

Introduction

The landscape surrounding the cities of Roslyn, Cle Elum and Ronald, Washington is a beautiful forested landscape sloping down to the Cle Elum and Yakima Rivers. It is a popular place for residents and visitors to recreate and many existing trails have become a source of community pride. Currently the trails are somewhat disconnected and no overarching document exists to link the trails into a regional plan. This master plan seeks to be the guide for future trail development and guideline for recreational enhancements in the region.

In 2017 the Economic Development Group of Kittitas County, in partnership with Kittitas County Parks and Recreation District No. 1, identified the Cle Elum Ridge as an ideal region for a trails master plan. The team hired J.A. Brennan Consulting team to work closely with the local public and private stakeholders to develop a plan and design for a stacked-loop trail system stretching from Ronald to Roslyn and Cle Elum with trailheads and signed routes originating in each community.

Several public workshops were held in 2017 and 2018 and additional public outreach and design iterations are documented in the plan to ensure thorough understanding of the process that led to the final trail design concepts. The Towns to Teanaway Corridor Master Plan covers over 7,700 acres and spans over 6 miles at its widest dimension. The comprehensive guide is intended to enhance the recreation opportunities for area residents, protect wildlife habitat and undisturbed natural areas on the site, and increase opportunities for tourism for the economic benefit of the community.

Report Overview

This report includes the following sections and the graphics for the final corridor master plan.

- Project Management & Outreach
- Site Analysis
- Planning and Design Goals
- Opportunities and Constraints
- Potential Programmatic Uses and Facilities
- Master Plan Description & Maps
- References and Resources

In addition, the report includes the following appendices. This useful background information and toolkits will act as a resource for future trail management and implementation.

- Appendix A – Site Analysis (maps and graphics)
- Appendix B – Public Process (meeting notes and outreach overview)
- Appendix C – Alternative Concept Plans (maps)
- Appendix D – Case Study Maps (examples of other trail network plans)
- Appendix E – USDA Trail Standards (federal design guidelines for many trail types)
- Appendix F – Wildlife Review (correspondence with WDFW)
- Appendix G – Cost Estimate

Project Benefits

The Towns to Teanaway Corridor Trail Plan offers a unique opportunity to enhance trails throughout the project area for hiking, mountain biking, equestrian riding, cross country skiing, snow shoeing and snowmobiling. The final trail master plan provides a diverse variety of trails for many user groups at a range of experience levels. Experiencing the hillside forests through outdoor activity encourages locals and visitors to develop a connection to this special landscape. The project will provide economic benefits for the local community, improve public health and fitness, build community connections, protect the landscape, and improve the overall quality of life in Roslyn, Cle Elum, Ronald and beyond.

Project Management & Outreach

Because the project spans multiple jurisdictions, including public and private property, the management and implementation for the trail system is a monumental undertaking. The effort to develop a cohesive corridor plan was led by a Project Leadership Group (PLG) of local stakeholders and primarily managed by Craig Mabie, Kittitas County Park District Commissioner. Public and stakeholder involvement was extensive throughout the design process, with exceptional attendance at public meetings and strong participation in surveys. Additionally, the willingness of private land owners to work with the project to develop key trails and access points has contributed to the overall success and cohesion of this plan. The use of certain City lands was also helpful in this regard. The final project proposal has garnered general support from the local community and users from outside the area.

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- Tanja Wilcox, RLA, Landscape Architect
- Tom Walker, Project Planner
- Jennifer Hackett, Manastash Mapping GIS

List of Stakeholders

- Audubon (Deb Essman – Kittitas Field & Stream)
- Business Community
- City of Cle Elum
- City of Roslyn
- City of Cle Elum
- Community Members
- Department of Natural Resources
- Dog Musers, Non-motorized Council
- Economic Development Group of Kittitas County
- Ellensburg Cross-Country Ski Group
- Equestrian Groups: Backcountry Horsemen, Roslyn Riders & Kittitas County Equestrian Group
- Equestrian Outfitter

- Evergreen Mountain Bike Alliance (Yvonne Kraus)
- Kittitas County Parks & Recreation District No. 1
- Kittitas Groomers Council (Tim Penelerick)
- Mountaineers
- Mountains to Sound Greenways
- Neighboring private land owners
- Roslyn Bike Alliance
- Roslyn Urban Forest Citizen Advisory Committee
- Suncadia
- Teanaway Advisory Council Stakeholders
- Teanaway Community Forest Advisory Committee
- WA State Chapter, Snowmobile Association
- WA State Groomers
- WA State Horse Park
- Wild Wanderers Group (Suncadia) (Kay Mabry)
- Washington Trails Association

Public Involvement Goals

From the outset of the project, the PLG sought to develop a master plan that reflects the following local goals through relationship-building and outreach with local residents and organizations.

