multnomah	Portland, Gresham	ODOT	SE to SW Powell Blvd	Ross Island Bridge (W end)	Gresham, intersection with Burnside	Pedestrian Parkway		10259 (Portland): Ross Island Bridge to SE 92nd. Retrofit existing street with multimodal and safety improvements including enhanced pedestrian and bicycle crossings, pedestrian and bike activated signals, median islands with trees, redesign of selected intersections and stormwater management facilities. 10858 (Portland) intersection of 174th and Powell	120th to 180th
P58	Ped	Multnomah	Gresham	Gresham	181st/182nd Ave	Powell Blvd (Hwy 26)	NE Sandy Blvd.	Pedestrian Parkway			
P59	Ped	Multnomah	Gresham/Fairview	Gresham/Fairview	NE 223rd Ave - Fairview to Gresham	NE Sandy Blvd	E Powell Blvd	Pedestrian Parkway			
P6	Ped	Washington	Hillsboro		NE Cornell/NW Cornell	Hillsboro , E Main St.	Cedar Mill at SW Murray Blvd.	Pedestrian Parkway		10559, 11090, 10824. RTP projects: Widen to 5 lanes	
P60	Ped	Multnomah	Gresham	Gresham	NE Kane Drive, SW 257th	NE Division St.	E Columbia River Hwy	Pedestrian Parkway			
P61	Ped	Multnomah	Portland	Portland	Holgate	99E (McLoughlin)/ Springwater Corridor Trail	SE 136th	Pedestrian Parkway		10306: (Portland) SE 39th to SE 52nd, improve pedestrian facilities	Sidewalk gaps east of SE 120th
P62	Ped	Multnomah	Portland	Portland	Woodstock	SE 39th	SE Foster Rd.	Pedestrian Parkway			
P62.a	Ped	Multnomah	Portland	Portland	Duke and Flavel	52nd Ave	Duke: 82nd., Flavel, 72nd.	Pedestrian Parkway			
P63	Ped	Clackamas /Multnomah	Portland, Clackamas Countv	Portland, Clackamas Countv	SE Foster Rd.	SE Powell Blvd. (Hwy 26)	SE Sunnyside Rd.	Pedestrian Parkway		10184 (Portland) Foster, Powelll to 90th accesst to transit, multi-modal	
P64	Ped	Clackamas /Multnomah			SE 52nd/SE Flavel/SE Linwood/Webster Rd.	SE Powell Blvd. (Hwy 26)	SE McLoughlin Blvd. (99E)	Pedestrian Parkway			
P65	Ped	Multnomah	Portland	Portland	Tacoma St.	West end of Sellwood Bridge	SE McLoughlin Blvd. (99E)	Pedestrian Parkway			

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P66	Ped	Clackamas	Clackamas County	Clackamas County	Johnson Creek Blvd.	SE Harney Drive	SE 92nd Ave	Pedestrian Parkway			
P67	Ped	Clackamas /Multnomah	Portland, Milwaukie, Clackamas	Portland, Milwaukie, Clackamas	SE Harrison/Milwaukie Expressway/SE Harmony/SE Sunnyside/SE Lake Rd./SE McLoughlin	SE McLoughlin Blvd (99E) at Holgate, with loop around Eastmoreland to SE 46th Ave.	I-205 Clackamas TC	Pedestrian Parkway		10094 (Milwaukie) Lake Rd. Improvements SE 21st to Hwy 224 - address gap in bike and ped system. 1000 (Clackamas County) grade separated crossing of UPRR at Harmony and Linwood. Related project - 10109 Kellog Creek Bike/Ped Bridge	Project for sidewalks and ped improvements on SE Harmony from Lake Road to SE Fuller. Add project(s) for bike and ped improvments on McLoughlin consistent with the Mcloughlin Area Plan. Project on Milwaukie Expressway (Hwy 224) (See RTP 11350).
P68	Ped	Clackamas	Clackamas County	ODOT	SE Sunnyside Rd/Hwy 212 (Clackamas Boring Hwy)	I-205	Hwy 212 at UGB	Pedestrian Parkway		Related project - 10076 (Damascus) Sunnyside Road extension. 10073 - Hwy 212 intersections	Project from 172nd to Hwy 212 and Hwy 212 to UGB for sidewalks and ped improvements. Add bike/ped elements to RTP 10138
P69	Ped	Clackamas /Multnomah	Portland	Portland	SE 172nd	SE Foster Rd.	Hwy 212	Pedestrian Parkway			
P7	Ped	Washington			NW 231st Ave.	Hwy 8	Orenco	Pedestrian Parkway			
P70	Ped	Clackamas	Clackamas County	Clackamas County	SE 222nd Dr	Between SW Butler and SE Borges Rd	Hwy 212 (Clackamas Boring Hwy)	Pedestrian Parkway		10427 (Gresham): add ped/bike facilities, improves Regner/Butler intersection	
P71	Ped	Clackamas /Multnomah	Gresham	Gresham	SE 242nd Ave	SE Butler Rd	SE Roberts Rd.	Pedestrian Parkway			
P72	Ped	Clackamas	Clackamas	Clackamas	Clackamas Hwy	Hwy 212-224	Eagle Creek Hwy	Pedestrian Parkway		10041 (Clackamas Co.): Construct a new 2-2 lane roadway with intersection improvements at Hwy-212 and 162nd. 11349 (ODOT): Construct 3rd WB lane on HWY 212. 10061 (Clackamas Co.): Widen to 3 lanes to address safety and improve connectivity	
P73	Ped	Multnomah	Portland	Portland	OHSU Loop			Pedestrian Parkway			
P74	Ped	Multnomah	Portland	Portland	NW Everett	I-405 bridge crossing	NW 21st	Pedestrian Parkway			
P75	Ped	Multnomah	Portland	Portland	NW Gleason	I-405 bridge crossing	NW 21st	Pedestrian Parkway			
P76	Ped	Multnomah	Portland	Portland	NW Vaugn, NW St. Helen's Rd., NW 35th Ave, NW Yeon Ave, to NW St Helen's Rd.	NW 23rd Ave.	NW Sauvie Island Bridge at NW Gillihan Loop Rd.	Pedestrian Parkway			
P77	Ped	Multnomah	Portland	Portland	Milwaukie, 11th, 12th, NE15th,	SE McLoughline Blvd and Milwaukie	NE Dekum	Pedestrian Parkway			
P78	Ped	Multnomah	Portland	Portland	52nd to MLK via Columbia, Columbia to Dekum	NE 52nd Ave	NE MLK	Pedestrian Parkway			
P79	Ped	Multnomah	Portland	Portland	Rosa Parks, Willamette Blvd (w.Portsmuth connection to Lombard)	N Vancouver Ave	N Richmond Ave.	Pedestrian Parkway			
P8	Ped	Washington	Washington County	Washington County	NW 229th/Evergreen	NE Brookwood Pkwy	NW Cornell Rd	Pedestrian Parkway			

