



Date: September 11, 2013
To: Local jurisdictions and interested parties
From: Lake McTighe, Senior Transportation Planner
Re: 2014 RTP Bicycle and Pedestrian Policy and Map Changes and Updates

Purpose

This memo summarizes proposed changes to the Regional Transportation Plan (RTP) bicycle and pedestrian related policies and network maps developed through the Draft Regional Active Transportation Plan (ATP). Several of the proposed changes correspond to changes recommended by the Regional Transportation Safety Plan.

Action Requested

Review the proposed changes to the RTP Bicycle and Pedestrian policy language and maps (Attachments 1 & 2) and advance these policies to help guide the update of the 2014 RTP.

Background

The need for a regional Active Transportation Plan (ATP) was identified as a follow up activity in the 2035 Regional Transportation Plan ("RTP"). The purpose of the ATP is to:

- provide the region with a strategy to complete and expand regional pedestrian and bicycle networks integrated with transit;
- increase competitiveness for active transportation related funding;
- and help achieve transportation goals and targets and the region's six desired outcomes. The 2035 RTP identifies several performance targets associated with active transportation, including tripling levels of walking, bicycling and transit by 2035. Strategies in the ATP will help the region meet these targets.

The draft ATP guiding principles, regional pedestrian and bicycle networks integrated with transit, functional classifications, design guidelines, policies and implementing actions were identified and included in the plan as key elements necessary to making walking, bicycling and accessing transit easy, safe and comfortable. These elements are also identified as necessary to help achieve regional transportation goals and targets and to experience the full range of benefits associated with active transportation.

A draft project list is being developed that identifies current pedestrian and bicycle projects programmed in the RTP that help complete the regional pedestrian and bicycle networks as well as gaps in the project list. The projects identified in the ATP come from the RTP and local transportation system plans. The project list will be available as a resource to jurisdictions and agencies as a resource as they update the RTP project list.

The ATP is currently in draft form, and has been revised with substantial stakeholder input. The ATP will remain draft until proposed for adoption as a component of the RTP in July 2014. The planning process

started in January 2012. Development of the draft ATP, including network map updates, was guided by a Stakeholder Advisory Committee composed of staff from jurisdictions and agencies, advocates and citizens. Input from stakeholder groups, the Executive Council for Active Transportation, the public, Metro's advisory committees and the Metro Council also helped shape the draft plan.

Refinements to the draft ATP will continue as proposed changes to the RTP are developed with stakeholder input. Metro will form a workgroup to specifically guide refinement of the ATP and proposed changes to the RTP based on the ATP. The changes summarized below provide a starting point for that discussion.

Summary of Main Policy Refinements

The attached refinements (*see tracked changes in attachments 1 & 2*) include revised RTP policy language. A summary of the main refinements is provided below:

Attachment 1. Updates to Chapter 2 - Vision

1. **Section 2.3.1 Performance Targets (p.1-2):** Updates Table 2.3 Regional Transportation Performance Targets for safety, including: base year, future year targets, performance and findings. Updates the baseline data for the active transportation mode share target. Active transportation performance and findings will be updated the winter based on modeling of 2040 RTP Investment strategy. . The Basic Infrastructure and Access targets which also include active transportation measures are being updated during the RTP update utilizing modeled data. Safety target update also defined in the Regional Transportation Safety Plan (2012).
1. **Section 2.5 Regional Concepts and Policies (p.3):** Updates Fig. 2.7 Regional Mobility Corridor Concept so that Bike Parkway is changes to "Parkway" to reflect that the parkway can be a Pedestrian Parkway, a Bicycle Parkway or both.
2. **Section 2.5.1 Regional System Design and Placemaking Concept (p.4-7):**
 - a. Updates references to Metro's Livable Streets Handbooks with reference to ATP design guidelines and updates timeframe for update of the handbooks. (p.4)
 - b. Updates Table 2.6 Arterial and Throughway Design Concepts; update cross sections to include bicycle/pedestrian parkways and regional bikeway/regional pedestrian corridor. (p.5-6)
 - c. References recommended design guidelines for regional pedestrian and bicycle network facilities. (p.6)
 - d. Adds reference to trails under "designs for stormwater management and natural resource protection", adds reference to the Regional Conservation Strategy as a resource. (p.6-7)
3. **Section 2.5.2 Arterial and Throughway Network Vision (p.8-9):** Updates the definition of "complete streets"; adds reference to the need to consider traffic speeds, volumes and volume of heavy trucks in pedestrian and bicycle design; adds language recommending that streets with 4 or more lanes include medians (consistent with safety policy updates).
4. **Section 2.5.2 Arterial and Throughway Network Vision, arterial streets (p.10):** Added text under arterials stressing the need for attention to safety on these facilities, and suggested proven countermeasures including engineering, enforcement, and education (consistent with safety policy updates).
5. **Section 2.5.3 Regional Transit Network Vision (p.10-11):** Adds policy to "Improve pedestrian and bicycle access to transit" to reinforce the need for integration and to be consistent with current RTP bicycle and pedestrian policies; added reference to SMART Master Plan being

consistent with policies; replaces the word amenities with elements in Table 2.7 and adds reference to bicycles.

6. **Section 2.5.5[new section] Regional Active Transportation Network Vision (p.11-12):** Adds a new section describing the integrated pedestrian and bicycle and transit networks. Bicycle and pedestrian network visions are incorporated into this section.
7. **Section 2.5.5 (now 2.5.5.1, sub-section of 2.5.5) Regional Bicycle Network Vision (p.13-20):**
 - a. Updates regional bicycle network vision and bicycle network vision policies. Policies are updated to be consistent with the five policies recommended in the ATP and with recommendations from the Regional Transportation Safety Plan. (p.13-19)
 - b. Updates functional elements of the regional bicycle network. Trails are no longer a functional classification but are identified as a facility type. The Bicycle Parkways concept was introduced in the 2035 RTP. It is a new, and the highest, functional class. Community Bikeways are eliminated as a functional class and replaced by Regional Bikeways. Bicycle Districts have been added and are the same as the Pedestrian Districts. (p.15-17)
 - c. Updates Fig. 2.22 regional bicycle network map with added new routes and new functional classifications. (p.20)
8. **Section 2.5.6 (now 2.5.5.2, sub-section of 2.5.5) Regional Pedestrian Network Vision (p.20-26):**
 - a. Updates regional pedestrian network vision and pedestrian network vision policies. Policies are updated to be consistent with the five policies recommended in the ATP and with recommendations from the Regional Transportation Safety Plan. pedestrian specific policies remain the same (p.20-26)
 - b. Adds new functional elements to the pedestrian network. (p.23)
 - c. Will update the Regional Pedestrian Network Concept (Fig. 2.24) with a cross section or diagram that better illustrates the regional pedestrian concept, of a Pedestrian Parkway to better represents the regional pedestrian network vision the pedestrian network (p.23)
 - d. Updates regional pedestrian network map with added new routes and new functional classifications. The pedestrian network map has functional classifications for the first time: Pedestrian Parkways, Regional Pedestrian Corridors. Pedestrian Districts have not changed. (p.26)
9. **Throughout Chapter 2:**
 - a. Replace the word “amenities” when referring to elements of the pedestrian, bicycle and transit networks (such as bus shelters, benches, crossing elements, lighting) with words such as element or feature, to reflect the importance of these elements for a fully functioning, comfortable and safe pedestrian, bicycle and transit travel.
 - b. Add “multi-use path” to the term trails.
 - c. Use the terms system and network more consistently. System to refer to the combined modal networks, network to refer to the individual modal networks, e.g. the bicycle network is part of the transportation system.

Attachment 2. Updates to Chapter 6 - Implementation

1. **6.7.8 Regional Transportation Model Enhancements (p.1):** Update bike and ped modeling implementation activities. Identifies need for more bike and ped data.
2. **Section 6.7.14 Active Transportation Action Plan (p.1-3):** Updates section with implementation actions identified in the Regional Active Transportation Plan to be addressed post-2014 RTP adoption in the next RTP and RTP updates, through the Climate Smart Scenarios work and through regional corridor and local plans.

3. **6.7.15 Best Design Practices in Transportation (p.3):** updates time frame and scope of proposed activity.

