



CHAPTER 7.3: REGIONAL TRAIL SYSTEM

REGIONAL TRAIL SYSTEM

The concept of the regional trail system is to link all major developed areas and neighboring counties with a network of non-motorized routes that serves both recreation and transportation purposes. This chapter identifies specific types of trail users and corridors, provides a regional trail classification system and illustrates the regional trail system concept.

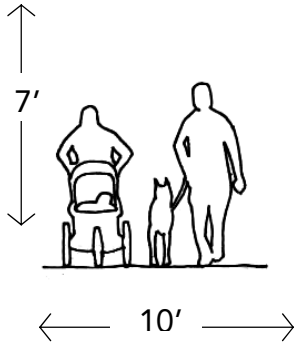
TRAIL USERS & CORRIDORS

Trails can attract different types of users who have different preferred trail settings, or corridors. This chapter describes trail users and corridor characteristics drawing from popular and widely referenced sources and existing plans. These sources include the Rails-to-Trails Conservancy's Trails for the Twenty-First Century, the Washington State Trails Plan and other county trail plans within western Washington.

TRAIL USERS

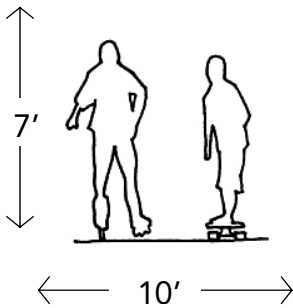
Trail users ultimately determine trail design. While cyclists, skaters and walkers need a paved surface that is free from irregularities, equestrians and joggers prefer a softer or unpaved surface. User characteristics related to speed and ability should also be considered to create successful environments that limit conflict. The following provides a description of potential trail users including an overview of important design considerations. Potential trail users include:

- Pedestrians;
- In-line skaters & skateboarders;
- Cross-country skiers & snowshoers;
- Road cyclists;
- Mountain bikers;
- Equestrians; and
- Non-motorized watercraft users (water trails).



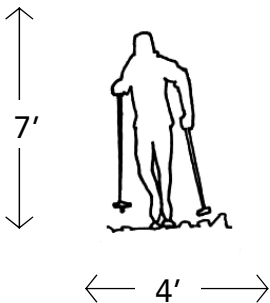
Pedestrians

Pedestrians include walkers, hikers, joggers and runners. Pedestrians also include people with disabilities who may be dependant on wheelchairs or other mobility devices. Pedestrians typically travel at slower speeds and may travel side-by-side. This has important implications when considering other users such as bicyclists who generally travel at faster speeds. Other design considerations include users with baby strollers who need a smoother surface, and pedestrians with pets that need additional width. Some pedestrians prefer softer surfaces that have less impact on legs and feet, while others prefer to walk or run on harder surfaces. Two-way pedestrian traffic needs at least a 6' to 8' wide travel lane with a 7' vertical clearance.



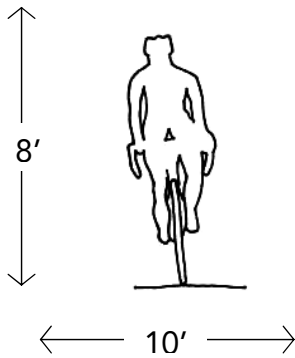
In-line Skaters & Skateboarders

In-line skaters and skateboarders need a smooth, mostly level surface. Skaters require a 10-foot minimum trail width (two-way) and a seven-foot vertical clearance. Benches or sitting areas to put on skates are helpful at trail heads.



Cross-Country Skiers & Snowshoers

During the winter, trails make excellent routes for cross-country skiers and snowshoers in areas that have snowfall. While most snowshoes are designed for deeper snow, as little as six inches of snow can provide adequate depth for skiing. A one-way trail used exclusively for skiing should be a minimum of four feet wide; a two-way trail requires a minimum of seven feet.



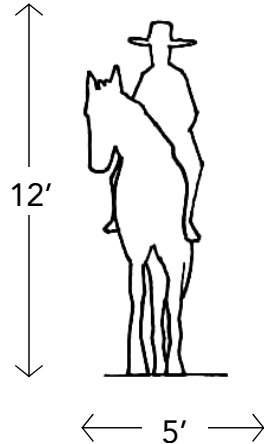
Road Cyclists

Road cyclist may use trails for commuting, recreation and touring. Like pedestrians, road cyclist may also travel side-by-side or in larger groups. Because cyclist can reach higher speeds, the design needs for these users are more specific. The AASHTO Guidelines described in Chapter 4 are the definitive source for cycling trail design. Two-way road cyclist traffic needs at least a 10' wide travel lane with an 8' vertical clearance and 150' sight distance. Because speed is a major design consideration for cyclist, trail design should account for minimum sight and stopping distance, speed control measures and grade. Trail surfaces should be paved and free from any rough or irregular surfaces.



Mountain Bikers

Because mountain bikes can be used on- and off-road, the preferred trail design is varied. Mountain bikers need the same design considerations as road cyclist when used on the road or paved trails. For off-road riding mountain bikers prefer narrower (two to four-foot) single track trails composed of natural/compacted earth. Unpaved trail sections should be designed to reduce speed and prevent erosion.



Equestrians

Equestrian trail users have specific needs, because hard surfaces and granular stone can injure horses' hooves. Separated equestrian trails can be designed alongside hard surfaced sections of trail. Trail design for equestrians should include a stabilized dirt surface with a well-constructed sub-base, and a 5' minimum width. Vertical clearance for equestrians should be at least 12' and sight distance should be at least 100'. Appropriate trailhead facilities including horse trailer staging, parking, signage, mounting and dismounting blocks, and water should also be provided.

Non-motorized Watercraft (Water Trails)

Canoeing, kayaking, and other small, non-motorized watercraft are all popular for use on Pierce County's rivers, lakes and marine settings. Water trail users require safe beach or dock landings and launch sites, access to support facilities such as restrooms and day use or overnight camping areas, staging and parking areas, and signage and clear connections to the regional trail.

TRAIL CORRIDORS

The physical landscape of Pierce County offers extraordinary trail settings that range from Mt. Rainier National Park, rural farmland, cities, towns and Puget Sound. This diversity requires a variety of trail design standards to accommodate development of regional trails throughout the county. Trail corridor classifications help define these diverse settings. These include:

- Rail corridors;
- Park & public land corridors;
- Greenway corridors;
- Utility corridors;
- Dike and levee corridors;
- Street right-of-way corridors;
- Water trail corridors; and
- Military/tribal/private lands

As trails are planned, the identification of trail corridor types will assist in accounting for environmental considerations, property ownership and public access and development time and cost. In order to develop and maintain trail that are adaptive to the landscape, this section describes the potential trail corridors that are found in Pierce County

Rail Corridors

Thousands of miles of abandoned and active railroad tracks throughout the nation provide ample opportunity for trails. Rail trails include rail-to-trail developments, in which trails replace unused rail lines; and rail with trail developments, in which trails are built within the right-of-way of a rail line that continues to be used.