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Appendix 1: ATP Network Completion, Gaps and Deficiencies (*DRAFT*)

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P80	Ped	Multnomah	Portland	Portland	Vancouver/Williams	Rose Quarter	Rosa Parks	Pedestrian Parkway			
P81	Ped	Multnomah	Portland	Portland	Mississippi/Albina	Fremont and Vancouver to Mississippi	Lombard	Pedestrian Parkway			
P82	Ped	Multnomah	Portland	ODOT, Portland	Going, Greeley, N Penninsula, N Willis, N Alaska, Fesseden, N Lombard	Going St on Swan Island	St Johns; Lombard and N Commando Ave	Pedestrian Parkway		10299 (Portland): Lombard, I-5 to N Denver, Establish a landscaped boulevard to promote pedestrian-oriented uses and to create a safe, pleasant pedestrian link over I-5 w/ new traffic light and road access to Fred Meyer development.	
P9	Ped	Washington	Washington County	Washington County	NW 229th/Evergreen	SW 185th Ave	SW Canyon Rd.	Pedestrian Parkway			
	Ped	Clackamas	Milwaukie	Milwaukie	SE King Road	Trolley Trail	I-205 Path	Pedestrian Parkway			
P31/B	Ped/Bike	Multnomah	Portland	Portland	SW Capitol Hwy	SW 49th Ave. in West Portland	SW Macadam Ave (Hwy 43)	Pedestrian Parkway/Regional Bikeway		10273: (Portland) Capitol Hwy, SW (Terwilliger - Sunset): Multi-modal Improvements - Construct sidewalks, crossing improvements for access to transit and bike improvements, and install left turn lane at the Capitol/Burlingame intersection. 10189 (Portland) SW Multnomah to SW Taylors Ferry - Project is the last unimproved phase of the the 1996 Capitol Highway Plan. 10272: Portland, intersection improvements SW Vermont to SW Florida. 10286 Portland, pedestrian overpass near Markam School; 10303	
T27	Bike/Ped	Multnomah	Portland	Portland	Northwest Portland Willamette Greenway Trail			Regional Bikeway			
	Bike	Multnomah	Portland		Burnside Couch Couplet	Sandy	Burnside Bridge	Regional Bikeway			
	Bike	Washington			Hall Blvd	SW Durham	Fanno Creek Trail (north intersection)	Regional Bikeway		10630	
	Bike	Multnomah /Washington /Clackamas			Regional Bikeways identified on ATP Bicycle Network Map			Regional Bikeway			
	Bike	Washington			Hall Blvd (New road)	SW Durham	Fanno Creek Trail (south intersection)	Regional Bikeway			
	Bike	Washington			Hall Blvd	SW Greenway	Cedar Hills Blvd.	Regional Bikeway			
T58	Ped	Multnomah	Gresham	Gresham	Beaver Creek Canyon Trail (Sandy River to Springwater) (Pedestrian only)			Regional Pedestrian Corridor			

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T59	Ped	Multnomah	Gresham	Gresham	Kelly Creek Greenway Trails (Sandy River to Springwater) (PED Only part of the Sandy River to Springwater Connection)			Regional Pedestrian Corridor			
	Ped	Washington	Beaverton	Beaverton	B-5 SW Brockman/SW Beard	Westside Trail	Hall Blvd.	Regional Pedestrian Corridor		Bicycle Parkway and urban arterial	
	Ped	Washington /Multnomah	Beaverton	Beaverton	SW Scholls Ferry Rd.	Hwy 26	Hillsdale Hwy	Regional Pedestrian Corridor		Bicycle Parkway and urban arterial	
	Ped	Multnomah	Troutdale	Troutdale	Cherry Creek Road	SW 257th	S Troutdale Road	Regional Pedestrian Corridor			Also regional Bikeway and urban arterial
	Ped	Washington	Washington County	Washington County	NW Evergreen			Regional Pedestrian Corridor		Bicycle Parkway and urban arterial	
	Ped	Washington	Washington County, Hillsboro		N 1st Ave.			Regional Pedestrian Corridor		Bicycle Parkway and urban arterial	
	Ped	Multnomah			SW Stafford Rd.	N State Street, via McVey Rd	SW Borland Rd.	Regional Pedestrian Corridor		10029 (Clackamas) - Stfford Rd. Improvements, I-205 to Rosemont, widen to 3 lanes and include bike and ped.	
	Ped	Multnomah			SE 242nd/SE Hogan (segment)	NE sandy Blvd	SE Lusted Rd	Regional Pedestrian Corridor		Bicycle Parkway and urban arterial	
	Ped	Multnomah			SE 155th/Milmain SE 162nd Ave	I-84 Trail	SE powell	Regional Pedestrian Corridor		Commu nity Bikeway and urban arterial	
B-9	Ped	Multnomah			SW Dosch Rd.	Hwy 26 Trail	Hillsdale Hwy	Regional Pedestrian Corridor/ Regional Bikeway			
	Bike	Clackamas	Clackamas, Damascus	ODOT	Hwy 212	UGB	I-205 Multi-use path	Regional Bikeway			
	Bike	Clackamas	Clackamas, Milwaukie	ODOT	Milwaukie Expressway Bikeway	McLoughlin	SE 82nd. Ave	Regional Bikeway			Project for missing bicycle facilities between intersection with Sunnyside Road and Clackamas Hwy (Hwy 224). Project to improve existing bikeways, have low BCI. Add bike/ped elements to RTP 10138 (Damascus)
	Bike	Washington	Forest Grove	Forest Grove	B-Street	Hwy 47	19th Ave	Regional Bikeway		10782	Bikeway project needed from McLoughlin to I-205 crossing
	Bike	Washington	Forest Grove, Cornelius	ODOT	Hwy 8 Bikeway	Hillsboro city limits	UGB in Forest Grove	Regional Bikeway			Add bicycle project. Bikeways on bridges particularly important.
	Bike	Multnomah	Gresham	Gresham	NW Division Street	NE kane Drive (257th)	UGB	Regional Bikeway		10422(Gresham) 257th to 268th, multi-modal improvements	
	Bike	Washington	Hillsboro	Hillsboro	NE CornellRoad/10th Ave.	NW 206th Ave.	TV Hwy	Regional Bikeway		11090, 10824: project from Baseline to 25th, and Arrington to Main	