Next Steps

The draft ATP, including updated network maps, policies and implementing actions and a project list, will continue to be reviewed and refined with stakeholder input through June 2014. The ATP will remain draft until it is proposed for adoption as a component of the RTP in July 2014. As they are refined, the policies will be used to help guide the 2014 RTP project solicitation and are recommended to be included in the draft RTP released for public comment in March 2014. Questions and comments should be directed to Lake McTighe at 503-797-1660 or lake.mctighe@oregonmetro.gov

Attachments

- Attachment1. Draft Recommended RTP Bicycle and Pedestrian Policy Refinement, excerpts from RTP Chapter 2, (*track changes and updated maps*)
- Attachment2. Draft Recommended RTP Implementation Activities, excerpts from RTP Chapter 6 (*track changes*)

Section 2.3 Goals, Objectives and Targets

**Table 2.3
Regional Transportation Performance Targets**

Target	Performance	Finding
ECONOMY		
<p>Safety –By 2035, reduce the number of pedestrian, bicyclist, and motor vehicle occupant fatalities plus serious <u>severe</u> injuries each by 50% compared to 2005<u>2007-2011 average</u>.</p>	<p>Between 2003 – 2005<u>2007-2011</u>:</p> <p>There were an estimated<u>annual average</u>:</p> <p>55-63 pedestrian fatalities and serious injuries</p> <p>27-35 bike fatalities and serious injuries</p> <p>392-398 motor vehicle fatalities and serious injuries</p>	<p><u>Reducing the number of fatal crashes by half would result in at least 248 fewer people killed or severely injured, on average, in crashes in the Metro region each year. The corresponding reduced societal cost of crashes would be approximately \$480 Million (2012 dollars) annually in the Metro region. The region has established a baseline to track progress toward achieving the target over time.</u></p>
<p>Congestion – By 2035, reduce vehicle hours of delay (VHD) per person by 10 percent compared to 2005.</p>	<p>By 2035:</p> <p>VHD per person increases by 193% in 2 hour pm peak travel period</p> <p>VHD per person increases by 255% in the 1 hour mid-day travel period</p>	<p>The region does not meet the target. The data shows that VHD per person increases dramatically from 2005 based on the planned level and mix of investments.</p>
<p>Freight reliability – By 2035, reduce vehicle hours of delay truck trip by 10 percent compared to 2005.</p>	<p>By 2035:</p> <p>VHD per truck trip increases by 180% in 2 hour pm peak travel period</p> <p>VHD per truck trip increases by 235% in the 1 hour mid-day travel period</p>	<p>The region does not meet the target. The data shows that VHD per truck trip increases dramatically from 2005 based on the planned level and mix of investments.</p>
ENVIRONMENT		
<p>Climate change – By 2035, reduce transportation-related carbon dioxide emissions by 40 percent below 1990 levels.</p>	<p>By 2035:</p> <p>Carbon dioxide emissions increase by 50% above 2005 levels</p>	<p>The State is developing a 1990 baseline and developing targets for light duty vehicles pursuant to House Bill 1059. The data shows that carbon dioxide increases from 2005 based on the planned level and mix of investments.</p>

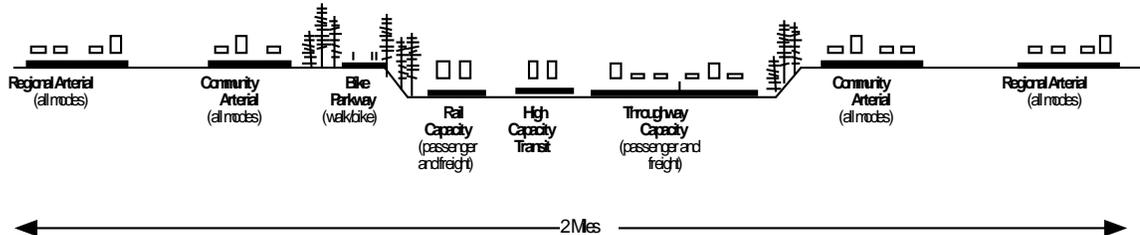
Target	Performance	Finding
<p>Active transportation – By 2035, triple walking, biking and transit mode shares compared to <u>2005-2010 modeled mode shares within the urban growth boundary.</u></p>	<p>By 2035:</p> <p>Transit mode share increases from 3 to 4% compared to the 10% target</p> <p>Walking increases from 6 to 7% compared to the 19% target</p> <p>Biking increases from 1.0 to 1.1% compared to the 3% target</p>	<p>The region does not meet the target. However, the data shows that the region is making progress toward achieving the target.</p>
<p>Basic infrastructure – By 2035, increase by 50 percent the number of essential destinations¹ accessible within 30 minutes by trails, bicycling and public transit or within 15 minutes by sidewalks for all residents compared to 2005.</p>	<p>Data under development</p>	<p>The methodology for establishing a base line for this target is being developed.</p>
<p>Clean air – By 2035, ensure zero percent population exposure to at-risk levels of air pollution.</p>	<p>In 2035:</p> <p>Carbon monoxide is estimated at 836,484 lbs/day, 29% below the regional motor vehicle emissions budget for 2035</p> <p>Hydrocarbons (VOC) is estimated at 17 tons/day, 58% below the regional motor vehicle emissions budget for 2035</p> <p>Nitrogen oxide (NOX) is estimated at 16 tons/day, 73% below the regional motor vehicle emissions budget for 2035</p>	<p>The region meets the target for carbon monoxide and ozone (VOC and NOX) exposure from transportation sources.</p> <p>A regional standard for air toxics is under development.</p>
<p>Travel – By 2035, reduce vehicle miles traveled per person by 10 percent</p>	<p>In 2035:</p> <p>Vehicle miles traveled per person decline 4% below 2005</p>	<p>The region does not meet the target. However, the data shows that the region is making progress toward</p>

¹ Consistent with the evaluation methodology used for the High Capacity Transit plan, essential destinations are defined as: hospitals and medical centers, major ~~retail~~ 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.

Target	Performance	Finding
compared to 2005.	levels.	achieving the target.
EQUITY		
Affordability – By 2035, reduce the average household combined cost of housing and transportation by 25 percent compared to 2000.	In 2005, the average household in the Portland region spend about 44 percent of its income on housing and transportation.	The region will track progress toward this target.
Access to daily needs – By 2035, increase by 50 percent the number of essential destinations accessible within 30 minutes by bicycling and public transit for low-income, minority, senior and disabled populations compared to 2005.	Data under development	The methodology for establishing a base line for this target is being developed.

Section 2.5 Regional Concepts and Policies

Figure 2.7
Regional Mobility Corridor Concept



NOTE - Update Fig. 2.7 Regional Mobility Corridor Concept so that Bike Parkway is changes to “Parkway” to reflect that the parkway can be a Pedestrian Parkway, a Bicycle Parkway or both.

Section 2.5.1 Regional System Design and Placemaking Concept

Regional street and throughway system design concepts address federal, state and regional transportation planning mandates with design concepts intended that support regional and local implementation of the 2040 Growth Concept. This concept establishes guidelines for the physical design of the regional transportation system to foster livable communities throughout the region and encourage walking, bicycling and use of transit.

Land use planning determines where homes, schools, work, shopping, and other activities are located and can profoundly affect the way in which we move around the region and within our communities. The design concepts reflect that streets perform many, often

conflicting functions. Conflicts among travel modes need to be reconciled for the safety of all modes of travel. The design concepts promote community livability and mobility by balancing all modes of travel and addressing the function and character of surrounding land uses. Linking land use and the physical design of transportation facilities is crucial to achieving state goals to limit reliance on any one mode of travel and to encourage walking, bicycling, carpooling, vanpooling and use of transit.

The designs are based on Metro’s Livable Streets Handbooks, shown in **Figure 2.9** and the [Regional Active Transportation Plan](#), and vary depending on intended function of the street or throughway or trail and the land uses the roadway facility serves. Consideration is given to various arterial designs, designs for pedestrians, bicyclists and transit and the link between street design and stormwater management. The handbooks will be updated in 2010-2014-15 to [better address design for freight and provide more detail on the design guidelines identified in the Regional Active Transportation Plan, better address freight including the interaction of freight, pedestrian and bicycle travel considerations, regional bikeway design, bicycle and transit interaction at transit stops, and regional trail design](#). A new handbook on wildlife crossings is also under development.

Figure 2.9
Metro’s Livable Streets Handbooks



Table 2.6 summarizes throughway and arterial classifications, design elements and recommended functions, illustrating how multi-modal design elements can be integrated. The idealized cross sections in the table are illustrative only. **Figure 2.10** applies the design concepts to the regional street and throughway system network.

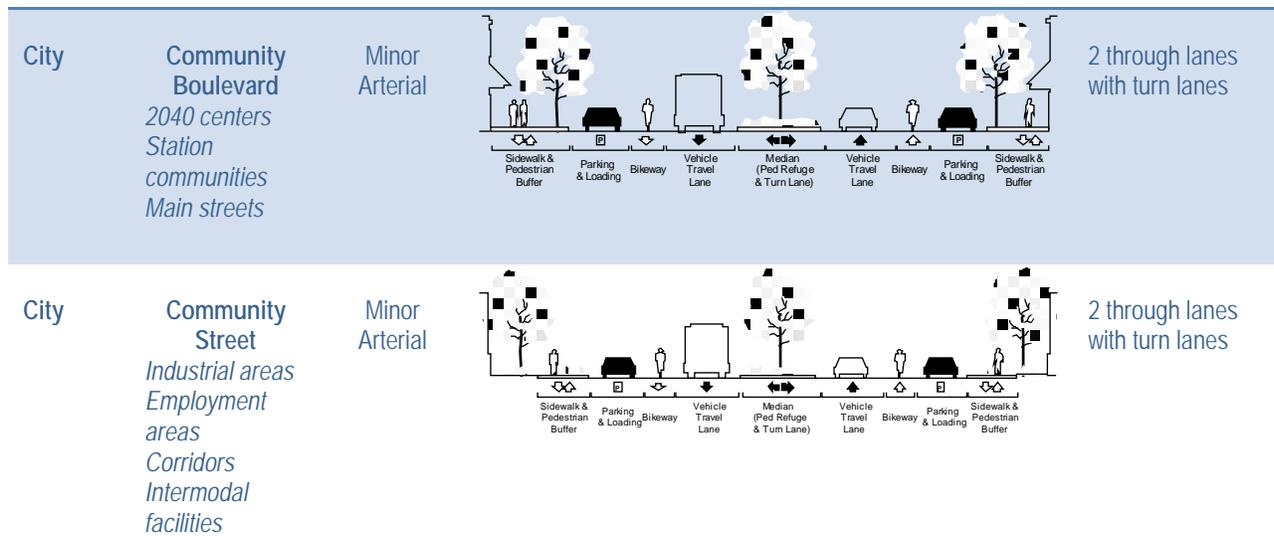
Figure 2.10 Regional Design Classifications Map