Attributes & Assets

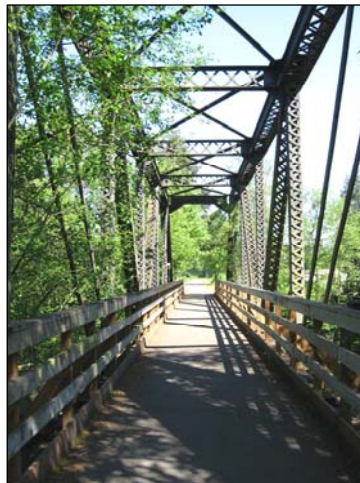
- Rail lines provide vast networks of linear clearings for trails.
- Trains require relatively flat terrain (often under 3% slope), so additional grading for trails is minimal for ADA-accessible trails.
- The historical significance of rail lines—and their tendency to pass through diverse landscapes—presents exciting opportunities for narrative trail networks, which can be a particular draw for tourists.

Commuter Value

- The flat nature of rail trails makes them ideal for bicycle commuting. Trails alongside commuter rails provide logical connections for commuters.

Challenges

- Often include structures, overpasses and trestles that may be in need of extensive repair or replacement.
- Property ownership of abandoned lines maybe uncertain and require expensive investigation.
- Abandoned railways may also have unseen environmental contaminants from prior use, and may require costly redevelopment measures and mitigation if adjacent to wetlands or steep slopes.



Foothills Trail Bridge – Pierce County, WA



Nathan Chapman Memorial Trail –
South Hill, WA

Park & Public Land Corridors

Though often not linear in form, parks are common venues for trail networks because of their public ownership and use for outdoor recreation. A trail may simply traverse a park site or provide access to play structures and other amenities. Vast networks for hiking, biking or horseback riding are often included in larger parks. Public lands also include sites such as maintenance facilities and water storage and treatment facilities. These facilities can serve dual use as recreational hubs with some creative planning and design. Parks provide many examples of trail networks—from narrow winding foot trails to extensive paved networks.

Attributes & Assets

- Park trails are often designated for specific uses including hiking, biking and horseback riding, and provide access to park amenities, including play structures, sports facilities, public art, community centers and restrooms.
- Park trail networks provide valuable opportunities for humans to observe and interact with functions of nature.
- Trails can connect individual parks to form a comprehensive regional network.

Commuter Value

- Parks and other public lands are destinations in and of themselves. A regional trail network that connects parks to each other and to residential neighborhoods will provide alternatives to motor vehicle travel.

Challenges

- Potential conflicts between users.
- Multi-use trails within parks can become crowded on weekends.
- Often park and public facility pathways are not built to regional trail standards.
- Existing corridors may not meet ADA guidelines, and retrofit may be costly.
- Utility corridors may require similar environmental considerations as abandoned railways.

Greenway Corridors

A greenway is a linear corridor that winds through and connects a variety of habitats and communities. Greenways generally maintain or restore ecological function by connecting habitat patches within a fragmented landscape. As another form of linear infrastructure, greenways are often planned with human use (parks and trails) in mind. Greenways are an essential form of green infrastructure—a term that is coming into widespread use as we begin to recognize the value of the services that functioning ecosystems provide us, such as clean air, water, food, energy and building materials.

Attributes & Assets

- Greenways are designed for ecological value, so trails within them present an ideal opportunity to expose users to ecosystem functions and local vegetation and wildlife.
- Trails should be planned as an integrated part of the greenway network in order to avoid the need to clear vegetation for later trail installation.
- Trails can also be built alongside streams and rivers as long as appropriate riparian buffers are in place.

Commuter Value

- Urban greenways restore habitat corridors and/or buffer streams that would otherwise be threatened by urban development. Greenway trail networks that weave through residential and commercial developments provide alternative routes for bikers and pedestrians.

Challenges

- Inherent conflict between ecological conservation objectives and encroachment on habitats.
- Landscape disturbance in greenway for trail construction can result in invasive species spread to natural habitats.
- Disturbance of natural areas due to trail development may require extensive mitigation.



Olympic Discovery Trail – Olympic Peninsula, WA
<http://www.olympicdiscoverytrail.com>

Utility Corridors

Utility corridors are linear in nature (above-ground or below) and are dedicated to the delivery of utility services, including water, sewer, electric, natural gas, telephone, internet and cable. The linear nature of utility corridors—and the need to keep them clear for maintenance—makes them useful as part of a trail network.

Attributes & Assets

- Building trails along utility corridors, which already require periodic clearing for maintenance, avoids additional disturbance to existing vegetation.
- Preserving existing vegetation and new landscaping provided with trail development enhances wildlife habitat along utility corridors.
- Trail segments and amenities can easily be replaced if underground utility maintenance is required.
- Trails can aid service crews in accessing utilities for maintenance.

Commuter Value

- Utilities service all forms of human infrastructure (homes, commercial districts, employment zones, transit...), so these corridors provide logical connections for commuting purposes.

Challenges

- Often lack aesthetic features.
- Often go straight up and down steep slopes, which make them too steep for a trail.
- Limited re-vegetation options due to height restrictions or root issues.
- May be difficult to reach agreement with utility companies and service providers for trail development on utility corridors.



Cushman Power Line Trail –Gig Harbor, WA

Dike and Levee Corridors

Dikes and levees are barriers that protect the inland from seawater or the flow of water from a river or other water body. Dikes and levees are constructed earthen walls built along the edge of the water body and require regular maintenance. The linear nature of dikes and levees—and the need to keep them clear for functionality—make them useful as part of trail networks. Many dikes and levees have trails or roads on them and, in some parts of the country, levee trail systems are very extensive.



Marine Drive Trail – Portland, OR

Attributes & Assets

- The trail alignment provides clear visibility.
- Levees and dikes provide scenic views of water features.
- The design of levees and dikes provides good drainage for trails.

Commuter Value

- The flat nature of the trail along the dike or levee makes them ideal for bicycle commuting.

Challenges

- Limited vegetation and opportunities to grow trees for shade.
- Ownership of levee may be private and County would have an easement for the levee and not a trail. Also, the details of property ownership along the river can be very difficult to determine because some are very old.
- Public access and safety is an issue during flood events.
- Potential conflict with levee maintenance and repair.

