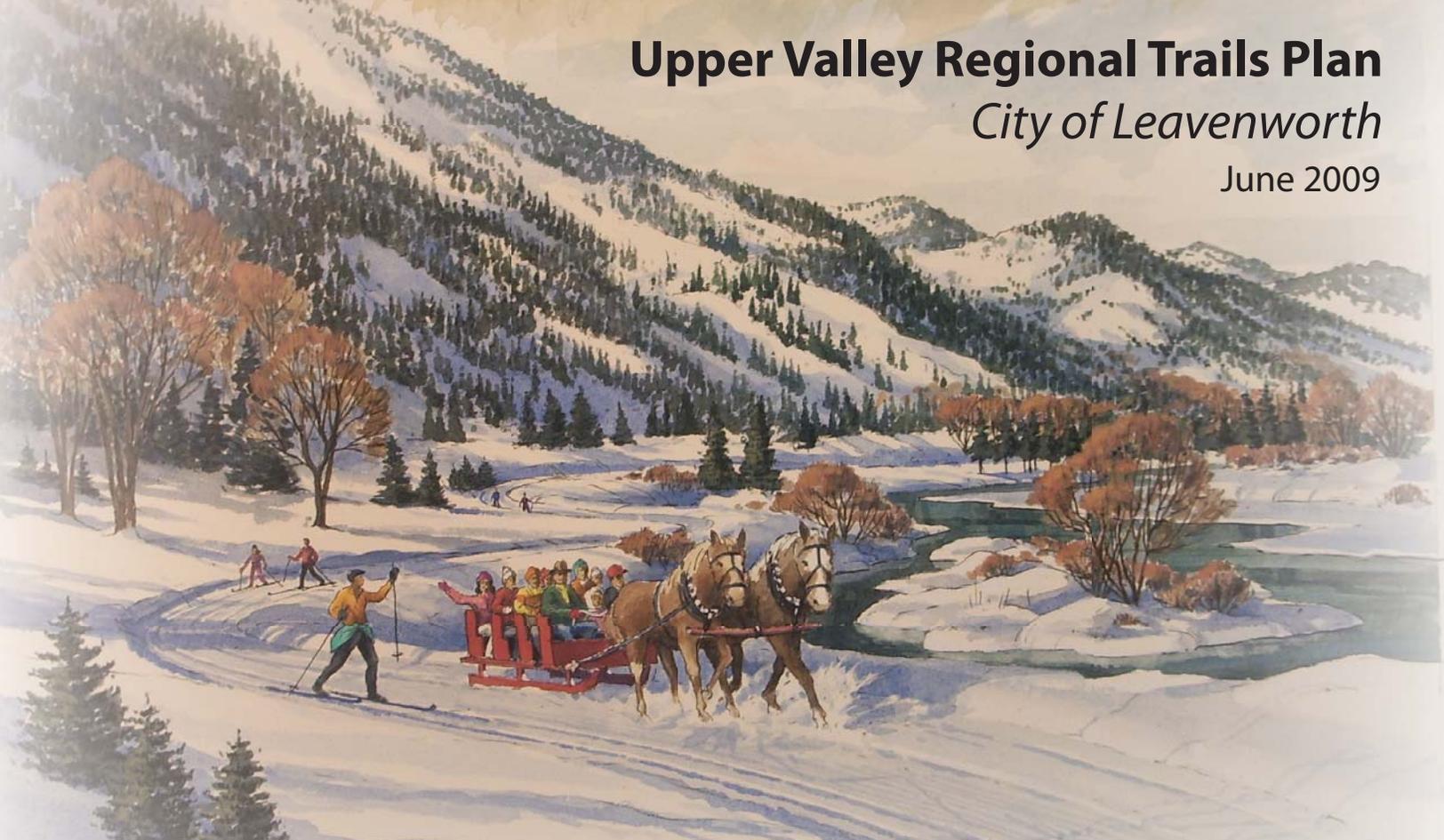




**Upper Valley Regional Trails Plan**  
*City of Leavenworth*

June 2009





# Upper Valley Regional Trails Plan Leavenworth, Washington

Prepared for:

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**June 2009**



# Upper Valley Regional Trails Plan

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Leavenworth, Washington

June 2009



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## EXECUTIVE SUMMARY

The Upper Valley Regional Trails Plan, which will guide the planning and development of public trails within the City of Leavenworth and surrounding communities, integrates a number of existing planning efforts and identifies new opportunities. The plan provides the tools necessary to plan, design, fund, and implement non-motorized trails and will result in the creation of a single interconnected regional trail system—a network of public trails that will 1) provide residents with valuable opportunities for recreation, exercise, wildlife viewing, and environmental education; 2) support non-motorized transportation; and 3) encourage tourism. The plan addresses the benefits to health and quality of life associated with walking, hiking, biking, cross-country skiing, and horseback riding in this diverse natural environment.

The recommended plan is based on extensive public input from local citizens and stakeholders. A steering committee composed of members representing multiple jurisdictions reviewed and provided advice to the City throughout the planning process. Community members participated in stakeholder interviews so they could share their knowledge, opinions, and ideas for improving existing trails and identify new trail locations. In addition, the community received information and provided input at three public meetings.

The project team evaluated existing conditions via field observations, conducted interviews to identify issues and concerns, and synthesized this information into three alternatives. Through extensive steering committee and community review, the alternatives were refined into a preferred alternative and later developed into the recommended trails plan. The plan includes recommendations for connecting neighborhoods, schools, downtown, employment centers, and parks and extends beyond the Leavenworth community. The recommended trail system takes advantage of existing sidewalks and bike lanes, connecting them to key features such as parks and schools.

The recommended trail system plan is consistent with the City's Comprehensive Plan and Draft Transportation Plan because it connects employment, commercial, residential, and recreational areas along arterial roads. Portions of the plan will better connect schools and residential areas to encourage walking and biking to school. In addition, the plan will greatly expand the City's existing bike lanes and foster multi-modal transportation. Portions of the plan will serve as part of the transportation system and support commuting as well as recreational opportunities.

The body of this report includes maps of the proposed trail system plan broken down by user group. Design standards for the entire trail network are discussed, as are design guidelines for particular uses. The design guidelines were developed to be consistent with Washington State Department of Transportation, Chelan County, and City minimum design requirements but the guidelines should be discussed when conditions and funding allow improvements.

This plan seeks to assist the development of a safe, accessible, and interconnected trail system. Implementation will depend entirely on the active collaboration of trail advocates and multiple public agencies including the City, County, US Forest Service, and Washington State Department of Fish and Wildlife, among others. This document provides local agencies and the community with guidance to move forward with implementation and should be reviewed frequently and updated as conditions and opportunities change. While the plan is expected to be adopted into the City's Comprehensive Plan, community outreach cannot stop with adoption; trail advocates should continue to work to make the plan a reality by gaining the support of jurisdictions and agencies for the adoption of the plan and the development of individual trail segments. Most likely, the next steps in planning and design will be undertaken incrementally by the various local government entities and organizations. It is important to remember that trail systems often take years to grow from concept to reality as workable alignments are determined, rights-of-way are secured, and resources are found for trail construction.

## I INTRODUCTION

Along with the increasing development in the Upper Valley area has come an increased number of trail planning projects. The City of Leavenworth (City) and Chelan County (County) believed it was time to develop a comprehensive, long-range plan for a system of trails throughout Leavenworth and the surrounding area.

The Upper Valley consists of the areas around Leavenworth, which include mostly the Wenatchee National Forest lands stretching to surrounding communities, with Plain to the north from Chumstick Highway and Peshastin to the southeast, and Highway 2 continuing down to Wenatchee. The area is popular because of its well-known Bavarian theme and the recreational opportunities that are available throughout the area. The increasing numbers of residents and visitors to the area have created more demand to connect existing trail systems by creating new trail corridors and opportunities for a variety of user groups. To develop a more comprehensive trail system that focuses on connecting the trails existing throughout the Upper Valley area, the City, along with the County, received a grant through the Washington State Department of Community, Trade, and Economic Development (CTED) and hired BergerABAM to develop the Upper Valley Regional Trails Plan (the plan).



The plan integrates a number of existing planning efforts and identifies new opportunities, resulting in the creation of a single regional trails plan. The existing planning efforts reviewed by the project team included the Valley Trail Plan, County and City transportation plans, Peshastin Community Plan, Leavenworth Downtown Master Plan, Leavenworth Parks and Recreation Comprehensive Plan, Leavenworth Mountain Bike Trails Master Plan, Wenatchee National Forest Tumwater Mountain Plan, and other documents. The process includes an evaluation of trail corridor opportunities on public, semi-private, and private lands. The boundary of the Upper Valley Regional Trail planning process extends approximately 5 miles from downtown Leavenworth. As part of a future regional trail network, the Leavenworth area will connect with trails coming from Plain through Leavenworth and to the communities east toward Wenatchee.

The interconnected trail system outlined in this report will provide recreation, support non-motorized transportation, and encourage tourism. The trails and pathways that are proposed address the needs of the public for the health and quality of life benefits associated with walking, hiking, biking, cross-country skiing, and horseback riding in this diverse natural environment. The goals of the plan are to encourage new trails and maintain existing trails as an enjoyable, efficient, and safe network. To the extent possible, the proposed trails can accommodate users who have differing levels of physical ability.

### Purpose

This plan provides the tools necessary to plan, design, fund, and implement non-motorized trails in the Upper Valley of Chelan County. It includes input from a diverse group of stakeholders and community members, who assisted with drafting a vision of a network of non-motorized trails to link residents to their destinations, connect communities, provide access to existing trails, and connect natural areas.

The sections of this report

- Identify project goals and objectives;
- Summarize and document the public process used in the plan development;
- Describe existing conditions and assess needs;
- Illustrate the location and alignment of the recommended trails plan;
- Establish design standards for the construction of the proposed trails;
- Establish priorities for implementation and strategies for its achievement ;
- Develop a plan consistent with funding requirements; and,
- Support the adoption of the plan by City leaders, regulatory agencies, County Commissioners, and others.

## Goals & Objectives

**Vision statement:** A community in which residents and visitors, in a safe and enjoyable manner, can travel for leisure or work, from corner-to-corner by their own force.

### Goal 1: Connectivity

Facilitate the development of an interconnecting trail system for the Upper Valley of Chelan County, consisting of sidewalks, bike lanes, and non-motorized shared-use paths for variety of trail users including bicyclists, equestrians, cross-country skiers, and pedestrians of all ages and skill levels.

#### Objectives:

- Combine different types of non-motorized routes in areas such as road rights-of-way, along rivers, utility corridors, and other natural corridors to create an interconnected system
- Provide accessible routes to connect both residents and visitors to neighborhoods, schools, commercial areas, recreation facilities, community centers, attractions, and natural areas
- Incorporate multiple modes of travel through all seasons including but not limited to pedestrians, bicyclists, equestrians, and cross-country skiers



### Goal 2: Alternative Transportation

Create safe, accessible, and convenient routes that promote walking and biking to schools and places of work as an alternative form of transportation integrated with other transportation systems.

#### Objectives:

- Promote safe routes to area schools
- Promote bicycling and walking to work
- Incorporate alternative modes of transportation into all road planning and design
- Encourage local businesses to provide employee incentives to choose alternative forms of transportation
- Increase awareness of benefits of alternative modes of transportation

### Goal 3: Safety

Enable users to travel safely from their homes to community destinations and recreational facilities without using a motor vehicle.

#### Objectives:

- Minimize conflicts between pedestrians, bicyclists, and vehicles
- Eliminate obstacles to non-motorized travel
- Improve the safety of the existing non-motorized system
- Increase the awareness and use of ADA design requirements
- Provide signs and/or signals for at-grade street crossings
- Create design standards to promote safety and minimize conflicts between trail uses

### Goal 4: Recreational Opportunities

Increase access to local and regional recreational opportunities for people of all ages and levels of mobility. Provide a variety of trail experiences by locating trails of



varying lengths and difficulty through diverse terrain, scenery, and points of attraction to draw users and maintain their interest.

**Objectives:**

- Improve existing facilities to make them more useable and easier to find
- Improve opportunities for exercise by residents
- Encourage use of trails, parks, and natural areas to promote active living
- Expand on-site environmental education and interpretation of natural resources
- Develop trail design standards to blend trails into the natural environment with as little environmental disruption as possible

**Goal 5: Implementation**

Provide trail advocates and agencies with the resources and knowledge needed to implement the regional trails plan. Raise awareness and encourage trail partnerships.

**Objectives:**

- Create a planning document to pursue state, federal, and private grants to help construct non-motorized trails
- Help build relationships between local agencies and foster multi-jurisdictional planning for trails and sharing of resources for recreational and transportation systems
- Prioritize sections of trail for funding
- Use existing rights-of way, public land, and utility and rail corridors where possible to minimize cost of implementation

**Goal 6: Education**

Promote the economic benefits of trails and build public support and awareness of them.

**Objectives:**

- Increase public awareness of the benefits of transportation alternatives
- Identify where trails are located
- Develop media campaign to educate the public on the economic benefits of trails (i.e., maps, newsletters, and web page)
- Promote volunteerism and environmental stewardship



## II PUBLIC INVOLVEMENT

The regional trail system plan is based on extensive public input from local citizens and stakeholders. The methods described in the following sections were used to obtain input.

### Steering Committee

Members of the Steering Committee were selected to advise the City and provide input about the trails plan. Members included representatives of the City Council and Planning Commission, the County Planning Commission, US Forest Service (USFS), Fat Tire Club, TRAIL Washington, Chelan Douglas Land Trust (CDLT), Peshastin Community Council/ Upper Valley Parks and Recreation Service Area (PRSA), Leavenworth Winter Sports Club, and Back Country Horseman.

The committee met on several occasions to review elements of the proposed trail system. They reviewed and commented on alternative concept plans, preliminary design sketches, and various drafts of the preferred trails plan. The committee provided valuable insights related to the physical and demographic features of the regional trails system plan, gave useful feedback, and deliberated on public comments received at each stage in the planning process.

The committee also acted as a liaison between local jurisdictions and committee members' constituencies. At key points in the planning process, the City provided information on the website and to committee members to share with their constituencies. Committee members were encouraged to distribute project information, solicit input from the public, and promote community participation at public meetings.

### Stakeholders

As a first step in developing the plan, community members participated in stakeholder interviews so that they could share their knowledge, opinions, and ideas for improving existing trails and identifying new trail connections. The initial list of stakeholders for interview was developed by the Steering Committee, the City, and the consultant team.

The interviews were conducted on site at a trail location or in an office setting with the aid of the maps prepared as part of the existing conditions assessment. The interviews were used to identify a range of challenges and opportunities. A project fact sheet and the stakeholder questionnaire were distributed to participants in advance of the interview (see Appendix A for copies).

Outreach efforts targeted the public as well as the following stakeholder groups:

- Business owners
- Das Rad Haus
- Der Sportsman
- Leavenworth Mountain Sports
- Osprey Rafting
- River Riders
- Tube Leavenworth
- Sleeping Lady Lodge
- Barn Beach Reserve
- Cascade School District
- Chelan County
- Chelan County Public Utility District (PUD)
- CDLT
- City of Leavenworth
- LINK Transit
- Peshastin Community Council/ PRSA
- Recreational user groups
- Apple Capital Bicycle Club
- Back Country Horsemen
- Back Country Users Group
- Bicycle Advisory Council
- Bavarian Volkspoint Association
- Leavenworth Lightfooters
- Leavenworth Winter Sports Club
- TRAIL Washington
- Upper Valley Connection
- Regional Trails Planning Steering Committee
- USFS
- Washington State Department of Transportation

### Public Meetings

In addition to the stakeholder interviews, three public meetings were held to provide information and solicit input. As part of the public meetings, participants were asked to provide feedback on the process as well as the content of the plan itself. Throughout, staff continued to seek suggestions for opportunities to expand outreach and enhance participation (see Appendix B for verbatim summaries of public comments).



## Open House Number 1

A public kick-off meeting introduced the project; its purpose, process, and timeline; the area included for planning; and opportunities for public input. At this meeting, members of the public were invited to share with the planning team their vision for a multi-use, non-motorized trail system. They were also encouraged to mark up maps showing existing trails and areas where new trails might be appropriate. This input was valuable in collecting existing trail information and was used to prepare the initial trail system maps and develop the needs assessment. A stakeholder questionnaire was used to gather public input.



## Open House Number 2

Before the second public meeting, the design team met with representatives of the Steering Committee and City to review the trails needs assessment and the stakeholder interview summary, obtain input on the preliminary alternatives for the plan and the draft design standards, and prepare for the second public meeting. During this meeting, the team presented an overview of the three alternatives, highlighting the key features of each, along with the draft design standards.



## Open House Number 3

During the third open house, the team presented information about how community feedback and a preliminary feasibility study was used to create the preferred alternative. The preliminary feasibility study included a review of existing GIS mapping and examinations of topography, environmental constraints, and the existing built environment as well as site visits to ground-truth the GIS data and complete a more detailed review of potential trail corridors. Some proposed trails were eliminated from further consideration while others were added because of this review. The preferred plan:

- Emphasizes connecting existing trails with proposed new trails
- Proposes new trails on public lands and road rights-of-way
- Minimizes crossings of private lands and environmentally sensitive areas

As a companion to the preferred trails plan, four maps were created to identify specific connections for each user type including pedestrians, bicyclists, cross-country skiers, and equestrians. A set of detailed design standards for each user type provides guidelines for a range of trail types available for each user. Community input suggested refinements, additions, and modifications to the trails plan. The team used the information to develop the recommended plan presented in this report.



## Adoption

The Upper Valley Regional Trails Plan will be a presentation to City Council so that the plan can be reviewed and adopted into the City's comprehensive plan. Information included for review includes the trails summary report, along with support maps/graphics and a PowerPoint presentation that describes and illustrates the recommended regional trails plan and planning process.

The outreach for this plan does not stop at the City's adoption. This plan needs to be adopted by other jurisdictions in order to be truly developed. Other jurisdictions may choose to adopt parts of the plan, none of the plan, or the whole plan. Committee members and interest groups, including the City, will need to gain more support and create more enthusiasm for the plan in order to get other jurisdictions and agencies to adopt it and/or help develop the individual trail segments. A joint meeting for decision makers will be necessary to present the plan and discuss how to make it work collectively.

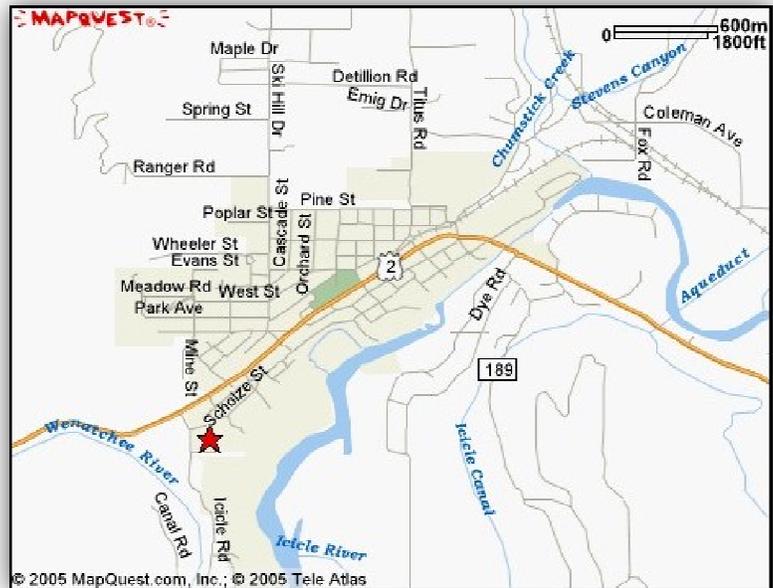
### III EXISTING CONDITIONS

#### Location

Leavenworth, Washington, is located about 3 hours northeast of Seattle on Highway 2 near the foot of Icicle Canyon and the base of the Cascade Mountains. Its striking alpine-like setting and Bavarian-theme village attract approximately 2.5 million visitors a year who come from around the world for festivals, nearby recreation, and shopping. Most of the businesses are locally owned, and the community is involved in all aspects of the many festivals and events. Volunteerism is high, and residents work hard to balance the needs of residents with those of tourists.

During peak weekends, as many as 30,000 tourists visit the town—fifteen times the residential population of 2,269.<sup>1</sup> Highway 2, which bisects the town, is lined with hotels, restaurants, and service stations, all with Bavarian-themed facades and signage. Vehicular traffic is increasing, and in an effort to relieve congestion, Leavenworth is planning to become a new daily stop on Amtrak's Empire Builder train, which already passes through town.

A summary follows of the existing trails, parks, and other facilities that were considered in planning the Upper Valley regional trail system within the project's boundary—a radius of approximately 5 miles around Leavenworth. The summary is split into community trails—those closest to Leavenworth that are used by local residents for commuting and recreation—and regional trails that are longer, can access other neighboring communities, and could be an attraction for recreational tourists.



#### Existing Community Trails

Overall, there is a wonderful system of trails and parks right in Leavenworth for year-round recreation, watching birds and wildlife, and enjoying beautiful habitat and scenery. Each of these trails—Downtown, Ski Hill, Waterfront Park, Barn Beach Reserve, Valley Trail, Enchantment Park, and Fish Hatchery—offers its own experiences. Overall, they are an active, close to home option that bond the community and are assets for everyone.