Table 2.6

Arterial and Thoroughway Design Concepts

Trip Type	2040 Design Concept	Network Function	Illustrative Design Concept	Typical number of planned travel lanes ²
THOROUGHWAYS				
Interstate/ regional	Throughway (Freeway)	Principal arterial	<p>Emergency Lane, Vehicle Travel Lane, Vehicle Travel Lane, Vehicle Travel Lane, Median, Vehicle Travel Lane, Vehicle Travel Lane, Vehicle Travel Lane, Emergency Lane</p>	6 through lanes (plus auxiliary lanes) with grade separated interchanges
Interstate/ regional	Throughway (Highway)	Principal arterial	<p>Sidewalk/Bikeway, Vehicle Travel Lane, Vehicle Travel Lane, Median & Limited Vehicle Turn Lane, Vehicle Travel Lane, Vehicle Travel Lane, Bikeway/Sidewalk</p>	6 through lanes (plus auxiliary lanes) with grade separated intersections/interchanges
Interstate/ regional	Throughway (Parkway)	Principal arterial	<p>Sidewalk/Bikeway, Vehicle Travel Lane, Vehicle Travel Lane, Median & Limited Vehicle Turn Lane, Vehicle Travel Lane, Vehicle Travel Lane, Bikeway/Sidewalk</p>	6 through lanes (plus auxiliary lanes) with grade separated intersections/interchanges
ARTERIAL STREETS				
Regional / City	Regional Boulevard 2040 centers Station communities Main streets	Major Arterial	<p>Sidewalk & Pedestrian Buffer, Bikeway, Vehicle Travel Lane, Vehicle Travel Lane, Median (Ped Refuge & Turn Lane), Vehicle Travel Lane, Vehicle Travel Lane, Bikeway, Sidewalk & Pedestrian Buffer</p>	4 through lanes with turn lanes
Regional / City	Regional Street Industrial areas Employment areas Corridors Intermodal facilities	Major Arterial	<p>Sidewalk & Pedestrian Buffer, Bikeway, Vehicle Travel Lane, Vehicle Travel Lane, Median (Ped Refuge & Turn Lane), Vehicle Travel Lane, Vehicle Travel Lane, Bikeway, Sidewalk & Pedestrian Buffer</p>	4 through lanes with turn lanes

² The number of through lanes may vary based on right-of-way constraints or other factors. Some places in the region may require additional lanes due to a lack of connectivity. Major and minor arterial streets can either be 2 or 4 lanes with turn lanes as appropriate.



Source: Metro

NOTE - cross sections to be updated to include examples of regional bicycle and pedestrian functional classifications

Designs for pedestrians, bicyclists and transit users

Street and facility designs have a significant impact on people’s ability to walk, bike and access transit comfortably, safely and easily. Sidewalks and bikeways provide a route for non-motorized traffic and encourage walking and bicycling. Where appropriate, traffic calming measures such as narrower travel lanes, compact intersections and on-street parking can slow vehicle traffic and reduce traffic accidents for pedestrians, bicyclists, motorcyclists and motorists. Painted crosswalks, appropriate use of signs and signals and median islands make it easier for pedestrians and bicyclists to cross roads.

In addition, curb designs, ramps and crossing signals designed for the hearing- and sight-impaired facilitate safe travel for people of all ages and abilities. Facilities and infrastructure such as street lighting, benches, telephones, waste containers for public use, landscaped buffers that include trees, planters, lampposts and kiosks make the environment more attractive and create a sense of community and safety that encourages walking, bicycling and the use of transit.

Recommended designs currently in use in the region and elsewhere in the U.S. that have been shown to increase the level of walking and bicycling and access to transit are provided in the Regional Active Transportation Plan. These design guidelines emphasize the need for separation from traffic for people walking and riding bicycles, especially on streets with heavy traffic volumes and/or speeds or on roadways with heavy volumes of freight traffic, for separation of pedestrians and bicyclists on busy regional trails, and the importance of lighting and crossing treatments to increase safety.

Designs for stormwater management and natural resource protection

The effect the public right-of-way has on the health of the natural environment, particularly urban waterways, is well documented. Streets, [paved trails](#), parking lots and driveways combined form the largest impervious surfaces in the urban landscape, accounting for up to 65 percent of the total impervious surface area. A particular challenge is how to address conflicts between transportation facilities and wildlife and riparian corridors, and how transportation improvements can be located, designed and constructed with regard for riparian corridor and upland habitat protection plans, [identified in the Regional Conservation Strategy](#).

Impervious surface coverage has been linked to changes in the shape of streams, water quality, water temperature and the biological health of waterways. The regional Green Streets program seeks to mitigate these effects through a combination of retrofits to existing streets and design guidelines for new streets and throughways.

As arterial streets and throughways and other types of transportation infrastructure cut across the landscape, they form barriers to wildlife movement, disrupting migration patterns and population dynamics. These disruptions can be minimized through engineered solutions, such as wildlife-crossing devices and structures ~~and~~ through incorporating wildlife corridor acquisition/restoration needs into transportation project development [or by avoiding the areas all together](#).

Infrastructure planning and design should first seek to avoid fish and wildlife habitat conservation areas. If that is not practicable, ~~they should identify~~ opportunities to mitigate the effects of transportation infrastructure and services through the application of “green” design treatments [should be identified and implemented](#). For example, street trees, vegetated swales and other green street treatments can intercept rainwater and convey stormwater in the public right-of-way adjacent to the region’s throughways and arterial streets [and pedestrian and bicycle crossings can include improved crossings for wildlife](#). Refer to Metro’s Green Streets: Innovative Solutions for Stormwater and Stream Crossings handbook for more information on these designs.

Section 2.5.2 Arterial and Throughway Network Vision

Arterial and Throughway Network Concept

The regional street and throughway system concept contains policy and strategy provisions to develop a complete and well-connected roadway system that provides adequate capacity and supports all modes of travel. Rather than relying principally on levels of congestion to direct how and where to address motor vehicle capacity needs, the concept calls for implementing a well-connected network design that is tailored to fit local geography, respect existing communities and future development and protect the natural environment.

Three policies form the foundation of this vision:

- 1. Build a well-connected network of “complete” streets that prioritize safe and convenient pedestrian and bicycle access**

2. Improve local and collector street connectivity

3. Maximize system operations by implementing management strategies prior to building new motor vehicle capacity, where appropriate

Build a well-connected network of complete streets that prioritize pedestrian and bicycle access

A well-connected network of complete streets is critical to achieving the 2040 Growth Concept vision. In general, the roadway network should be designed to provide for trips through or across the region on throughways, shorter trips through portions of the region on arterial streets and the shortest trips on collector and local streets. Traffic speeds, access and level of street connectivity vary depending on the function of the street. The design of transportation facilities should consider the facility's traffic function, all modes of travel, and community development goals. Traffic speeds, traffic volumes and the volume of heavy trucks should be considered in the design of pedestrian and bicycle facilities.

This approach results in a traffic-street hierarchy of:

- throughways (for example, limited-access facilities such as I-84, US 26, I-5, I-205 and I-405)
- arterial streets (for example, Cornell Road in Washington County, Halsey Street in the City of Portland and Sunnyside Road in Clackamas County).
- collector streets
- local streets

The traditional traffic-street classifications for throughways, arterial streets and other streets are a good starting point for distributing traffic in communities to avoid bottlenecks on overburdened routes or avoid the need to build overly wide streets as a community grows. Throughways serve only as mobility routes, with little or no property access, and an emphasis on connecting major destinations across the region. Arterial streets provide both

Complete streets are roadways that 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 allow for safe travel by those walking, bicycling, driving automobiles, riding public transportation, or delivering goods. "Complete" streets are defined as roadways that are designed and operated with all users in mind— including bicyclists, transit vehicles and users, freight delivery vehicles and pedestrians of all ages and abilities.



mobility, moving traffic, goods, and people within the region, and access to property along the street. The degree to which one of these regional street purposes predominates over the other is determined by the functional classification.