Street Right-of-Way-Corridors

Urban street and freeway rights-of-way (ROWs) serve to provide vehicle access throughout the urban environment, and between points of interest. Bike and pedestrian trails can be planned within these ROWs to maximize the utility of transit corridors for commuters of all types.

Attributes & Assets

- Urban streets and freeways provide convenient connections for cars, but if there is no associated trail or dedicated lane for bikes and pedestrians, these corridors are barriers to human-powered commuters.
- Planning a trail within a street or freeway ROW allows for multiple means of transportation without the added overhead of purchasing a separate ROW.
- Maximizing the use of planned infrastructure such as freeways, reduces the need to disturb additional land to create separate networks for each mode of transportation.

Commuter Value

- Nationwide, single-passenger motorized vehicles are the most common commuter choice. By making the extensive network of freeways and streets accessible and passable by bicycle and foot, human-powered options for commuters will become available that may have otherwise been dangerous or prohibited.

Challenges

- Insufficient width to accommodate all functions.
- Need to provide safety at intersections.
- Varying speeds of cars, bicycles and pedestrians.
- Lack of street skills of younger cyclists.
- Limit of some trail users (i.e. horses).



Scott Pierson Trail – Tacoma
Narrows Bridge, WA

Water Trail Corridors

Waterways should not be forgotten as corridors that provide valuable transportation and recreational infrastructure. Swimming, paddling, fishing, and camping are just a few of the activities that take place along these corridors.

Attributes & Assets

- Waterways themselves serve as trails for swimmers, rafters and paddlers.

Commuter Value

- Water travel and connections to the regional trail offer transportation alternatives for residents that have access to destinations along water bodies and docking facilities.

Challenges

- Signage and way-finding can be difficult to maintain.
- Limited to those with water craft.
- There is a need for safe and secure docking, launch and storage facilities, access areas with parking, restrooms, and overnight camping.



Kayakers approach Deception Pass Bridge.

<http://www.flickr.com/photos/kuow/>

Military/Tribal/Private Ownership

There are a number of land uses in Pierce County that can make trail development challenging. Some sections of the regional trail may be located on or near military, tribal or private lands. Because some of these land uses can present barriers to the regional trail system, it is important to identify some of the challenges related to other corridors. Security is one of the fundamental priorities to consider when developing trails near or on military lands. Tribal areas and private lands are also unique and require early coordination and sensitive design to allow public access while avoiding conflicts with land owners.

REGIONAL SYSTEM

Map 2: The Adaptive System, in Chapter 4, illustrates a conceptual regional trail alignment and depicts regional and county parks connected by the regional trail system. Based on Goal 2 (pg. 68), “...Provide a regional system of off-street trails and corridors that links parks, open spaces, significant environmental features, public facilities, and areas of interest.” the alignments illustrate a park system connected both internally and to adjacent counties. Map 2 presented the preliminary conceptual spine for a regional trails system, which has been further analyzed and refined as part of the regional trails planning effort. This section summarizes the findings of the Needs Assessment Summary Report (May 2009), which analyzed the existing and proposed trails network, presented a trail classification system and a regional trail concept.

IDENTIFYING THE REGIONAL SYSTEM

A review of the existing and proposed off-street trails in Map 8: Existing and Proposed Trails (Chapter 7.4) reflects a lack of continuous off-street trail alignments. Trail alignments are fragmented and, in general, there is a lack of west-east trail connections. Of particular note is the lack of off-street connections in the western portion of the County and the greater Tacoma Metro area. An ideal regional trail system would provide off-street access throughout the County with few barriers.

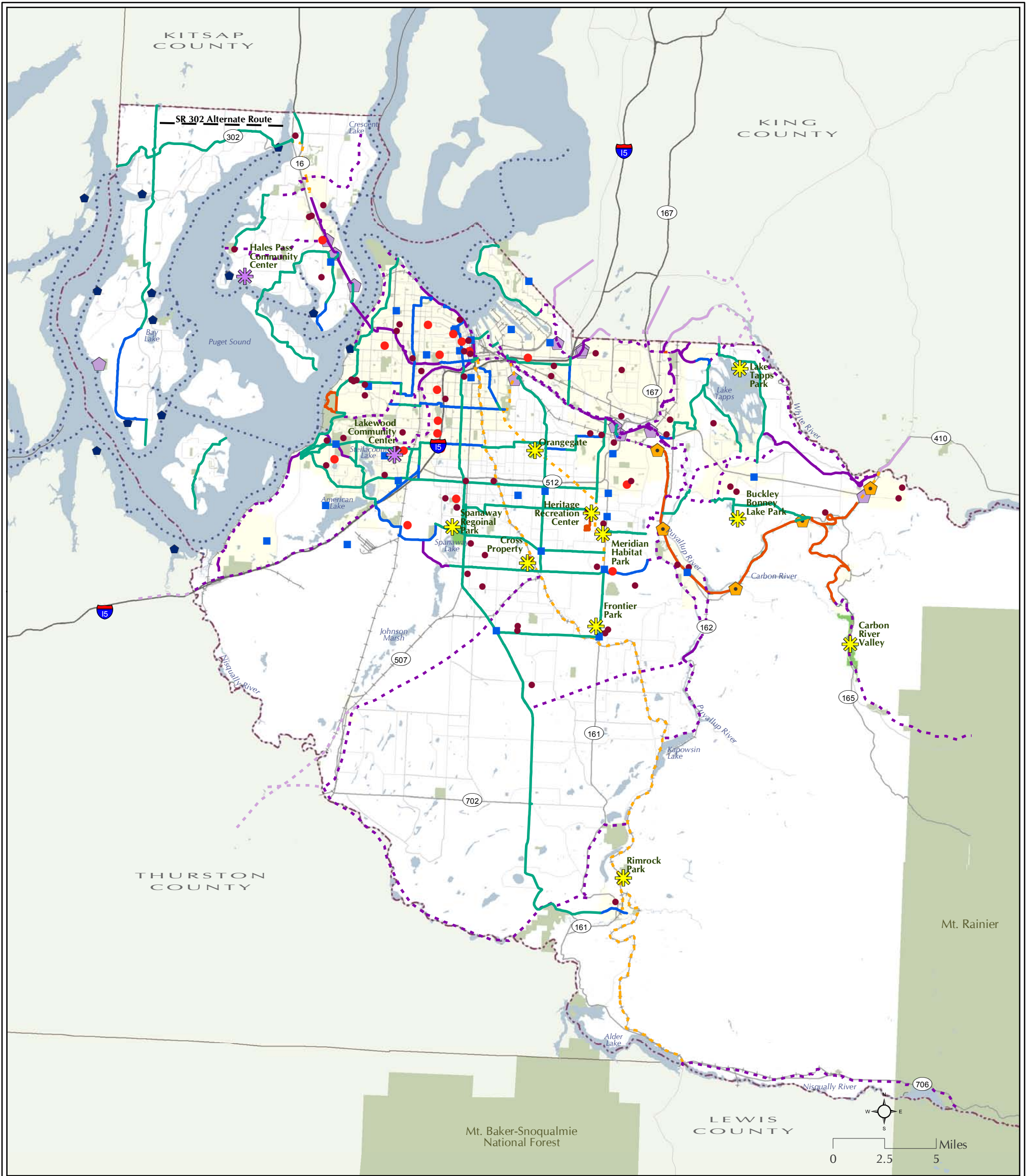
- **Trail Gaps.** A gap analysis of the existing and proposed trails network within the County was conducted as part of the analysis. Trail gaps are missing segments within a trail’s alignment. Gaps are identified by reviewing the breaks in the existing and proposed trail alignments, assessing the connections to key destinations and reviewing the directness to key destinations. Using these three criteria, observations were made regarding Pierce’s existing and proposed trails network during the analysis phase of the planning process.
- **Origins & Destinations.** As part of the analysis, key destinations were identified for assessing regional trail connections and access to trails. These locations include regional and county parks, recreation centers, residential areas, schools, universities and major employers. The locations are depicted on Map 9: Trail Linkage Opportunities. Most schools and major employers are located in urbanized areas where off-street corridors may be difficult to acquire.