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	Bike	Clackamas	Milwaukie	Milwaukie	Monroe Bicycle Boulevard/Neighborhood Greenway	Trolley Trail	Sellwood Ave	Regional Bikeway		10099: (Milwaukie) 21st Ave to Linwood Ave.	
	Bike	Clackamas	Milwaukie	Milwaukie	SE 29th & SE 40th	SE King Road	Springwater Corridor Trail	Regional Bikeway		11174: project for adjacent streets, not Regional Bikeways: 29th/40th/42nd Bike Boulevard Intersection Improvements	
	Bike	Multnomah	Portland	ODOT	SE Powell Bikeway	SE 52nd	I-205 Multi-use path	Regional Bikeway		10259 (Portland): Ross Island Bridge to SE 92nd. Retrofit existing street with multimodal and safety improvements including enhanced pedestrian and bicycle crossings, pedestrian and bike activated signals, median islands with trees, redesign of selected intersections and stormwater management facilities.	
	Bike	Multnomah	Portland	Portland	Holgate	99E (McLoughlin)/ Springwater Corridor Trail	SE 136th	Regional Bikeway		10307: (Portland) McLoughlin to SE 39th, bicycle facilities10305 and 10306: (Portland) SE 39th to SE 52nd and SE 52nd to I-205, improve bicycle facilities.	
	Bike	Multnomah/Clackamas	Portland, Milwaukie, Clackamas County, Oregon City	ODOT	McLoughlin Blvd. /99E	SE Powell Blvd., Portland	UGB (Old Canemah Park), Oregon City	Regional Bikeway		10024 Milwaukie to Gladstone (Clackamas Co); 10118 10th to Railroad tunnel in Oregon City (Oregon City); 10146 Dunes Drive to Clackamas River Bridge;(Oregon City); 11186 S 2nd Street to UGB (Oregon City); 11189 multi use path from Singer Hill to Tumwater in Oregon City (Oregon City); 11198 shared-use path in the McLoughlin right-of-way between 17th Avenue and the Springwater Corridor Trail, (Portland); 10145 upgrade to Blvd from 10th to I-205 (Oregon City). RTP projects listed include ped/bike improvements, access to transit and sections of multi-use paths.	Add project(s) for bike and ped improvements consistent with the McLoughlin Area Plan
	Bike	Washington	Washington County	Washington County	NW Cornell Road	NW Saltzmann	NW 24th Ave	Regional Bikeway		10558: project from 113th to 107th	
	Bike	Washington	Washington County	Washington County	SW Schools Ferry Road	Beaverton Hillsdale Hwy	SW Hall Blvd.	Regional Bikeway		10577: Road widening with bike lanes and sidewalks from BH Hwy to Allen Blvd.	
	Bike	Clackamas/Multnomah			17th Ave	Springwater Trail	McLoughlin	Regional Bikeway			
	Bike	Washington	Beaverton, Washington County		SW Farmington Road	SW Hoecken	SW 209th Ave. at Jenkins Estate/Cooper Mtn. Trail	Regional Bikeway	Incomplete bike lanes	RTP 10617 fill gaps in bike/ped system, and congestion relief at intersections of Murray and Hocken.	Need project west of SW 107th
	Bike	Multnomah	Portland		SW Vermont St.	Hillsdale TC	SW Oleson Road	Regional Bikeway		10275: Portland - 45th -Oleson, bike and ped improvements	
	Bike	Washington/Clackamas	Wilsonville		Barber Bikeway			Regional Bikeway			Add Barber Bike/Ped Bridge crossing of I-5

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	Bike	Clackamas			SE River Road	Milwaukie Town Center	Oregon City	Regional Bikeway			
	Bike	Multnomah	Portland	ODOT	US 30 Bikeway - Potland to Sauvie Island	NW St. Helen's	UGB	Regional Bikeway		Related project - 11117 (Portland) Provide an alternative crossing of the BNSF Railroad to improve connectivity and safety between US 30 and the industrial properties served by NW Front Avenue in the Willbridge area of the NW Industrial District.	Project to upgrade existing facilities.Most of corridor has a low BCI. Trail on Regional Trails Map.
B8	Bike	Washington	Beaverton	Beaverton	SW Cedar Hills BLvd.	SW Farmington Road	SW Barnes Road	Regional Bikeway (small segment between Jenkins and Walker is Bicycle Parkway - part of the Westside Trail)	Bike lanes on roadway from walker to Barnes	10634: Farmington to Walker Cedar Hills Blvd. safety, bicycle and pedestrian improvements	
T21	Bike/Ped	Clackamas /Multnomah	Portland, Clackamas	Portland, Clackamas	Terwilliger Trail			Regional Bikeway/ Pedestrian Corridor			Constructed but unimproved. Add project to improve.
T55	Bike/Ped	Multnomah	Portland, Troutdale, Fairview, Wood Village, Multnomah	ODOT	I-84 Bike Path	I-205 path, intersection with Sullivan's Gulch Trail	Fairview Parkway	Regional Bikeway/ Regional Pedestrian Corridor			Upgrade existing trail, increase access for security
	Bike/Ped	Clackamas /Multnomah	Lake Oswego/Portland	Lake Oswego/Portland	SW Boones Ferry Road/SW Taylors Ferry Road	Iron Mtn. Road	SW Macadam	Regional Bikeway/Pedestrian Parkway		11081: bike lanes to north city limits. 10308:Terwilliger - City Limits, Bikeway; 10227:Portland, intersection of SW Stephenson and Boones Ferry; 10284: Portland- Capitol to City limits, bike and ped improvements on Taylors Ferry	
	Ped/Bike	Clackamas	Milwaukie		SE Railroad Avenue	SE 37th	SE Linwood Ave.	Regional Bikeway/Regional Pedestrian Coridor		10095: (Milwaukie): Harmony to SE 37th Ave. Address gaps in pedestrian and bicycle systems and improve transit facilities	
	Ped/Bike	Clackamas	Milwaukie		SE Stanley	SE Railroad	Springwater Corridor Trail	Regional Bikeway/Regional Pedestrian Coridor		10097: (Milwaukie) Neighborhood Greenway Improvements	
	Bike/Ped	Clackamas	West Linn		Willamette Falls Drive	Hwy 43	SW Borland Road	Regional Bikeway/Regional Pedestrian Coridor (from 10th to Borland)		10128 (West Linn) bicycle lanes and street lights (Hwy 43 to 10th)	
T	Bike/Ped	Clackamas	Oregon City		Historic Barlow Road Trail	Abernethy Road	UGB	Regional Bikeway/Regional Pedestrian Corridor		10150: construct trail	
	Bike/Ped	Multnomah	Portland		SW Sunset Blvd.	Dosch	Capitol	Regional Bikeway/Regional Pedestrian Corridor		10280	