The RTP presumes that building a regional street and throughway system to accommodate all motor vehicle traffic during peak travel periods is not practical nor would it be desirable considering potential environment and community impacts. As a result, the regional street and throughway network concept calls for one-mile spacing of major arterial streets, with minor arterial streets or collector streets at half-mile spacing, recognizing that existing development, streams and other natural features may limit the provision of these connections. Major and minor arterial streets can be either 2 or 4 lanes with turn lanes as appropriate. Streets with 4 or more lanes should include medians, with appropriate median openings for turning movements and turn lanes. [NOTE - Identified in Regional Transportation Safety Plan]

Shown in **Figure 2.11**, the illustrative arterial street network is complemented by a well-connected system of collector and local streets. This system of regional and local streets is multi-modal in design, serving automobiles, motorcycles, trucks, transit, bicycles and pedestrians. The 4-lane regional arterial street design reflects an optimal compromise for all of these modes, accommodating urban levels of traffic, while also allowing for safe and convenient bicycle and pedestrian travel and crossings at major intersections.

Research and experience have shown that there are optimal street designs for various types of roadways. Local streets and collectors are planned to consist of 2-lanes with turn lanes, major arterials are planned to consist of 4-lanes with medians and turn lanes, throughways are planned to consist of 6-lanes plus auxiliary lanes with grade separated interchanges or intersections. Therefore, before adding additional through lanes beyond the planned system, plans and studies must demonstrate that the additional lanes beyond the planned system do not compromise the function of the roadway for all modes and that the planned system of through lanes, transit service, bike, pedestrian and other parallel arterial, operational, system and demand management solutions do not adequately address transportation needs first, prior to considering widening beyond the planned system to address capacity concerns.

Arterial streets

Arterial streets are intended to provide general mobility for travel within the region and provide important connections to the throughway system. Arterial streets connect major commercial, residential, industrial and institutional centers with each other and link these areas to the throughway system. Arterial streets are usually spaced about one mile apart and are designed to accommodate motor vehicle, truck, bicycle, pedestrian, and transit travel.

Arterial streets usually carry between 10,000 and 40,000 vehicles per day and allow higher speeds than collector and local streets. Major arterial streets accommodate longer-distance

through trips and serve more of a regional traffic function. Minor arterial streets serve shorter trips that are localized within a community. As a result, major arterial streets usually carry more traffic than minor arterial streets. The arterial functional classification is implemented through the Boulevard and Street design classifications described in Table 2.6 and in the glossary.

Safety is a primary concern on the regional arterial system, on which approximately 60% of the region's fatal and severe injury crashes occur. More attention to safe design and operation of the arterial system could reduce the number of people killed and injured, using national best practices as a guide. Efforts should include:

- proven design strategies such as medians, speed management, access management, improved pedestrian crossings, roundabouts, and road diets
- enforcement actions targeting high-risk behaviors, such as speeding, driving under the influence, red-light running, and failure-to-yield at pedestrian crossings
- education initiatives intended to promote safer behavior among all users of the system

Section 2.5.3 Regional Transit Network Vision

Five-Six policies form the foundation of this vision:

1. Build the total **system-network** and transit-supportive land uses to leverage investments
2. Expand high capacity transit
3. Expand frequent service transit
4. Improve local service transit
5. Support expanded commuter rail and intercity transit service
- 5-6. Improve pedestrian and bicycle access to transit

Transit Policy 6. Improve pedestrian and bicycle access to transit

Establishing pedestrian and bicycle connections to bus and train stations and stops helps extend the reach of the transit network, making trips made by transit feasible for more people. Improving pedestrian and bicycle access to transit is accomplished through filling sidewalk gaps within a mile of stops and stations; filling bicycle and trail network gaps within three miles of stops and stations; integrating trail connections with transit; providing shelters and seating at stops and stations; providing pedestrian and bicycle protected crossings at stations and stops where appropriate; including secured, covered bicycle parking or Bike and Rides at stations and stops; allowing bicycles on board transit and

[exploring the use of 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.](#)

The TriMet- TIP [SMART Master Plan](#) is consistent with these policies. The policies aim to provide transit as an attractive and accessible travel option for all people in the Metro region, optimize existing transit system operations and ensure transit-supportive land uses are implemented to leverage the region’s current and future transit investments. Figure 2.14 shows how the regional transit system concept would connect the 2040 centers. Figure 2.14

Table 2.7
What Works and Doesn’t Work to Support Direct Transit Service

Characteristic	Works	Doesn’t Work
Density	High	Low
Street layout	Small blocks	Long, winding streets
	Grid system	Cul-de-sacs, dead-end streets
Mix of uses	Mixed use (e.g., commercial, residential, and office uses)	Single use (e.g., all residential, all industrial)
Pedestrian and bicycle environment	Wide sidewalks	Narrow or no sidewalks
	Slow moving traffic	Fast moving traffic
	Street amenities elements (e.g., benches, street trees, pedestrian-scale lighting)	Poor lighting
	Well-marked intersections with signalized crossings	No intersection markings and long pedestrian wait times
	Bicycle parking	
Site design	Buildings front the street and entrances	Buildings set back from the street and surrounded by surface parking
Parking	Limited	Abundant
	Fee-based parking	Free

Source: TriMet

[\[New Section\] 2.5.5 Regional Active Transportation Network Vision](#)

[The regional active transportation network vision starts with the understanding that an integrated, complete and seamless regional pedestrian, bicycle and transit network is necessary to achieve local and regional transportation goals, aspirations and targets, including increasing levels of walking and bicycling, increasing safety, increasing access to](#)

destinations by walking, bicycle and transit, reducing green house gas emissions, lowering vehicle miles traveled, maintaining clean air and keeping transportation affordable.

The Regional Active Transportation Plan, a modal plan of the RTP, provides a vision, plan and policies to help complete the region's pedestrian and bicycle networks integrated with transit. The plan provides a vision for a comprehensive vision that knits together local pedestrian and bicycle networks into a seamless, connected regional network.

Convenient, comfortable and safe active transportation options help create and maintain vibrant communities in the region. Connected and safe pedestrian, bicycle and transit networks provide transportation choices throughout the region. A complete and welcoming active transportation network allows people of all ages, abilities, income levels and backgrounds to access transit and walk and bike easily and safely for many of their daily needs.

With a complete active transportation network a majority of the short trips in the region can be made by bicycling and walking, freeing up roadway space and reducing vehicle miles driven in the region. Children can enjoy independence walking and biking to school and elders are able to age in place and 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 because they incorporate physical activity into their daily routines they are healthier and happier.

Regional Active Transportation Network Concept

Many people in the region incorporate walking, transit, riding a bicycle and driving into daily travel. The regional active transportation network concept focuses on the integration of bicycle, pedestrian and transit travel and connecting local networks into a coordinated and complete regional network.

The regional active transportation network is composed of pedestrian/bicycle districts regional bikeways and walkways that connect to and serve frequent transit.

Pedestrian/bicycle districts are urban centers and station communities. Regional bikeways and walkways are organized into functional classes. Pedestrian and Bicycle Parkways are the highest functional class for bikeways and walkways, and Regional Bikeways and Regional Pedestrian Corridors are the next functional class.

For active travel, transitioning between modes is easy when bicycle routes connect, pedestrian and bicycle districts are complete and prioritize walking, bicycling and transit, wayfinding is coordinated, transit stops have shelters, bicycle parking and places to sit; maps and mobile apps are available for all modes; safe and secure bicycle parking is available; bicycles are accommodated on-board transit; and adequate room is provided for bicyclists and pedestrians on shared facilities.

The following ten guiding principles were developed by the ATP Stakeholder Advisory Committee to guide development of the regional active transportation network.

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. The guiding principles provided the framework for regional pedestrian and bicycle policies. Future evaluations and performance measures can refer to the guiding principles to evaluate how well we are implementing the vision.

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. Increases access to regional destinations for low income, minority, disabled, non-English speaking, youth and elderly populations.
9. Measurable data and analysis 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.

Developing the regional active transportation network according to the guiding principles will provide a well-connected network of complete streets and off-street paths integrated with transit and prioritizing safe, convenient and comfortable pedestrian and bicycle access for all ages and abilities. This will help make walking and bicycling the most convenient and enjoyable transportation choice for short trips and provide access to regional destinations, jobs, regional and town centers, schools, parks and essential daily services.

It will also increase walking and bicycling access for underserved populations and ensures that the regional active transportation network equitably serves all people;³

2.5.5.1 Regional Bicycle Network Vision

[NOTE - Bicycle and Pedestrian Network Visions proposed to be sub-section of the Regional Active Transportation Network Vision]

Residents in the ~~Portland metropolitan~~ region have long recognized bicycling as an important form of transportation. The RTP elevates the importance of and the need to

³ Underserved populations include low income, low-English proficiency, non-white, elderly (over 65) and young populations (under 18).

support bicycle travel to support regional goals for mobility, the economy, the environment, public health, transportation and land-use.

The RTP recognizes that sidewalks, trails, bike lanes, bike boulevards, cycle tracks and transit cannot achieve their full potential if they are treated as stand-alone facilities. In addition, the RTP recognizes the importance of an interconnected network of transit, bicycle and pedestrian facilities to achieve regional objectives, such as increasing non-SOV mode share, reducing vehicle miles traveled, reducing the cost of transportation, improving public health and meeting state goals for greenhouse gas reduction.

This section describes the policy framework to guide development of a region-wide network of on-street and off-street bikeways integrated with transit and supported by research, innovative design and educational programs to make bicycling safe, direct and enjoyable.