- **Park Access by Trails.** The examination of the trail connections to county and regional parks revealed that Heritage Recreation Center is the only park currently served by an existing off-street trail: the Nathan Chapman Memorial Trail. The trail's function is to connect the Heritage Recreation Center with South Hill Community Park. It is envisioned that this trail will eventually connect with the proposed Cross County Commuter Collector Trail. Future connections to county and regional parks will be made by three main trail alignments: the Train to the Mountain Rail with Trail, Cross County Commuter Collector and Foothills Trail. These three trails will connect Meridian Habitat, Frontier, Cross Park, Carbon River Valley and Orangegate Parks to create a greater regional trail system.
- **Trail Linkage Opportunities.** As noted previously, Pierce County has many overlapping jurisdictions and the northwestern and central portions of the county are highly urbanized. It may not be realistic for the P&RS or other jurisdictions to develop off-street trails in the urbanized areas; for example, land acquisition for a separated trail may be cost prohibitive. As an alternative, existing infrastructure such as sidewalks and utility rights-of-way could be used to establish links within the regional trails network. Through the inventorying process, the TWG noted multiple on-street alignments. Some of the on-street alignments could be upgraded to provide safe connections between the fragmented off-street alignments and could be outfitted with both cycling and pedestrian facilities, way-signs, and if room allows, equestrian facilities. Map 9: Trail Linkage Opportunities incorporates the on-street alignments identified by the TWG and highlights alignments that were adopted in the 1997 Non-motorized Transportation Plan (NMTP) and road segments that could close the gaps in the regional trail network.

TRAIL CLASSIFICATION SYSTEM

Establishing a regional trail classification system allows P&RS to implement the goals of the PROS Plan, prioritize trail development as proposals are brought forward, establish a framework for trail design and provide local jurisdictions and organizations with the vision for linking their local trail plans to the region as a whole. The regional trail classification system includes three trail categories: regional, sub-regional and connector trails. Similar to a street network hierarchy, the regional trail network is based on a tiered classification system. While some sections of trail will accommodate higher volumes of traffic and provide regional connections, other sections may rely on the local street network and be designed to link local destinations. The regional trail classification for each jurisdiction's trail alignments is specified in Appendix E: Trails Inventory.

- **Regional Trail.** Regional trails are intended to meet the goals and objectives of outlined in Chapter 5 and to provide the spine for the trail network. Regional trails link parks, open spaces, significant environmental features, public facilities and areas of interest. These trails are provided by local jurisdictions and the County's P&RS. These trails extend beyond the borders of Pierce County and will serve as a continuous recreational and commuter corridor.
- **Sub-regional Trail.** Sub-regional trails provide transportation and recreational benefits by linking two or more regional trails. Sub-regional trails provide connections between cities, towns and key destinations. Sub-regional trails also create recreation loops to county and regional parks, natural areas and other environmental features.
- **Connector Trail.** Connector trails provide convenient connections through urban areas and from neighborhoods to the regional and sub-regional trails.



Park, Recreation & Open Space Plan

Map 9: Trail Linkage Opportunities

All users of the data shall be advised that the map features are approximate and are intended only to provide an indication of said feature. Additional areas that have not been mapped may be present. This is not a survey. The County assumes no liability for variations ascertained by actual survey. ALL DATA IS EXPRESSLY PROVIDED "AS IS" AND "WITH ALL FAULTS". The County makes no warranty of fitness for a particular purpose.

MIG July 2009 | Data Source: Pierce County GIS, Foothills Trail Coalition, Trails Plan Technical Working Group, and Community Plan - planning area maps. Projection: NAD 1983 HARN State Plane Washington South FIPS 4602 Feet Lambert Conic Conformal

- | | | |
|------------------------------|---------------------------------|-------------------------|
| Existing County Trail | Water Trail | Linear Park/Trail |
| Proposed County Trail | County Trailhead | County or Regional Park |
| Proposed Trail Partnership | Other Trailhead | Other Park |
| Existing Other Trail | Water Trail Access | Other County |
| Proposed Other Trail | County or Regional Park | Pierce County |
| Proposed NMTP Linkage | County Recreation Center | Municipality |
| Proposed Roadway Linkage | Employment | Interstate |
| Existing Out of County Trail | College or University | Highway/Major Arterial |
| Proposed Out of County Trail | Middle, Jr. High or High School | Railroad |
| | | Water Feature |

PROPOSED CLASSIFIED NETWORK

Map 10: Trail Classifications illustrates a comprehensive trails system with a clear hierarchy of trails that creates connections between regional trail alignments, key destinations, communities and the region. The alignments identified as regional trails follow the Adaptive System Map concept and go one step further by identifying the existing and proposed off-street trail alignments, NMTP on-street alignments and roadway linkage opportunities, which are summarized in Table 7.6. This is followed by Table 7.7 which summarizes the trail classifications by pathway type: off-street trail (county, partnership and other jurisdiction), NMTP on-street alignment and roadway linkages.

Table 7.6: Summary of Trail Classifications

Total by Classification	Approximate Miles ¹
Regional Trail	282.4
Sub-regional Trail	183.2
Connector Trail	126.3
TOTAL	551.9²

¹Mileage is approximate and has not been derived from a survey.