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	Bike/Ped	Washington/Multnomah	Tualatin	Tualatin	Tualatin River Greenway Trail			Regional Pedestrian Corridor/ Blkeway			Need project for (1) segment from Westside Trail to Roy Rogers Road, (2)
	Ped	Multnomah	Portland	ODOT	US 30 Bikeway - Potland to Sauvie Island	NW St. Helen's	UGB	Regional Pedestrian Corridor		Related project - 11117 (Portland) Provide an alternative crossing of the BNSF Railroad to improve connectivity and safety between US 30 and the industrial properties served by NW Front Avenue in the Willbridge area of the NW Industrial District.	Project to add sidewalks and access to transit/jobs. Trail on Regional Trails Map
	Ped	Washington				SW Barnes Road	NW Cornell	Regional Pedestrian Corridor			
T17	Bike/Ped	Clackamas	Lake Oswego, West Linn, Clackamas County	Lake Oswego, West Linn, Clackamas County	Lake Oswego to West Linn Trail - Willamette River Greenway Trail			Regional Pedestrian Corridor/Bikeway		10129 (West Linn) Willamette Reoive Greenway Trail - Willamette Park to Lake Oswego Willamette River Trail	Segments of trail built.
T18	Bike/Ped	Clackamas	Lake Oswego, Clackamas County	Lake Oswego, Clackamas County	Lake Oswego Willamette River Trail			Regional Pedestrian Corridor/Bikeway		11044-(Metro) develop master plan for project	Some parts of trail are built. Need project development project
T22	Ped	Multnomah	Portland	Portland	Marquam Trail (Pedestrian Only)			Regional Pedestrian Corridor/Bikeway		Constructed	Constructed
T31	Bike/Ped	Multnomah	Portland, Fairview, Troutdale, Port	Portland, Fairview, Troutdale,	Columbia Slough Trail			Regional Pedestrian Corridor/Bikeway		10234 (Portland)	Fills gaps in system
T32	Bike/Ped	Multnomah	Portland	Portland	Peninsula Crossing Trail			Regional Pedestrian Corridor/Bikeway			
T33	Bike/Ped	Multnomah	Portland, Port of Portland	Portland, Port of Portland	Marine Drive Trail			Regional Pedestrian Corridor/Bikeway		10206: (Portland) Marine Drive bike lanes 6th to 28th & off-street trail gaps between I-5 and 185th	
T44	Bike/ped	Clackamas	Clackamas County	Clackamas County	Phillips Creek Trail			Regional Pedestrian Corridor/Bikeway		10067 (Clackamas Co.): build trail through Clackamas Town Center for access to light rail. Related project: 10069 (Gresham): Build trail linking Gresham and the Clackamas River.	
T45	Bike/Ped	Clackamas	Oregon City	Oregon City	Oregon City Loop/Willamette Falls Path (10th street to 2nd)			Regional Pedestrian Corridor/Bikeway		10148 (Oregon City): regional trail would generally follow Oregon City UGB. 10147 (Oregon City): regional trail to follow Oregon City-Molalla interurban railroad bench on east side of Newell Creek Canyon. 10149 (Oregon City): regional trail from Clackamas Community College to Beaver Lake. 11187 (Oregon City): sidewalk infill improvements. 10123 (Oregon City) Willamette Falls Shared use Path	Possibly, but the loop is an extensive project spanning multiple street segments.
T50	Bike/Ped	Multnomah /Clackamas	Gresham, Damascus	Gresham	Gresham Butte Saddle Trails	SE 172nd Ave.	Springwater Corridor Trail at SE Palmquist Rd.	Regional Pedestrian Corridor/Bikeway			

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Appendix 1: ATP Network Completion, Gaps and Deficiencies (DRAFT)

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T51	Bike/Ped	Multnomah	Gresham, Troutdale	Gresham, Troutdale	Kelley Creek Trail (This is part of the sandy Rver Springwater connection)	Springwater Corridor Trail (near SE Jenner Rd.)	Gresham Butte Saddle Trails	Regional Pedestrian Corridor/Bikeway		To be added	
T53	Bike/ped	Clackamas	Oregon State Parks	Oregon State Parks	Cazadero Trail			Regional Pedestrian Corridor/Bikeway			
T57	Bike/Ped	Multnomah	Gresham, Troutdale	Gresham	Sandy River Connections (Sandy River to Springwater)	NE Sandy Blvd	Springwater Corridor Trail	Regional Pedestrian Corridor/Bikeway			recommendation from East Metro Connections Plan. This is on S/SE Troutdale Road but designated as off-street connection
T6	Bike/Ped	Washington			Cooper Mountain Trail	Reedville Trail	Westside Trail	Regional Pedestrian Corridor/Bikeway			
T7	Bike/Ped	Washington	Beaverton, Washington County	THPRD	Bronson Creek Greenway (Intersects with the Waterhouse Trail. Potentially pedestrian only)	Beaverton Creek Trail	Westside Trail	Regional Pedestrian Corridor/Bikeway			
	Ped	Washington	Beaverton		NW Cornell Road	NW Saltzmann	NW Miller Road	Regional Pedestrian Corridor/Bikeway		10558: project from 113th to 107th	
	Ped	Washington	Hillsboro		Brookwood	Hwy 26	TV Hwy	Regional Pedestrian Corridor/Bikeway		11140: project includes pedestrian path from Ihly to Cornell. Extend project to include extent of Parkway.	
T4	Bike/Ped	Washington	Hillsboro, Washington County /Aloha, Beaverton	THPRD	Beaverton Creek Trail	SW Cornelius Pass Road (SW Braodway?)	SW Jenkins	Regional Pedestrian Corridor/Regional Bikeway		10811 (THPRD)	
	Ped	Washington	Beaverton, Washington County		SW Farmington Road	SW 185th	SW 209th Ave. at Jenkins Estate/Cooper Mtn. Trail	Regoinal Pedestrian Corridor	Missing sidewalks, infrequenrt crossings		Projects to fill missing sidewalks and add crossings

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Appendix 2: Planning Level Cost Assumptions for the Active Transportation Network

Planning level cost estimates for developing the regional pedestrian and bicycle networks were developed for the Regional Active Transportation Plan (ATP). The planning level cost estimates provide a very general sketch level of the costs of completing, improving and extending the planned regional network.

Table 1: Planning Level Cost Estimates for the Regional Active Transportation Network

Projects	Cost (millions)
Currently planned pedestrian and bicycle projects listed in the 2014 Regional Transportation Plan federal and state lists ¹	\$2,413 M
Additional pedestrian and bicycle projects identified in the Regional Active Transportation Plan, including upgrades to existing facilities and planned projects ²	\$867 M
Total	\$3,280 M

1. Costs are in 2012 dollars for consistency with the 2014 update of the Regional Transportation Plan.
2. Cost assumptions identified Table 1 include construction, design, engineering and contingency, and costs are federalized, that is, additional administrative costs incurred by federally funded projects are included in the assumption. Costs assume the highest level of design feasible to provide for a fully functioning, safe and comfortable regional bikeway or walkway. Cost assumptions *do not include* acquisition of right of way, drainage/stormwater management, maintenance, or education or programs, or elements such as landscaping (e.g. trees in sidewalk buffer or along trails), lighting, bicycle parking, wayfinding, benches, etc. that contribute to complete bicycle and pedestrian routes are not included in the planning level costs.