**Downtown**--Highway 2 is the main motorized entrance to Leavenworth that separates the community, with predominantly residential areas and schools to the north and the downtown shopping area to the south. The highway is lined with hotels, restaurants, and gas stations carefully constructed in a Bavarian theme. Existing sidewalks and bike lanes with several crosswalks connect the north side to the south side of town. The shopping area to the south is the focus for the downtown pedestrian improvements included in the City's Downtown Master Plan. Improvements for the Bavarian-themed shopping area have two components already under construction and focus on repaving streets, renovating and widening existing sidewalks, creating bicycle paths, and installing new sidewalks and street lighting.



<sup>1</sup> Estimated 2007 population; see <http://www.city-data.com/city/Leavenworth-Washington.html>

**Ski Hill**—A very popular site among the local people for downhill skiing, cross-country skiing, ski jumping, and tubing. Just over 3 miles of gentle Nordic skiing trails are open for day and night skiing by people of all ages. The historic lodge provides food, beverages, and warmth when the ski area is open. Ski Hill is used informally during the summer for hiking and biking and has an amphitheater which is used extensively in the summer.



**Waterfront Park**—This park along the Wenatchee River close to downtown is the perfect location to stroll with the children, take a walk, or go bike riding. The site has a beach, interpretive trails, areas for picnicking, restroom facilities, amphitheater, playgrounds, and parking. Waterfront Park is a favorite location for residents and visitors who know it is there. It has diverse habitat and is a great area for bird watching. Waterfront Park is the only formal year-round multi-use area within the City, and it should be improved to make it more accessible to all users. The park has walking trails approximately 3 miles roundtrip with fairly wide flat trails that connect west to Enchantment Park and the golf course. The park adjoins Barn Beach Reserve, an excellent continuation to the east and a starting point for the planned Valley Trail. The boat launch on the south side of the Wenatchee River and across from Waterfront Park is one of the area's few water access points and is usually crowded in the summer.





**Barn Beach Reserve**—Approximately 9 acres that are the home of the Upper Valley Museum, Barn Beach Reserve provides exhibits and outdoor education for the community that connects nature, cultural history, and arts. This location continues to develop its interpretive trail system connecting to Waterfront Park and the greenbelt along the Wenatchee River. The City created a useable trail surface with a 1,000-foot sewer line on the rail grade connected to City's Waterfront Park, along CDLT property to 13th Street. Recent clearing on the site also identified an old roadway through the woods to downtown. Both of these potential corridors will be used to connect and expand interpretive trail loops and provide a main arterial trail connecting Waterfront Park trail system to the proposed Valley Trail.

**Enchantment Park**—Existing sport fields include two softball fields, a junior baseball field, and playground, restroom facilities, and a large parking area. This park connects to the Waterfront Park trail system and adjoins the golf course. The park is closed in winter, but the trails remain open for walking and cross-country skiing.



**Golf Course**—Enjoyable only in the winter, this trail connects downtown with the hatchery from Old Canal Road to Highway 2 on the west end. The trail is maintained by the Leavenworth Winter Sports Club and is approximately 4 miles of cross-country tracks that offer skiers spectacular views of the Icicle River below and the Cascade Mountains beyond. The trail descends in wide sweeping curves and winds through open groves of huge pines connecting to Blackbird Island and Waterfront Park.

**Fish Hatchery**—This location is fairly close to the city. The US Fish and Wildlife Service (USFWS) allows public access, and the hatchery has a walking trail (approximately 1 mile) that winds its way through the hatchery and has views of Sleeping Lady Mountain. The hatchery provides an interpretive brochure for learning more about the Icicle River Valley, Northwest salmon, river ecology, and the role of fish hatcheries in Washington. In the winter, the Leavenworth Winter Sports Club grooms approximately 5 miles of cross-country trail loops. They are excellent cross-country trails that are appropriate for skiers of all abilities. This is a very popular spot for families and recreational skiers because of its dependable snow conditions, gentle terrain, and scenic views of the surrounding peaks.



## Existing Informal Trails & Connections

**Ski Hill Drive & Titus Road**—These two roads provide a loop connection from the Ski Hill area to downtown along Highway 2. The loops in this area are used for exercise by the community and schools; they include the 3-mile loop, healthy heart loop, and half and full loops. Walking along the road in winter can be challenging if the road has not been plowed because large snow piles force walkers to share the roadway.



**Icicle Road & East Leavenworth Road**—This shared roadway has narrow shoulders in some areas and challenging bridge crossings due to the narrow road widths and lack of dedicated bicycle and pedestrian facilities. It is used by bicyclists and walkers but is well traveled by cars so users should take care. Despite the high traffic, there are some nice views.



**Icicle Irrigation Canal**— The existing 10-foot wide irrigation ditch is currently used as an informal trail, but Icicle Irrigation has only easement rights and the irrigation canal is on private land. Access to the irrigation canal is along Mountain Home Road and continues south connecting to Sleeping Lady Lodge and to Snow Lakes Trail. There is a No Trespassing sign, but the area is heavily used and flat and has potential for hiking, biking, and Nordic skiing.

**Skate Park & Rattlesnake Hill**—A 6,000-square foot park located next to the high school and minutes from downtown, the skate park is designed for skateboards and inline skates, but not intended for bicycles. The skate park is a great start and an example of collaboration by the City and community to get a project done. Because of its location next to schools and Rattlesnake Hill, the skate park is a good place to tie into the trail system. Rattlesnake Hill is located above the school and skate park with Jericho Trail, which was built by former students and is used for running. The vision is to tie the trails into the skate park with expanded parking and restroom facilities.



**Historic Cemetery**—While not part of the parks or trails system, this attractive cemetery dates to the early 1900s. It is tucked up within an orchard close to the proposed location for Icicle Station. This site has the potential to be incorporated into the trail system and is easily accessible from the proposed Icicle Station.



## Planned Trails

**Icicle Station Trail**—This is the proposed Amtrak train station just outside Leavenworth, and is in the final planning stages. Travel to and from downtown by road is from Highway 2 to Chumstick Highway to North Road and under the railroad trestle to the proposed location. North Road is narrow with poor shoulders and Chelan County is designing road improvements and working with Burlington Northern Santa Fe Railway (BNSF) regarding structural improvements needed under the railroad trestle. This location is the only place for a below-grade rail line crossing. Efforts for trail alignment are currently being made between the City, PUD and CDLT in conjunction with Valley Trail planning efforts.

**Valley Trail**—This proposed trail would connect Leavenworth, Peshastin, Dryden, Cashmere, Monitor, and Wenatchee. The trail connection in Leavenworth is at the existing trails at Waterfront Park along the Peavine railroad grade which once carried logs and wood products to and from the sawmill at Blackbird Island. The trail continues along Beach Barn Reserve to Chelan Douglas Land Trust property and then up the existing street system to an existing parking area. Future plans include continuing the trail across Highway 2, on PUD property on the old railbed, across the creek, and then along the railroad south to Peshastin. The route of the entire trail has not yet been laid out, but it will link existing parks, public lands, abandoned railroad grades, and trail easements established with supportive landowners. In places where a dedicated trail corridor cannot be established, the shoulders of County roads may be used.



## Existing Regional Trails

This section describes the existing regional trails. They are longer than community trails, access other communities, and could be an attraction for recreational tourists.

- Mountain Home Ridge area includes Wedge Mountain Trail, Boundary Butte, Rat Creek Trail, and Canyon Crest Trail.
- Icicle Road area includes Icicle Ridge Trail, Snow Lakes Trail, Eight Mile Lake Trail, and Fourth of July Trail.
- Tumwater Ridge area includes Penstock Trail, Castle Rock Trail, Hatchery Creek Trail, Freund Canyon Trail, and Spromberg Canyon.
- Eagle Creek and Derby Canyon area includes Sauer Trail, Blagg Mountain Trail, and Sugarloaf Trail.



**Mountain Home Ridge**—With its rolling terrain and scenic views above the city, this trail has the best opportunities for local recreation such as hiking, equestrian use, and mountain biking. The trail is accessed by Mountain Home Road, which is also the only route from downtown to the existing USFS roads along the ridge with their informal trail opportunities. Trail users can continue traveling along USFS roads to Highway 97 and turn left onto Highway 2 for the shortest return route connecting to Leavenworth, or ride to Peshastin along Highway 2 and return along North Road to Leavenworth.



**Icicle Ridge Trail**—This is a very popular trail with an easy slope and grade suitable for hiking, horseback and mountain biking. The trailhead with parking and kiosks is located off Icicle Road approximately 1½ miles from Highway 2. The trail is approximately 4 miles long with an elevation gain of 1,500 feet. There is a turnaround point 2 miles into the hike at a small flat spot on the ridge top, a great spot to picnic and enjoy the view.

**Wedge Mountain**—This hiking trail could be up to 5 miles long, with an elevation gain of 2,000 feet. Trail access is on a contour-hugging USFS road overlooking the Wenatchee River valley. Scenic views include Burch Mountain, Horse Lake Mountain, Mission Ridge, the Entiat Mountains, and the North Cascades.

**Freund Canyon**—Leavenworth's backyard mountain biking hill is approximately 8 miles round trip with an elevation gain of 1,775 feet. The current connection from town to Freund Canyon is from Ranger Road to USFS roads. There is additional access off Chumstick Highway via Freund Canyon Road. According to local users, this is one of the best single-track mountain biking trails in the area. The USFS is reviewing planning efforts to connect Freund Canyon to Ski Hill for a better connection from downtown.

**Tumwater Mountain Area**— This area is full of trail opportunities that are not easily accessible. There is a nice lookout at the top, and Punk Rock has access from existing USFS roads from Ranger Road.

**Penstock (Old Pipeline) Trail**—This 3-mile hiking trail with little elevation gain is beautiful and excellent for families because it is fairly short and flat. There are a number of hidden river beaches for swimming. The trail begins from the parking area just beyond the outhouse and continues over an old half-pipe-shaped bridge. Penstock Bridge is on the National Register of Historic Places. This huge water pipe was used to provide water to a powerhouse (once located in what is now the parking lot) which provided electricity to the engines that pulled trains through the old Cascade Tunnel at Stevens Pass.

**Eagle Creek Road & Derby Canyon**—Eagle Creek Road is curvy and without wide shoulders. It is a poor road for bicycles, but provides access to the mountain system. There are a lot of logging roads that are unofficial trails along the ridges of the north side of North Road running up to Derby Canyon, Sauer Mountain, and Eagle Creek. Property ownership is a mix of private and National Forest property. Derby Canyon loop connects with Eagle Creek and is a good dirt road surface that is a non-technical mountain bike ride for advanced beginners and intermediate riders on cross-country bikes. The trail length ranges from 17 to 35 miles depending on start location, with an elevation gain of 3,250 feet. Motorized vehicles are allowed in these areas and trail users should use caution.



## Regional Trails Beyond Project Area

The trails that are described below are not located in the project area, and are noted here because they either connect with trails in the area or can be accessed from it. This report does not discuss them further.

**Snow Lakes Trail**—This challenging one-day hiking trail has two trailhead locations: Snow Lakes Trail trailhead 4 miles outside Leavenworth on Icicle Creek Road and Stuart Lake, approximately 9 miles beyond the Snow Lakes trailhead. Experienced hikers can trek between the two trailheads for a challenging 19-mile backpack trip with breathtaking views. Some of the best Pacific Northwest rock climbing is found in the Wenatchee National Forest with excellent granite rock formations such as Snow Creek Wall, an 800-foot granite face wall.





**8-Mile Lake**—This intermediate hike ends at a lake good for swimming and camping in an area with unique rust-colored boulders.

**Fourth of July Creek Trail**—A 13-mile round trip takes the hiker to the old lookout site with the best panoramic views of the Chiwaukum Mountains, Cashmere Mountain, Icicle Ridge, and Mt. Stuart.

**Blagg Mountain**—The loop is approximately 8 miles long and has good climbs, big views, and a steady descent on a saddle above the Nahahum Canyon with views of the Enchantments and the Icicle/Wenatchee valleys.

**Sauer Mountain Trail**—This hiking trail is a popular, pretty 6-mile walk, especially in April and May when the wildflowers are at their peak. There are rewarding views of the top of the high Cascades, Glacier Peak, the surrounding foothills, and Leavenworth. This trail is on a combination of private and USFS land. The trailhead and lower portion of the trail are on private land. Although an existing trail used by local residents, this trail is currently not sanctioned by the USFS and would need to go through that agency's review to be considered a formal trail.



**Sugarloaf Peak Lookout**—This operational fire lookout is accessible from the Eagle Creek Canyon area. Its combination of burn area, abundant wildflowers, and panoramic views is phenomenal. The route is approximately 30 miles long and the ride is suited for hiking, horseback riding, and cross-country and mountain biking.

**Peshastin Pinnacles State Park**—This 34-acre desert park is another popular rock climbing area. Approximately 11 miles from Leavenworth, it has a group of sandstone spires called pinnacles that are up to 200 feet tall. Rock formations and trails provide views to surrounding orchards, the Enchantment Peaks mountain range, and the Wenatchee River valley.



## IV AIDS TO PLANNING

The boundary of the Upper Valley Regional Trail system plan extends approximately 5 miles from downtown Leavenworth. The plan suggests a general network of existing, proposed, and future trails. Several sections of the identified trail corridors are within public rights-of-way and on publicly and privately owned property, and planning for each area should be refined as specific development proposals are made. In all cases, trailheads should be located at existing and planned public facilities. It is important that the trailheads accommodate all potential trail users. Support facilities and amenities such as restrooms, shade structures, and drinking fountains should be provided at all community trailheads. For the purpose of the study, the trails have been divided into two categories: community and regional trails.

**Community Trails** typically are used more for commuting and short recreational opportunities. They are the backbone of a community's trail network. Their primary purposes are to allow community members to get to facilities such as schools, shopping, and common spaces and to connect with a regional trail network. Community trails connect a city's neighborhoods, create opportunities for using alternative modes of transportation, and provide access to public parks, community buildings, and natural areas. Local trails give people opportunities for ready recreation and fitness and allow them to reclaim underused land such as utility rights-of-way or abandoned rail corridors. The community trails in this plan will be constructed in different settings such as on public property and along easements, shorelines, and public rights-of-way. They will connect the various districts and neighborhoods within the regional planning boundary.

In many portions of the community, a significant number of trail users want to use the system for activities such as bicycling, walking, or pushing a stroller. To accommodate these uses, a paved multi-use path would be desirable. In contrast, in portions of the community with lower density development, where horse ownership is high and equestrians represent an important group of trail users, unpaved trails need to have natural soil surfaces constructed with various improvements for drainage and erosion control. These trails will still be able to accommodate a variety of users, such as equestrians, mountain bicyclists, joggers, and walkers.

Spur trails should be encouraged with new development. These trails typically extend into the developed portion of the community and connect with its network of sidewalks and bicycle lanes. These trails will be a part of the open space system associated with each residential subdivision.

Within the previously developed portions of the community, it will be difficult and expensive to acquire the rights-of-way needed to construct a new system of urban trails. In these locations, it is proposed that existing street rights-of-way be enhanced for bicycle and pedestrian use. In these concentrated areas of the community, the enhanced bicycle and pedestrian corridors will include on-street bike lanes, landscape development, and a continuous paved multi-use path. The width of the paved pathway should be 8-foot minimum wherever possible; similar to what is found along Highway 2. Wide roadways with shoulders will provide opportunities for pedestrians and bicycle users in more rural areas.

In general, the width of a community trail usually ranges from 4 to 10 feet, depending on its use and the terrain involved. They generally have an 8-foot minimum vertical clearance and a minimum of 1 foot between the edge of the trail and any fixed object such as a sign or tree. Typically, this type of trail is paved or surfaced with crushed aggregate; there are exceptions to lessen or avoid impacts to critical or sensitive areas. The right-of-way (ROW) for a community trail can range from 24 to 40 feet and can be located on-road or off-road.



Types of community trails include:

- **Sidewalks**—These allow community members to access community trails and are collectors for neighborhoods or developments and links to the community-wide trail system and nearby destinations.
- **Bicycle trails**—In corridors where there is significant bicycle demand, bike lanes delineate the ROW assigned to bicyclists and motorists for more predictable movement by each. Using the shared roadway type of bicycle trail, the development and maintenance of a 4-foot paved shoulder with a 4-inch edge stripe can improve roadway safety significantly for both bicyclists and motorists. The signed shared roadway type of bicycle trail has signage that designates the preferred route through high-demand corridors.
- **Shared use trails**—These are designed for a more formalized trail experience and should be accessible to people with differing abilities and skill levels who may be seeking different types of experiences. Users can include walkers, runners, cyclists, and in-line skaters. The most common applications are along rivers, utility rights-of-way, and former/inactive railroad rights-of-way. Special use trails such as snow trails provide opportunity for recreation close to home and work.



**Regional trails** are more typically used for commuting to other communities and for longer recreational opportunities. They are miles of trails in natural areas and serve a variety of users including hikers, equestrians, and mountain bicyclists. Most back country trails are traditional single-track hiking trails with a natural soil surface. They are improved only as needed for user safety and as required to accommodate drainage and control erosion.

While the uses of this type of trail may be more specialized, regional trails can be adapted more easily to open space areas, including sensitive areas. Regional trails connect communities along routes of scenic, natural, historic, geologic, aquatic, or other particular interests. This type of recreational trail is not typically used for commuters as a route to get to shopping, school, or work. Except when there is no practicable alternative, a recreational trail should not adjoin a major highway or transportation route. Recreational uses can include bicycling, cross-country skiing, day hiking, equestrian activities, jogging and similar fitness activities, trail biking, and overnight or long-distance backpacking.

In general, regional trails are as accessible as possible while still maintaining the character of the resource and natural environment and connecting to the community trail system. The width of a regional trail usually ranges from 4 to 8 feet, but the width depends on site conditions and the desired trail experience. The type of surface is appropriate to the location and can be paved, wood chips, crushed aggregate, or compacted earth. The clear zone for this type of trail is a minimum of 30 inches, and underbrush should be trimmed so it does not obstruct the trail. Vertical clearance should be a minimum of 8 feet with at least 10 feet to accommodate bicyclists and equestrians. Because of their more rustic character, the guidelines for regional trails are more general, and site conditions and the trail's intended use determine their design.

Types of regional trails include:

- **Hiking and backpacking trails**—Usually an unpaved rustic trail that somewhat resembles a primitive trail, this type provides half-day to full-day trail experiences on either a loop or on a linear corridor that ends at a destination—often a scenic attraction.
- **Mountain bicycle trails**—These bikes are non-motorized and should not be confused with ATVs or ORVs, which are motorized. Off-road bicycling, popular in some areas, is sometimes referred to as bike hiking. Mountain bike trails are narrow and curving and typically have a natural/compacted earth surface and varying grades. They can be designed as a single track (preferred) or two-way routes. In certain circumstances, where conflicts with other users are not an issue, trails have different levels of technical difficulty and can be designed for high speed and/or downhill use and include jumps, structures, and other technical trail features.
- **Equestrian trails**—Usually unpaved, these trails are most often on public land in rural or semi-isolated areas. Horse trails can be routed with and parallel to other use trails. Like bicycles, equestrians can sometimes share road R.O.W. adjacent to automobile traffic. If horse trails parallel the roadway, barriers should be placed between the road and the horse trail.
- **Jogging trail/fitness trail/par courses**—These trails are alternatives to sidewalks and school running tracks. Their surfaces should be smooth-packed earth or compacted gravel or wood chips. They might also take the form of routes for cross-country track or marathon distance running or as surfaces shared with bicyclists, equestrians, or vehicles.
- **Snow trails**—These routes accommodate cross-country skiing, snowshoeing, winter hiking, and/or dog sledding. The difference in speed between ski traffic is a concern on these trails, as are places to rest and warm up.
- **Shared use trails** are designed for a more formalized trail experience and should be accessible to people with differing abilities and skill levels who may be seeking different types of experiences.



## **V RECOMMENDED TRAILS PLAN**

### **Constraints & Challenges**

Evaluating potential trail corridors for the Upper Valley Regional Trails Plan included constraints and challenges such as land ownership and environmental and physical limitations. Multiple land ownerships can complicate trail planning efforts because support for crossing private lands must be obtained. When multiple jurisdictions are involved, the questions of financial responsibility and maintenance must be settled, this type of situation can be a benefit in competing for funding because funders favor partnerships and collaborative efforts. Public entities that own the lands included in the alternatives are the City, County, state, USFS, WDFW, Irrigation District, PUD, and CDLT.