²This total includes NMTP on-street alignments and roadways, which are not included in Appendix E: Trails Inventory, these alignments provide additional 258 miles of possible trail linkages. More information is available under separate cover in the Needs Assessment Summary Report, May 2009.

The complete network within Pierce County would provide approximately 592 miles of connected pathways.

Table 7.7: Summary of all Trail Classification Mileage¹ by Pathway Type

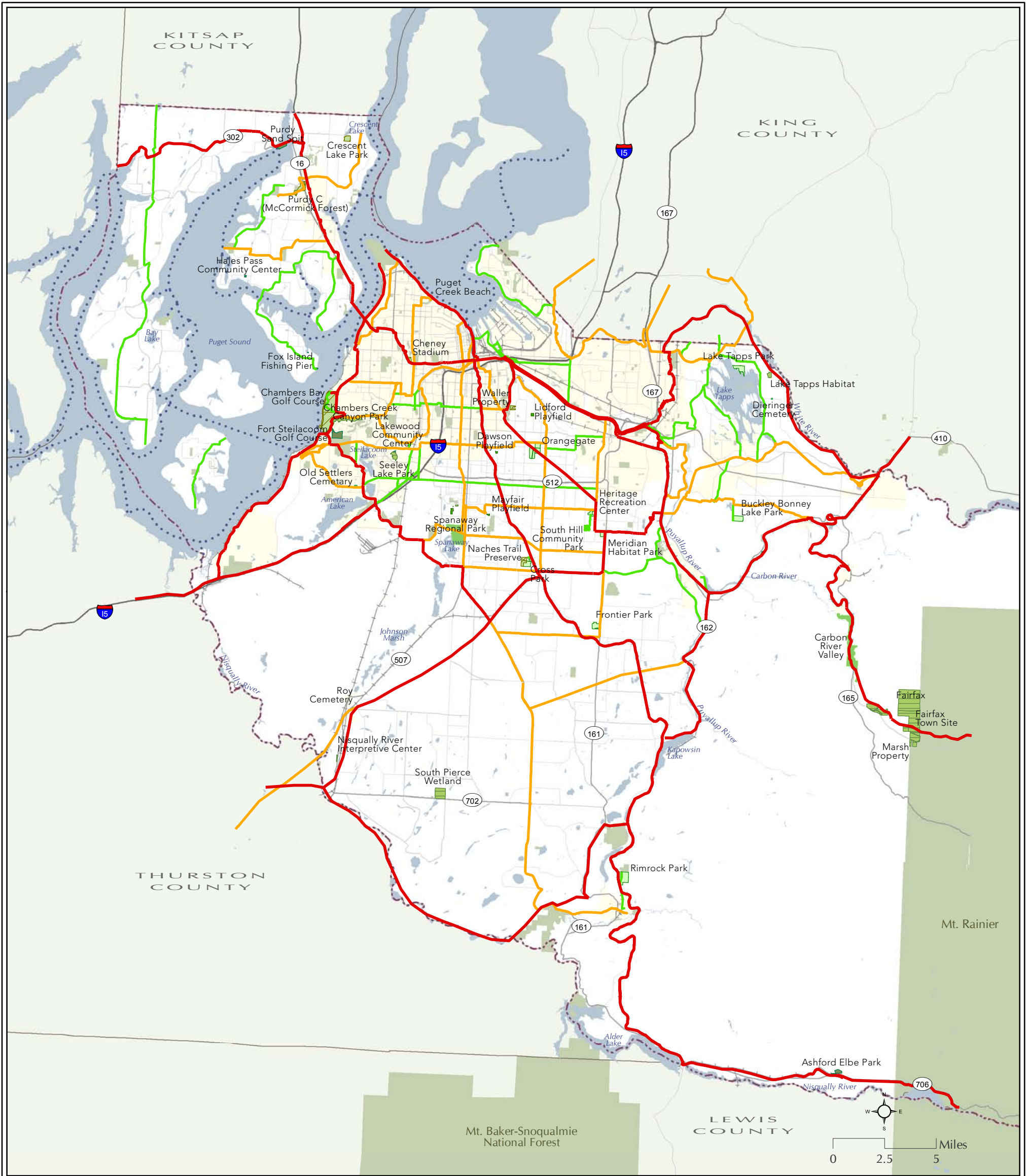
Trail Classification	Regional	Sub-regional	Connector	Total
County off-street trails	27.4	0.0	4.0	31.4
Partnership off-street trails	63.0	0.4	1.5	64.9
Other jurisdiction off-street trails	154.2	63.8	20.0	238.0
Roadway linkages	5.8	101.2	79.7	186.7
NMTP on-street alignments	32.0	17.8	21.1	70.9
TOTAL	282.4	183.2	126.3	591.9

¹Mileage is approximate and has not been derived from a survey.

PROPOSED REGIONAL TRAIL CONCEPT

The proposed regional trail network would primarily be comprised of off-street trails with NMTP on-street alignments and roadway linkages filling the gaps in the network. The trails composing the spine of the system would total approximately 282 miles. The spine would contain 245 miles (87%) of off-street trails, 32 miles (11%) of NMTP on-street alignments and six miles (2%) of roadway. This core alignment of pathways would be considered the spine of the regional trails system. Map 11: Regional Trails Concept illustrates the proposed spine of the regional trail network.

Table 7.8 summarizes the existing and proposed trail alignments that comprise the spine of the regional trails system (Map 11) managed by the County's P&RS or as a trail partnership project. The principal interest of the County's Parks Department is the completion of the spine of the regional trail network through its own actions or partnerships, and support of the completion of local jurisdiction trail alignments when feasible. Pierce County, City of Buckley, City of Enumclaw in King County and King County (as the principal lead) are jointly pursuing the construction of an extension of the Foothills Trail across the White River outside the City of Buckley. This extension will connect the Pierce County Foothills Trail to King County's Foothills Trail that extends into the City of Enumclaw. The plans are to replace the Burlington Northern Railroad trestle that was removed sometime ago with a new 250' long, 14' wide elevated trail over the White River.