Five ~~Three~~ policies form the foundation of this vision:

- 1. Build an interconnected regional network of bicycle facilities that provides seamless, safe access to urban centers and 2040 target areas essential daily needs, including schools and jobs, for all ages and abilities**
- 2. Improve bike-transit connections**
- ~~3.~~ Build a green ribbon of bicycle parkways as part of the region's integrated mobility strategy**
- 3.**
- 4. Make walking and bicycling the most convenient and enjoyable transportation choices for short trips**
- 4.5. Utilize data and analyses to guide transportation investments**

Bicycle Policy 1. Build an interconnected regional network of bicycle facilities integrated with transit and nature that provides seamless, safe access to urban centers and essential daily needs, including schools and jobs, for all ages and abilities

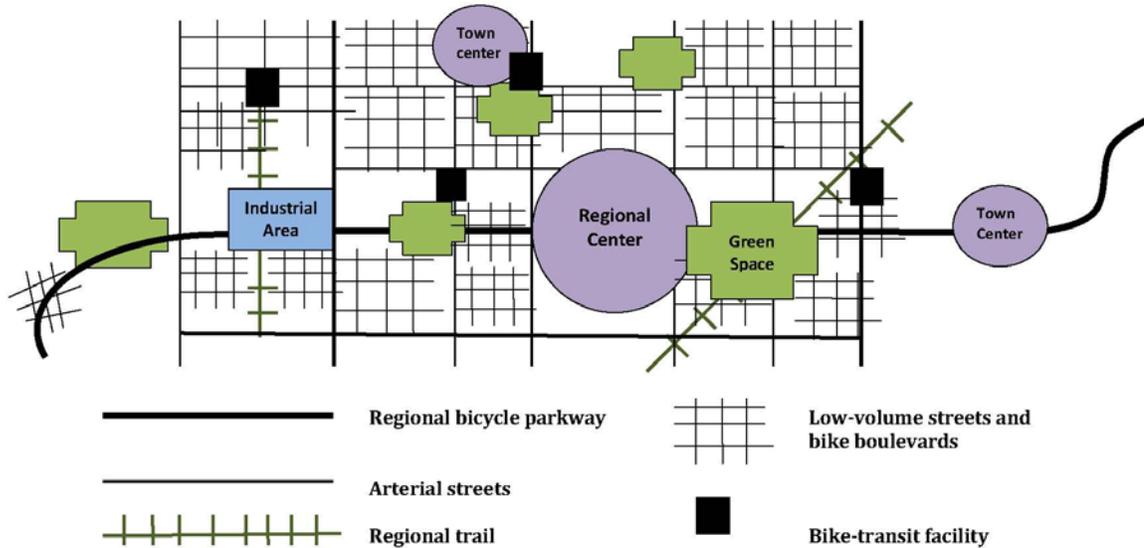
Build a seamless and interconnected network of bicycle facilities

Typically, bicycle travel occurs in four types of environments: arterial streets high volume streets, low-volume streets, off-street trails/multi-use paths and accessing public transit. Cyclists often make use of more than one type of facility on any given trip. Given how different people travel in various environments,

This section defines the elements of the regional bicycle system/network. This-The network is composed of bicycle districts and on-street and off-street bikeways connected to transit

that serve the central city, regional centers and town centers, and other 2040 Target Areas, providing a continuous [bicycle](#) network that spans jurisdictional boundaries. **Figure 2.21** shows the components of the regional bicycle network and their relationship to adjacent land uses. [A region-wide bicycle network would be made up of on-street and off-street routes with connections to transit.](#)

Figure 2.21
Regional Bicycle Network Concept



The Region 2040 plan sets forth a vision for making bicycling safe, convenient and enjoyable to support bicycling as a legitimate travel choice for all people in the region. The RTP supports this vision with [bicycle districts and a region-wide network of on-street and off-street bikeways integrated with transit.](#) **[NOTE - diagram will be updated to reflect new functional classes]**

The different functional elements of the regional bicycle network are:

Bicycle Parkways⁴ are a new functional class for the regional bicycle network. They are the highest functional class for bicycle routes and provide the spine of the bicycle system. Bicycle parkways are spaced approximately every two miles on the regional bicycle network, and connect to and/or through every urban center, many regional destinations and to most employment and industrial land areas and regional parks and natural areas. Each Mobility Corridor within the urban area has an identified bicycle parkway. Bicycle parkways were identified as routes that currently serve or will serve higher volumes of bicyclists and provide important connections to destinations.

⁴Regional Bicycle Parkways are not currently shown in Figure 2-22. A future Regional Active Transportation Action Plan following the RTP update is recommended to further develop the bicycle parkway concept, including desired parkway spacing, designation of routes, and prioritization for implementation. The parkways will likely be composed of routes currently designated as Regional Bikeway, Community Bikeway and Regional Trails. During the development of the action plan, Metro will recommend amending RTP policy to consider “trails” a design type rather than a functional classification.

- ~~form the backbone of the regional bicycle network, providing for direct and efficient travel with minimal delays in different urban environments and to destinations outside the region.~~

Regional Bikeways ~~are the second functional class for bikeways and complete the regional level bicycle network. Like bicycle parkways, they provide for travel to and within the Central City, Regional Centers, and Town Centers. Regional bikeways can be any type of facility, including off-street trails/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.~~

Local Bikeways ~~are not identified as regional routes, however they are very important to a fully functioning network. They are typically shorter routes with less bicycle demand and use than regional routes. They provide for door to door bicycle travel.~~

Community Bikeways ~~provide for travel to and within other 2040 Target Areas. These routes also provide access to regional attractions such as schools and parks and connect neighborhoods to the rest of the regional bicycle network.~~

Regional Trails ~~are paved off-street facilities serving bicyclists and other non-motorized users. They typically serve as longer distance routes connecting neighborhoods to 2040 target areas, often providing access to parks, schools, and natural areas.~~

Bicycle Districts ~~are a new concept for the RTP. The Central City, Regional and Town Centers and Station Communities are identified as bicycle and pedestrian districts. A bicycle district is 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.~~

Bike-Transit Facilities ~~provide connections between modes, i.e. are generally located at transit centers and stations and provide large-scale bike parking facility-facilities. Some facilities may include additional features such as showers, lockers, trip planning and bicycle repair. at a transit station.~~

Regional and Community Bikeways ~~Bicycle parkways and regional bikeways typically follow arterial streets but may also be located on low-volume streets if the routes provide direct connections. These Regional on-street 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). The Regional Active Transportation Plan provides recommended design guidelines for trails/multi-use paths, low volume and high volume streets.~~

The appropriateness of each design is based on adjacent motor vehicle speeds and volumes. It may be difficult on many arterial routes at present to provide a comfortable facility. The RTP expects that these routes will eventually improve for bicycling, through better designs and lower auto speeds accompanying a more compact urban form. In the short-term the RTP recognizes the need to build ridership through providing low-volume routes for bicycle travel in the region.

Arterial streets provide direct routes that connect to 2040 Target Areas. Cyclists tend to travel on arterial streets when they want to minimize travel time or access destinations along them. Oregon State statutes and administrative rules establish that bicycle facilities are required on all collector and higher classification arterial streets when those roads are constructed or reconstructed.⁵

Low-volume streets often provide access to 2040 Target Areas as well as residential neighborhoods, complementing and sometimes supplanting bicycle facilities located on arterial streets. Though these routes are often less direct than arterials, attributes such as slower speeds and less noise, exhaust and interaction with vehicles, including trucks and buses, make them more comfortable and appealing to many cyclists. Recent research suggests that providing facilities on low-volume streets may be a particularly effective strategy for encouraging new bicyclists, which helps increase bicycle mode share in the region.

Off-street facilities such as regional trails/[multi-use paths](#) typically provide an environment removed from vehicle traffic and function as an important part of the larger park and open space system in a community and in the region. Trails often take advantage of opportunities for users to experience natural features such as creeks, rivers, forests, open spaces and wildlife habitats as well as historic and cultural features, with viewpoints and interpretive opportunities. In high use areas, regional trails should be designed to provide separation between bicyclists and pedestrians.

Off-street facilities also complement on-street bikeways, providing access to 2040 Target Areas [and transit](#) while providing a travel environment with fewer intersecting streets than on-street bikeways, thereby allowing for faster travel times. This makes off-street facilities especially attractive for serving long distance bicycle trips. Similar to low-volume streets, off-street facilities provide an environment more removed from vehicle traffic, which is appealing to families and new or less confident cyclists.

Bicycle Policy 2. Improve bicycle-transit connections

Public transit complements on-street bikeways and off-street trails/[multi-use paths by providing motorized regional connections to 2040 Target Areas](#). Effectively linking bicycling with transit increases the reach of both modes. It allows longer trips to be made without driving and reduces the need to provide auto park-and-ride lots at transit stations.

⁵ Add citation

Transit provides a fast and comfortable travel environment between regional destinations that overcomes barriers to bicycling -(hills, distance, and streets without bikeways), while bicycling provides access from the front door to a transit station, is faster than walking and can sometimes eliminate the need without waiting to make a to transfer between transit vehicles.