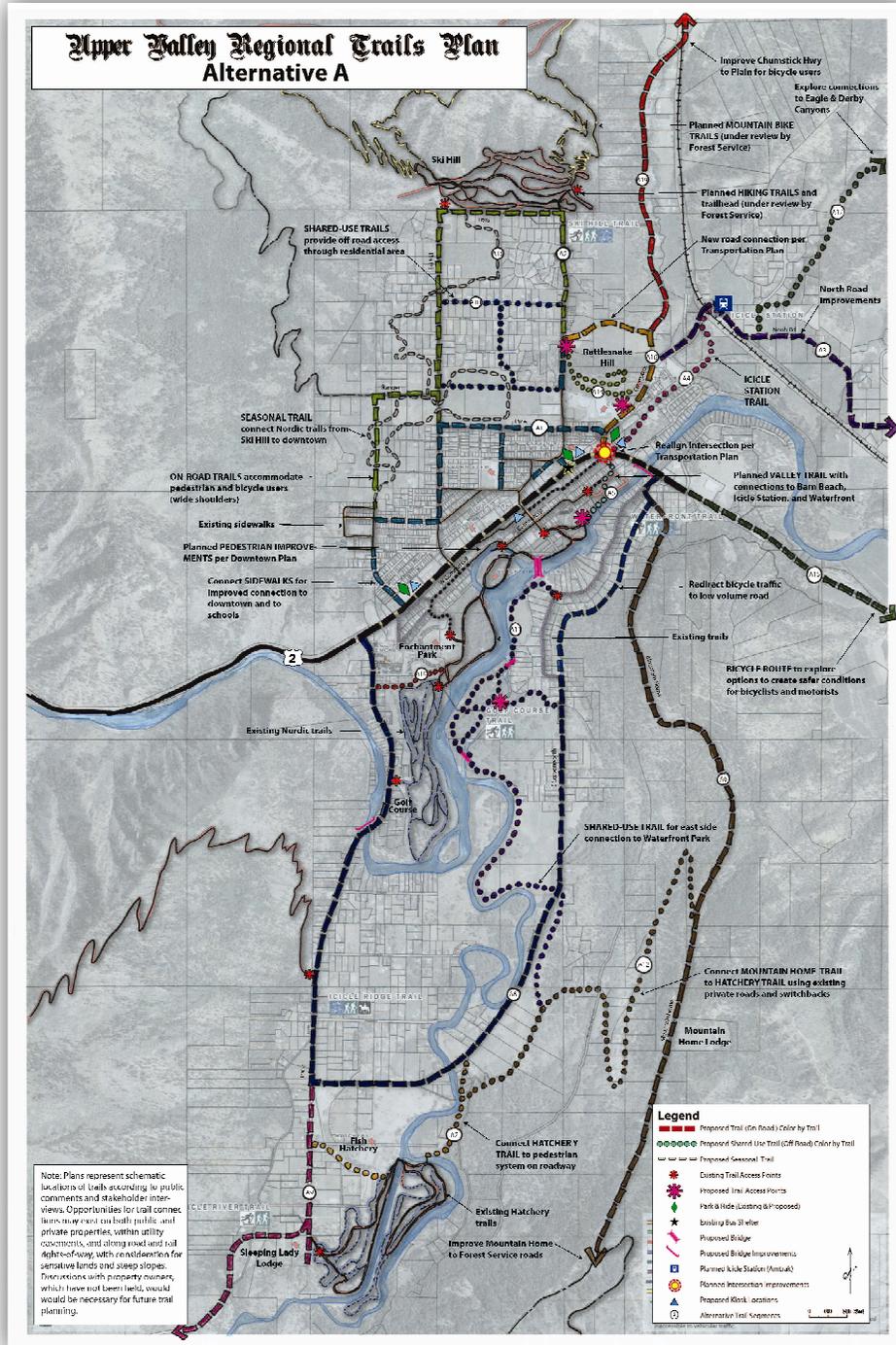
As a first step in developing a plan for off-street trails through suitable areas, existing linear and non-linear features (utility easements, rivers, etc.) were inventoried and evaluated based on their general suitability and desirability for each specific route. In addition, major land uses (farming, rural settlement, forest lands, and shorelines) were evaluated for their suitability for trail establishment, particularly for hiking and equestrian routes.

Physical barriers often constrain trail development. Roadways, rivers, and railroads represent ROW opportunities to connect to key destinations, but they also can be challenges for trail crossings and when different user groups must be accommodated. Each factor was considered during the initial design phase and the development of the recommended trails plan.

### **Developing the Alternatives**

The three alternatives represent schematic trail locations developed based on public comments and stakeholder interviews and considering sensitive lands and steep slopes. Opportunities for trail connections exist on private properties, within utility easements, and along road and rail rights-of-way. Because the three alternatives were not discussed with property owners before the public meetings, communications with landowners will be necessary for further trail planning if private land is involved. Summaries of the three alternatives follow. (The maps in the body of this report are intended only for general guidance and orientation. Appendix C contains detailed alternative maps.)

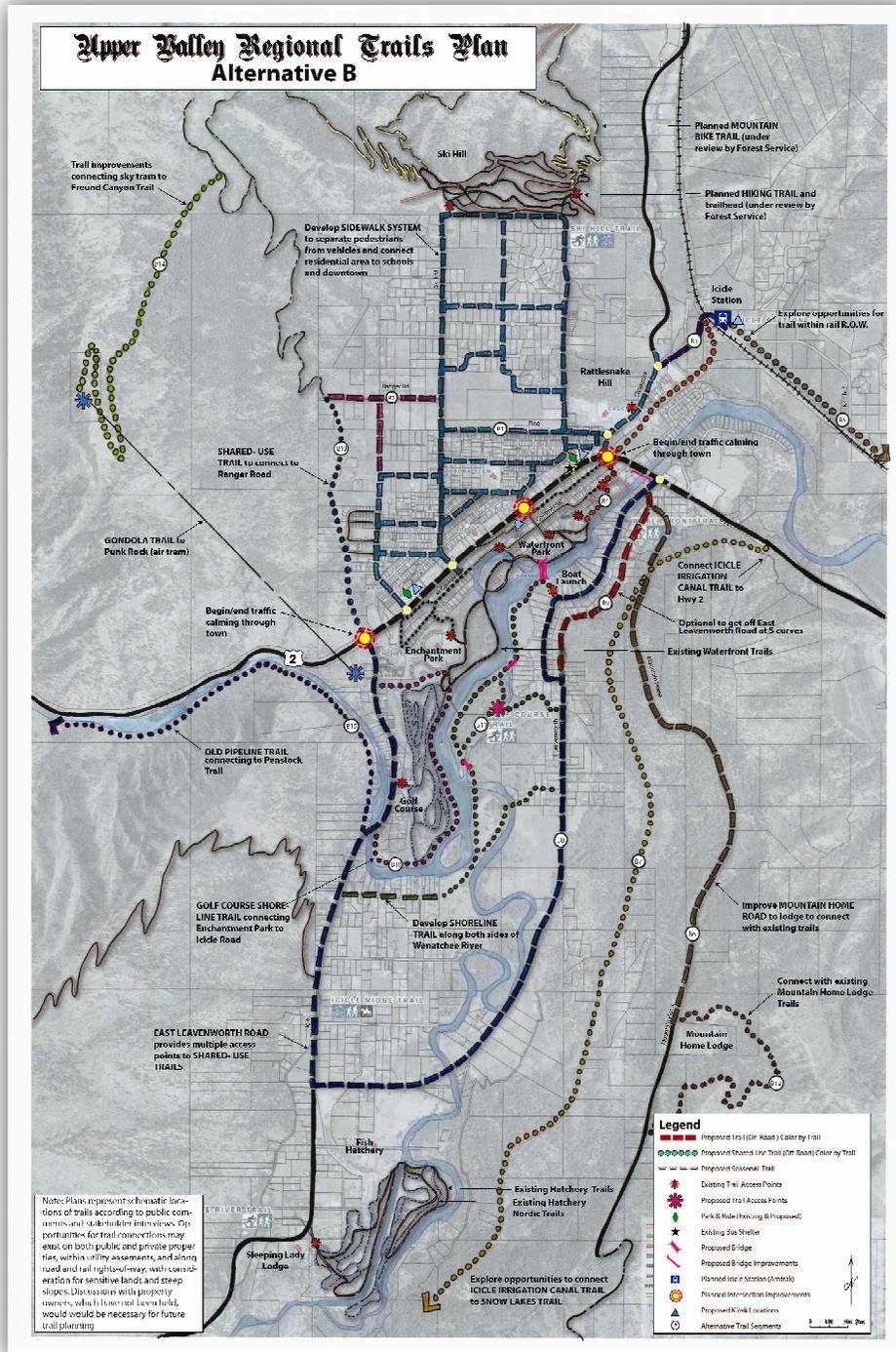
Alternative A uses existing sidewalks and improved roadway shoulders. It maximized connections to existing trails by using existing roadways. Recommendations include improvements to roadways leading to surrounding communities, but there are not many opportunities for off-road connections to regional trails. This plan also has numerous off-road trails crossing private property and potentially negative impacts to the environment due to steep slopes and shoreline impacts. Highlights of this alternative include off-road trails connecting from Mountain Home Road to the hatchery, the hatchery to Waterfront Park, and waterfront trails on both sides of the Wenatchee River. Special use trails include Rattlesnake Trail and wetland Nordic trails. This alternative also recommends exploring regional connections to the Eagle Creek and Derby Canyon areas. Three park-and-ride facilities are identified on the plan, along with intersection improvements at Chumstick and Highway 2. Pedestrian improvements to two road bridges and a pedestrian bridge from the boat launch to Waterfront Park are also included. The table that follows the map identifies the trail corridors included in Alternative A.



**Alternative A**

<b>Trail ID</b>	<b>Trail Description</b>	<b>Opportunity/Constraint</b>
A1	Safe Routes to School	Sidewalk improvements surrounding schools.
A2	Ski Hill/Titus Road	Road improvements such as wide shoulders to accommodate pedestrian/bicycle users.
A3	North Road Improvements	Improvements to roadway such as wide shoulders and bike lanes.
A4	Icicle Station Trail	Shared-use trail across PUD property, crossing under rail underpass and along North Road to proposed Icicle Station.
A5	Valley Trail	Sections of this trail have been cleared and are ready for trail construction.
A6	Mountain Home Road	Improve road access to USFS roads. Development might include single-track trail adjacent to existing roadway.
A7	Hatchery Trail	Connector trail from hatchery to pedestrian system on roadway along private property.
A8	Icicle /East Leavenworth Road Loop Trail	Pedestrian and bicycle facilities to include sidewalks and bike lanes.
A9	Icicle Road Extension	Improve roadway with wider shoulders.
A10	Enchantment Park Connector	Connect Enchantment Park to Icicle Road through a trail easement adjacent to golf course.
A11	Wenatchee River East Waterfront Trail	Shoreline trail along east side of Wenatchee River. Off-road trail through environmentally sensitive landscapes and private property.
A12	Dempsey Road Trail to Hatchery	Connector trail from Mountain Home Road to hatchery accessing existing private roads, private property, and switchbacks down steep slopes.
A13	Wetland Nordic Trail	Open space with wetlands that could provide opportunities for seasonal trail across private property.
A14	Rattlesnake Hill Trail	Mountain bike and hiking trail above high school connecting from Titus Road and skate park.
A15	Highway 2	Improvements along highway to create safer conditions for bicyclists and motorists.
A16	Titus Road to Chumstick Highway Connector Trail	Connector trail from Titus Road along proposed road construction to Chumstick Highway and down to sidewalk near the high school.
A17	Eagle Creek/Derby Canyon Connector	Eagle/Derby canyons connector trail through private roads, along private and USFS lands.
A19	Chumstick Highway Improvements	Improvements along Chumstick Highway to create safer conditions for bicyclist and motorists.

Alternative B has the most extensive sidewalk system within residential areas around the schools. This alternative identifies locations for traffic calming, including three primary locations for pedestrian improvements/crossings along Highway 2 and five secondary pedestrian improvements/crossings along Highway 2 and Chumstick Highway. This alternative has the least connectivity to desired locations in the community, except for on-road facilities, but the highest potential for linking the community to regional trail connections. This alternative provides a waterfront trail along both sides of the Wenatchee River with the least private property impacts. It has no off road connection to the hatchery, but has several off-road trails in utility and rail easements. It also includes connector trails from Icicle Road to Penstock Trail and from Highway 2 along the base of Tumwater Mountain to Ranger Road. The table that follows the map identifies the trail corridors included in Alternative B.



**Alternative B**

<b>Trail ID</b>	<b>Trail Description</b>	<b>Opportunity/Constraint</b>
B1	Sidewalks	Develop sidewalk system to provide off-road connectors for residential areas.
B2	Ranger Road	Improve shoulder for pedestrian and bicycles.
B3	North Road Improvement	Improve section from Chumstick Highway to proposed Icicle Station for bicycle/pedestrian access.
B4	Valley Trail	Connecting at waterfront park, through Barn Beach Reserve, CDLT property, along PUD property, cross Chumstick Creek, under railroad underpass to Icicle Station.
B5	Railroad ROW Trail	Explore opportunities for trail along railroad ROW connecting to Peshastin.
B6	Mountain Home Road	Improve Mountain Home Road to lodge trails.
B7	Icicle Irrigation Trail	Explore options to connect irrigation canal from Highway 2 to Snow Lakes Trail.
B8	Icicle/East Leavenworth Road	Bicycle and pedestrian improvements including separate trail adjacent to roadway with landscaped buffer and bike lanes.
B9	East Leavenworth Option	Develop road ROW to provide bicycle and pedestrian access to get off East Leavenworth Road at 'S' curves.
B10	Golf Course Shoreline Trail	Shoreline trail with two access points off Icicle Road, one at City well, along shoreline, connecting to Enchantment Park and then looping back around on north end of golf course connecting back to Icicle Road.
B11	East Wenatchee River Shoreline Trail	Shoreline trail along east side of Wenatchee River with three connections off East Leavenworth and one to Icicle Road.
B12	Mountain Home Lodge Trails	Connect planned trails to informal trails around Mountain Home Lodge.
B13	Tumwater Base Trail	Shared-use trail to connect Highway 2 to Range Road using base of Tumwater Mountain. Crosses private land and steep slopes.
B14	Sky Tram Trail	Improve existing USFS road from ski tram to Freund Canyon trails.
B15	Old Pipeline Trail	Connecting trail from Icicle Road to Penstock Trail. Crosses private property.



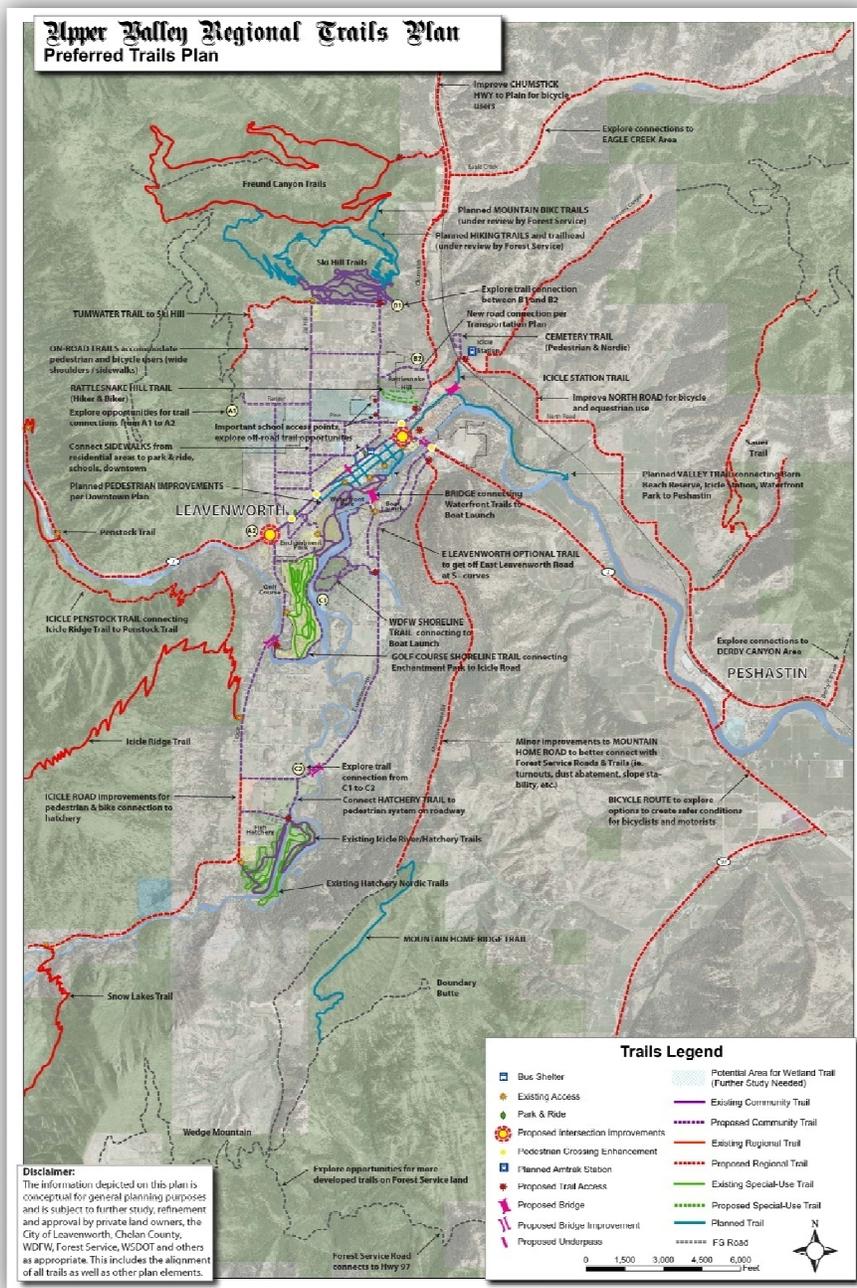
**Alternative C**

<b>Trail ID</b>	<b>Trail Description</b>	<b>Opportunity/Constraint</b>
C1	Sidewalks	Sidewalk development and improvements surrounding schools.
C2	Ski Hill Titus Road Improvements	Wide shoulders to accommodate pedestrian and bicycle users.
C3	North Road Improvements	Improve for bicycle use.
C4	Valley Trail	Connecting from waterfront trail across PUD property, and then following along Wenatchee River (private property) to Peshastin.
C5	Icicle Station Trail	Splits off from the Valley Trail near Chumstick Creek connecting to proposed station.
C6	Mountain Home Road	Explore opportunities of more trails on USFS lands.
C7	Irrigation Canal Trail	Connect Icicle Irrigation Trail from Mountain Home Road to hatchery.
C8	East Leavenworth Road	Road improvements such as wide shoulders.
C9	Icicle Road	Improve pedestrian and bicycle to hatchery.
C10	Golf Course Waterfront Trail	Develop trail from Enchantment Park, along waterfront near golf course to existing parking area near City well at Icicle Road.
C11	WDFW Trail	Develop off-road trails on WDFW property.
C12	Hatchery Connector Trail	Connect hatchery along private road ROW to East Leavenworth Road.
C13	Tumwater Trail	Connect off-road trail from Highway 2 along the base of Tumwater Mountain to Ski Hill. Trail goes through private property and along steep slopes.
C14	Punk Rock Trail	Improve roadway to Punk Rock to a scenic lookout point.
C15	Utility Trail	Connect trail along irrigation ROW through private property.
C16	Rattlesnake Wetland Trail	Shared-use trail at the base of Rattlesnake between proposed residential development and hillside to provide connectivity from Titus to Chumstick Highway.
C17	Wetland Trail	Shared-use trail through private property to provide off-road trail for school goers.
C18	New Road Connector	Proposed road connector with pedestrian and bicycle facilities.
C19	Shared-Use Trail	Provide shared-use trail on road easement through residential area.
C20	Ranger Road Trail	Road improvements to accommodate pedestrians and bicycles.
C21	Off-Road Connector	Shared-use trail from Ranger Road to sidewalks in residential area to the south.

## Developing the Preferred Alternative Trails Plan

The preferred trails plan was developed after analyzing the three alternatives, listening to feedback from the Steering Committee and community, and completing a preliminary feasibility study. The preliminary feasibility study included a review of existing GIS mapping and examinations of topography, environmental constraints, and the existing built environment as well as site visits to ground-truth the GIS data and a more detailed review of potential trail corridors. Some proposed trails were eliminated from further consideration while others were added because of this review.

The primary difference between the three alternatives and the preferred alternative is that the alternative maps compiled community desires into routes that crossed miles of private and sensitive lands. The preferred alternative, on the other hand, uses public lands and road rights-of-way for proposed new trails that connect existing trails while minimizing crossings of private lands and environmentally sensitive areas. The preferred alternative also focuses on the most feasible high priority trails with the fewest constraints located mostly on public land. Instead of locating trail corridors on private lands, the preferred alternative suggests points where potential connections can be made later. The matrix that follows the map identifies trail corridors in the preferred alternative that ultimately could become the recommended plan. See Appendix D for the preferred alternative trails plan. (The maps in the body of this report are intended only for general guidance and orientation.)



## Preferred Alternative Trails Plan

Trail ID	Trail Title	Description
CR1	Downtown Pedestrian Improvements	Sidewalk development and improvements surrounding schools.
CR 2	E Leavenworth Road Loop	Road improvements such as wide shoulders, bike lanes, separate shared-use trail
CR3	E Leavenworth Road Loop Opt.	Road improvements such as wide shoulders.
CR4	US 2 Improvements	Sidewalk development and improvements surrounding schools.
CR5	Safe Routes to School	Sidewalk development and improvements surrounding schools.
CR6	Titus Road to Chumstick Highway Connector	New collector road between Titus Road and Chumstick Highway
CR7	Old Cemetery Loop Trail	Shared-use trail development around Old Cemetery using existing road system.
CR8	Icicle Road Improvements	Improve pedestrian and bicycle to hatchery.
CR9	Ski Hill to Titus Road Improvements	Wide shoulders to accommodate pedestrian and bicycle users.
CT1	Icicle Station Trail	Shared-use trail across PUD property, crossing under rail underpass and along North Road to proposed Icicle Station. Connecting to downtown and Valley Trail.
CT2	East Shoreline Trail	Shoreline trail along east side of Wenatchee River with access from East Leavenworth Road
CT3	Valley Trail	Connecting from waterfront trail across PUD property, and then following along Wenatchee River (private property) to Peshastin.
CT4	Enchantment Park Connector	Connecting enchantment park and north end of golf course to Icicle Road.
CT5	Ski Hill/ Freund Canyon Trails	Mountain bike and hiking trails connecting Ski Hill to Freund Canyon areas.
CT6	Hatchery Trail	Connect existing hatchery trails to East Leavenworth Road.
CT7	Golf Course Shoreline Trail	Shoreline trail connecting off Icicle Road at City well, along shoreline, and connecting to Enchantment Park
CT8	WDFW Trails	Develop off-road trails on WDFW property.
RR1	Mountain Home Road Trails	Explore opportunities of more trails on USFS lands.
RR2	Chumstick Hwy Trail	Complete missing sidewalks between city limits and North Road.
RR3	Freund Canyon	Improve existing access to Freund Canyon
RR4	Eagle Creek Road	Connector trail through private roads, along private and USFS lands.
RR5	Stevens Canyon Road	Connector trail through private roads, along private and USFS lands.
RR6	North Road Trail	Improvements to North Road for improved bicycle and pedestrian safety.
RR7	Anderson Canyon Road	Connector trail through private roads, along private and USFS lands.
RR8	Derby Canyon Road	Connector trail through private roads, along private and USFS lands.
RT1	Ranger to Ski Hill	Connect off-road trail along the base of Tumwater Mountain from Ranger Road to Ski Hill. Trail goes through private property and along steep slopes.
ST1	Rattlesnake Hill Trail	Mountain bike and hiking trail above high school connecting from Titus Road and skate park.