- 1) Minimizes impacts to community and land owners
- 2) Develop support for the project
- 3) Develop a master plan that meets the PLG and community's needs

Community Outreach

Site Tours

Numerous site tours were completed by the PLG and their team of designers. Local land owners and stakeholders also attended many of the site tours to share local knowledge and ensure accurate trail planning and documentation.

Meetings, Workshops & Events

Three community events were held at Putnam Centennial Center in Cle Elum Washington in 2017 and 2018.

- 1) The first meeting presented the team's site analysis, including documents issues & opportunities, goals and potential recreational program enhancement ideas. The goal of this meeting was to receive feedback on site conditions, project goals, and trail typology. This meeting was the first opportunity to show a regional map including motorized recreation opportunities.
- 2) The second public meeting focused on presenting and discussing a series of Alternative Concept Plans. Feedback on the positive and negative aspects of each alternative trail system plan were documented and integrated into the following design iteration.
- 3) At the last public event, the design team presented the Draft Master Plan and sought comments on how the plan reflected public expectations and if there were any changes desired before finalizing the plan in this report.

Site Analysis

Land Ownership

The majority of the land within the project area is private land. Approximately two thirds of the Cle Elum Ridge area, including the ridgeline itself, is owned by Central Cascades Forest LLC (CCF). CCF lands are managed by The Nature Conservancy of Washington (TNC). TNC welcomes non-motorized public access and limited snowmobile use on its land. In all, TNC manages about 49,000 acres of CCF lands in the region that are interspersed (checkerboarded) with adjoining public lands. CCF lands were acquired

from Plum Creek Timber Company in 2014 to protect their conservation, recreation and economic value. TNC is stewarding and restoring CCF lands while working to secure long term public and community ownership.

The Roslyn Urban Forest (RUF) is 300 acres of City-owned public land, open to the public for hiking, mountain-biking, jogging, snowshoeing and cross-country skiing. A Land Stewardship Plan guides use and management of the forest.

Northeast of the project area is the Teanaway Community Forest (TCF), owned by the Department of Natural Resources (DNR). The TCF abuts the TNC property. Concurrently with this planning effort, the DNR and the community were working on developing a trail master plan for the Teanaway, which this project could coordinate with and potentially connect to in the future.

The Suncadia community and its trails lies directly adjacent to the project area and their organization is also interested in improved connections to trails on Cle Elum Ridge.

Chris Martin, Roslyn resident and owner of "Baxter State Park LLC" property northwest of Roslyn, has provided a signed letter agreeing to the use of his property for trails crossing between the RUF and TNC lands.

A property attorney was available at one of the public meetings to answer questions concerning personal liability. State law protects local landowners through "the recreational use immunity statute, RCW 4.24.210." With this statute, "landowners may open their lands for recreational use and be immunized from liability for unintentional injuries that occur on their land" (Source: "Liability Protection to Land Owners," by Kyle Silk-Eglit, MBPA real estate attorneys). The recreational use must be allowed without charging a fee of any kind.

The master plan is based upon the principle that the Towns to Teanaway project will seek partnerships with private landowners to allow public trail crossings on their properties in order to strengthen the trail connections between Ronald, Roslyn and Cle Elum, Cle Elum Ridge and beyond.

Topography

The 7,717-acre site is moderately sloped with occasional rock outcrops. The slopes between Ronald and Roslyn are more moderate than across the rest of the project area. Slopes are relatively gentle within the town centers of Ronald and Roslyn and fairly flat in Cle Elum. State Route 903 and Coal Mines Trail connecting the communities is at a consistently gentle gradient. The team used a slope analysis map to provide a useful overview of the steep slopes, mostly associated with stream corridors in canyons flowing down off of Cle Elum Ridge. The majority of the ridge is south facing, thereby providing a longer recreation season due to less snow and increased sunlight.

Soils

Highly erodible soils are located only in small pockets across the site. In general, soil erosion control is possible through the use of good trail design. In particular, trail design that manages stormwater and prevents gullying. Canyons and stream riparian corridor crossings should be minimized to the greatest extent possible, but when required, they must be located in places that minimize erosion.