Table 1. Planning level federalized capital cost assumptions for ATP bikeways and walkways

Improvement	Cost per mile, 2012\$	Costs can include
New 8-10' sidewalk and 7' buffer (parking or planter strip)	\$2 million/side	Sidewalk and parking or planter strip buffer, grading, a few sections with walls, landscaping, wayfinding, signage, seating. Drainage/stormwater management system already in place.
Upgrade existing sidewalk to 8-10' sidewalk and 7' buffer (parking or planter strip)	\$1 million/side	Sidewalk upgrade and addition of parking or planter strip buffer if needed, grading, a few sections with walls, landscaping, wayfinding, signage, seating. Drainage/stormwater management system already in place.
New 12' regional trail	\$3 million	Trail, intersection crossings, mitigation, access points, bridge crossings, trailheads, signage and lighting. Assumes some ROW may be needed.
Upgrade existing trail in 2035 network to 12-14',	\$1.5 million	Widen existing trails 4' from 8' to 12' or 10' to 14', repave if needed, lighting, signage, intersection crossings, improved access points.
New bicycle boulevard	\$250,000	Signage, markings, speed humps, traffic diversion, crossing elements, lighting, bicycle parking and any other elements to develop a complete bicycle boulevard.
Upgrade existing bicycle boulevard	\$100,000	Improve crossings, add signage, fix identified, deficiencies, etc.
New or upgraded separated 8-10' in-roadway bikeway	\$1 million/side	Costs include signal timing, lane reconfigurations, striping, signage, bicycle parking, lighting, raised curbs, no drainage needed.
Improved or new crossings	\$80,000/crossing of five lane arterial	Costs are for a typical 4-5 lane arterial, includes treatments such as rapid flash beacons, curb ramps, median island, signage, lighting striping.

Included in Sidewalk Cost Assumption

Proposed sidewalk widths are consistent with guidelines for regional and community boulevards and streets described in Metro's "Creating Livable Streets – Street Design Guidelines" (2002). The per mile unit cost was

¹ Chapter 6, 2035 Regional transportation Plan

² Example of upgrades to existing facilities is upgrading a bicycle lane to a buffered bicycle lane. Example of upgrades to planned projects includes upgrading a planned bicycle lane to a buffered bicycle lane. See Table 7 below.

developed by Metro based on the costs included in the table below to provide a general federalized capital cost that assumes no acquisition of right-of-way and no drainage required. Elements such as seating, signage, lighting and landscaping are not broken out, but could be accommodated in the cost/mile estimate for many projects.

Table 2: Sidewalk Costs

New 8-10' sidewalk, no curb	10.00/SF 60.00/LF
New curb	16.00/LF
Grading	17.50/CY
Retaining Wall	250.00/LF
Surveying, Design	30%
Construction Engineering	20%
Administration	35%
Contingency	20%

Metro 2013

Included in Trail Cost Opinion

Planning level per mile unit costs for trails are an average per mile cost of twenty trails in the Portland region developed by Alta Planning and Design and described in the 2009 report "Connecting Green Trails, Cost Estimates, Benefits and State of Development for Twenty Regional Trails". The report estimated 229 miles of trail gaps for the twenty trails. The cost opinion for capital was estimated at \$518,140,636. The federalized cost opinion estimate was \$673,585, 827. The cost opinion for acquisition was \$507,414,959. The cost opinion for administrative costs was \$7,535,000. Using the federalized cost opinion plus the administrative cost opinion divided by the 229 miles of trail gaps Metro developed a per mile cost opinion of \$3,000,000 for federalized capital costs. The following table provides the costs Alta Planning and Design used to determine the cost estimates for the twenty trails. Elements such as seating, signage, lighting and landscaping are not broken out, but could be accommodated in the cost/mile estimate for many projects.

Table 3. Regional Trail Costs (*Alta Planning and Design, 2009*)

12' Trail common condition	39.75/LF
Add for difficult soils	23.00/LF
Add for 4' fill	20.71/LF
Add for 4' cut	37.68/LF
Add for parallel to stream	99.90/LF
Add for wetland mitigation	262.50/LF
12'wide boardwalk	600.00/LF
14" wide bridge	3,500.00/LF
Intersection	8,760.00 EA
Signalized intersection	131,760.00 EA
Trailhead	78,267.60 EA
High visibility crosswalk	3,000.00 EA
Contingency: concept alignment	40%
Contingency: master planned	35%

Table 4. Cost Opinion Summary, Twenty Regional Trails (*Alta Planning and Design, 2009*)

Total gap length	229
Capital cost opinion	\$518,140,636
Federalized cost opinion	\$673,582,827
Cost opinion for acquisition	\$507,414,959
Cost opinion for administrative costs	\$7,535,000

Included in bikeway costs

Costs for bicycle boulevards and separated in-roadway bikeways are based on per mile project cost estimates used in the *Portland Bicycle Plan for 2030*, costs (Chapter 5 and Appendix A) and a report developed by the Initiative for Bicycle and Pedestrian Innovation (IBPI) *Draft Report - Cost Analysis of Bicycle Facilities*, (November 2011). The table below provides examples of the range of costs for bicycle boulevards and cycle tracks. Portland has developed the most bicycle boulevards in the region. Costs range from \$70,000/ mile to 200,000/mile. In planning for new cycle track facilities the City of Portland is using an estimate of \$275/FT or \$1.5M/mile. Elements such as signage, lighting, bicycle parking and landscaping are not broken out, but could be accommodated in the cost/mile estimate for many projects.

Table 5. Cost examples, Bicycle Boulevards and Cycle tracks in Portland

Bicycle Boulevard - include signage, street markings, speed humps, traffic circles, bike boxes, intersection crossings	North Concord Neighborhood Greenway, Portland - Total cost approx \$184,000 total cost, \$73,600/mile	North 80s Greenway, Portland. Total cost approx \$520,000, \$200,000/mile.	SE Center-Gladstone Neighborhood Greenway, Portland. Total cost \$300,000, \$168,000/mile.
Cycle tracks	Street level cycle track \$132,000/mile. Broadway cycle track 1,800 feet, \$44,623 or \$25/ft.	Raised concrete two way cycle track \$698/foot, \$3.6M/mile (Portland)	Raised cycle track, \$275/foot, \$1.5M/mile (Portland) Cully Cycle Track, (\$360,000/mile)Portland

IBPI, *Draft Report - Cost Analysis of Bicycle Facilities*, (November 2011)

Table 6. Raised Concrete Cycle Track Costs

2-way raised concrete cycle track, construction	93.00/LF
Project management	23.00/LF
Engineering	23.00/LF
Administration/overhead	78.00/LF
Contingency	58.00/LF

Cost assumptions do not include right-of-way

- Comprehensive regional data for existing right-of-way does not exist. Metro has developed a polygon shapefile showing all right-of-way in the region (approximately 16% of all land), but that data is not yet available by street or trail segment. Local right-of-way data is in varying formats and is not easily combined into a regional data set.
- Metro has some data providing a unit cost for ROW acquisition for trail corridors, developed for 20 trail projects in the region. However recent experience with acquisition has shown those unit cost estimates are probably too high and should not be used.
- Metro investigated developing a unit cost per mile for right-of-way acquisition for on-street bikeways. However, right-of-way acquisition costs vary widely depending on the value of the land and seller willingness. Developing a standard cost for ROW acquisition for the region is therefore unrealistic.
- There are very few instances, if any, in the U.S. where a DOT has acquired ROW solely for a bikeway project, such as a cycletrack. Acquiring ROW for sidewalk expansion is also rare. In instances where bicycle

and pedestrian projects are developed on new ROW, the ROW was acquired to expand capacity for autos. It is safe to assume that this trend will continue and that the addition of separated on-street bikeways and sidewalk expansions will, in most circumstances, need to be accommodated in existing ROW through roadway reconfigurations or as part of larger roadway projects.