Trail ID	Trail Title	Description
ST2	Wetland Trail	Shared-use trail through wetlands and private property to provide off-road trail for school goers. Opportunity for Nordic Trails in winter.
A1 to A2	Highway 2 to Ranger Road Connector	Explore opportunities to connect Highway 2 to Ranger Road.
B1 to B2	Ski Hill Trails to Chumstick Highway	Explore opportunities to connect Ski Hill trails to Chumstick Highway.
C1 to C2	WDFW Trails to Hatchery Connector	Explore opportunities to connect WDFW trails to Hatchery trails.

The preferred trails plan identifies three areas to explore opportunities to connect through private property. Further information is necessary before developing an alignment including communication with property owners and environmental evaluation to determine their feasibility for trail connections.

## Developing the Recommended Trails Plan

The recommended trails plan incorporates community input to achieve the project vision of creating an overall framework for the development of trails in the Upper Valley of Chelan County. The recommended trails plan was developed after final review of community input of the preferred alternative trails plan and comments made by the Steering Committee. It varies slightly from the preferred alternative trails plan but substantial changes were not made. The recommended trails plan is the refinement and enhancement of the preferred alternative plan and design standards. Minor modifications were made to the trail maps, except for the addition of areas needing further review that were identified during the alternatives phase of planning.

The Recommended Plan provides the best connection to community and regional trails, with both on-road and off-road trail opportunities. Highlights of the recommended plan include shared-use trail on WDFW property and a waterfront trail along east side of the Wenatchee River to existing boat launch. It also includes connector trails from Icicle Ridge Trail to Penstock Trail, shoreline trail along golf course connecting existing waterfront trails to Icicle Road and connector from Ranger Road to Ski Hill Trails. Special use trails include Rattlesnake Trail and wetland Nordic trails. The plan also recommends exploring regional connections to the Eagle Creek, Stevens Canyon, Derby Canyon areas and improvements to roadways leading to surrounding communities. The plan recommends a new bridge/underpass along Highway 2, identifies pedestrian/bicycle improvements on three existing road bridges, and recommends two new pedestrian bridges at water crossings. Two park-and-ride facilities are identified on the plan, along with locations for traffic calming, including two primary locations for pedestrian improvements/crossings along Highway 2 and four secondary pedestrian improvements along Highway 2 and Chumstick Highway. Appendix E contains the recommended trails plan and design standards. The table below identifies the trail corridors included in the Recommended Trails Plan.

## Recommended Trails Plan Matrix

Trail ID/ Title	Description	Location	Type	Tier
CR1/ Downtown Pedestrian Improvements	Sidewalk development and improvements surrounding schools.	City	Traffic Calming/ Sidewalk/ Road	I
CR 2/ E Leavenworth Road Loop	Bicycle and pedestrian improvements including separate trail adjacent to roadway with landscaped buffer and bike lanes.	City, County	Bike Lanes/ Shared-Use (ROW)	II
CR3/ E Leavenworth Road Loop Opt.	Develop road ROW to provide bicycle and pedestrian access to get off East Leavenworth Road at "S" curves.	City, County	Bike Lanes/ Shared-Use (ROW)	III
CR4/ US 2 Improvements	Improvements along Highway 2 to East Leavenworth Road to create safer conditions for bicyclists and	WSDOT	Traffic Calming/ Crossings	II

<b>Trail ID/ Title</b>	<b>Description</b>	<b>Location</b>	<b>Type</b>	<b>Tier</b>
	motorists.			
CR5/ Safe Routes to School	Construct sidewalks and traffic calming techniques to improve pedestrian safety near schools. Road improvements include Pine Street extension to Chumstick Highway, construct connector from Cedar Street to Pine Street, and new road connection from Mine Street to Wheeler Avenue.	City	Traffic Calming/ Sidewalks/ Road	I
CR6 (CC-13)/ Titus Road to Chumstick Highway Connector	New collector road between Titus Road and Chumstick Highway to provide improved access and circulation including improvements for bicycle and pedestrian	County	Road	I*
CR7/ Old Cemetery Loop Trail	Shared-use trail development around Old Cemetery using existing road system.	Private	Shared-Use	II
CR8/ Icicle Road Improvements	Road improvements such as sidewalks, bike lanes and wide shoulders along Icicle Road to Snow Lakes trailhead to accommodate pedestrians and bicycles.	County	Road	II
CR9/ Ski Hill to Titus Road Improvements	Road improvements such as wide shoulders to accommodate bicycle users and sidewalks. Develop separate shared-use trail if R.O.W. permits to develop trail for multiple users including equestrians and skiers.	County	Road/ Sidewalk	II
CT1 (L-NM1)/ Icicle Station Trail	Shared-use trail across PUD property, crossing under rail underpass and along North Road to proposed Icicle Station. Connecting to downtown and Valley Trail.	County	Shared-Use	I
CT2 (CC-NM25)/ East Waterfront Trail	Shoreline trail along Wenatchee River from WDFW property to boat launch.	WDFW, City, Private	Shared-Use	III
CT3/ Enchantment Park Connector Trail	Connect Enchantment Park to Icicle Road through trail easement adjacent to golf course.	City	Shared-Use	II
CT4/Ski Hill/ Freund Canyon Trails	Mountain bike and hiking trails connecting Ski Hill to Freund Canyon areas. Currently being reviewed by USFS.	USFS	Nature Trail	I
CT5/ Hatchery Trail	Connector trail from hatchery to pedestrian system on roadway.	WDFW	Shared-Use	II
CT6/ Golf Course Waterfront Trail	Develop trail connecting from Enchantment Park, along waterfront near golf course, to existing parking area near City well at Icicle Road.	City	Shared-Use	III
CT7/WDFW Trails	Develop off-road trails on WDFW property.	WDFW	Shared-Use	III
RR1/ Derby Canyon Road Improvements	Derby Canyon road improvements for connector to backcountry trails.	USFS	Road	III
RR2/ Mountain Home Road Trails	Improve road access to USFS roads to improve opportunities on USFS backcountry trails. Development might include single-track trail adjacent to existing roadway.	USFS	Road/ Nature Trail	III
RR3 (CC-NM25)/ Chumstick Hwy Trail	Complete missing sidewalks between city limits and North Road.	County	Sidewalk	I*

<b>Trail ID/ Title</b>	<b>Description</b>	<b>Location</b>	<b>Type</b>	<b>Tier</b>
RR4/ Freund Canyon Road Improvements	Roadway improvements to existing access to Freund Canyon to create safer conditions for bicyclists and pedestrians.	USFS	Road	III
RR5 (CC-R16)/ Eagle Creek Road Improvements	Eagle Canyon road improvements for connector to backcountry trails (widen from 22 to 26 feet).	USFS/ Private	Road	III
RR6/ Stevens Canyon Road Improvements	Stevens Canyon Road improvements for connector to backcountry trails.	Private	Road	III
RR7 (CC-R16)/ North Road Trail	Improvements to North Road between Fox Road and Nimblelink Road for improved bicycle and pedestrian safety. Separate shared-use trail from roadway where feasible. Landscape buffer desirable.	County/ Private	Bike Lanes/ Shared-Use	II
RR8/ Anderson Canyon Road Improvements	Improvements to Anderson Canyon Road to enhance access.	USFS/ Private	Road	III
RR1/ Derby Canyon Road Improvements	Eagle/Derby canyons connector trail through private roads, along private and USFS lands.	USFS/ Private	Road	III
RR10/ Icicle Road Improvements to Snow Lakes	Trail improvements to accommodate mixed-use recreation.	USFS	Road	III
RT1/ Ranger to Ski Hill	Potential trail connector from Ranger Road to Ski Hill. Crosses private property.	USFS, Private	Nature Trail	III
ST1/ Wetland Trail	Shared-use trail through wetlands and private property to provide off-road trail for school goers. Opportunity for Nordic Trails in winter.	Private	Shared-Use/ Nature Trail	III
ST2/ Rattlesnake Hill Trail	Mountain biking and hiking trails above high school connecting from Titus Road and skate park.	Cascade School District, Private	Mountain Bike/ Hiking	II
A1 to A2/Highway 2 to Ranger Road Connector	Explore opportunities to connect Highway 2 to Ranger Road. Coordinate efforts with private property owners. Environmental studies to evaluate feasibility.	FS, Private	Nature Trail	III
B1 to B2/ Ski Hill Trails to Chumstick Highway	Explore opportunities to connect Ski Hill trails to Chumstick Highway. Coordinate efforts with private property owners.	FS, Private	Shared-Use	III
C1 to C2/ WDFW Trails to Hatchery Connector	Explore opportunities to connect WDFW trails to Hatchery trails. Coordinate efforts with private property owners. Environmental studies to evaluate feasibility.	WDFW, Private	Shared-Use	III
D1 to D2/ Valley Trail (CC-NM25)	Currently in planning phases; working with private landowners to develop a trail connecting Waterfront Park to Peshastin. Sections have been cleared and are ready for trail construction.	City, PUD, County, Private, CDLT	Shared-Use	I*
E1 to E2/ Mountain Home Road to Hatchery	Explore opportunities to connect Mountain Home Road and FS trails to Hatchery Trails. Coordinate efforts with private property owners. Environmental studies to evaluate feasibility.	Private, WDFW, FS, CDLT	Nature Trail	III

CR=Community ROW Trail; CT=Community Trail; RR=Regional ROW Trail; RT=Regional Trail; ST=Special Use Trail

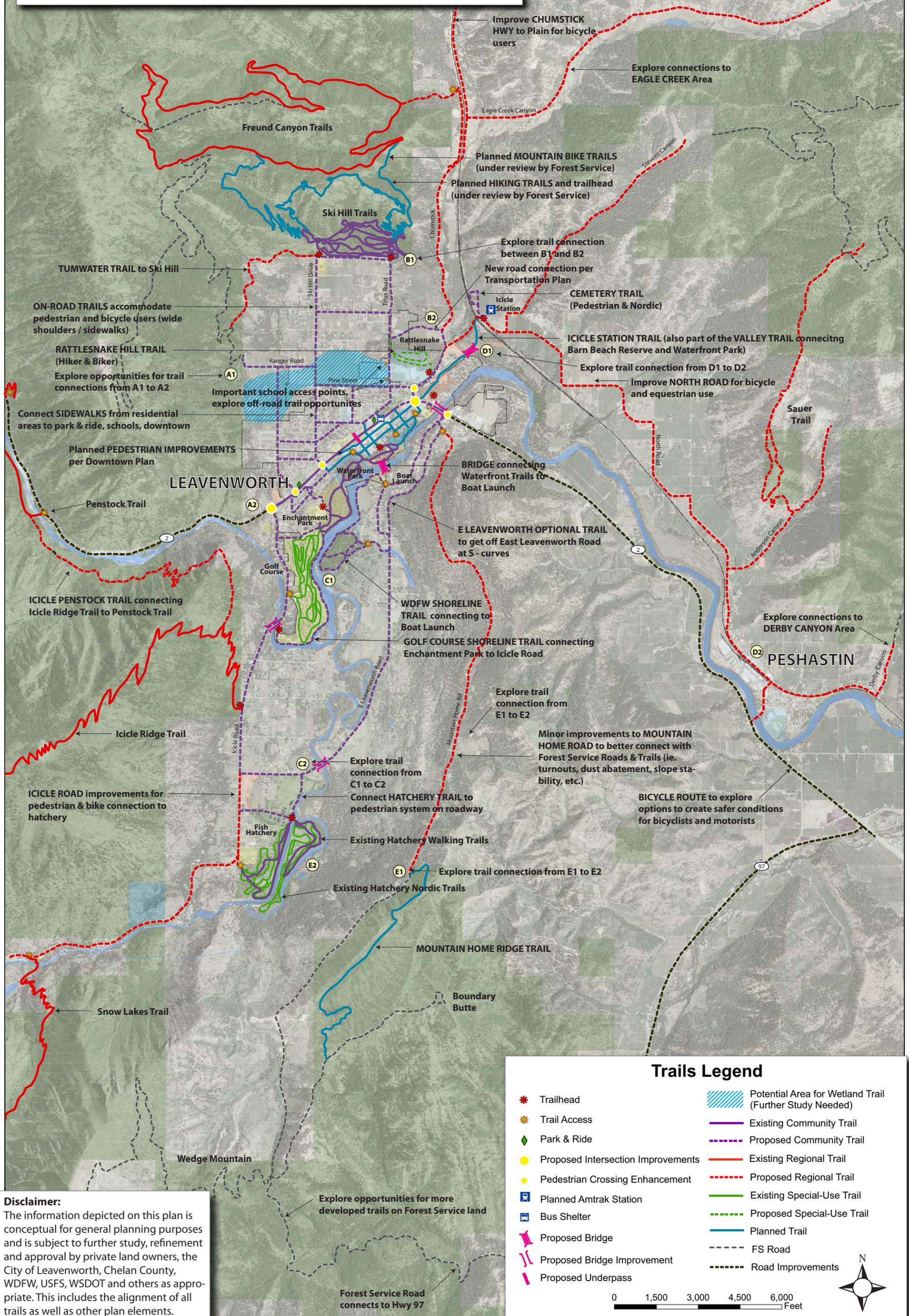
The recommended trails plan identifies five areas to explore opportunities to connect through private property. Further information is necessary before developing an alignment including communication with property owners and environmental evaluation to determine their feasibility for trail connections. These connectors would complete the loop desired by the community and would greatly benefit the trail network. Most locations identified are near residential land, connect areas of the community, and are likely to see increased local use, a benefit to the community.

Splitting the maps into user groups was a true test of connectivity. Separate trail plans were created from the recommended trail plan identifying the trail alignments specific to each user group (pedestrians, bicyclists, equestrians, and Nordic skiers). Design standards were developed for each user group to identify how each trail section could look and give the community a better understanding of trail connectivity and experience. (See the design standards section for general trail design standards for trail development. This section also includes a toolbox of pedestrian/traffic calming techniques for increased safety and an improved pedestrian environment.) Refer to the trail user maps and design standards for standards related for each user group.



# Upper Valley Regional Trails Plan

## Recommended Trails Plan



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### Trails Legend

✳ Trailhead	▨ Potential Area for Wetland Trail (Further Study Needed)
✳ Trail Access	— Existing Community Trail
◆ Park & Ride	- - - Proposed Community Trail
● Proposed Intersection Improvements	— Existing Regional Trail
● Pedestrian Crossing Enhancement	- - - Proposed Regional Trail
🚏 Planned Amtrak Station	— Existing Special-Use Trail
🚏 Bus Shelter	- - - Proposed Special-Use Trail
🌉 Proposed Bridge	— Planned Trail
🌉 Proposed Bridge Improvement	- - - FS Road
🌉 Proposed Underpass	- - - Road Improvements

0 1,500 3,000 4,500 6,000 Feet

Forest Service Road connects to Hwy 97



# Upper Valley Regional Trails Plan

## Recommended Trails Plan - Pedestrians



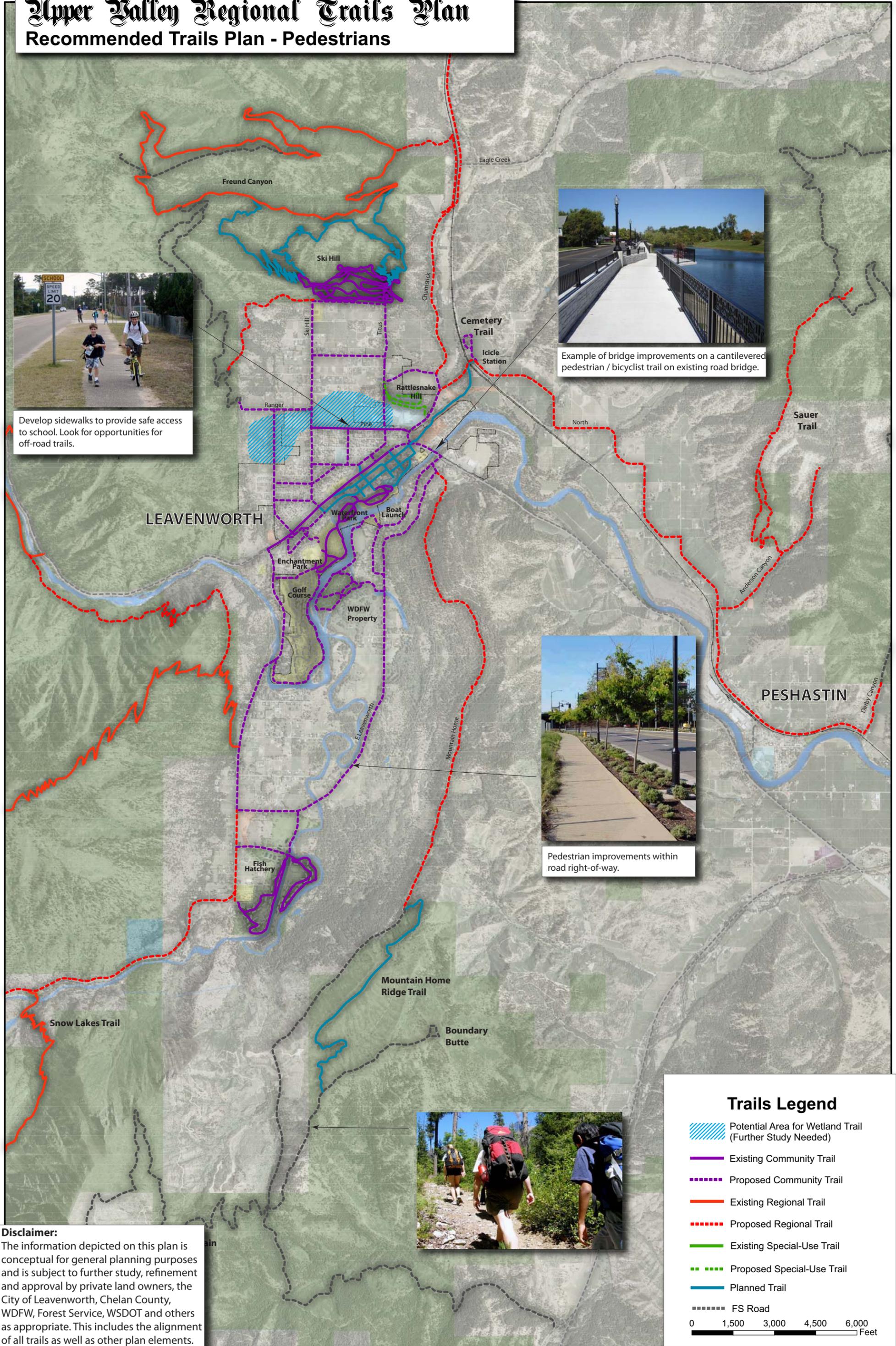
Develop sidewalks to provide safe access to school. Look for opportunities for off-road trails.



Example of bridge improvements on a cantilevered pedestrian / bicyclist trail on existing road bridge.



Pedestrian improvements within road right-of-way.