Bike- & Rides or Bike Transit Facilities provide connections between modes by creating a “bicycle park and ride.” A key component of the bike-transit connection is bicycle parking at transit stations. Both TriMet and SMART currently provide bicycle parking and storage at many transit stations and stops. TriMet, with input from regional stakeholders, has developed Bicycle Parking Guidelines. The guidelines consider station context and regional travel patterns, and are focused on three major factors for parking: location, amount and design. The guidelines will help TriMet and local jurisdictions determine the appropriate location, size and design of large-scale bike-parking facilities, including Bike-Transit Facilities designated in Figure 2.22.

Bicycle Policy 3. Complete a green ribbon of bicycle parkways as part of the region’s mobility strategy

[NOTE - reorganize section so that this policy follows policy 1] Regional bBicycle parkways form the backbone of the regional bicycle system. This concept emerged from work by the Metro Blue Ribbon Committee for Trails as part of the broader Connecting Green Intertwine Initiative and was further developed in the Regional Active Transportation Plan. A bicycle parkway serves as a green ribbon connecting 2040 activity centers, downtowns, institutions and greenspaces within the urban area while providing an opportunity for bicyclists to travel efficiently with minimal delays.

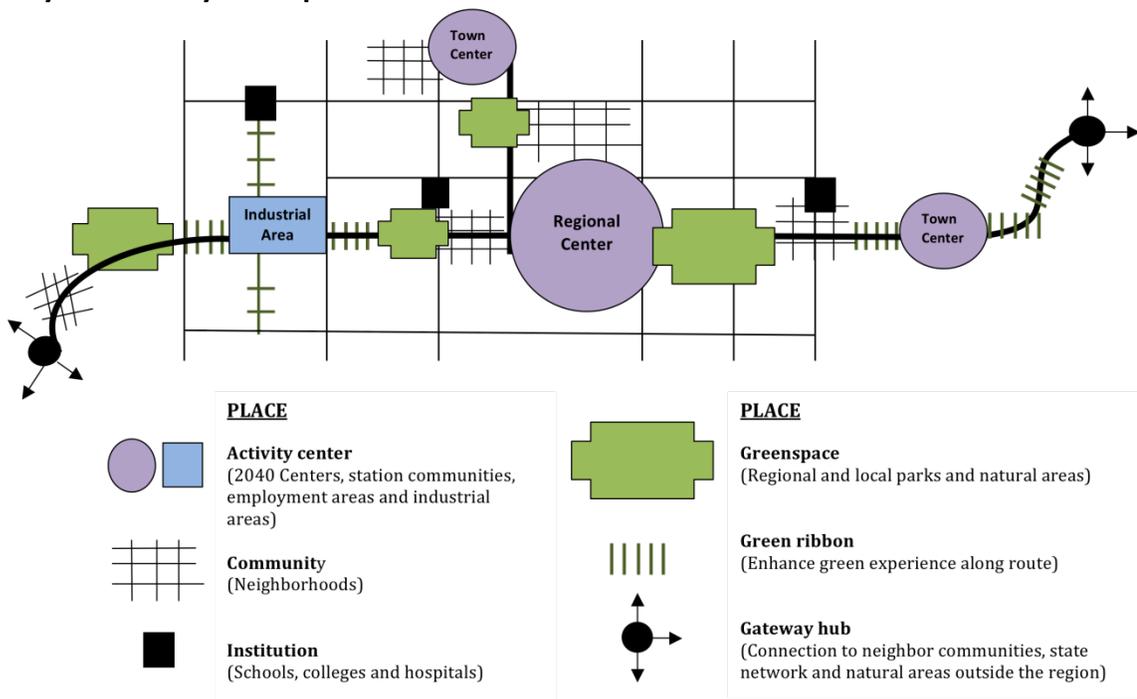
The bicycle parkway also connects the region to neighboring communities, other statewide trails and natural destinations such as Mt Hood, the Columbia River Gorge, and the Pacific Ocean. In effect, the bicycle parkway concept mainstreams bicycle travel as an important part of the region’s integrated mobility strategy.

Key experiential aspects that bike parkways embody:

- A green environment (some will already be green, while others will be made greener as part of bike parkway development)
- Comfort and safety provided by protection from motorized traffic
- Large volumes of cyclists traveling efficiently with minimal delays

Figure 2.23 illustrates this policy concept in the context of the regional bicycle parkway concept. The development of a regional active transportation action plan following the RTP update should be used to further develop the bike parkway concept, and may include defining the ideal spacing of these routes within the regional bicycle system, identifying specific routes, as well as prioritizing which routes should be developed first.

Figure 2.23
Bicycle Parkway Concept



A bicycle parkway serves as a green ribbon connecting 2040 activity centers, downtowns, institutions and greenspaces within the urban area. This new concept emerged from work by the Metro Blue Ribbon Committee for Trails as part of the broader Connecting Green Initiative.

The experience of the cyclist will be optimized to such a high level that people will clearly know when they are riding on a bicycle parkway. The specific design of a bike parkway will vary depending on the land use context within which it passes through. The facility could be designed as an off-street trail/[multi-use path](#) along a stream or rail corridor, a cycle track along a main street or town center, or a bicycle boulevard through a residential neighborhood. Priority treatments will be given to cyclists (e.g., signal timing) using the bike parkway when they intersect other transportation facilities, and connections to/from other types of bicycle routes will be intuitive.

~~The most appropriate bikeway design for arterials is defined in the regional street design concepts and in [Creating Livable Streets: Street Design Guidelines for 2040](#). Bicycle lanes are currently the preferred bikeway design for [Throughway \(highway\)](#), [Boulevard](#) and [Street design classification](#) concepts described in [Table 2.6](#).~~

~~The [Regional Active Transportation Plan](#) includes recommended design guidelines for [bicycle parkways](#). [PlannedFuture](#) updates to [these guidelines](#) the best practices in [transportation design guides](#) will include designs for low-volume bicycle boulevards, alternate designs for high volume arterial streets (e.g. cycle tracks), ~~as well as~~ regional trails/[multi-use paths](#), and [bicycle interaction with freight trucks and buses](#). The guidelines~~

will address the added design elements that are needed when these facilities serve as a bicycle parkway route, ~~e.g. such as~~ bicycle priority treatments and strategies for avoiding ~~bike/ped~~bicycle and pedestrian conflicts on multi-use paths.

Bicycle Policy 4. Make walking and bicycling the most convenient and enjoyable transportation choices for short trips

Bicycle travel holds huge potential for providing transportation options that can replace trips made by auto, especially for short trips. In the region, approximately forty-five percent of all trips made by auto are less than three miles. When bicycling is safe, comfortable, convenient and enjoyable people have the option of making some of those short trips by bicycle.

Bicycle Policy 5. Utilize data and analyses to guide transportation investments

Regional data analyses provide information that help develop the regional bicycle network more efficiently and more effectively. Data and analyses can provide information on where routes will be most effective, where bicycle trips are likely to increase and provide the most increased access, and what types of facilities are safer and attract more people to bicycling. Data can also provide information for other measures such as increased level of bicycling activity which can help measure health outcomes. More data is needed, especially bicycle counts, regular household activity surveys, and further development of the regional bicycle modeling tools.

[NOTE – Updated Bicycle Network Map to replace fig.2.22]

2.5.5.26 Regional Pedestrian Network Vision

Successful communities across America are increasingly defined by their walkability. Everyone ~~is a pedestrian~~walks⁶, but too often walking is not a safe and convenient option for getting to work or school or meeting daily travel needs. Walking, however, contributes to a healthy lifestyle for young and old alike and walking supports vibrant local economies. This travel mode is the common denominator for all other modes of travel as each trip begins or ends with at least a short walk. Transit trips in particular are based on walk access to transit stops and stations.

As a primary mode of travel that serves short trips and supports other modes the pedestrian ~~system~~network should be complete, direct, safe and enjoyable to use. It must be accessible to everyone regardless of one's ability to walk unassisted. Walking for short distances is an attractive option for most people when safe and convenient pedestrian facilities are available. The combination of well maintained and illuminated sidewalks of appropriate width, curb ramps, frequent well marked and protected street crossings, and streetscape ~~amenities~~elements that might include~~including~~ benches, bus-shelters,

⁶ Given that everyone is a pedestrian, ~~some advocates are choosing to simply use~~ the term "people" is used instead of "pedestrians."

landscaping and wide planting strips make walking an attractive, convenient and safe mode of travel. On-street facilities might be supplemented with trails and separate sidewalk connections that provide direct and pleasant connections for ~~the pedestrian people walking.~~

Four-Five policies form the foundation of this vision:

- 1. Promote walking as the primary mode and most convenient and comfortable mode for short trips**
- 2. Build a well-connected network of pedestrian facilities, including safe street crossings, that serves all ages and abilities**
- 3. Create walkable downtowns, centers, main streets and station communities that prioritize safe, convenient and comfortable pedestrian access and equitably serve all people**
- 4. Improve pedestrian access to transit**
- 4.5. Utilize data and analyses to guide transportation investments**

Walking ~~as used in this network vision,~~ includes getting around using wheelchairs and other forms of mobility assistance. Safe ~~and,~~ ADA-compliant routes ~~may be are~~ particularly critical for persons who are unable to drive. It is important to remember that sidewalks and pedestrian crossings serve the needs of all mobility levels and should include design elements that help make travel as safe and convenient as possible. Many children, seniors and people with disabilities rely on transit and other elements of the regional pedestrian network.