Table 7, below, provides planning level cost estimates for the regional active transportation network, based on the assumptions described above. The estimates are provided only for discussion and planning purposes. Since these estimates were developed, in early 2014, cities, counties and agencies added approximately \$795 million dollars in projects to the 2014 Regional Transportation Plan.³ To acknowledge the increased level of investment identified by local jurisdictions, the \$795 million is subtracted from the estimated cost of developing and the ATP network.

Table 7: Planning Level Cost Estimates for the Regional Active Transportation Network

Projects	Cost per mile	Miles	Cost
New bicycle blvd.	\$250,000	5	\$1,208,750
Improved bicycle blvd.	\$100,000	16	\$1,561,500
New trail	\$3,000,000	35	\$105,645,000
Improved trail	\$1,500,000	98	\$146,302,500
New separated in roadway	\$2,000,000	11	\$22,900,000
Improved separated in roadway	\$2,000,000	150	\$299,400,000
Sidewalk gaps	\$2,000,000	648	\$1,296,000,000
Number of improved crossings	\$80,000/crossing	1551	\$124,080,000
Total new and upgraded ATP projects			\$1,997,097,750
Total cost of new ATP facilities			\$1,549,833,750
Total cost of upgraded facilities			\$447,264,000
Total			\$1,997,097,750
Minus difference between 2035 and 2014 RTP active transportation projects			\$1,129,948,281
Total			\$867,149,469

³ The 2035 Regional Transportation Plan identified \$1,283,000,000 million dollars of bicycle, pedestrian and trail projects. The 2014 Regional Transportation Plan identifies \$2,077,630,499 of active transportation projects.

Appendix 3: Supporting Policies and Plans

National Policies

MAP-21 Moving Ahead for Progress in the 21st century

Title 23 – Highways, Code of Laws of the U.S.

Americans With Disabilities Act (ADA, 1992)

Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users Bicycle and Pedestrian

Accommodations Regulations and Recommendations

Clean Air Act, 1970

Title VI of the Civil Rights Act of 1964

Civil Rights Restoration Act of 1987

Executive Order 12898 on Environmental Justice

U.S. DOT Policy Statement on Bicycle and Pedestrian Regulations and Recommendations, March 2010

Centers for Disease Control and Prevention Recommendations for Improving Health Through Transportation Policy

State Policies

Statewide Planning Goal 12: Transportation

OR 660-12, The Transportation Planning Rule

ORS 366.460, Construction of Sidewalks Within Highway Right of Way

ORS 366.514, Use of Highway Fund for Footpaths & Bicycle Trails

ORS 366.112, The Oregon Bicycle Advisory Committee

SB 636 - Oregon Benchmarks

ORS 291.110, Oregon Benchmarks

ORS 195.115, Reducing barriers for pedestrian and bicycle access to schools (Safe Routes to School Bill)

ORS 811.028, Failure to stop and remain stopped for pedestrians, 2003

ORS 184.741 Safe Routes to School Program, 2005

ORS 811.111 Violating speed limit, 2005

Executive Order (EO) on Sustainability

Oregon State Senate Bill 315 the "Stop and Stay Stopped" Law

House Bill 3712 (known as the 'Safe Routes to School Bill') 2001

HB 2742, Safe Routes to School, 2005

SB 962, School Siting, 2007

HB 2840, School Zone Speed Limits

Department of Environmental Quality ECO Rules

State Plans and Programs

Oregon Transportation Plan

Oregon Bicycle and Pedestrian Plan

Transportation Safety Action Plan, 2011

Oregon Public Transportation Plan

Oregon Highway Plan, 2006

Statewide Transportation Improvement Program

Oregon Statewide Transportation Strategy

ODOT Bicycle and Pedestrian Design Guide

ODOT sign standard

Oregon State Parks Trails Plan (currently being updated)

Statewide Transportation Options Topic Plan (currently being developed)

Appendix 3: Supporting Policies and Plans

Regional Plans, Visions, and Guidelines

2040 Growth Concept
Urban Growth Management Functional Plan
Region's Six Desired Outcomes
2035 Regional Transportation Plan
Regional Transportation Functional Plan
Climate Smart Communities Action Plan (*underway*)
High Capacity Transit System Plan
Metropolitan Greenspaces Master Plan
Regional Trails and Interregional Trails Plan
Regional Freight Plan
Transportation System Management and Operations Plan
Regional Travel Options Strategic Plan, 2012-2017
Regional Transportation Functional Plan
Regional Trail System Map
Intertwine Trail Sign Guidelines
Metro Regional Safety Plan
TriMet Investment Plan
TriMet Elderly and Disabled Plan
TriMet Bicycle Parking Guidelines
SMART Transit Master Plan
Climate Action Plan, City of Portland and Multnomah County, 2009

Local Transportation System Plans

Portland Transportation System Plan
Tigard Transportation System Plan
Tualatin Transportation System Plan
Sherwood Transportation System Plan
Lake Oswego Transportation System Plan
Beaverton Transportation System Plan
Fairview Transportation System Plan
Forest Grove Transportation System Plan
Gladstone Transportation System Plan
Gresham Transportation System Plan
Happy Valley Transportation System Plan
Milwaukie Transportation System Plan
Oregon City Transportation System Plan
Troutdale Transportation System Plan
Tualatin Transportation System Plan
Wilsonville Transportation System Plan
Wood Village Transportation System Plan
Multnomah County Transportation System Plan
Washington County Transportation System Plan
Cornelius Transportation System Plan
Damascus Transportation System Plan
West Linn Transportation System Plan

Local Bike, Pedestrian and Trail Plans

Multnomah County Pedestrian Master Plan

Appendix 3: Supporting Policies and Plans

Portland Pedestrian Master Plan
Washington County Pedestrian and Bicycle Plan
TriMet Pedestrian Network Analysis
Multnomah County Bicycle Master Plan
Portland 2035 Bicycle Master Plan
Durham Comprehensive Park and Recreation Plan
Lake Oswego Trails and Pathways Master Plan
Portland Trail Design Guidelines for Portland's Park System
Portland Recreational Trails Strategy: 20 Yr Vision
THPRD Trails Plan
Tigard Greenway Trails System Master Plan (DRAFT)
Portland - Southwest Urban Trails
City of Tualatin Greenway Plan
SW Community Plan
Clackamas County Bicycle Master Plan
Clackamas County Pedestrian Master Plan
North Clackamas Parks and Recreation Master Plan
Connecting Clackamas Critical Bikeway Connections
Milwaukie Bicycle Wayfinding Signage Plan
Wilsonville Bicycle and Pedestrian Master Plan
West Linn Trails Master Plan
Hillsboro Parks Master Plan
Happy Valley Pedestrian System and Trail Master Plan
Forest Grove Trails Master Plan
Forest Grove Park, Recreation, and Open Space Master Plan
Cornelius Parks Master Plan