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### Trails Legend

- Potential Area for Wetland Trail (Further Study Needed)
- Existing Community Trail
- Proposed Community Trail
- Existing Regional Trail
- Proposed Regional Trail
- Existing Special-Use Trail
- Proposed Special-Use Trail
- Planned Trail
- FS Road

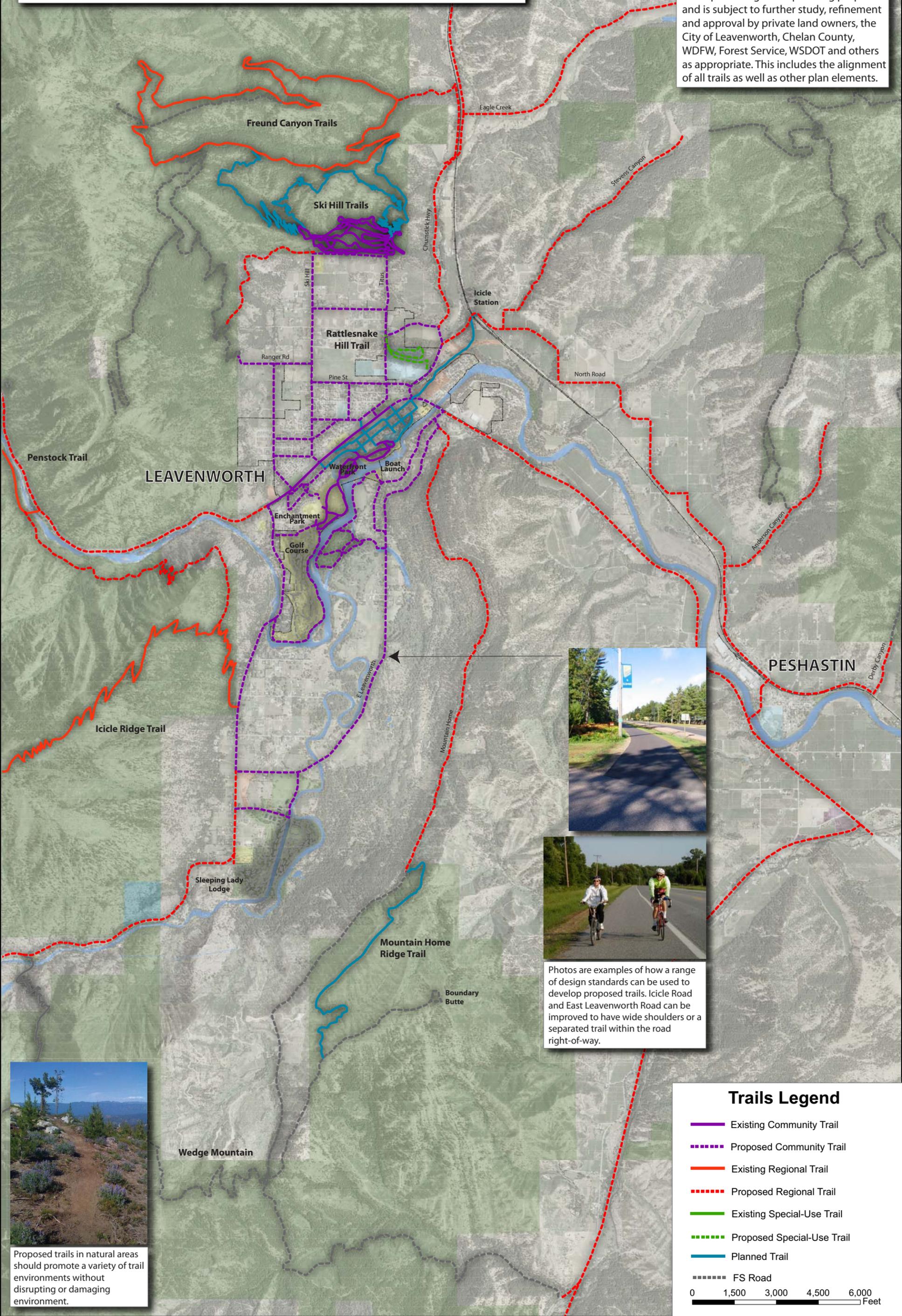
0 1,500 3,000 4,500 6,000 Feet



# Upper Valley Regional Trails Plan

## Recommended Trails Plan - Bicyclists

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Photos are examples of how a range of design standards can be used to develop proposed trails. Icicle Road and East Leavenworth Road can be improved to have wide shoulders or a separated trail within the road right-of-way.



Proposed trails in natural areas should promote a variety of trail environments without disrupting or damaging environment.

### Trails Legend

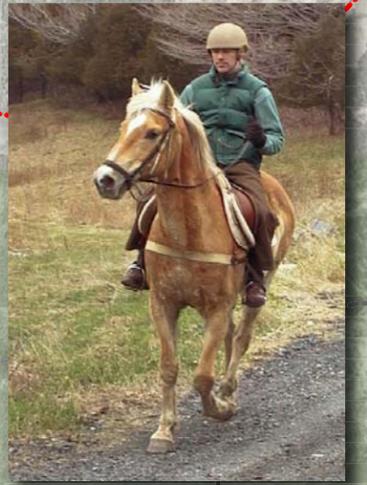
- Existing Community Trail
- - - Proposed Community Trail
- Existing Regional Trail
- - - Proposed Regional Trail
- Existing Special-Use Trail
- - - Proposed Special-Use Trail
- Planned Trail
- FS Road

0    1,500    3,000    4,500    6,000  
Feet

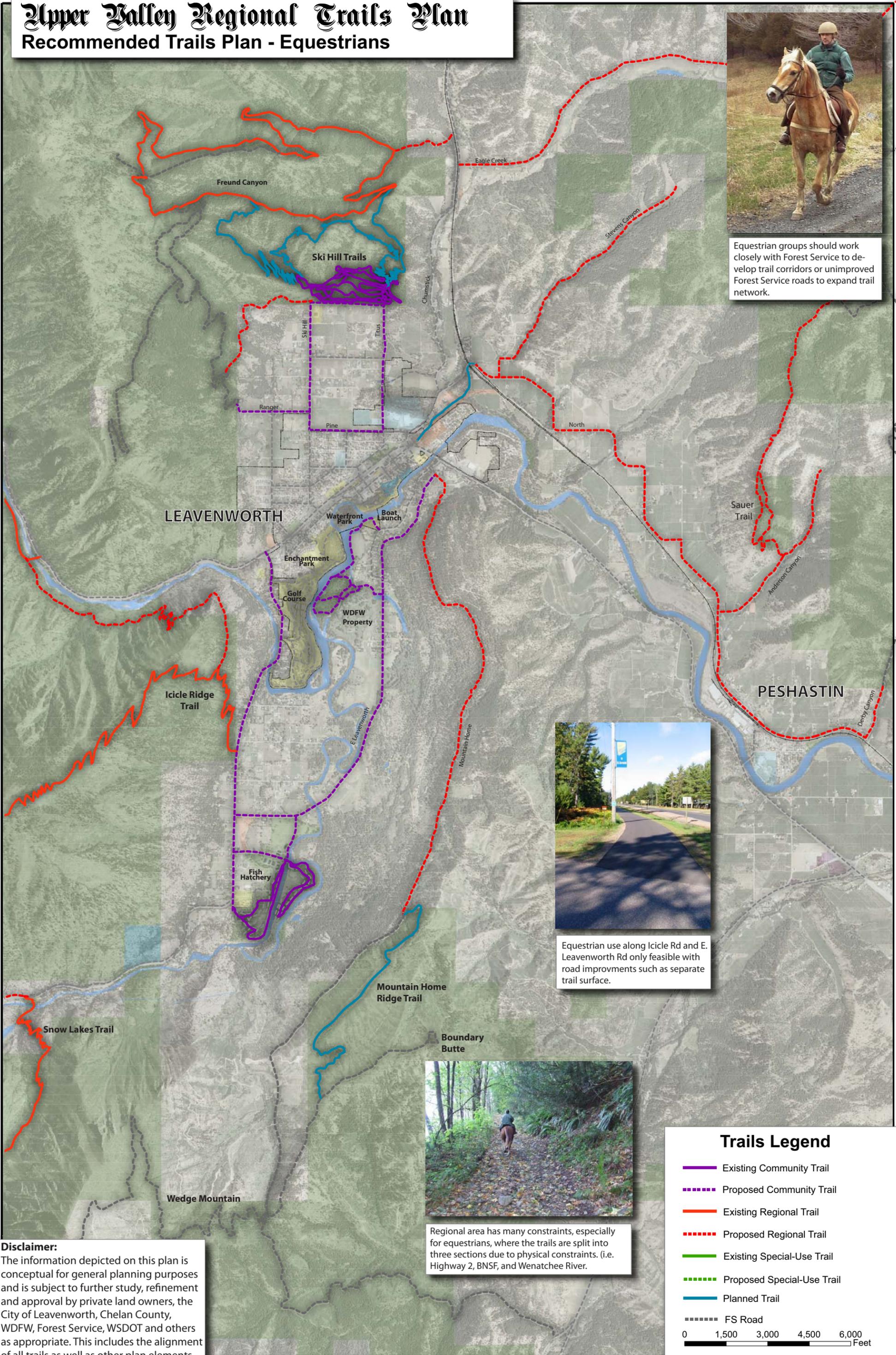


# Upper Valley Regional Trails Plan

## Recommended Trails Plan - Equestrians



Equestrian groups should work closely with Forest Service to develop trail corridors or unimproved Forest Service roads to expand trail network.



Equestrian use along Icicle Rd and E. Leavenworth Rd only feasible with road improvements such as separate trail surface.

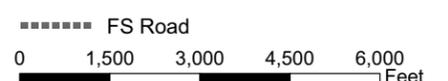


Regional area has many constraints, especially for equestrians, where the trails are split into three sections due to physical constraints. (i.e. Highway 2, BNSF, and Wenatchee River.

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### Trails Legend

- Existing Community Trail
- - - Proposed Community Trail
- Existing Regional Trail
- - - Proposed Regional Trail
- Existing Special-Use Trail
- - - Proposed Special-Use Trail
- Planned Trail
- - - - - FS Road





# Upper Valley Regional Trails Plan

## Recommended Trails Plan - Nordic Skiers



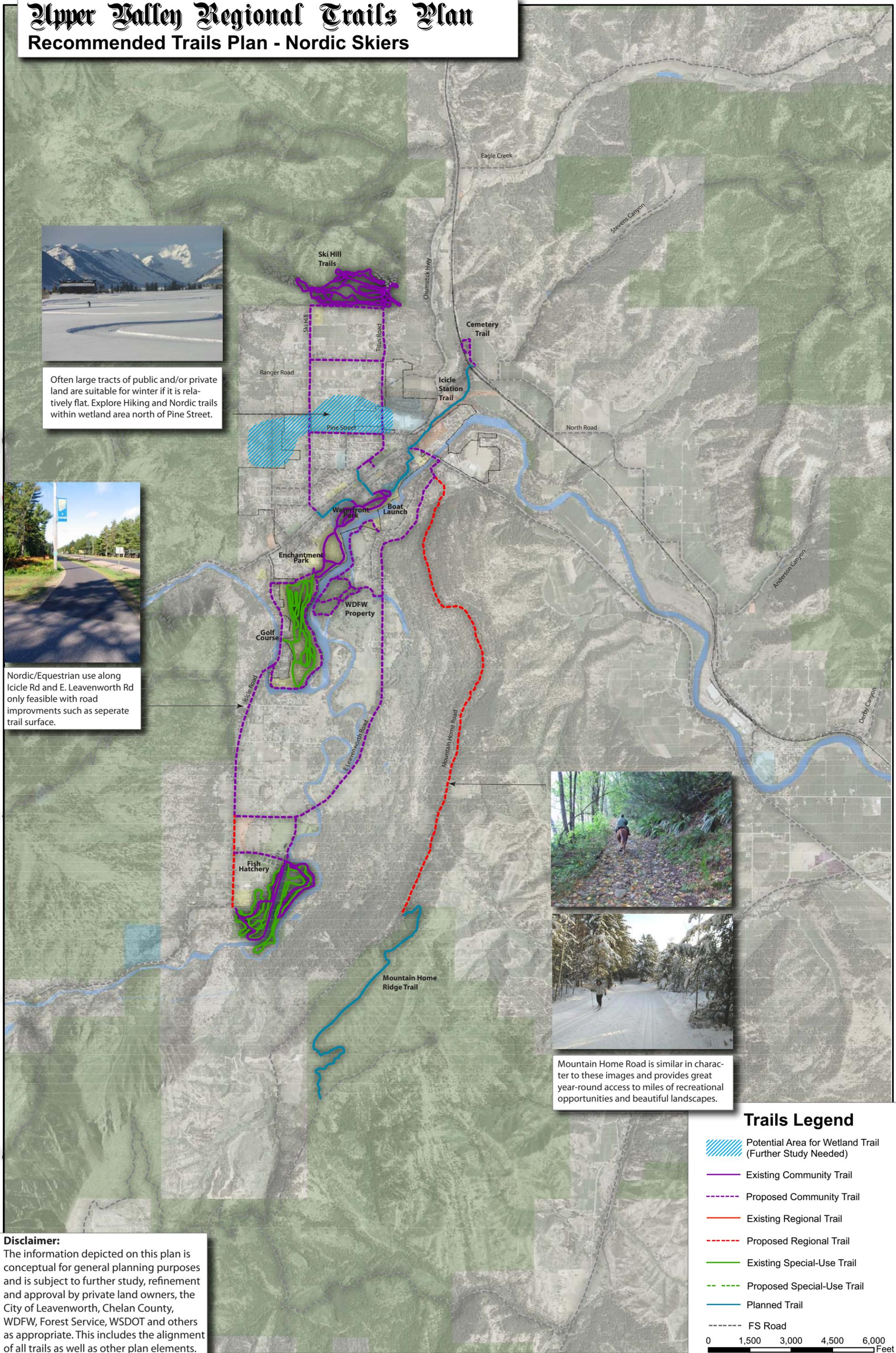
Often large tracts of public and/or private land are suitable for winter if it is relatively flat. Explore Hiking and Nordic trails within wetland area north of Pine Street.



Nordic/Equestrian use along Icicle Rd and E. Leavenworth Rd only feasible with road improvements such as separate trail surface.



Mountain Home Road is similar in character to these images and provides great year-round access to miles of recreational opportunities and beautiful landscapes.



### Trails Legend

-  Potential Area for Wetland Trail (Further Study Needed)
-  Existing Community Trail
-  Proposed Community Trail
-  Existing Regional Trail
-  Proposed Regional Trail
-  Existing Special-Use Trail
-  Proposed Special-Use Trail
-  Planned Trail
-  FS Road



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## VI DESIGN GUIDELINES

The trail network serves as a part of the transportation system and supports commuting and recreational opportunities. General design standards take in the entire network, while there are specific design guidelines that cover uses by groups that have a particular purpose, such as horseback riding or mountain biking. The following paragraphs describe guidelines for the trail system as a whole and for specific types of trails. The following standards have been developed to be consistent with WSDOT, County, and City minimum design requirements but should be discussed when conditions and funding allow for improved standards.

### General Design Standards

General design standards establish a set of guidelines for future development and planning. The Upper Valley regional trails plan has been developed and evaluated for specific uses. Although this process recommends certain general standards, the design standard for a specific trail will be determined in a later planning effort when more specific information is available about the funding available for construction, maintenance, ownership, and desired uses.

Two types of trails are identified in this plan, transportation trails and recreational trails.

**Transportation trails or on-street connectors**—These are typically built in road rights-of-way. They include sidewalks and on-street bicycle facilities (bike lanes, shared lane markings, bike routes, etc.). They are generally built as destination trails and primarily connect neighborhoods with one another or with public facilities such as schools, recreation centers, parks, town or resort centers, shopping areas, and libraries. Transportation trails are corridors for non-motorized users that limit interference with motor vehicle traffic and promote non-motorized travel for short local trips. Users include walkers, cyclists, disabled persons, and non-drivers. Trail surfaces are generally paved and sometimes compact soft surfaces. Further evaluation of factors such as traffic volume and posted speeds will determine the appropriate facility type for each on-street connector.

**On-road segments**—Because they are used to enhance connectivity between local destinations and existing community and regional trail networks, design standards for on-road segments address safety concerns associated with potential conflicts between trail users and vehicle traffic. These types of facilities have several advantages for constructing in the road right-of-way including:

- There usually is sufficient right-of-way available for trails and additional land does not need to be purchased.
- Trail construction is cost-efficient when improvements are included as part of road improvement projects.
- Crossings are generally easier and safer when trails are integrated with the road system.
- Private landowners are generally more accepting of trails integrated with the roadway rather than off-road trails through or adjacent to properties.

Roadway treatments that will enhance connectivity and user safety include sidewalks and bicycle facilities on streets in more densely developed or traveled areas. However, in some cases, improved shoulders are usually sufficient to accommodate pedestrians and bicyclists.

**Sidewalks**—Ideally, sidewalks should be provided on both sides of busy or wide roads that are difficult or unsafe to cross. When sidewalks on both sides are not feasible, a sidewalk can be provided on one side of the roadway. Whenever possible, create a separation between roadway and path. Berms and plantings can buffer the path from the roadway. Where the path will accommodate both pedestrians and bicyclists, it should be a minimum of 10 feet wide.



**On-street bicycle facilities**—These include shared roadways (unsigned and signed bike routes), paved shoulders, and bike lanes. The following paragraphs describe them along with design considerations.

- Since bicyclists are legally able to use all roadways (with the exception of controlled access freeways or those facilities specifically restricting bicycle use), all roads are technically classified as **shared roadways**. An unsigned shared roadway is not designated or marked as a bicycle route and does not have bike lanes, but is open to bicycle as well as motor vehicle travel. It may be an existing roadway, a street with wide curb lanes, or a road with paved shoulders. A signed shared roadway has bicycle route signs posted along it. The signage advises drivers that bicycles are present.
- **Paved shoulder** is the part of the roadway that adjoins the portion of the roadway traveled by motor vehicles. A well-maintained wide paved shoulder allows cyclists to travel outside the travel lanes. Wide paved shoulders not only benefit motorists, but also reduce road maintenance costs and may improve safety for bicyclists. Paved shoulders should be at least 4 feet wide to accommodate bicycle travel and should be wider on heavily traveled, high-speed roads, especially those with high truck travel.
- **Bike lane** is a portion of the roadway that has been designated by striping, signing, and pavement marking for the preferential or exclusive use of bicyclists. In general, bike lanes should always be located on both sides of the road (except one-way streets), and carry bicyclists in the same direction as adjacent motor vehicle traffic. Special provisions are required to ensure the safety of bicyclists maneuvering through intersections.



**Off-road segments**—These provide recreational opportunities and connectivity between community and regional trail networks and design standards for them address safety concerns associated with potential conflicts between trail users and road crossings. These types of facilities have several advantages compared to constructing along roadways. These advantages include:

- Buffering sensitive natural areas from development
- Protecting linearly occurring natural resources like rivers
- Providing wildlife corridors
- Furnishing trail users with safer and more enjoyable experiences

**Recreational trails**—These off-road shared-use trails connect with natural spaces, forests, and parks and present a range of opportunities to the user. Loop trails allow users to begin and end at the same trailhead location. User groups may include mountain and road cyclists, trail runners, equestrians, joggers, hikers, and walkers. Trail surfaces are generally asphalt, compacted aggregate and natural surfaces.

Where the path accommodates pedestrians and bicyclists, it should be a minimum of 10 feet wide. However, if it will be heavily used, consider separate paths for these user groups. Limit street crossings to highly visible areas and where street traffic can be controlled.

Overall guidelines and considerations include:

- The intersections of trails with roadways should be minimized.
- Landscaping should generally be native vegetation that requires minimal maintenance.
- Lighting should be provided where the trail will be used by commuters for evening safety.



- Trailheads should include adequate parking and other facilities such as restrooms and drinking fountains at appropriate locations.
- Trails should be located and constructed so that maintenance is minimized and access is maximized.
- Design features should preserve and promote natural, geologic, scenic, wildlife, and historic elements.
- Rest stops should be located along the trail. Where appropriate, interpretive areas or overlooks should be incorporated to educate the user on various highlights of the trail (history, landscape, native plants, geologic, local history, or local economy).

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#### A Word About Access

Trail corridors should be built to provide access for all users, including people with disabilities so that the same opportunities are available wherever feasible. Existing facilities should be improved so that they are accessible. If improvements cannot be made immediately, information, including signage, should be provided at trail access points informing trail users about accessibility, including grade, surface, width, difficulty, or rating and other pertinent information.

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### Future Development & Trails

To promote accessibility throughout the community, whenever feasible, trails should be planned through and adjacent to future development. The linkage corridor should provide an 8- to 12-foot wide easement to ensure that new development does not compromise trail access. Future development should provide a reasonable buffer adjacent to the trail easement with screening of parking lots, storage, and waste disposal areas so that they do not detract from the scenic and aesthetic qualities of the corridor.

### Property Rights

Those who own land that adjoins trail corridors are often concerned about their property rights, privacy, and vandalism. By involving local landowners and providing them with options for helping to implement the trail project, the project is more likely to succeed. This plan focuses connections between trails on public lands and street facilities, but several trail opportunities identified in the needs assessment indicate a desire by the public for additional off-road trail opportunities. The local jurisdiction or implementing agency/group should work directly with landowners to ensure they are informed about future trail opportunities, the benefits to the community, safety and protections against liability, and potential compensation.

### Bridge Improvements

The recommended plan includes a pedestrian bridge across the Wenatchee River from the boat launch to Waterfront Park connecting the southern residential area with the downtown. This bridge should be designed to minimize impacts to natural environment. Road bridges are also proposed in the recommended trails plan and improvements are suggested for pedestrian and bicycle uses; however the feasibility of improvements to these bridge needs further evaluation. It is important to note that practical and financial constraints may preclude constructing/retrofitting bridges as identified in the plan. Currently, road bridges along Icicle and East Leavenworth are narrow and are challenging for trail users. It might be possible to reduce the width of motor vehicle travel lanes slightly to increase the width of the shoulders to better accommodate pedestrian and bicycle traffic. In situations where bridge width is limited, it might be possible for the existing reinforced concrete bridge to be retrofitted with a cantilever hang-on path alongside. Each case would require traffic and structural evaluations.



## Signage

Signage increases awareness, safety, and comfort on trails. Signs should be of the same design and construction so they create continuity within the regional trails system. When determining sign types and locations, the safety and needs of the users must be balanced with the cost of installation and maintenance. The trails discussed in this plan will most likely require the following six types of signs.

**Directional signs**—This kind of sign addresses distance, direction, and destination. Types include entry monuments and wayfinding signs that might include a trail number/name and direction arrow.

**Cautionary signs**—These warn of upcoming roadway crossings, intersections, steep grades, blind curves, and other potential trail hazards.

**Informational signs**—Typically, these are kiosks/bulletin boards found at trailheads. They may include a map with orientation. Signage can educate users regarding trail courtesy, such as trails that are shared by multiple users (i.e., equestrians and mountain bikes). They often acknowledge groups and individuals that contributed to the funding, construction, or maintenance of the trail.