"In general, we've been trying to reduce or relocate trails and roads away from stream-adjacent areas. Any new trails that get put in should try to build them out of the riparian area and cross at, or near to, a 90-degree angle with an appropriate water crossing structure." (Scott Downes, WA Dept. of Fish and Wildlife)

Vegetation

Site vegetation communities were investigated by the team on numerous site visits. The predominant forest type is dry, Ponderosa pine and Douglas fir forest with an open understory of grasses, sedges, rose, ceanothus, and snowberry. The project area is within the Douglas-fir / common snowberry / pinegrass vegetation zone, where Douglas fir and Grand fir are the climax overstory species. This is a forest that has evolved with fire, has been modified by logging, and is a mature mid-to late-succession second-growth forest. Due to logging and fire suppression, some of the forest is dense and highly fire-prone.

Some property owners have begun to implement “fire-wise” techniques to thin their woodlands between the mature pines and firs, thereby helping to reduce the chance of high-intensity, crown fires that would cause personal property damage and also endanger nearby communities. Frequent low-level fires, every 10-40 years, were very common in this forest type prior to fire suppression. Maintaining open forests is also ideal for foraging deer and elk. The TNC has been working on forest restoration to create a more resilient and diverse forest in this region. The Roslyn Urban Forest Land Stewardship Plan manages the forest with the aim of creating a “mosaic of open Ponderosa pine and Grand fir forest, with varying degrees of tree densities and canopy closures, low volumes of hazardous fuel, and adequate habitat opportunity for many species” (Source: Roslyn Forest Land Stewardship Plan, 2008).

Wildlife

The Recreation Corridor provides important habitat, breeding and nesting areas, and forage for variety of wildlife including ungulates, coyotes, wolves, raptors (including bald eagles), as well as numerous small mammals, songbirds, and other wildlife, including fish. The communities value wildlife and the natural open space of the Cle Elum Ridge area and seek to protect and enhance wildlife habitat and wildlife travel corridors between the Cle Elum River Corridor and the Teanaway Community Forest.

Some of the key species found in the project area include elk, deer, wolves, spotted owls, and salmon. Riparian corridors are important wildlife habitat corridors that should be protected. These include: No 3 Canyon (above Ronald), No. 6 Canyon (above Roslyn), No 5 Canyon and Greens and Curry Canyons (above Cle Elum). Other important habitat is located on the lower elevation slopes between Roslyn and Ronald.

The following sections introduce important habitat needs of species that should be considered when designing the trail system.

Large Mammals

Rocky Mountain elk (*Cervus elaphus nelsoni*) have a significant presence at the site. Mule deer (*Odocoileus hemionus*) are also found in the area, but the Cle Elum Critical Areas Ordinance doesn't identify a specific habitat area for them. Large predators, such as cougar (*Felis concolor*), black bear (*Euarctos americanus*) and wolves also use the site.

Elk

Elk (*Cervus elaphus nelsoni*) are some of the largest and most critical herbivorous mammals to occur on the site. They occupy all three of the region's characteristic plant communities: low grasslands, sagebrush steppe and Ponderosa Pine open forests. Elk typically graze in young forests or in areas that have been recently logged. Young are born in the spring, securing and preparing calving grounds is of great importance during this time. In the summer, elk search for food in smaller groups and are more dispersed across the landscape, making them less vulnerable to predation. Threats to elk from people and predators (wolves) can be mitigated by avoiding creating new roads and trails that connect to known elk habitat areas and by controlling winter activities, including snowmobiling, cross country skilling and winter biking.

Rocky mountain elk eat grasses and forbs in the summer, grasses in the spring and fall, and grasses,

shrubs, tree bark and twigs during the winter, especially aspen (RMEF 2013). Closed canopy forests are used for forage in late summer, shelter, and as hiding cover from predators (Source: "Managing for Deer and Elk on Small Woodlands" WDFW). Thinning of the forest will promote growth of grasses and forbs for elk forage, but dense forest vegetation is important in winter range for protection from predators. "...Reducing or eliminating disturbance from humans may be the most important way to help elk through winter months" (Source: "Managing for Deer and Elk on Small Woodlands" WDFW). "Hiding cover is very important on arid summer ranges especially if road density is high. In heavily roaded areas we should retain at least 50% cover on summer range" (Source: "Managing for Deer and Elk on Small Woodlands" WDFW). Access to springs and other water sources, such as the Cle Elum River, should be protected within 100' of scattered forage areas within the forest.

Wolves

Wolves have returned to Washington and there is a pack in the Teanaway river drainage. Their habitat area does not include the project area, but may be found in the vicinity on occasion. Wolves will use trails and roads that allow them access to prey, such as elk calving areas and winter range. Wolves are not much of a concern for recreation planning in the project area.