Other Local Plans, Policies, Ordinances, Projects, and Tools

Clackamas County Capital Improvement Plan
Clackamas County Comprehensive Plan
Multnomah County Comprehensive Framework Plan – Policy 33C; Policy 34
2005 Transportation System Plan for Urban Pockets in Unincorporated Multnomah County
Multnomah County Health Atlas
Washington County Comprehensive Plan
Washington County 2020 Transportation Plan
Washington County Bicycle and Pedestrian Improvement Project
Washington County Bicycle Facility Design Toolkit
Washington County Ordinance (2010): New Pedestrian Crossings at Mid-Block Locations and Uncontrolled Intersections
Washington County Capital Improvements Plan
Beaverton Comprehensive Plan
Durham Comprehensive Plan
Gresham Bicycle Wayfinding Locations Map
Hillsboro Comprehensive Plan
King City Comprehensive Plan
Lake Oswego Comprehensive Plan
King City Municipal Code Chapter 16.212
City of Portland Planning Bureau's Livable City Project

Appendix 3: Supporting Policies and Plans

Portland Comprehensive Plan

The Portland Plan

East Portland Action Plan

Rivergrove Comprehensive Plan

Tigard's City Center Urban Renewal Plan

Tualatin Development Code – Community Plan

Wilsonville Comprehensive Plan

Wilsonville Transit Master Plan

Regional Urban Growth Goals and Objectives

Advocacy Group Plans

Willamette Pedestrian Coalition, Getting Around on Foot Action Plan

Bicycle Transportation Alliance, Blueprint for Bicycling

Appendix 4: Facility Design and Other Resources

Below is a selected list of resources to support successful implementation of active transportation projects and programs. Titles are also hyper-links.

Facility design

2010 ADA Standards for Accessible Design -provides the scoping and technical requirements for new construction and alterations resulting from the adoption of revised 2010 Standards in the final rules for Title II (28 CFR part 35) and Title III (28 CFR part 36).

AASHTO Guide for the Development of Bicycle Facilities, 4th Edition- is newly revised and includes designs for trails and multi-use paths. The guide is not available electronically.

Bicycle Facility Design Toolkit (Washington County) - developed to supplement the current County Road Design Standards. The Toolkit provides engineers and planners more options to address safety concerns and accommodate a wider range of bicyclists.

Collection of Cycle Concepts 2012, Cycling Embassy of Denmark The first edition of Collection of Cycle Concepts was published in 2000. The second edition, Collection of Cycle Concepts 2012, updates the field, featuring new challenges and the latest knowledge.

Designing for Truck Movements and Other Large Vehicles in Portland (adopted October 8, 2008) provides specific guidelines for maintaining access and mobility in the design of intersections and roadways. This resource includes a helpful section on design considerations in different urban environments. Also included are design considerations for pedestrian, bicycle and transit in freight districts. A checklist of basic engineering and development review considerations to assist roadway designers are applicable both in and outside Portland.

Designing Walkable Urban Thoroughfares: A Context Sensitive Approach-developed by the Institute of Transportation Engineers provides very thorough and up-to-date designs for pedestrian facilities. The designs are consistent with achieving the region's 2040 land use vision.

Intertwine Regional Trails Signage Guidelines (Metro 2012) provides guidelines for designing and fabricating wayfinding signage for regional trails and multi-use paths in the Portland-Vancouver area.

Metro Creating Livable Streets: Street Design Guidelines for 2040 are outdated for bicycle designs but have pedestrian design elements for the Regional Transportation Plan's regional street design classifications. Development of the Best Design Practices for Transportation will update regional bicycle design guidelines.

Metro Green Trails: Guidelines for Environmentally Friendly Trails (2004) provides guidelines for environmentally friendly or green trails that support the goals of Metro's Greenspaces Master Plan. Those goals seek to promote an interconnected system of parks, natural areas, trails and greenways for fish, wildlife and people throughout the region and still maintain biodiversity and protect water quality. The guidelines are not standards; they are recommendations to complement existing standards and guidelines adopted by local parks and watershed groups in the region.

Appendix 4: Facility Design and Other Resources

National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide - provides a variety of examples in different contexts and designs are being tested and revised around the country. Trainings are available for engineering and planning staff. Washington County has developed a Bicycle Facility Design Toolkit which utilizes many of the NACTO designs. Clackamas County is developing similar design guidance as part of the Clackamas County Active Transportation Plan.

National Association of City Transportation Officials (NACTO) Urban Street Design Guide - focuses on the design of city streets and public spaces. While other national manuals, such as AASHTO's A Policy on Geometric Design of Highways and Streets, provide a general discussion of street design in an urban context, the Urban Street Design Guide emphasizes city street design as a unique practice with its own set of design goals, parameters, and tools.

Oregon Department of Transportation Bicycle and Pedestrian Design Guide-was recently developed and provides comprehensive design guidelines for pedestrian, bicycle and trail facilities.

Parks and Recreation Trail Design Guidelines for Portland's Parks provides guidance on developing and designing regional trails and multi-use paths.

Re:Streets Inclusive design for the public realm. A multi-disciplinary collaboration focused on the planning, design and construction of streets as a method for improving our built environment. It pushes beyond the current standards to explore the future of streets and what American roadways would be like if they were designed for living, instead of just driving.

Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations - from the University of Oregon's Sustainable Cities Initiative which provides detailed information on 25 successful complete streets projects across the United States. The report shows how communities implemented street improvements and the results of the changes they achieved.

Tualatin Hills Park and Recreation District Trail Master Plan provides guidance on developing and designing regional trails and multi-use paths.

Wildlife Crossings: Providing safe passage for urban wildlife Metro handbook provides a resource for enhancing the effectiveness of transportation planning processes to allow the greatest possible movement of fish and wildlife within an urban, suburban, or rural region.

Design checklists

Complete Streets Checklist Example of a Complete Streets Checklist from San Francisco. Creation and implementation of complete streets checklists promotes the routine accommodation of non-motorized travelers in project planning and design. For additional information visit:
http://www.mtc.ca.gov/planning/bicyclespedestrians/routine_accommodations.htm

Design for Health Checklist for Transportation, Bicycle and Pedestrian Plans (Design for Health 2014)
This is an example of a simple checklist used to integrate health into plans. Refer to the Design for Health website for tools to integrate health into planning.