**Regulatory signs**—These prohibit certain uses or control when trails are open or closed. Typically, graphic symbols illustrate approved or disapproved trail uses such as Hiking and Bicycling Only or Equestrians Only.

**Interpretive signs**— This type of sign offers educational information on the trail environment or historic characteristics of the area.

**Objective signs**—These give information about trail conditions, including grade, surface, and obstacle height.



## Traffic Calming & Pedestrian Crossings

Designing safe trail and roadway intersections is one of the most critical components of trail design. The greatest safety hazard to trail users occurs when a trail crosses a roadway, railroad, stream, or another trail. It is important that crossings are visible to all involved. The Traffic Calming Toolbox (see next page) includes a variety of calming techniques that change the physical environment of the roadway to improve the pedestrian/bicycle environment by improving safety and reducing vehicle speeds, vehicle noise, and visual impacts. These techniques are appropriate at a pedestrian crossing or to slow traffic where there are potential conflicts with vehicles. Each situation is different and the technique must suit the location. The factors and conditions that may contribute to the potential problem need to be reviewed and evaluated before recommending a particular technique.

When choosing a traffic calming measure, address the problem in the most effective way, minimize the impact on adjacent streets, address bicycle and pedestrian safety, address safety for nearby schools, and accommodate the dimensions of the street.

### Traffic Calming Toolbox

Technique	Description	Example
<b>Narrower Streets</b>	Narrower streets limit the expanse of pavement visible to motorists and can be effective in slowing traffic, especially when lined with trees or on-street parking.	
<b>Traffic Circles</b>	Circular raised islands centered within intersections prevent drivers from speeding through intersections by impeding straight-through movement. Offers an opportunity for landscaping and can be maintained by neighborhood volunteers.	
<b>Curb Extensions</b>	Curb extensions narrow the roadway by extending curb toward the middle of the road. Locate at mid-block crossing and intersections to shorten the crossing distance and provide better visual signal to motorists that a crossing is approaching.	

Technique	Description	Example
<b>Neckdown</b>	Neckdowns are often longer than curb extensions and narrow the appearance of the street. Neckdowns and bioswales calm traffic and collect rain.	
<b>Signs</b>	Signs or monuments can be effective, especially in conjunction with other techniques such as pavement markings and textured warning strips. Signs can be pedestrian-activated to help alert motorists of crossings.	
<b>Special Paving</b>	Special paving such as brick, colored concrete, or special pavers can be used at crossings, intersections, or along the sides of the street to define areas of pedestrian travel.	
<b>Median</b>	Raised islands in the center of a roadway separating two directions of traffic provide a visual enhancement when landscaped and create the perception of a narrower roadway.	
<b>Chicanes</b>	A series of two or more alternately placed curb extensions on sides of roadway force motorists to drive in a serpentine pattern.	

Technique	Description	Example
<b>Speed Watch Programs</b>	Citizens and organizations can use a radar device and electronic signboard to measure speeds of passing vehicles.	
<b>Speed Hump</b>	Speed humps are raised sections of pavement which cause drivers to reduce their speed. Typically 3 inches at their highest point, they have a gradual ramp up to that high point.	
<b>Speed Cushion</b>	Modified speed humps with a wheel path cut through them designed for emergency response vehicles to straddle and avoid delays caused by conventional speed humps.	
<b>Speed Table</b>	A speed table is speed hump with a flat surface at the top that is effective in slowing cars as they approach pedestrian zones and often provides a pedestrian crossing.	

Traffic calming techniques can incorporate stormwater management techniques creating green streets. This includes creating stormwater street planters and curb extensions where the landscape area and vegetation is used to capture and treat street runoff. Pervious surface materials can greatly affect surface runoff and should be used where feasible along with native vegetation to reduce water consumption. In addition to treating surface water, planter strips are a visual buffer between pedestrians and vehicles.

## Design Guidelines for Particular Trail Uses

### Pedestrians

Trails for pedestrians differ depending on whether the trail is meant for commuting (walker) or recreation (hiker). Opportunities should vary and cover a variety of vegetation, land forms, and sights. For commuting, walkers tend to prefer direct paths. Hikers prefer settings that are more natural and favor a loop or a series of loops with frequently occurring curves and grade changes to add interest. Trails should be long enough to afford a meaningful recreational experience. Internal connector trails and cutoffs should be short enough to suit the abilities of different hikers.

Hikers travel at 1 to 3 miles per hour depending on the terrain and their ability. Day use trails can be 1/4 mile to 5 miles long for a half-day and 5 to 15 miles long for a full day, while backpacking trails are usually 25 or more miles long. A 2- to 3-foot wide trail with an 8-foot vertical clearance is sufficient for light use, while heavy use trails are generally 4 to 6 feet wide. Trails usually have a natural surface, but they could have a woodchip or gravel surface in areas that see heavy use.

### Equestrians

Equestrian trails should provide single or multiple loop routes with a variety of scenery and terrain. Wet areas and steep slopes pose extreme difficulties to trail maintenance and should be avoided. Natural trail surfaces are preferred but a corduroy base covered with soil or woodchips is recommended for areas with erodible or poorly drained soils. Shared-use trails constructed of asphalt and meant to accommodate equestrian users should provide a soft shoulder at least 2 feet wide for horses.

Horseback riders travel at speeds ranging from 4 to 8 miles per hour, and many day-use trails for equestrian use cover 5 to 25 miles. Typical trail dimensions include a vertical clearance of 10 to 12 feet and a trail width of 2 to 4 feet for light use and 5 to 6 feet for heavy use or two-way traffic.

### Bicycling

Two types of bikes are included in the trail plan: the road bike for commuting and the mountain bike for recreation. Road bike users typically use facilities such as bike lanes, shared roadways, and shared-use trails. Mountain bike users prefer single direction recreational trails located in natural areas. Mountain bike trails must be located carefully and their use monitored to protect the environment and minimize potential negative effects including soil erosion and soil compaction, damage to vegetation, trespassing, and conflicts with motor vehicles.

Bicyclists can travel 8 to 20 miles per hour and cover 5 to 10 miles in a half-day and 10 to 20 miles in full day. The minimum length for a bicycle recreational trail is generally considered to be 1 mile; however, 1/4-mile loop trails with plenty of obstacles and challenges may be desired by BMX bicycle riders. Road bike trails should have a vertical clearance of 8 to 10 feet and be 3 to 6 feet wide depending on road traffic and speed. An asphalt surface is recommended but other surfaces also are acceptable. For mountain bicycles, the preferred vertical clearance is 8 to 10 feet for a 2 to 3-foot wide trail with a natural surface.

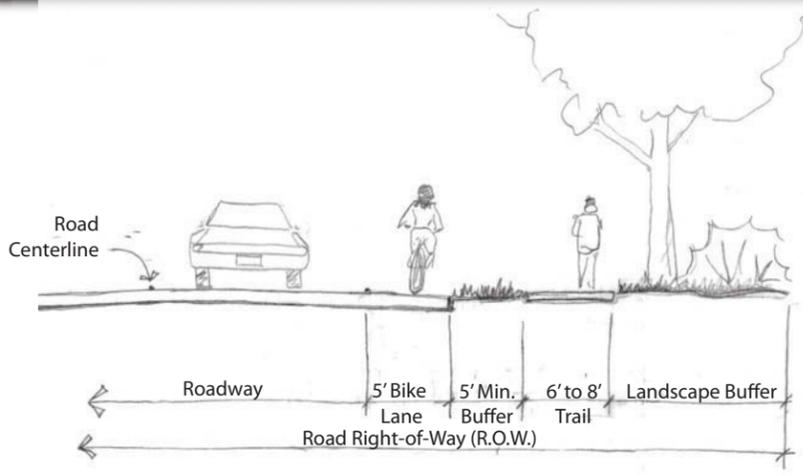
### Cross-Country Ski Touring

Cross-country ski trails provide winter recreation opportunities for many people and trail users prefer loops that allow different trail lengths rather than linear trails. Trails should permit easy return for tired skiers and restrict two-way traffic.

Cross-country skiers average a little over 3 miles per hour and desire experiences that range from 2 to 4 hours. Typically, trails should be 6 to 10 feet for one-way use and 10 to 12 feet wide for two-way use with a vertical clearance of 8 to 10 feet.

# Upper Valley Regional Trails Plan

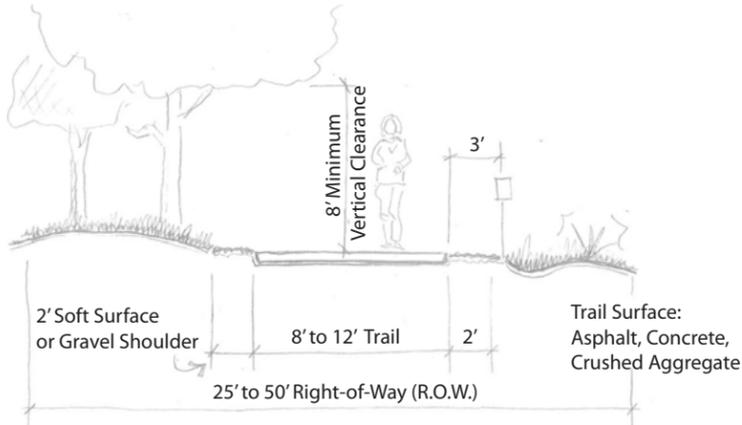
## Pedestrian Design Standards



Note: Landscape buffer between road and shared-use trail can contain street trees, shrubs, and ground cover creating an enhanced pedestrian corridor.



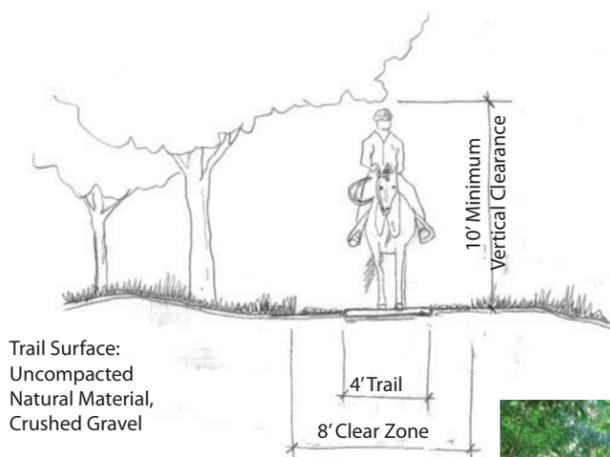
### SHARED-USE TRAIL (Within Road R.O.W.)



Note:  
15' to 20' Setback from Waterway and Sensitive Lands  
25' Minimum Buffer to Adjacent Private Property



### SHARED-USE TRAIL (Off-Road)



### HIKING/EQUESTRIAN TRAIL

**Layout:** Design for variety of vegetation, land forms, and sights. Day hikers tend to favor loop or series of loops. Frequent curves and grade changes add interest. Short spurs can access waterways and summits.

**Length:** Long enough for meaningful recreation; use internal connector trails and cutoffs for shorter routes for differing abilities. Day use is 1/4 to 5 miles for half-day, 5 to 15 miles for full day. Backpacking usually 25+ miles.

**Vegetation Clear Zone:** Should promote variety of trail environments without disrupting or damaging environment; typically 3 feet, but can be 4 to 8 feet depending on users and whether trail is one- or two-way.

**Vertical Clearance:** 8 feet minimum.

**Width:** Light use/one-way trail is typically 2 to 3 feet; heavy use/two-way trail can be 4 to 6 feet.

**Surface:** Natural if possible, with woodchips or gravel in heavy use areas.

**Turning Radius:** Gentle curves are aesthetically pleasing and easy to maintain.

**Grade:** 0 to 5% - desired; 15% - maximum sustained; 40% - shorter than 50 yards; 4% - maximum outslope. More than 10% is difficult for hikers and can develop erosion problems. Steps/switchbacks/waterbars may be needed on slopes over 25%. Occasional grade changes and dips add user interest and help natural drainage.

**Sight Distance:** Not critical, but road crossings must be located and designed carefully for good visibility by trail users and drivers.

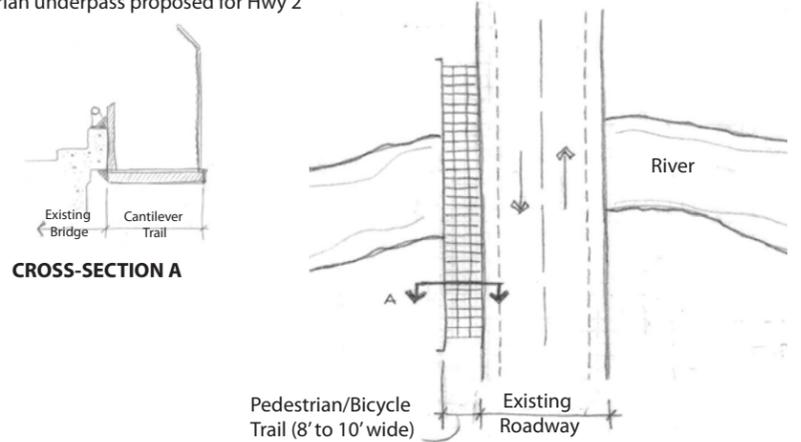
**Water Crossings:** Almost all methods will accommodate foot traffic. Choice of structure depends on flow and width of water and hiker's expectations. Bridges must be located above ordinary high water mark and 2 to 4 feet (light use), 5 to 6 feet (heavy use), and 8 feet or more (maintenance vehicles). Weight limit depends on maintenance equipment, length of bridge, and alternative trail uses. Fords can be used for slow-moving water less than 24 inches deep. Rocks and stepping stones can assist hikers.

**Compatible Uses** (with additional trail design standards): Snowshoeing and horseback riding.

**Facilities:** Parking area, picnic area, resting areas, overlooks, campsites, water, information boards, and signs.



Pedestrian underpass proposed for Hwy 2



Note: One option to improve pedestrian and bicycle bridge crossing would be to retrofit bridge with a cantilever trail. Further evaluation of existing bridges is necessary to determine feasibility.

### CANTILEVER BRIDGE TRAIL



Signage alerts motorists of pedestrians crossing roadway.



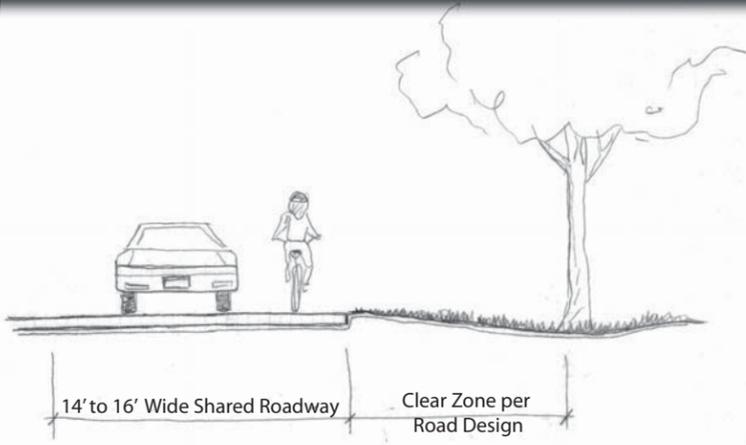
Enhanced crosswalks (ladder crosswalks, pavement texturing and raised crosswalks)

### PEDESTRIAN IMPROVEMENTS

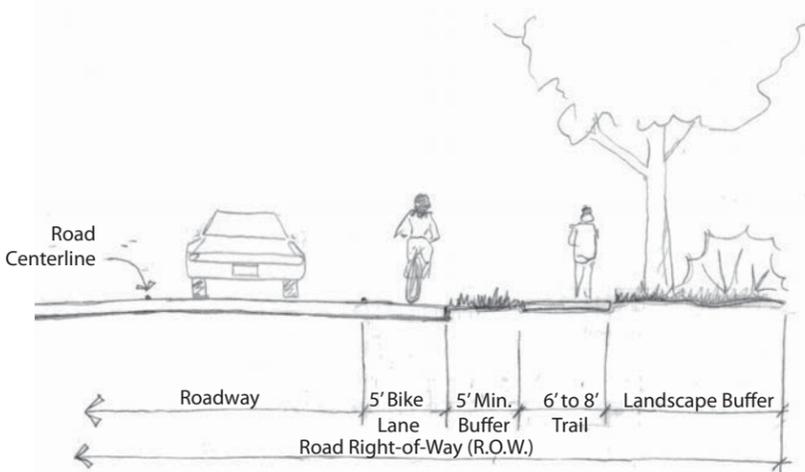


# Upper Valley Regional Trails Plan

## Bicycle Design Standards



**SHARED ROADWAY (Bike Route / Bike Lanes)**



Note:  
Landscape buffer between road and shared-use trail can contain street trees, shrubs, and ground cover creating an enhanced pedestrian corridor.



**SHARED-USE TRAIL (Within Road R.O.W.)**

**Layout:** Favor one-way trails because of dangers involved in bicycle passing. Loop or linear destination trails often used. Mountain bike trails must be located carefully and their use monitored to protect the environment.

**Length:** 5-10 miles for half-day and 10 to 20 miles for full day. Cyclists average 8 to 20 mph, but speed can be influenced dramatically by user abilities, curves, and slopes. Most cyclists can cover 10-20 miles in a single day; experienced riders can travel 50 miles or more. One mile considered minimum for a bicycle trail; but ¼-mile loop trails with plenty of obstacles and challenges may be desired by BMX bicycle riders.

**Vegetation Clear Zone:** Mountain bicycle - 6 to 8 feet; touring bike one-way - 8 feet; touring bike two-way - 10 to 14 feet. Allow additional width on downhill sections and curves.

**Vertical Clearance:** 8 to 10 feet

**Width:** Mountain bicycle - 2 to 3 feet; touring bike one-way - 3 to 6 feet; touring bike two way - 8 feet.

**Surface:** Mountain bike - natural surface; avoid erosion-prone and impact-resistant soils. Touring bike - asphalt surface (2 inches thick with 3- to 4-inch base of compacted gravel) is recommended. Limestone fines and other crushed granular stone (3/8 inch or less) surfaces also are acceptable.

**Turning Radius:** Wide, gentle curves with good forward sight distances. Never locate turns on downhill sections or at the base of a hill. Mountain bike - 4 feet (minimum), 8 feet or more (desired). Touring bike - ideal minimum radius of curvature can be calculated as follows:  $R = (1.25 \times V) + 1.5$  where: R = Radius of curvature in feet V = Velocity in miles per hour (For example, 14 feet is the minimum radius at 10 miles per hour. 7.75 feet is the minimum radius at 5 miles per hour.)

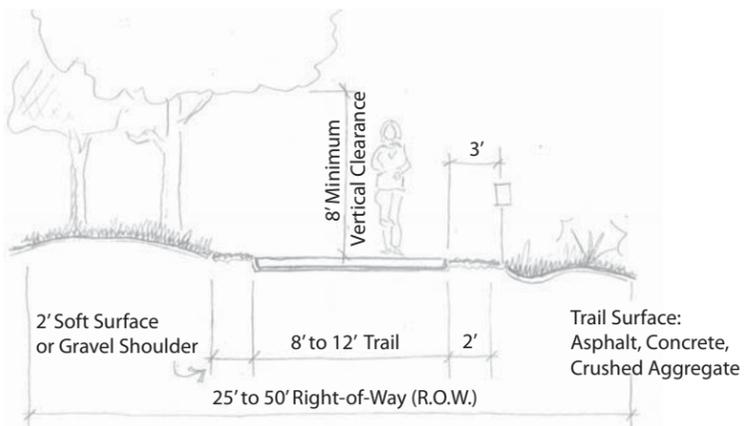
**Grade:** 0 to 3% - desired; 5 to 10% - maximum sustained; less than 50 yards -15%; outslope maximum - 2 to 4%. Trail grades less than 5% generally acceptable for bike travel. Avoid steep downhill grades where trail users are endangered and slopes are eroded by braking and skidding. Place unavoidable steep grades on uphill climbs, forcing riders push their bikes. Switchbacks with barriers and runouts may be used on steep slopes. Motorized roadway approaches should be located on level grades or gentle uphill climbs (less than 3%). Because of the trail surfaces used, touring bicycle and mountain bicycle trails have similar grade specifications. On mountain bike trails, favor grade dips and rubber water deflectors over potentially dangerous waterbars.

**Sight Distance:** Forward sight distances of at least 100 feet critical at motorized road and water crossings and on trails with two-way traffic. Curves should be designed carefully to maintain good sight distances. Turns and bends tend to help reduce travel speeds. 100 feet desired; 50 feet minimum.

**Water Crossings:** Culverts/bridges/ boardwalks should be used. Bridge approaches should be straight, level, and at least 100 feet long. Bridge width one-way - 4 to 8 feet; two-way - 10 feet. Weight limit should be 5 tons or more for maintenance equipment.

**Compatible Uses:** Cross-country skiing, snowshoeing, and hiking.

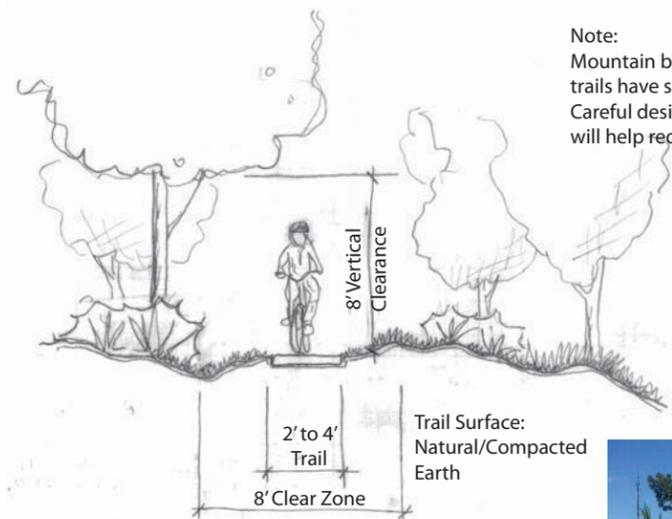
**Facilities:** Parking area, campsites, bicycle racks, information board, and signs.