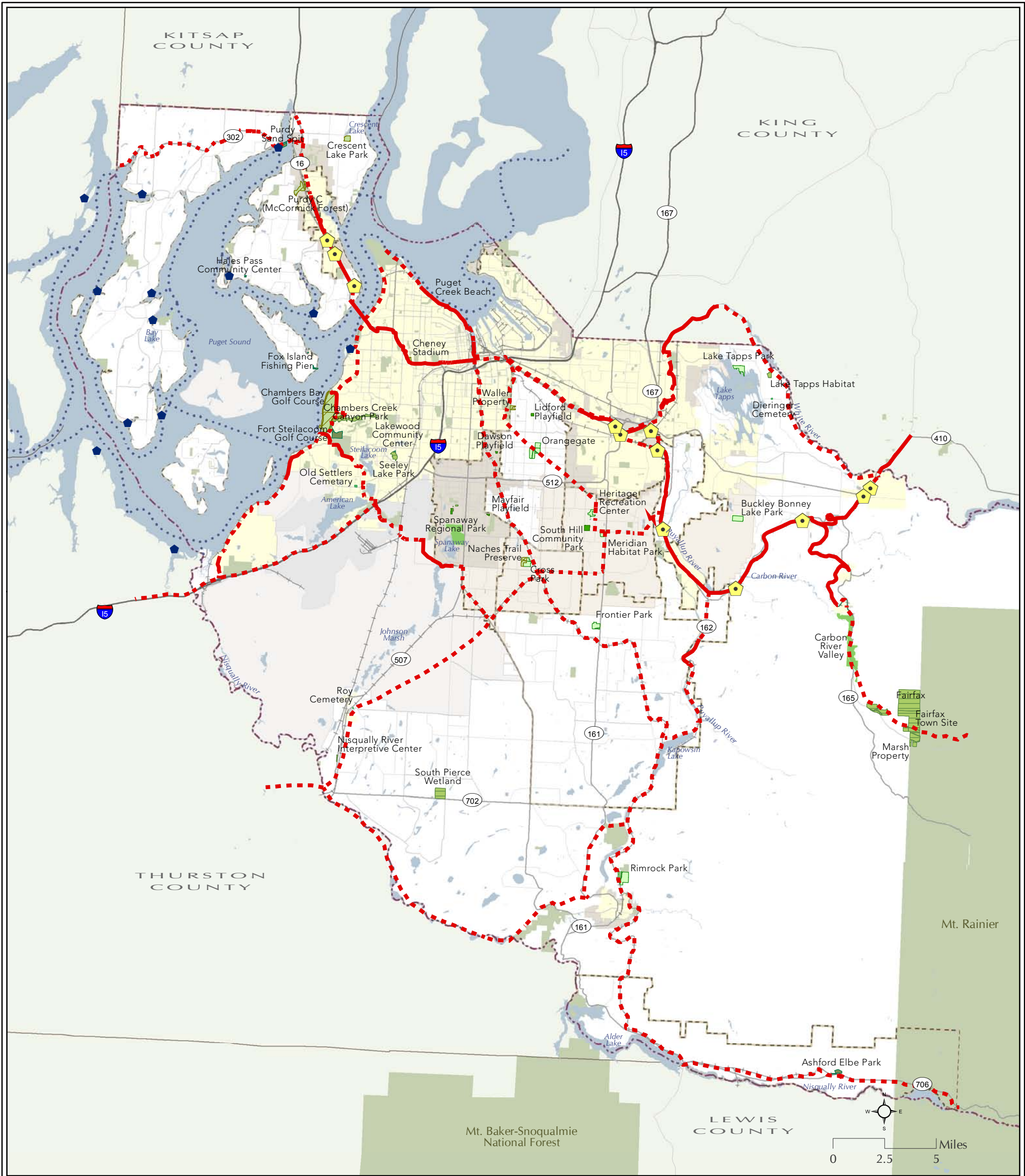
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Map 10: Trail Classification

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|--------------------|---------------------------|------------------------|
| Regional Trail | Special Use Facility | Municipality |
| Sub-regional Trail | Linear Park/Trail | Pierce County |
| Connector Trail | Resource Conservancy Park | Other County |
| Water Trail | Undeveloped Site | Interstate |
| Regional Park | Cemetery | Highway/Major Arterial |
| County Park | Other County Owned Park | Railroad |
| Local Park | Other Park | Water Feature |



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Map 11: Regional Trails Concept

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|--|-----------------------------|--|--|--|-------------------------|
| | Existing Regional Trail | | Special Use Facility | | Rural Federal Land |
| | Proposed Regional Trail | | Linear Park/Trail | | Urban Federal Land |
| | Water Trail | | Resource Conservancy Park | | Community Planning Area |
| | Existing Regional Trailhead | | Undeveloped Site | | Pierce County |
| | Water Trail Access | | Cemetery | | Other County |
| | Regional Park | | Other County Owned Park | | Municipality |
| | County Park | | Other Park | | Interstate |
| | Local Park | | Urban Unincorporated Area | | Highway/Major Arterial |
| | | | Within County UGA -not within a city UGA | | Railroad |
| | | | Water Feature | | |

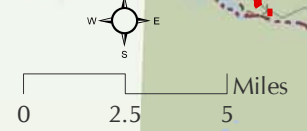


Table 7.8:
Summary of County and Partnership Trails Classified as Regional Trail

Pierce County Trail	Approx. Miles¹
Foothills Trail	26.1
Foothills Trail - Carbonado to Cascade Junction (Wilkeson Section)	1.1
Foothills Trail - Carbonado to Cascade Junction (Wilkeson to Carbonado)	2.1
Foothills Trail - Carbonado to Cascade Junction (Wilkeson to Cascade Junction)	3.7
Foothills Trail - McMillin to Orting	3.1
Foothills Trail - Merker Junction to McMillin	4.6
Foothills Trail - Orting to South Prairie	7.3
Foothills Trail - South Prairie to Buckley (Buckley)	0.3
Foothills Trail - South Prairie to Buckley (Phase I)	1.3
Foothills Trail - South Prairie to Buckley (Phase II)	1.6
Foothills Trail - South Prairie to Buckley (Phase III)	1.1
Grandview Trail	0.9
Grandview Trail - Cirque Dr to 64th St.	0.9
Stewart Road Trail	0.4
Stewart Road Trail I - Stuck River to Sumner Meadows Park	0.4
PIERCE COUNTY TOTAL	27.4
Trail Partnership	-
Cross County Commuter Collector Trail – Tacoma Public Utilities, Water Division	12.6
Cushman Power Line Trail - Purdy to 96th St NW	3.3
Link - Foothills Trail - Enumclaw Connector	1.8
Trail Linkage Tacoma Dome Station/Freighthouse Square (north)	0.2
Train to the Mountain Rail with Trail - Port of Tacoma, Tacoma Rail Division	45.1
TRAIL PARTNERSHIP TOTAL	63.0
COUNTY AND PARTNERSHIP PROJECT TOTAL	90.4

¹Mileage is approximate and has not been derived from a survey.

The regional class county and trail partnership projects total an approximate 90 miles and of this total 27 miles are developed off-street trails and 63 miles are proposed. The remainder of the regional trail network within the county is approximately 192 miles of trails that are a combination of existing and proposed off-street trail alignments

managed and conceived by other jurisdictions and organizations, or are on-street NMTP alignments or other roadway opportunities¹.