Appendix 4: Facility Design and Other Resources

[City of Seattle Complete Streets Checklist](#) Most major maintenance and construction projects in Seattle are evaluated using the Complete Streets Checklist with the focus of the review being larger capital projects, such as roadway repaving or bridge rehabilitation, where the final street design is the result of leveraging multiple project elements and fund sources to create a Complete Street. The checklist, updated frequently, is a tool to collect data and information about the status of the street and surroundings, as well as the details of the project, with a goal of identifying specific improvements that can be incorporated into the project to support and balance the needs of all users.

http://www.seattle.gov/transportation/compSt_how.htm

Measurement and analysis

[Alliance for Bicycling and Walking Benchmarking Report \(2012\)](#). Provides data for national, state and some cities. Helpful for performance measure comparison.

[Analysis of Shorter Trips Using National Personal Travel Survey Data](#). 25 May 2012, Todd Litman, Victoria Transport Policy Institute. This provides helpful information on various national data for pedestrian and bicycle counts.

[The benefits of bicycle and pedestrian projects, quantifying and prioritizing non-motorized transportation investments](#). Cascade Bicycle Club. 2012.

[Benefit/Cost Calculator](#) This is an interactive tool developed by the Safe Transportation Research and Education Center (SafeTREC) and is hosted on the Transportation Injury Mapping System (TIMS) website. The tool can be used to derive a benefit/cost ratio for potential safety improvement construction projects. The b/c ratio will take into account a project's overall benefit and divide it by the project's overall cost. The tool was developed in conjunction with the California Department of Transportation's Highway Safety Improvement Program (HSIP) call for projects. Data required is crash data and cost of project.

[Guide to Sustainable Transportation Performance Measure](#). Environmental Protection Agency (EPA) (August 2011). This guide covers 12 performance measures that can be applied to transportation decision-making.

[Health Economic Assessment Tool \(HEAT\)](#) - This is an interactive tool developed by the World Health Organization. The tool calculates, for walking or cycling, "an economic assessment of the health benefits of walking or cycling by estimating the value of reduced mortality that results from specified amounts of walking or cycling". Additionally, the tool allows you to choose two points in time, when the amount of cycling or walking has changed (perhaps due to an investment), to show the benefits of an effort to increase cycling or walking by calculating economic benefits over a period of years after the change. Bicycle and pedestrian count data is needed. The tool was used by Thomas Gotschi in "Costs and benefits of bicycling investments in Portland, Oregon." *Journal of Physical Activity and Health* (2011).

[Measuring Active Transportation: Recommendations for Colorado](#). A report for Kaiser Permanente, Colorado. April, 2012. This comprehensive report includes exemplary examples of how to measure

Appendix 4: Facility Design and Other Resources

active transportation, reviews the best data collection methods, and identifies suitable indicators for performance measurement.

[Multi-Modal Level of Service Indicators - Tools for Evaluating the Quality of Transport Services and Facilities \(Victoria Transport Policy Institute 2013\)](#)- Descriptions of level-of-service (LOS) rating systems suitable for evaluating the quality of various transport modes from users' perspective. The Cascade Bicycle Club developed a useful guide for incorporating all modes of transportation into local jurisdictions' roadway performance measurements: **[Multimodal Level of Service in King County](#)**.

[Pedestrian and Bicycle Data Collection in United States Communities: Quantifying Use, Surveying Users, and Documenting Facility Extent](#) (Federal Highway Administration and the Pedestrian and Bicycle Information Center, January 2005)- The report provides an overview of national data sources and an overview of current data collection methods for bicycling and walking and a series of case studies on usage documentation, user surveys, and facility inventories.

[Ped/Bike Cost Estimating Tools](#). MTC Pedestrian Cost Estimating Tool (Link takes you to a report and Excel Spreadsheet tool).

[TriMet Pedestrian Network Analysis](#). Through the Pedestrian Network Analysis Project, TriMet and its regional partners are developing an objective, data-driven system for prioritizing places around the region where pedestrian infrastructure investments will provide safer and more comfortable access to transit.

General Information

[Pedestrian and Bicycle Information Center](#) - Comprehensive website that offers information and training on health and safety, engineering, advocacy, education, enforcement, access, and mobility as it relates to pedestrians and bicyclists. A list of tools and resources: <http://www.walkinginfo.org/training/collateral/cgc/TOOLS.pdf>.

[International Physical Activity and the Environment Network](#). A clearing house of publications, methods, measures, studies on the relationship between the built environment and physical activity.

[Rails-to-Trails Conservancy - Active Transportation for America](#) – Includes many reports and research on active travel and trails.

[Victoria Transport Policy Institute](#) - An independent research organization dedicated to developing innovative and practical solutions to transportation problems. The website has many resources.

Appendix 5

Federal and state capital transportation investments in the Portland region, 1995-2010					
		Breakdown by facility type			
		Bike,ped, trails (Millions)	Roads, bridges (Millions)	Transit (Millions)	Total (Millions)
ODOT	Modernization Program \$13M/yr*		172	23	195
	Operations \$4M/yr		60		60
	Bicycle and Pedestrian Enhancements \$2-3M/yr	45			45
	OTIA I, II, III, Modernization (Freight access \$123M/yr, General \$351M/yr)		475		475
	Connect Oregon I, II**		58	5	63
	American Recovery and Reinvestment Act	3	40	3.5	46
	Immediate Opportunity Fund		45		45
	Jobs and Transportation Act Earmarks, Modernization		252		252
Transit (TriMet/SMART)	5309 Capital equipment \$35M/yr			525	525
	Special needs \$1M/yr			12	12
	Westside LRT	10		620	630
	Interstate LRT	5		253	258
	I-205/mall LRT	5		344	349
	WES	1		58	59
	Eastside Streetcar	2		72.8	75
	American Recovery and Reinvestment Act	6		42	48
Metro	Interstate transfer		500		500
	Federal aid - urban \$3M/yr		3		
	Regional Flexible Funds	44	121	162	328
	American Recovery and Reinvestment Act	7	31		38
Local agencies	State Trust Fund/Local Bridges***	15	1485		1500
	Portland American Recovery and Reinvestment Act	3	18		21
All agencies	ISTEA earmarks		12		12
	TEA-21 earmarks	2	34		36
	SAFETEA-LU earmarks	5	70		74.5
Total 1995-2010		153	3376	2120	5646
Total average annual amount		10	225	141	376
Percentage of Total		3%	60%	38%	
Notes: *Average allocation of 2010 through 2013. Actual allocations over past 15 years will vary. **Connect Oregon Amounts do not include awards to aviation projects or Connect III projects *** Includes dedicated 1% gas tax for bicycle and pedestrian. ODOT Safety, Preservation, Bridge funds (including OTIA I, II, III Bridges and Preservation) are not included.					

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

A regional approach simply makes sense when it comes to providing services, operating venues and making decisions about how the region grows. Metro works with communities to support a resilient economy, keep nature close by and respond to a changing climate. Together, we're making a great place, now and for generations to come.

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