Note:  
15' to 20' Setback from Waterway and Sensitive Lands  
25' Minimum Buffer to Adjacent Private Property



**SHARED-USE TRAIL (Off-Road)**



Note:  
Mountain bike, equestrian and hiking trails have similar characteristics. Careful design, signage and trail etiquette will help reduce user conflicts.

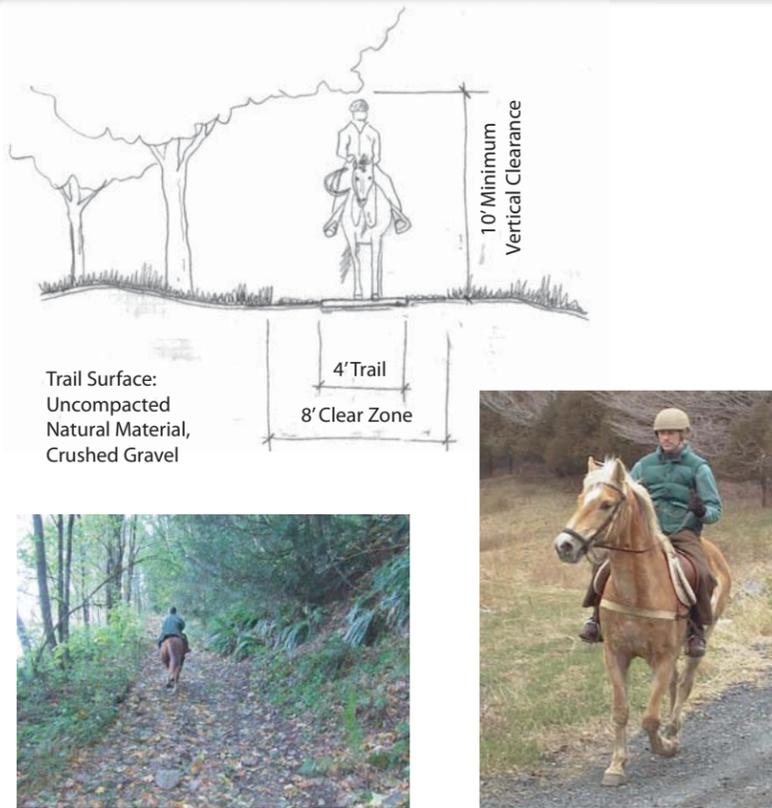


**MOUNTAIN BIKE TRAIL**

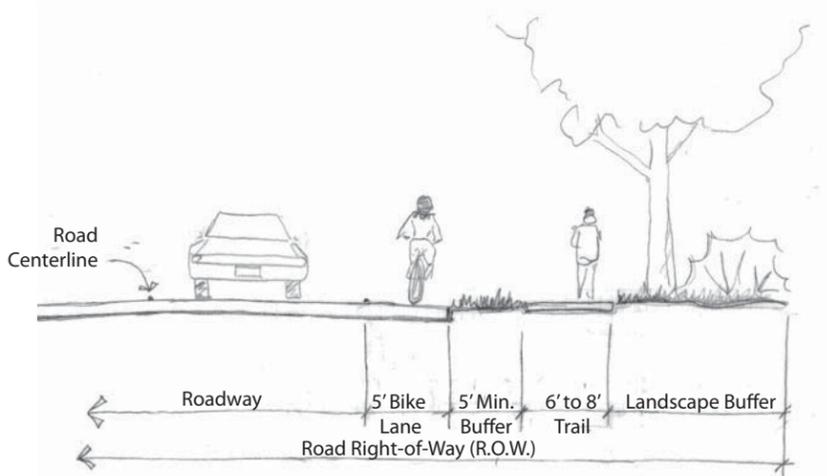


# Upper Valley Regional Trails Plan

## Equestrian Design Standards



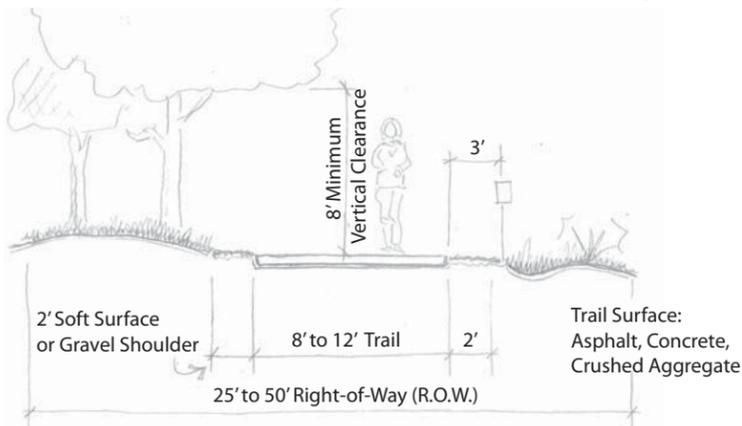
**HIKING/EQUESTRIAN TRAIL**



Note: Landscape buffer between road and shared-use trail can contain street trees, shrubs, and ground cover creating an enhanced pedestrian corridor.



**SHARED-USE TRAIL (Within Road R.O.W.)**



Note:  
15' to 20' Setback from Waterway and Sensitive Lands  
25' Minimum Buffer to Adjacent Private Property



**SHARED-USE TRAIL (Off-Road)**

**Layout:** Single direction or multiple loops. Scenery and terrain should change. Wet areas and steep slopes are very hard to maintain and should be avoided.

**Length:** Horses travel 4-8 mph. Many day-use trails cover 5 to 25 miles.

**Vegetation Clear Zone:** Light use/one-way - 8 feet; heavy use/two-way - 12 feet.

**Vertical Clearance:** 10 to 12 feet.

**Width:** Light use/one-way - 2 to 4 feet; heavy use/two-way - 5 to 6 feet.

**Surface:** Natural surfaces should be favored. Corduroy base covered with soil or woodchips is recommended for areas with erodible or poorly drained soils. Avoid using asphalt or concrete; they can injure horses' hooves.

**Turning Radius:** Not critical, but avoid sharp-angled turns or turns on steep slopes.

**Grade:** 0 to 10% - desired; 10% - maximum sustained; 20% - less than 50 yards; 4% - maximum upslope. Grades more than 10% often erode. Switchbacks and waterbars may be necessary for horses on steep slopes. Offer resting grades (4% or less) at least 500 feet long at regular intervals.

**Sight Distance:** Not critical unless horse traffic flows in both directions and hikers share the trail. Then trail should have forward sight distances of 50 to 100. Warn riders at least 100 to 200 feet in advance of all motorized road crossings.

**Water Crossings:** Keep to a minimum. Favor natural crossings and culverts rather than bridges, which must be designed to meet specific needs (e.g., weight) of horse travel. Obtain professional assistance when designing and locating horseback riding bridges. Bridges must be located above the ordinary high water mark, 8-foot minimum width, 5 ton weight capacity, but this varies depending on maintenance equipment and length of bridge. Fords allow horses to cross slow-moving water less than 24 inches in depth easily. Favor stable streambeds with a sand and gravel base. Move large rocks downstream of the water crossing.

**Compatible Uses:** Hiking, cross-country skiing, and snowshoeing.

**Facilities:** Parking area with space for trailers, hitching post or tether line, campsite with corral, water.



Sponsored events (such as trail building) provides opportunities for a variety of trail users to build better relationships and provide overall success for joint trail use.

### TRAIL ETIQUETTE



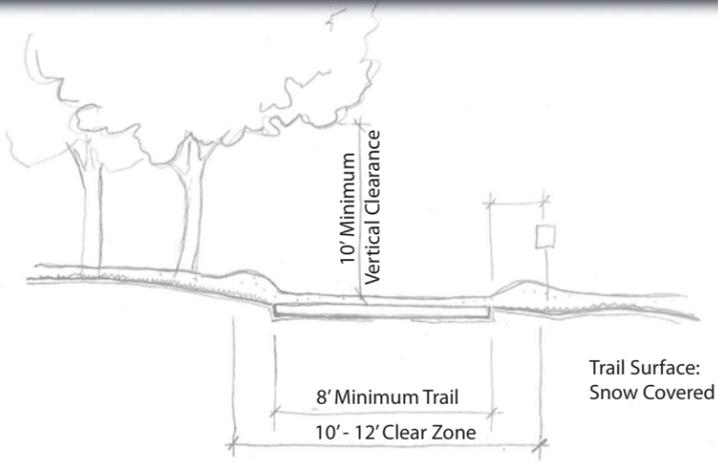
Trailheads with parking lots where equestrians are allowed should have sufficient room for parking trailers. Hitching posts are usually located where the rider is expected to get off the horse, such as at restroom locations and viewpoints. Place posts away from other users. Signage is helpful to notify other trail users who might be on the trail with them (such as mountain bikes and equestrians) and provide information about the trail.

### TRAIL FACILITIES TYPICAL FOR EQUESTRIANS

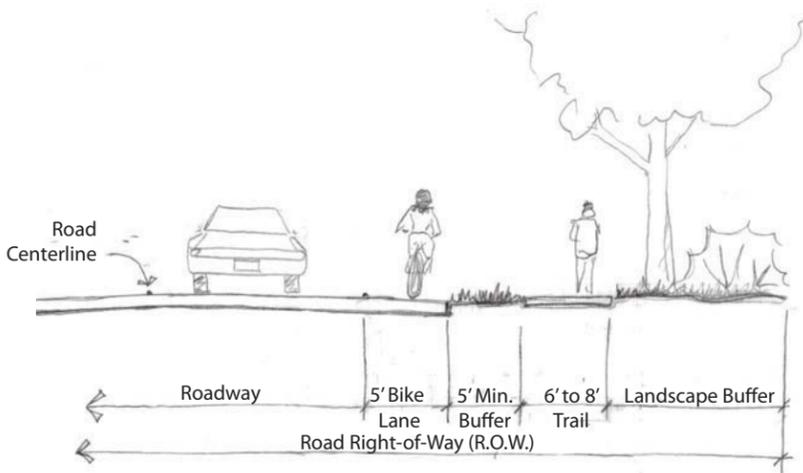


# Upper Valley Regional Trails Plan

## Nordic Design Standards



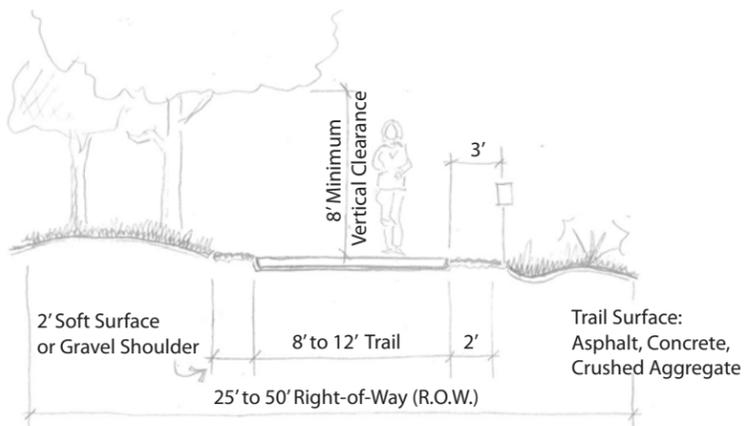
### GROOMED SNOW TRAILS (Nordic)



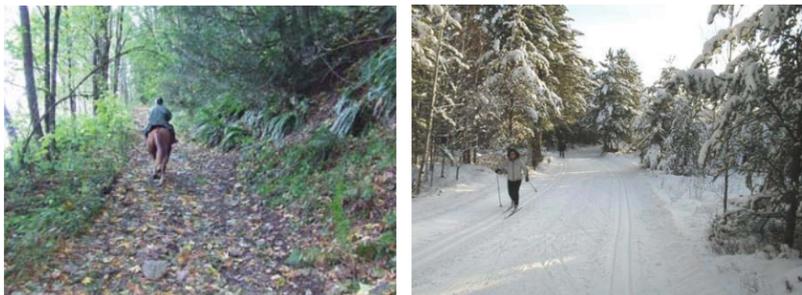
Note: Landscape buffer between road and shared-use trail can contain street trees, shrubs, and ground cover creating an enhanced pedestrian corridor.



### SHARED-USE TRAIL (Within Road R.O.W.)



Note:  
15' to 20' Setback from Waterway and Sensitive Lands  
25' Minimum Buffer to Adjacent Private Property



### SHARED-USE TRAIL (Off-Road)

**Layout:** Favor loop trails over linear trails. Multiple, short loops with a single access point often are preferable to one long loop. Restrict two-way traffic to the access trail. If traffic must flow in both directions, provide separate uphill and downhill segments on slopes exceeding 8%. When selecting trail routes, favor northeast-facing slopes, where snow cover remains the longest.

**Length:** Cross-country skiers travel 2 to 8 mph with most averaging a little over 3 mph. Desired experiences 2 to 4 hours on trails that are 4 to 8 miles. Use internal connector trails and cutoffs for different trail lengths and for easy return by tired skiers.

**Vegetation Clear Zone:** Light use/one-way - 8 feet; heavy use/two-way - 12 to 14 feet; steep uphill slopes - at least 10 to 12 feet wide for herringbone or sidestep skiing. Double width of clear zone at trail or roadway intersections. Make clear zone even wider or provide runouts on downhill sections.

**Vertical Clearance:** 8 to 10 feet above expected snow depth. Allow additional space where branches may sag with heavy snow, especially conifers.

**Surface:** Require regular grooming, which should begin when snow depth reaches 6 to 12 inches. Specialized equipment such as large roller or drag with packer pan can be built or purchased for heavily used trails. Grooming also can be done with the blade on a small tractor or the tread tracks of snowmobiles, small tractors, or off-road vehicles. The snowbase should be built from the bottom up, so regular grooming after any substantial snowfall is critical.

**Turning Radius:** Gradual curves that allow skiers to glide. Avoid sharp turns or provide additional trail width to allow skiers to snowplow and negotiate the turn. Never locate a curve on or at the base of a downhill slope.

**Grade:** Grade variations enhance the skier's experience if slopes are not too steep. 10% or less for novices; 40% on short slopes for experienced skiers.

**Sight Distance:** Not critical except on steep downhill runs or where the trail crosses roadways, waterways, or other potential hazards.

**Water Crossings:** Use straight, level (less than 5% grade) approaches that allow skiers to stop prior to crossings. Never incorporate frozen lakes or rivers. Natural water crossings can be used on small, shallow (6 to 12 inches) streams that freeze over early in winter and stay frozen. Always favor culverts, bridges, and boardwalks, especially if deep water or steep banks are present. Bridge and boardwalk decks must be flush with the trail surface with narrow gaps or no gaps between decking boards to allow for snow accumulation and compaction. The weight and size of grooming equipment are critical to bridge design. Bridges must be located above the ordinary high water mark and should have rails at least 42 inches above the snow level. Width is 6 to 10 feet (bridges often become narrower as snow accumulates), Weight limit depends on bridge length - allow 5 tons or more for maintenance equipment.

**Compatible Uses:** Snowshoeing, hiking, bicycling, accessible trails for persons with disabilities.

**Facilities:** Parking area, resting areas, and benches at regular intervals, trail shelters every 8 to 12 miles, information boards, and signs.



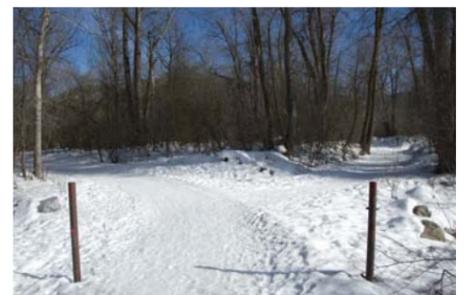
Hiking at Ski Hill in Spring to Fall



Winter activities at Ski Hill



Walking the Waterfront Trails Spring to Fall



Nordic Skiing the Waterfront Trail to Golf Course

### EXISTING COMMUNITY TRAILS



## VII ENVIRONMENTAL ASSESSMENT

The myriad of different development scenarios, exact boundaries of critical areas, and discussions of individual permits necessary to complete the proposed project are outside the scope of this document. The intention of this summary assessment is to provide a broad overview of what environmentally sensitive areas occur within the boundary of the project, outline the different levels of environmental regulation (federal, state, and local), and explain what project activities would trigger review under each jurisdictional level. Lastly, the assessment provides examples of likely project activities and the permits that they would require illustrating the complexities of permitting various types of trail features based on their design. To determine the approximate extent of environmentally sensitive areas within the project area, existing resources were reviewed. These resources include color aerial photographs of the project area, USGS topographic maps, national Wetland Inventory maps, the County soil survey, and various websites that deal with the locations of sensitive plants and animals in Washington. Based on this review, regulated critical areas within the proposed trail alignments appear to include steep slopes, wetlands, waters of the state (streams) and fish/wildlife habitat conservation areas. For the purpose of this document, fish and wildlife conservation areas are synonymous with habitat for species designated as threatened or endangered under the federal Endangered Species Act (ESA).

The plan has the potential to be regulated on federal, state, and local levels depending on how close project elements are to critical areas and sensitive wildlife populations. While jurisdictions have overlapping layers of protection, this summary assessment addresses each jurisdictional level individually and the activities that would trigger its review below. Because the project area is fairly large and represents a broad continuum of environmental conditions, the numbers of critical areas, potential impacts, and permitting scenarios are equally diverse. A non-project SEPA Checklist was drafted for the Recommended Trails Plan (see Appendix F, SEPA Checklist).

### Federal Review

The most likely agency that would be required to review the proposed project on a federal level is the US Army Corps of Engineers (Corps). Within the proposed trail alignments, critical areas subject to Corps regulation include wetlands, waters of the US (streams), and verified habitats for species listed as threatened or endangered under the ESA. The following federally regulated critical areas exist within the project area.

- Wetlands subject to Corps' jurisdiction (non-isolated wetlands)
- Waters of the US (streams)
- Wenatchee River
- Icicle Canyon Creek
- Chumstick Creek
- Tributaries to the above-named creeks

The following federally listed threatened and endangered species are either known to occur or have the potential to occur within the project area.

- Chinook salmon, steelhead, bull trout
- Northern spotted owl
- Lynx
- Grey wolf
- Grizzly bear

The federal permit matrix is the most complicated of the three jurisdictional levels and is most affected by what type of activity is proposed and what has the potential to be affected. The trigger for formal review and permits under federal jurisdiction will depend on the proposed activity as well as whether or not the project is receiving federal funding. All federally funded projects are required by law to be reviewed for potential impacts to ESA-listed plant and animal species. Non-federally funded projects do not have a federal nexus unless they would result in direct impacts to non-isolated wetlands or waters of the US (streams), and would therefore not be subject to consultation under Section 7 of the ESA.



For example: if a portion of the project was not federally funded and did not include work within wetlands or below the ordinary high water mark (OHWM) of streams, no federal permit would be required. Therefore, even if the project were built close to verified habitat for ESA-listed species (e.g., known spotted owl nest, ESA fish in a stream), there would be no federal nexus, and therefore no federal requirement to consult with the US Fish and Wildlife Service (USFWS) or NOAA Fisheries regarding impacts to species listed under the ESA.

## State Review

Besides the various state agencies that would review a State Environmental Policy Act (SEPA) document prepared for the project, critical area impacts are reviewed on a state level by the Washington State Department of Ecology (Ecology) and the Washington State Department of Fish and Wildlife (WDFW). The critical areas that are subject to regulation by Ecology include wetlands (both isolated and non-isolated), work within waters of the state, and projects completed within state shoreline areas. While WDFW has the ability to comment on projects that may affect fish and wildlife habitat or priority species through the SEPA process, permits are only required by WDFW if the project involves work below the OHWM of waters of the state.

The trigger for formal project review by Ecology would be work that directly impacts wetlands or work within waters of the state. While Ecology does not implicitly regulate what activities can occur within wetland buffers, it should be noted that if the project requires a wetland permit (most commonly known as a 401 water quality certification) from Ecology, Ecology reserves the right to regulate what activities can occur within a wetland buffer.

The trigger that would require the project to obtain a permit from WDFW would be work below the OHWM of a water of the state or construction of a structure that would span a water of the state. This permit is known as a hydraulic project approval (HPA) and is fairly easy to obtain, although WDFW will likely require strict best management practices, design criteria, and timing restrictions for any project involving in-water work.

## Local Review

Except for very small projects that involve a minor amount of ground disturbance, projects will be subject to local review by the City or the County. These examples are listed in the City and County ordinances. Both have critical area ordinances (CAOs) that regulate activities within or adjacent to regulated critical areas. These critical areas include wetlands, fish and wildlife habitat, geological hazard areas, and critical aquifer resource areas. In addition to regulation under the critical areas ordinances, the Wenatchee River is regulated as a shoreline of the state. Development within 200 feet of the shoreline of the river would require local review under the State Shoreline Management Act.

In addition to projects that would include direct impacts to wetland and streams, project activities within the buffers extending from these features are also subject to local regulation. Both are listed in City and County CAOs. It should be noted that both the City and County CAO currently allow trails and trail infrastructure within wetland and stream buffers. Project activities close to nests and roosting areas for great blue herons, bald eagles, osprey, and common loons are also regulated by the City.