Table 7.9: Summary of Other Trails Classified as Regional Trail

Other Trails	Approx. Miles ¹
Ashford to Elbe Trail	8.1
Ashford to Rainier	6.4
Cushman Power Line Trail – 96th St NW to Narrows	4.9
DuPont/Nisqually Trail	9.8
Fort Steilacoom Trail	1.4
JEB III Trail - Dixie Gatchel Trail	0.9
Link - 144th St E to Foothills Trail	2.0
Link - Foothills Trail to JEB III trail – Dixie Gatchel Trail	0.8
Link - Foothills Trail to (Mt. Rainier Connector)	11.4
Link - Foothills Trail to Train to the Mountain RWT	9.0
Link - Train to the Mountain RWT to North Levee Trail	1.4
Narrows/Grandview Trail	7.9
Nisqually River Trail	13.2
North Levee Trail	8.2
NW Trek Wildlife to Nisqually-Mashel State Park	8.5
Perimeter Rd to 176th St S	2.1
Puyallup River Trail	4.6
Puyallup River Walk	5.1
Ruston Way	4.1
Schuster Parkway Sidewalk/Trail	1.4
Scott Pierson Trail	6.3
Shoreline Trail	4.3
Thea Foss Esplanade	1.7
Trail to McKenna	15.2
White River Trail	15.5
TOTAL	154.2

¹Mileage is approximate and has not been derived from a survey.

¹ Information regarding the NMTP and roadway alignments are provided under separate cover in the Needs Assessment Summary Report, May 2009.

Approximately 154 miles of the trails illustrated in Map 11 are alignments managed or proposed by other jurisdictions or agencies with an existing 27 miles of off-street trails and 127 miles of proposed off-street trail alignments, which are summarized below in Table 7.9. The remaining 38 miles of regional trail alignments is a combination of NMTP on-street alignments and roadway linkages.

TRAILS IMPLEMENTATION

This chapter puts forth trail policies, guidelines, and a regional trail concept that are intended to guide the implementation of the mission and vision of the Pierce County Parks & Recreation Department, as well as support the advancement of the County's Non-motorized Trail Plan. The following presents some decision support tools for prioritizing trail projects, planning costs of future trail projects and involving the public in the process as the County continues to plan and develop regional trails.

EVALUATING AND PRIORITIZING TRAIL PROJECTS

Pierce County has been effective at building trails, but there are many other jurisdictions and trails organizations planning and developing trails within the County. Establishing prioritization criteria for trail development will assist the County and its partners in implementing the regional trails plan and in supporting the development of a connected regional trails network. Agency staff can use the criteria to help select trail projects for development and assists in balancing the needs of the region, with the availability of land, funding, and support for regional trail development.

The criteria can also be used by the County in managing requests by trail project advocates. Trail groups and advocates can respond to the list as a step in getting a trail project through the funding and development process. The criteria respond to the goals and principles outlined in Chapters 5 and 6, applicable regulatory documents, design standards and funding opportunities. It is assumed that if a project is under project review it is in regulatory compliance with federal, state, and local regulations. The criteria have been organized into five categories:

- Access & connectivity;
- Urgency;
- Costs & benefits;

- Support; and
- Design & maintenance.

Because the criteria address a wide range of considerations, it will ultimately be the responsibility of County decision makers to determine whether a project has adequately addressed the evaluation criteria. As a result, it is possible that desired projects will not meet all of the criteria. In addition, these criteria are not exhaustive; regional priorities may change over time and the importance of some criteria may need adjustment in the future. Ultimately, the County can use the criteria to balance the desires of the region with a number of considerations outlined on the following pages.

ACCESS & CONNECTIVITY

Projects that improve non-motorized transportation access and connectivity throughout the region should be given a high priority. This is especially critical in areas where non-motorized transportation is constrained or limited by heavy vehicle traffic or busy intersections. Proposed projects should connect to regional-scale recreation opportunities and water access where available. Projects that connect County parks and facilities directly support Goal 2 of the this Plan. To determine whether projects improve access and connectivity in the region, projects should address the following criteria:

- The project creates a connection within the regional trail network. The alignments classified as regional trails provide a spine for the trails network. Development of regional trails provides opportunities for local jurisdictions to connect to the regional network of trails.
- The project will provide safe access for trail users. A safe trails network provides multiple access locations, and continuous and unobstructed paths of travel.
- The project will increase access and provide low cost transportation and recreation options for low income and underserved populations.
- The project improves access to regional and county parks and recreation facilities.

- Creates regional connection.
- Provides safe access.
- Increases access to low cost transportation
- Accesses regional parks and facilities.
- Accesses commercial and employment centers
- Accesses public schools and universities.
- Accesses transit.
- Accesses areas of interest

- The project improves access to major commercial and employment centers.
- The project improves access to public schools and universities.
- The project improves access to transit centers, bus stops, park-and-ride lots, ferry landings and train stations.
- The project creates access to sites of natural, scenic or historic interest.

URGENCY

Projects should be prioritized that are time sensitive, opportunity based or ready to develop. Acquiring rights-of-way or reaching an agreement to acquire land by all affected property owners can be a lengthy process. However, projects within an existing right-of-way, or project sites with property owners willing to dedicate rights-of-way should be given a high priority. To determine the urgency of a project, projects should address the following criteria:

- There is an imminent threat to lose the project opportunity.
- The project corridor is under public ownership or is currently accessible for public use.
- The project does not require complex or lengthy acquisition process.
- The project does not require a complex or lengthy permitting process.
- The project is within an existing corridor such as transmission lines and railroad grades where it may be feasible to negotiate public access without needing to acquire the land.
- The project site is owned outright, or can be used through easement, use agreement, or lease.
- The project has funding available through grants, donations or partner contributions.
- The project finishes a segment of an already existing trail alignment.

- Opportunity loss.
- Public ownership and access.
- Limited or no need for acquisition.
- Limited or no need for permitting.
- Existing corridor and public access is negotiable.
- Site is owned or easement, use agreement, or lease is available.
- Funding is available.
- Finishes an alignment.

COSTS & BENEFITS

Projects that have a favorable cost to benefit ratio should receive a higher priority. Proposed projects should be evaluated based on benefit to the community, available funding, and initial costs, maintenance and operations, health and safety, and impacts to surrounding uses. To determine whether the benefits of a project outweigh the costs, the project should address the following criteria:

- The project will provide varied settings and experiences that can be enjoyed by a diversity of users, including people of all ages and abilities.
- The project will benefit underserved user groups.
- The total estimated project and maintenance costs have been identified including acquisition, materials, construction, enhancements, road crossings, structures, mitigation, planning, and permitting.
- Alternatives to the project have been examined as part of the trail's planning.
- There are no significant environmental impacts created by the project.
- Project funding is available to match the costs of the project.
- There are donations or other outside funding support for the project.