Pedestrian activities also play a role in economic development by supporting places where people like to visit and live. Walking helps support commercial activity in neighborhoods and centers. The pedestrian network when fully developed helps people get around by safely providing links between destinations such as schools, parks, and employment sites, offers opportunities for active living, helps contribute to environmental health, supports other modes like transit, makes communities more inviting and provides a travel option that is inexpensive and accessible to most people. The region's investment in public transit is only realized to the extent that persons can safely access those transit services. This section describes the policy framework to guide development of a region-wide network of on-street and off-street walking facilities.

Policy 1. Promote walking as the primary and most convenient and comfortable mode for short trips

Promote walking as primary mode for short trips

As our communities seek to emphasize moving people rather than cars, it is important to exploit all travel options including the most basic mode of travel. One in four trips made in

America are a mile or less in length, yet only 21 percent of those trips are made on foot.⁷ In addition to being the oldest and cleanest form of transportation, walking is often the quickest and most convenient way to accomplish short trips in urban areas and neighborhoods surrounding community centers. Several characteristics of short auto trips make them especially attractive to replace with walking. In urban areas, short trips greatly contribute to arterial congestion, as well as a disproportionate amount of air pollution (due to cold starts) and crashes.⁸

In a society where over two-thirds of adults are obese or overweight⁹ walking can improve both physical and mental health. A one-mile trip is a twenty-minute walk, which is two-thirds of the daily exercise regimen recommended by the U.S. Surgeon General.

Promoting walking as the preferred mode for short trips will help the region achieve the RTP performance target of tripling the share of walking trips by the year 2035. This includes constructing new sidewalks, filling in sidewalk gaps, providing safe crosswalks at regular intervals, completing ADA-compliant curb ramps and developing a pedestrian infrastructure in a connected, systematic way. Regional partners must take many actions to create conditions necessary to achieve this target. The four policy areas that follow describe actions relating to pedestrian facilities, land use development and connections to transit.

Policy 2. Build a well-connected network of pedestrian facilities, including safe street crossings, that serves all ages and abilities

Build a well-connected network of pedestrian facilities

A well-connected high-quality pedestrian environment facilitates walking trips by providing safe and convenient access to pedestrian destinations within a short distance. Key elements of the urban pedestrian system include on-street sidewalks, off-street trails, safe street crossings at regular intervals, illumination and streetscape ~~amenities~~ elements that foster pedestrian travel. By providing dedicated space for those on foot or using mobility devices, pedestrian facilities facilitate and support walking as a mode of travel.

[NOTE - refer to the RTP Safety Policy Refinements memo for added paragraph on safe crossings]

Public transportation use is fully realized only with safe and convenient pedestrian connections, especially ~~those safe crossings and~~ facilities that connect stations or bus stops to surrounding areas or that provide safe and attractive waiting areas. Improving walkway connections between office and commercial districts and surrounding neighborhoods provides opportunities for residents to walk to work, shopping or to run personal errands. Buildings need to be oriented to the street and be well connected to sidewalks. Safe routes across parking lots need to be provided. This reduces the need to bring an automobile to work and enhances public transportation and carpooling as commute options.

⁷ National Household Travel Survey, 2001, http://nhts.ornl.gov/update_with_regional_data

⁸ Oregon Bicycle and Pedestrian Plan, 1995, <http://www.oregon.gov/ODOT/HWY/BIKEPED/planproc.shtml>

⁹ Center for Disease Control and Prevention, 2008, <http://www.cdc.gov/nchs/fastats/overwt.htm>

Pedestrian Parkways are a new functional class for pedestrian routes 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/multi-use paths. Adequate width and separation between pedestrians and bicyclists should be provided on multi-use path parkways.

Regional Pedestrian Corridors are 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.

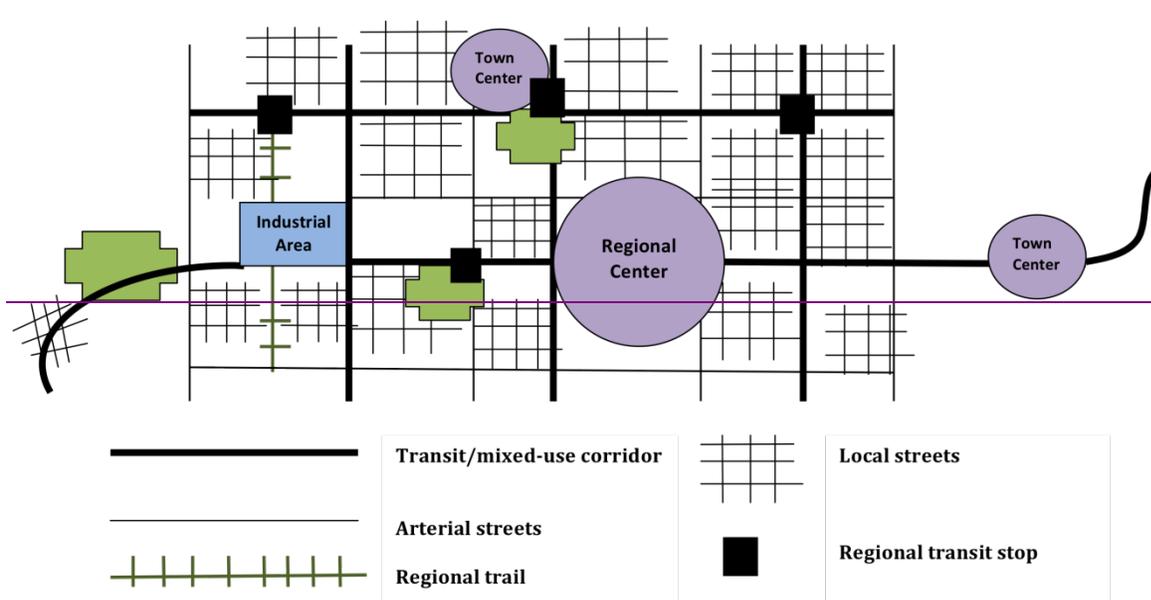
Local Pedestrian Connectors are all streets and trails not included on the regional network. Local connectors experience lower volumes of pedestrian activity and are typically on residential and low-volume/speed roadways or smaller trails. Connectors, however, are an important element of the regional pedestrian network because they allow for door-to-door pedestrian travel.

~~Regional trails are generally located near or in residential areas or near mixed-use centers, and are likely to be used by people walking to work or school, to access transit or to travel to a store or library. Trails that support purely recreational uses are not considered part of this transportation network, although they are important components of the regional parks and greenspaces system. Recreational trails complement a healthy life-style that includes walking and cycling. Pedestrian/bicycle-only bridges also are included in this designation. In high use areas, regional trails should be designed to provide safe separation between bicyclists and pedestrians.~~

Figure 2.24

Regional Pedestrian Network Concept

[NOTE - concept diagram will be updated with a graphic that better illustrates pedestrian concept.]



The Region 2040 plan sets forth a vision for making walking safe, convenient and enjoyable to support walking as a legitimate travel choice for all people in the region. The RTP supports this vision with a region-wide network of pedestrian districts and on-street and off-street pedestrian facilities and safe crossings integrated with transit.

Policy 3. Create walkable downtowns, centers, main streets and station communities that prioritize safe, convenient and comfortable pedestrian access and equitably serve all people

Create walkable downtowns, centers, main streets and station communities

Downtowns, centers, main streets and station communities are designated as pedestrian districts on the regional pedestrian network.

[Photo caption] Pedestrian districts are areas of high, or potentially high, pedestrian activity where the region places priority on creating a walkable environment. These include the central city, regional and town centers and light rail station communities where sidewalks, plazas and other public spaces are integrated with civic, commercial and residential development. These districts can take many forms from traditional main streets to life-style shopping centers. They are often characterized by compact mixed-use development served by transit. These areas are defined as pedestrian districts in the RTP.

Pedestrian Districts are the Central City, Regional and Town Centers and Station Communities. A pedestrian district is an area with a concentration of transit, commercial, cultural, 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 a Pedestrian Parkway or Regional Pedestrian Corridor, however all routes within the Pedestrian District are considered regional.

Pedestrian districts should be designed to reflect an urban development and design pattern where walking is a safe, convenient and enjoyable travel mode. These areas will be characterized by buildings oriented to the street and boulevard-type street design features such as wide sidewalks with buffering from adjacent motor vehicle traffic, marked street crossings at all intersections with special crossing ~~amenities-treatments~~ at some locations, ~~special~~ lighting, benches, bus shelters, awnings and street trees.

~~All streets within pedestrian districts are important pedestrian connections.~~

Policy 4. Improve pedestrian access to transit

Transit ~~and~~ mixed-use corridors (referred to ~~only~~ as corridors in the 2040 Growth Concept) ~~and pedestrian districts~~ are priority areas for pedestrian improvements. ~~They Pedestrian Parkways and Corridors~~ are located along ~~good-quality~~ frequent transit lines and will be redeveloped at densities that are somewhat higher than today. These corridors will generate ~~substantial pedestrian traffic~~ many walking trips near neighborhood-oriented retail development, schools, parks and bus stops.