It is not likely that the proposed project would include amenities that would trigger development under the critical aquifer recharge areas ordinance. Based on the current trail alignments, however, wetland, wetland buffer, geologic hazard areas, and fish and wildlife conservation area impacts are likely.

Lastly, trails constructed on steep slopes would require review under the geologic hazard area portion of the CAO. As is typical of local geologic hazard regulations, the analysis and construction requirements of a licensed geologist would dictate what construction activities would be appropriate within steep slope areas.

## Permit Examples

The following examples are intended to outline what permits would be required for different activities likely to occur as part of regional trails planning. The three projects are presented in order of permit complexity ranging from a project that would require approval only on a local level to a project that would involve multiple federal agency reviews and permits on federal, state, and local levels.

### Example 1

Proposed project—A previous walking trail will be constructed within wetland buffers and adjacent to a small, unnamed intermittent stream.

**Required documents**—Wetland delineation report, habitat management and mitigation plan, and local government permit application forms.

**Permits**—Critical areas permit issued by County/ City. Mitigation for impacts unlikely or minimal.

## Example 2

**Proposed project**—An impervious walking trail will be constructed adjacent to the Wenatchee River and will include the construction of a bridge over the river. The bridge will span the river completely and will include no in-channel abutments or in-water work.

**Required documents**—Wetland delineation report, habitat management and mitigation plan, shoreline permit document/checklist, letter of no effect (for ESA-listed fish species), JARPA form (application for Corps and WDFW permits), and local government permit application forms.

**Permits**—Critical areas permit and shoreline approval issued by City/County. Corps review because the Wenatchee River is a navigable water of the US. Because the project would not include in-water work, the Corps would review and likely confirm that the project would have no effect on ESA-listed fish species. The Corps would issue a Nationwide Permit or General Authorization under the Rivers and Harbors Act. Under the appropriate Nationwide Permit, authorization from Ecology would not be **required**. An HPA from WDFW would be required. Authorization from the US Coast Guard may also be required to build a bridge over a navigable water. Mitigation for impacts to riparian buffers would be minimal or not required.

## Example 3

**Proposed project**—Bridge over the Wenatchee River that will include in-water work or construction of bridge abutments below the OHWM.

**Required documents**—Habitat management and mitigation plan, shoreline permit document/checklist, biological assessment (for ESA-listed fish species), JARPA form (application for Corps and WDFW permits), local government permit application forms.

**Permits**—Critical areas permit issued from County/ City. Shoreline approval issued by City/County. Review of project by the Corps because of proposed work within a navigable water. Because the project would include in-water work within habitat of ESA-listed fish species, the Corps would require the completion of a biological assessment to determine the effect of the project on fish species. The Corps would also send the application to USFWS and National Marine Fisheries Service for concurrence with the ESA effects determination. An HPA from WDFW would be required. The Corps would issue a Nationwide Permit or General Authorization of the project under the Rivers and Harbors Act. A 401 water quality certification would also likely be required from Ecology. Authorization from the US Coast Guard may also be required to build a bridge over a navigable water. Mitigation for impacts to fish habitat would likely be required.



## VIII RECOMMENDATIONS FOR IMPLEMENTATION

The Upper Valley Regional Trails Plan seeks to assist in the development of a safe, accessible, and interconnected trail system. Implementation depends entirely on the active collaboration of trail advocates and multiple public agencies including the City, County, USFS, and WDFW, among others. This document provides local agencies and the community with guidance to move forward with trail implementation; it is not the final word on trail development. It should be reviewed frequently and updated as conditions and opportunities change.

One challenge with a plan like this is that the trails cross multiple jurisdictions and no particular person or agency is charged with seeing it through. Each agency must be willing to take responsibility for trails within its regional area. The City should continue its efforts to explore and discuss possible route connections with other local agencies seeking the development of regional trails within their communities. It will take years of planning and strategizing to see the planning efforts of this document take shape in reality. The following actions will assist further implementation for an interconnected trail system in the City and the surrounding areas. The following implementation actions are recommended in this plan.

- Maintain a comprehensive inventory of existing and proposed trail routes.
- The recommended trails plan is intended to be a living document. The Steering Committee should conduct an annual review of the trails plan, with contributing agencies, and seek amendments as needed to reflect changing design specifications, implementation impacts, and user needs, etc.
- Local governing documents, such as parks and recreation, land use, and transportation and capital improvement plans should be amended to include content consistent with this plan.
- Create incentives and encourage local developers to incorporate non-motorized connections into site design to ensure that these smaller trail systems link with the larger regional system.
- Cooperate and coordinate work toward non-motorized goals with neighboring communities and other involved agencies.
- Secure funding and develop action plans to assure implementation of priority projects.

### Priorities

Every trail identified in this plan is an important connection to the overall non-motorized system. However, it is necessary to identify priorities to know where to focus attention, effort, and monies initially. Trail priorities were determined by analyzing the most recommended trail connection with the highest feasibility of being built in the next 5 years based on input from the community. Other considerations included status of existing planning efforts, importance of connectivity, land ownership, and environmental impacts.

The implementation of bicycle and pedestrian trail systems, and encouragement of their use, is a responsibility shared by all government agencies and jurisdictions in the region, as well as many community organizations. It relies not only upon the development of good facility plans, but commitment at each level of government to support funding for projects, including support to raise new revenues for projects. Each jurisdiction will need to adopt and prioritize the recommended trails plan. This document is intended to represent the priorities the community would most like to see and efforts that the individual jurisdictions will pursue development and partnerships for adoption and implementation.

Trail corridors were prioritized as Tier 1—highest probability of being funded in the next 5 years usually due to high priority, lower costs, and short-term solutions; Tier 2—possible with implementation of additional funding strategies in the next 5-10 years; and Tier 3—lowest probability of being funded in the next 10 years. The plan was developed to be consistent with both the County and the City's transportation and comprehensive plans. The following lists the City's Tier 1 priority trails identified in the plan.

- Chumstick Road Trail
- Icicle Station/ Valley Trail
- Ski Hill/ Freund Canyon Trail
- Valley Trail (Leavenworth to Peshastin)
- School route improvements
- Downtown pedestrian improvements

The trails matrix identifies the recommended trails plan and the jurisdiction responsible for development (see Recommended Trails Plan Matrix, pg 29).

## Cost Analysis

The following information is a summary of estimated construction costs for trails that were identified as Tier 1 priorities only. However, reviews of other trail plans indicate that realistic cost estimates are inaccurate by the time a project is ready for construction. Therefore, these numbers represent preliminary cost estimates to use as a starting point and they would need to be re-evaluated prior to final budgeting to determine current, accurate costs of construction. Included in this section are other tools that can be used in developing cost estimates for trails based on design standards.

### Upper Valley Regional Trail Tier I Priority Improvement Cost Estimates

Trail ID*/ Trail Description	Project Description	Trail Type	Estimated Costs
CR6 (CC-NM7)/ Chumstick Highway	Complete missing sidewalks between City limits and North Road	Shared-Use	\$570,000**
CT1 (L-NM1)/ Icicle Station Shared-Use Trail	Trail connecting Leavenworth to proposed Amtrak station along PUD property using old railroad bed. Section of the Valley Trail. Includes improving underpass along North Road	Shared-Use	\$1,330,000**
CT4/ Ski Hill/ Freund Canyon Trail	Mountain bike and hiking trail on USFS lands.	Hiking	(USFS)
CT3 (CC-NM25)/ Valley Trail – Leavenworth to Peshastin	Identify ROW and construct trail between Leavenworth and Peshastin,	Shared-Use	\$1,460,000**
CR5 (L-R12)/ School Route Improvements	Repair Pine Street and construct sidewalk along south side of roadway,	Sidewalk	\$3,180,000**
CR1 (L-R6 to L-R10)/ Downtown Improvements	Variety of pedestrian and vehicle enhancement projects currently underway including reconstruction of roadway, curb replacement, sidewalks, illumination,	Sidewalks	**

\* The trail ID in parenthesis is consistent with City of Leavenworth's Draft Transportation Plan.

\*\*Costs per Chelan County Transportation Project List, August 6, 2008, and City of Leavenworth's Draft Transportation Plan, 2009.

Additional tools can be used to generalize trail costs and are useful when selecting trail design standards, such as choosing surface materials and deciding questions of long-term maintenance. The tables below identify the average cost for development of the trail for planning and budgeting purposes only.

### Cost Estimates for On-Road Bicycle Facilities

Facility Type	Unit Cost
Install bicycle route signs	\$250 to \$350 per sign
Install bicycle lanes (on existing pavement or during repaving)	\$14,000 per linear mile \$2 to \$3.80 per linear foot
Restripe roadway for wide outside lanes	\$14,000 per linear mile
Remove existing markings (lane removal or lane width reduction) and install bicycle lanes	\$48,000 per linear mile
Install shared lane markings (on existing pavement or during repaving)	\$8,000 per linear mile
Construct wide outside lanes (additional lane pavement added during roadway construction)	\$300,000 per linear mile

\* Cost estimates are preliminary costs used on similar trail projects developed between 2005 to 2008. Costs include clearing, grubbing and grading. Major cost estimates including utility relocation are not included in estimates. Actual costs will vary and these numbers should be used for planning purposes only.

### Cost Estimates for Pedestrian Facilities

Facility Type	Unit Cost
5 Foot Sidewalk	\$50 per linear foot when curb and gutter not included \$75 per linear foot when curb and gutter is included
6 to 12 Foot Shared-Use Trail	Asphalt \$13 to \$43 per linear foot Concrete \$38.50 to \$95 per linear foot Gravel \$12 to \$25 per linear foot Wood \$8.50 to \$21 per linear foot
8 to 12 Foot Boardwalk Trail	\$200 to \$350 per linear foot

\* Cost estimates are preliminary costs used on similar trail projects developed between 2005-2008. Costs include clearing, grubbing, and grading. Major cost estimates including utility relocation are not included. Actual costs will vary and these numbers should be used for planning purposes only.

### Estimates for Traffic Calming Treatments

Treatment Type	Unit Cost
Highly Visible Crosswalk	\$500 to \$1500
Raised Crosswalk	\$2,000 to \$15,000
Speed Hump	\$5000
Refuge Island	\$10,000 to \$75,000
Curb Extension	\$5,000 to \$25,000
Curb Ramp	\$1,200 per corner
Traffic Circle (neighborhood)	\$15,000 to \$25,000
Chicane	\$20,000 to \$40,000
Narrow Lane	\$1,000 to \$3,000
Speed Display	\$250 per day
Signs	\$200 each

\* Cost estimates are preliminary costs only.

An online tool used to evaluate the cost of bicycle facilities might be useful for arriving at cost estimates when the project is getting ready for construction or for developing information for funding applications. The cost analysis of bicycle facilities is available at <http://www.bicyclinginfo.org/bikecost>.

### Potential Funding Sources

Throughout the development of this plan, a number of non-profit organizations, agencies, and trail advocate groups were involved. Collaborative partnerships that could be established might include the City, County, WSDOT, USFS, hatchery, CDLT, and non-profit and user groups. These agencies and individuals will have a substantial influence on the development of the regional trail system.

The list of potential funding sources below is not meant to be all-inclusive. It is not uncommon for new programs to begin and existing programs to end, as funding is available and as legislative and organizational objectives change.

#### Federal Programs

- National Recreational Trails Program (RTP)—federal grant program administered by the Interagency Committee for Outdoor Recreation to be used to develop and maintain trails and related facilities for both motorized and non-motorized

recreational trails uses. These funds are available for maintenance, construction of trails and trailheads, operation of environmental education and trail safety programs.

- **The Washington Wildlife and Recreation Program (WWRP), Interagency Committee for Outdoor Recreation**—provides assistance for land protection, park development, preservation/conservation, and outdoor recreation facilities. Grants are available for trail acquisition and development.
- **Land and Water Conservation Fund (LWCF), National Park Service (NPS)**—offers matching federal funding to state and local governments for the recreational land acquisition and development, including trails. Funds can be used for right-of-way acquisition and construction.
- **Rivers, Trails and Conservation Assistance Program (RTCA)**—provides expertise and assistance with various local projects. The program assists governmental agencies and nonprofit organizations in collaborative efforts in conserving rivers, trails and greenway corridors.
- **Transportation, Community and System Preservation Program (TCSP)**— provides federal funding for transit-oriented development, traffic calming, and other projects that improve the efficiency of the transportation system, reduce its impact on the environment, and provide efficient access to jobs and services. The program is intended to provide communities with the resources to explore the integration of their transportation systems with community preservation and environmental activities.
- **Surface Transportation Program (STP), Federal Highways Administration (FHWA)**—STP funds are available in accordance with state law and the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). They may be used for construction of non-motorized transportation facilities like shared-use trails, sidewalks, and bicycle lanes.

## State

- **Safe Routes to School (SR2S)**—used to identify and reduce barriers and hazards to children walking or biking to school. This program includes funding for construction.
- **Small City Sidewalk Program, Washington Transportation Improvement Board (TIB)**—a sidewalk program established to help provide funding for sidewalk projects related to transportation.
- **Washington State Pedestrian and Bicycle Safety Program (WSDOT)**—grant program providing funding for Safe Routes to School programs to aid public agencies in funding cost-effective projects that improve pedestrian and bicycle safety through engineering, education and enforcement.
- **Transportation Enhancements (TE) Program, Federal Highways Administration**—WSDOT provides federal funds from SAFETEA-LU that include 12 categories of projects related to surface transportation including pedestrian and bicycle infrastructure, safety programs, and streetscapes.

## City

- **Dual-Use Easements**—Partnering with utilities in developing areas of the city, public utility easements could be obtained with a portion of the easement to be used for trails (i.e. maintenance access roads could also serve a dual use).
- **Trail Dedication In-Lieu Fee Requirement**—Require new development to pay for the cost of providing public facilities, including trails, to service the needs of new development. This requirement could help ensure that as the city grows, adequate land and funds are secured to accommodate the new development's demand for trail facilities.
- **Development Funds**—Types of development funds include: Tax Increment Financing (TIF) Plan areas, Transportation Development Districts (TDD) and Community Improvement Districts (CID) which capture tax increment or additional taxes for the benefit of the project area. These funds are eligible for infrastructure improvements, including trails.
- **Real Estate Transfer Fee**—A real-estate transfer fee could be charged for each real-estate transaction recorded within the city to generate trails funding. The amount generated, based on rates from other municipalities that have implemented a similar fee would not be significant, but could be used to for specific funding needs.
- **Trails Tax**—There are numerous taxing tools available for trail development that can be used individually or in combination: Sales tax (regional or local), Property tax, Gas tax, and Specific purchase tax (e.g. bike purchases)
- **City-County Partnerships**—Many trails corridors are on county land or are part of a larger system. City must collaborate with other agencies to more effectively build out the regional system and help each entity achieve mutual goals and combine funding that can be used for trails.

## Other Resources

- **Land Trusts**—organizations that work with landowners to protect/preserve land for conservation; these are often successful at acquiring land through donations or at a reduced price. Owners are able to receive tax benefits from the donation/ reduced sales price. Locally, the CDLT is an organization that could assist in the acquisition of trail corridors.
- **Volunteer Groups**—community members or various user groups interested in assisting with the construction and maintenance of the trails system. The creation of an Adopt-a-Trail program could help offset ongoing maintenance costs through a commitment to keep sections of trail free of litter and debris.
- **Community Service Workers**—individuals fulfilling community service requirements and/or inmates on work detail to perform maintenance and other activities.
- **Individual Sponsorship**—individuals, businesses, or corporations are interested in sponsoring which can come in the form of cash donations, donations of services, equipment, and labor.

## Maintenance & Operations

Many grant programs require a detailed maintenance plan in place for a project to be eligible for funding. Trail maintenance is a very important concern when planning across regional areas that involve many jurisdictional agencies. Agencies involved should work together to identify who is responsible for maintenance and are encouraged to make written agreements with each other to maintain different trail segments.

Often, there is not enough staff or proper equipment to perform trail maintenance activities and creative solutions can be explored. Volunteers are a great way to help maintain parks and trails. Neighborhood organizations, businesses, service clubs, trail user groups, churches and community members often participate. Usually a formal agreement is reached between the trail owner and volunteer organization such as Adopt-A-Trail. Volunteers perform the usual clean up and debris removal tasks and work on enhancement projects such as fundraising and landscaping.

## Action Plan

The next steps in planning and design will most likely be undertaken incrementally by the various local government entities, non-profit organizations, and user groups. The trails plan incorporates a combination of on-road and off-road sections; each presents challenges and opportunities that will need to be addressed. There is no schedule for developing the proposed trail system because this is a conceptual plan. It indicates where trails should be planned as development occurs and as transportation improvement projects can incorporate them. The following steps can be begun today to ensure that this plan will eventually become real trails on the ground.

- Adoption of the Upper Valley Regional Trails Plan by the Leavenworth City Council, Chelan County, Peshastin City Council, and the USFS.
- Attendance as needed by City staff and Steering Committee members at meetings and presentations to demonstrate local support and provide information.
- Development and distribution of educational materials (maps, brochures, safety information, benefits of trails)
- Provide informational assistance to residents and property owners along a potential trail to educate them and build support.
- Determine methods for trails acquisitions, development, and maintenance that will best use user funding and contributed materials/services.
- Develop traffic safety and trail user education programs for students (particularly in the elementary grade levels), general trail users, and motorists.
- Place priority on the sweeping and general maintenance of high volume bicycle routes.
- Develop incentive programs to acquire trail easements through private property and developing lands.
- Collaborate on trail planning efforts with other appropriate agencies to share resources and build on each other's experiences.

It is important to remember that pathway projects can take years to grow from concept to reality. They are often quite complex, involving many landowners. Determining a workable alignment, securing the pathway right-of-way, and finding the resources for pathway construction all take time, energy, and money. Pathways are often built in phases as funding becomes available and pathway alignments are secured. For each project, different strategies build pieces of a pathway, fill gaps, make

key acquisitions, and secure participation by landowners, but each step moves residents closer to a pathway that connects their community.

The steering committee has been instrumental in the development of the Upper Valley Regional Trails Plan. They have met on numerous occasions dedicating time to review design elements on all phases of the project including evaluation of the alternative concept plans, draft and recommended design standards, and various drafts of the preferred trails plan. The steering committee also deliberated on public comments received at each stage in the planning process and provides useful feedback.

Committee members know that the outreach for this plan cannot stop at the City's adoption and should continue to dedicate their efforts to ensure this plan is a living document. Committee members and interest groups, will continue to work with the City to gain support and create more enthusiasm for the plan in order to get other jurisdictions and agencies to adopt it and/or help develop the individual trail segments.

## IX GLOSSARY & ACRONYMS

**Class I bikeway** (bike path) is a separated right-of-way for bicycle and pedestrian use.

**Class II bikeway** (bike lanes) is a restricted right-of-way on a roadway for the use of bicycles only. On this type of bikeway, a lane at least 4 feet wide is striped on the roadway to separate bicycle and motor vehicle lanes.

**Class III bikeway** (bike route) is a roadway shared by bicyclists and motorists and is designated by signage.

**Class IV bikeway** describes particularly rough conditions typically used by mountain bikes.

**Clear zone** is the unobstructed space between the edge of a trail and any vegetation or other object. The clear zone allows trail users to pass safely.

**Easement** is a right or privilege that someone may have in another person's land. An easement is required to locate a trail on private property, along roads, and the like.

**Linear corridors** are easements, rights-of-way, and other narrow areas that go from place to place and on which greenways, linear parks, and trails can be established. They often border rivers.

**Link** hooks two trails together or connects open space, parks, and other sites with main trails.

**Loops** return the user to the starting point of a trail by a different route.

**Maintained trails** for public use provide maximum user safety and convenience; the surface is smooth and firm and bridges, culverts, and signage suit persons of all abilities.

**Network** is a group of trails managed by one agency (or a group of agencies). The trails fit together and serve more than one type of user.

**Primitive trails** are common in wilderness areas. Their surfaces are not maintained and their sides are not mowed or trimmed.

**Rail trails** are unused rail corridors converted to public trails. Generally, they are graded, easy to reach from urban and suburban areas, and have a right-of-way wider than the rail bed.

**Rights-of-way** are strips of land that are lawful to use for passage as established by common or statutory law. They have legal boundaries.

**Shared-use trail** accommodates two or more user groups with two or more defined trail surfaces within the same right-of-way. An example would be an asphalt pedestrian trail and an dirt equestrian trail.

**Trail** as used in this plan describes any route intended for use by pedestrians, bicyclists, equestrians, skiers, hikers, or joggers.

**Trail corridor** is the general location of a trail route.

**Trail crossings** allow trail users to cross streets and rivers safely. They include grade separations (bridges or underpasses).

**Trailhead** gives access to a trail. Users can rest and park their vehicles here. Trailheads can have water, restrooms, parking for vehicles and bicycles, trash receptacles, kiosks for signage and information, and access control gates.

**Trail users** are individuals on trails, while **trail user groups** are larger and share interests, concerns, and needs.

**Vertical clearance** is the distance between the surface of the trail and any overhead obstruction.

BNSF	Burlington Northern Santa Fe Railway
CDLT	Chelan Douglas Land Trust
City	City of Leavenworth
DNR	Washington State Department of Natural Resources
PUD	Chelan County Public Utility District
ROW	Right-of-way
USFWS	US Fish and Wildlife Service
USFS	US Forest Service
WDFW	Washington Department of Fish and Wildlife