- Benefits wide diversity of users.
- Benefits underserved user groups.
- Total project costs have been identified
- Alternatives considered.
- No significant environmental impacts.
- Project funding is available.
- Alternate funding is available.

SUPPORT

Projects that have significant support and meet the identified needs of the region should receive a high priority. Projects should have support from the community as well as non-governmental agencies. Projects should strengthen new and existing partnerships and use the support of volunteers and/or special service programs where possible. To determine whether projects have support and meet the needs of the region projects should address the following criteria:

- Projects that will link other sections of completed trail and coincide with other planning and development activities.
- The project has been prioritized in other adopted plans.
- The project has volunteer and/or partner organization support.
- The project has the support of the other jurisdictions.
- The project is a collaborative effort of multiple stakeholders.
- The project does not have measurable opposition.

- Provides planned link.
- Prioritized in adopted plans.
- Project has volunteer and/or partner organization support.
- Support of other jurisdictions.
- Collaborative.
- Minimal opposition.

DESIGN & MAINTENANCE

Projects should be able to meet minimum design standards and require relatively low maintenance in the future. To determine whether projects will meet minimum design standards and require minimal maintenance, projects should address the following criteria:

- The project will comply with ADA accessibility guidelines.
- The project is physically separated from streets and roadways where possible.
- The project meets minimum standards for grade, width, vertical clearance, intersection and crossing design, speed, alignment, cross section and drainage.
- The project design considers low impact development techniques that protects and enhances significant environmental features.
- The project improves maintenance efficiency or reduces life-cycle costs.
- The project design incorporates Crime Prevention through Environmental Design (CPTED) concepts and techniques; providing open and visible trail corridors for both users and public safety services and personnel.

- ADA compliant.
- Physically separated from streets and roadways.
- Project meets design standards.
- Design considers low impact development techniques.
- Improves maintenance efficiency.
- Incorporates CPTED concepts and techniques.

TRAILS COST SUMMARY

Costs for building trails are influenced by local conditions, the availability of land and a need to develop low-maintenance and long lasting trail facilities. Planning level costs incorporate pricing for higher quality building materials, but does not include cost assumptions regarding associated labor, professional fees and environmental mitigation requirements. This chapter provides planning level estimates that should not be used to estimate actual costs for the design and build of specific projects, but for calculating linear feet and unit costs of trails, trailheads and crossings similar to those illustrated in Appendix I: Trail Design Guidelines.

TRAIL SURFACE

Trail surfaces may vary depending on site conditions and constraints. Some sections of trail may require bridge crossings or boardwalks. Estimates for asphalt and concrete both assume use of porous materials to minimize storm water run-off. The costs below provide general linear foot costs for typical trail construction.

Table 7.10: Trail Surface Cost Summary

Improvement	Units	Unit Price
Standard porous asphalt pathway (assume 16' wide)	LF	\$ 112
Standard porous concrete pathway (assume 16' wide)	LF	\$ 140
Stand non-porous asphalt pathway (assume 16' wide)	LF	\$ 96
Crushed rock pathway (assume 10' wide)	LF	\$ 50
Boardwalk (assume 12' wide) includes minimum impact footings	LF	\$ 120
Bridge (assume 12' x 100' span) prefabricated including footings	LF	\$ 2,000

URBAN TRAILHEAD

The urban trailhead consists of a parking area, restroom, landscaping, and other site amenities. The site feature costs below include one bike rack, two benches, two trash receptacles, and signage. The size of parking area and amount of landscaping will vary the total cost for development. The costs below include an estimate based on a 10,000 square foot parking area and 2,500 square foot plaza.

Table 7.11: Urban Trailhead Cost Summary

Improvement	Units	Unit Price
Restroom	EA	\$150,000
Parking area	EA	\$ 10,000
Plaza area	EA	\$ 2,500
Site features	LS	\$ 10,500
Plantings	LS	\$ 10,000

EQUESTRIAN TRAILHEAD

The equestrian trailhead requires slightly more space to accommodate horse trailers and a staging area. Cost estimates are slightly higher than the urban trailhead. The site features cost is based on the same amenities as the urban trailhead in addition to a corral. The costs below include an estimate based on a 10,000 square foot parking area and 2,500 square foot plaza.

Table 7.12: Equestrian Trailhead Cost Summary

Improvement	Units	Unit Price
Restroom	EA	\$ 150,000
Parking area	EA	\$ 10,000
Plaza area	EA	\$ 2,500
Site features	LS	\$ 15,500
Plantings	LS	\$ 10,000

SIGNAL CROSSING

Street crossing treatment may vary considerably based on street classification, width, and design standards. The paving assumes construction of a 12' wide crossing using concrete pavers for a two-lane road. Costs for the median island include a 20' by 10' curbed area and 80' tapers.

Table 7.13: Signal Crossing Cost Summary

Improvement	Units	Unit Price
Special crossing paving (assume 12' wide)	LF	\$ 150
Median islands (widening)	LS	\$ 10,000
Signalization	LS	\$ 160,000
Directional signs	EA	\$ 250
Stripping/reflectors/tactile warning/etc.	LS	\$ 7,500

SITE FEATURES

There are several site features that may be added along the regional trail, and within individual trailheads. The cost for signs may vary depending on design, size, and material. The table below provides general costs for common site features that can be included throughout the regional trail system.

Table 7.14: Site Features Cost Summary

Improvement	Units	Unit Price
Bench	EA	\$ 1,200
Trash receptacle	EA	\$ 500
Sign - directional	EA	\$ 250
Sign - informational	EA	\$ 5,000
Standard bollard	EA	\$ 500
Removable bollard	EA	\$ 1,200
Curb stop	EA	\$ 150
Bike rack (5 spaces)	EA	\$ 600

LANDSCAPING

New landscaping will be required along the regional trail system, and at each trailhead. The number and type of tree and plant species will vary depending on location, soil condition, and other site specific characteristics. Site mitigation and irrigation will also vary depending on the final design of the project.

Table 7.15: Landscaping Cost Summary

Improvement	Units	Unit Price
Trees	EA	\$ 500.00
Shrubs	SF	\$ 1.50
Groundcover	SF	\$ 1.00
Seeding areas	SF	\$ 0.20
Mitigation	Acre	\$ 25,000.00
Irrigation (temporary)	Acre	\$ 20,000.00