~~These eFrequent transit corridors, pedestrian districts and trails that connect to transit~~ should be designed to promote ~~pedestrian travel-walking~~ with such features as wide sidewalks with buffering from adjacent motor vehicle traffic, ~~on-street parking where appropriate, street crossings~~ safe and well-lit crosswalks at a minimum of spaced no more than 530 feet apart – though an ideal spacing is 200 to 400 feet where possible (unless there are no intersections, bus stops or other pedestrian attractions), ~~lighting, benches, bus shelters, awnings and street trees.~~ Crosswalks should be designed with safety in mind, including ~~special crossing amenities-treatments such as markings, medians, refuge islands, beacons and signals.~~ at some locations, special lighting, benches, bus shelters, awnings and street trees. This designation includes multi-modal bridges.

Policy 5. Utilize data and analyses to guide transportation investments

~~Regional data analyses provide information that help develop the regional pedestrian network more efficiently and more effectively. For example, data and analyses can provide information on how comfortable different walking environments are, the level of service that street designs provide for people walking and where improvements will provide the most increased access for people. Data can also provide information for other measures such as increased levels of walking which can help measure health outcomes. More data is needed, especially pedestrian counts, regular household activity surveys, and development of the regional pedestrian modeling tools.~~

Summary

Currently the regional pedestrian network is incomplete and ~~unsafe~~ inadequately safe; the sidewalk, ~~crosswalk and network~~ trail network accessing transit in particular has gaps in continuity and quality, ~~and few locations provide adequate safe crossing opportunities.~~ A complete pedestrian system provides a basic building block for economic vitality in centers

and other commercially-oriented areas, but when incomplete fails to maximize the connection between transportation and land use that helps contribute to vibrant communities. The existence of gaps prevents the basic system from functioning uniformly throughout the region by inhibiting access to transit, limiting access to centers and other community-level destinations such as parks and schools. It is important for local jurisdictions to pursue crosswalks meeting the regional spacing guidelines including at every transit stop, and sidewalks on every street (except expressways and certain low-traffic streets), even if they are not defined as part of the regional pedestrian network. ~~(transit mixed-use corridors, mixed-use centers, station communities and regional trails.)~~

Planning for pedestrian ~~system-network~~ improvements requires the same level of planning and ~~analysis/analyses~~ as ~~might be~~ applied to roadway planning. Investment programs should ~~set priorities for~~ prioritize sidewalk improvements to and along major transit routes and communities where physically or economically disadvantaged populations ~~are resident/live~~. Emphasis should be given to filling gaps and providing safe crossings of the busiest and widest streets. ~~Access-Being able to access to jobs, schools, parks and community centers other essential destinations that are active parts of the local community is important for influencing a healthy lifestyle that includes walking makes it easier for people to integrate exercise into their daily routines.~~

Oregon State statutes and administrative rules establish that pedestrian facilities are required on all collector and higher classification streets when those roads are built or reconstructed.¹⁰ Exceptions are provided where cost is excessively disproportionate to need or where there is an absence of need due to sparse population or other factors.

[UPDATED PEDESTRIAN NETWORK MAP to replace Fig. 2.25]

¹⁰ Add citation

6.7 IMPLEMENTATION ACTIVITIES TO BE ADDRESSED POST-RTP ADOPTION

6.7.8 Regional Transportation Model Enhancements

Bicycle and Pedestrian Modeling

The existing regional transportation model underestimates bicycle and pedestrian trips, and does not predict bicycle travel according to the transportation network. Instead, the current model predicts bicycle and pedestrian trips as part of the "mode choice" step of the modeling process, but does not assign these trips to a network to predict how they might be distributed.

More work and data is needed to capture the increased pedestrian and bicycle mode share that may result due to urban form and amenities. Pedestrian trips are accounted for in the regional travel demand model, but are generally short enough to make a Transportation Analysis Zone (TAZ) to TAZ network assignment impractical. Efforts are being made to bring the scale of pedestrian analysis into sharper focus – at a block to block level.

Bicycle trips are of sufficient length to be assigned to a network and evaluated at this level. In 2007, Metro initiated work to improve bicycle modeling capability. The bicycle model work Bicycle modeling tools have been developed and were used in the development of the Regional Active Transportation Plan is expected to be available for use in and will be used in the the HB 2001 climate change scenarios work and the next RTP update. Regular bicycle count data is needed to help validate the model.

6.7.14 Implementation Activities for the Regional Active Transportation Action Plan

In 2008, as part of the larger Connecting Green initiative, Metro convened a Blue Ribbon Committee (BRC) of civic, business and elected leaders to think big about regional trails. The BRC met for six months from May through October 2008. The BRC was charged with evaluating the regional trails system and its benefits. They were asked to determine whether the current level of investment in the regional trails system, which would take nearly 200 years to complete, was adequate.

The BRC determined that development of the trails system should be accelerated, and that it must be done as part of a larger strategy to support active transportation – including well integrated and mutually supportive bike, pedestrian and transit networks. The BRC’s final report, “The Case for Active Transportation,” identifies four main elements to implement such a strategy: 1) Organize leadership, 2) Demonstrate Potential, 3) Reduce Costs, 4) Develop System.

The development of a regional active transportation action plan following the RTP update is key to the “Develop system” element of the BRC’s strategy. For example, a key RTP policy concept that emerged out of the BRC work is the “Regional Bicycle Parkway.” Regional bicycle parkways form the backbone of the regional bicycle system. A bicycle parkway serves as a green ribbon connecting 2040 activity centers, downtowns, institutions and greenspaces within the urban area while providing an opportunity for bicyclists to travel efficiently with minimal delays.

The development of a regional active transportation action plan is needed to further develop the bike parkway concept, and may include defining the ideal spacing of these routes, identifying specific routes, as well as prioritizing which routes should be developed first. The parkways will likely be composed of routes currently designated as Regional Bikeway, Community Bikeway and Regional Trails. During the development of the action plan, Metro will recommend amending RTP policy to consider “trails” a design type rather than a functional classification.

In addition, the regional pedestrian network vision needs to be updated, and recommendations incorporated into the Active Transportation Action Plan.

Development of a Regional Active Transportation Plan (ATP) was identified as a post-2035 RTP implementation activity. Metro in partnership with jurisdictions, agencies and stakeholders developed the ATP in 2012-14.

The ATP includes five policies which are reflected in the regional active transportation network vision and bicycle, pedestrian and transit network visions described in Chapter 2. Each of the five policies in the ATP identifies several implementing actions that Metro, in partnership with ODOT, Trimet and local jurisdictions and agencies and other stakeholders, can initiate to help implement regional policies and reach transportation goals and targets.

There are a few implementation activities identified in the ATP that will be addressed in the next update of the Regional Transportation Plan and Regional Transportation Functional Plan, through the completion of the Climate Smart Communities work, and through regional corridor plans and local plans. These specific implementation activities are listed below – not all of the ATP implementation activities are listed. The number of the implementation activity as it is listed in the Regional Active Transportation Plan is included in parentheses after each activity.

1. Work with jurisdictions, agencies and stakeholders on the 2018 update of the Regional Transportation Plan to determine if changes to the Regional Transportation Functional Plan are needed to support implementation of local transportation system plans and the Regional Transportation Plan. (ATP implementation activity 2.6)
2. Work with jurisdictions, agencies and stakeholders to consider adding pedestrian and bicycle projects to the Regional Transportation Plan during Regional Transportation Plan updates that will complete the recommended ATP pedestrian and bicycle networks. (ATP implementation activity 2.7)
3. Encourage and work with state and local jurisdictions and agencies to update transportation system plans and comprehensive plans to be consistent with the ATP and include the regional pedestrian and bicycle network routes. (ATP implementation activity 2.8)
4. Work with jurisdictions, agencies and stakeholders to consider developing criteria for prioritizing Regional Transportation Plan projects. (ATP implementation activity 2.9)

5. Work with partners 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. Consider developing and adopting a 'complete network' and complete streets policy and performance target where the regional pedestrian and bicycle networks are completed to match roadway network percentage of completeness. (ATP implementation activity 4.1)
6. Work with stakeholders to explore developing a policy in the Regional Transportation Plan and Regional Transportation Functional Plan to complete pedestrian and bicycle networks through maintenance roadway projects. (ATP implementation activity 4.3)
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. (ATP implementation activity 5.7)

6.7.15 Best Design Practices in Transportation

Starting in ~~2010~~FY 2014, Metro staff will initiate an update to the Best Design Practices in Transportation, formerly known as the Livable Streets handbook. Recommendations from the Regional Freight Plan ~~and further development of the principal arterial parkway concept and the~~ Regional Active Transportation Plan will be addressed as part of this effort. The update to the guidebooks will incorporate designs for low-volume bicycle boulevards, alternate designs for high volume arterial streets (e.g. cycle tracks) and regional trails. The guidelines will address the added design elements that are needed when these facilities serve as a bicycle parkway route, e.g. bicycle priority treatments and strategies for avoiding bike and pedestrian conflicts, design guidelines for transit and bicycle interaction, especially at transit stops and stations and along light rail and streetcar tracks, and best practices and successful case studies integrating bicycle, pedestrian and freight facilities, especially within constrained roadways, to guide future planning and project development. The outcomes of this process will be incorporated into the next RTP update.