Cougars

"Cle Elum ridge is a high use area for cougars. To the extent possible, we should try to direct trails to several well used areas rather than many dispersed trails so we won't have people everywhere on the landscape that might push the cougars and their prey (deer) around too much" (Source: Scott Downes, DFW).

Fish

Rivers and streams in the region are home to Bull Trout (*Salvelinus confluentus*), Steelhead (*Oncorhynchus mykiss irideus*), Chinook (*Oncorhynchus tshawytscha*) and Sockeye salmon (*Oncorhynchus nerka*). Habitat protection measures include preventing sedimentation within fish-bearing water bodies, protecting highly erodible soils (particularly those of sandstone origin), and controlling drainage with rolling dips or drain dips with rock spillways.

Spotted Owl

The Spotted Owl (*Strix occidentalis*) makes its home in the region's old growth forests. A threatened species as per the Endangered Species Act, the project can support the Spotted Owl by avoiding any trail construction and maintenance during the owl's nesting season (March-June).

"There is an old spotted owl circle up on Cle Elum ridge, it is not believed to be currently occupied but might be in future years if we can recover populations. If the area were occupied, we'd want to reduce or eliminate noise from trail maintenance and construction from March-August. Similarly, we'd want to be careful about motorized recreation locations in the future if this area was found to be occupied in the future. Habitat wise, we wouldn't want to remove owl habitat for trail or road construction, so we'd need to microsite those areas" (Source: Scott Downes, DFW).

Wildlife Management Recommendations

Management of wildlife at the Cle Elum Ridge area will consist of protecting or enhancing forest and riparian habitat for fish and wildlife. Protect native forage, cover, nesting, and denning vegetation and structure (cavity trees, down logs, etc.) for fish and wildlife species. Travel, dispersal, and migration corridors for wildlife will be protected to maintain habitat connectivity.

"In general, we'd want to see well planned trails that minimized habitat disturbance and overall fewer trails, so less dispersed and more trails that were well planned and connected recreation in good spots" (Source: Scott Downes, DFW).

Existing Trails

Existing trails have been developed unofficially over years of use. Existing trails include the following:

- Hiking Trails
- Mountain Biking Trails
- Equestrian Trails
- Snowmobile Trails
- Cross country ski trails

Many existing trails are rutted by motorcycle and off-road vehicle use, or simply because they were created on timber fall lines. These trails were never intentionally developed for hiking or mountain biking use, with the exception of several user-developed trails which are shown on the map. Some trails may not be mapped if the private land owner has not granted permission for their use. TNC and other private landowners that make up the project site do not allow motorized use on their property, with the exception of the identified snowmobile trails. From Cle Elum Ridge the site connects north to the TCF, which is being developed with trails by the DNR with community input.

Trail Classifications

Existing trails were assessed and classified using the USDA Forest Service trail standards. The following is a summary of the general description of each of the trail classifications. Specific trail characteristics for each trail class are different depending on their designed use. Most of the existing trails are class 1 and 2 and offer a very limited variety of trail experience.

- **Trail Class 1 – Minimally Developed:** indistinct, native material surfacing, natural obstacles, narrow, brushy, steep, no built structures
- **Trail Class 2 – Moderately Developed:** distinct, native material surfacing, natural obstacles common, trail blockages cleared, vegetation may encroach, narrow, single lane, limited structures, route identification signs limited to junctions
- **Trail Class 3 – Developed:** tread continuous and obvious, native or imported crushed rock, obstacles common but not substantial, vegetation cleared of trail, structures may be common and substantial, route identification at junctions and along route, potential interpretive signs.
- **Trail Class 4 – Highly Developed:** tread wide and relatively smooth, single lane with passing opportunities, some double lane, native or imported crushed rock, may be hardened, few obstacles, vegetation cleared outside trail, frequent structures, bridges as needed, trailside amenities, route identification at junctions and markers for reassurance, interpretive signs common, accessibility info at trailhead.

Existing Roads & Access

Limited vehicular roads exist in the project area. The main existing roads are the Rat Pack Uptrack and the Ridge Road, however, the Rat Pack Uptrack is gated. There are other roads within the project area but most of these are private development roads and are gated and closed for public access.

Planning and Design Goals

The PLG developed a vision statement and goals to help guide the design project.

Vision Statement

"We love this place for its natural beauty and the opportunities to head outside and explore. We want to create recreational routes that make the area accessible and we want to balance that

access and spread it out so that we are careful to not destroy the very thing that we love. Trails can take people to great places and trails can route people and impacts away from other areas, like priority wildlife and habitat corridors.”

Project Goals

- Develop partnerships with private landowners for public trail use
- Create new and enhance existing wildlife corridors, and foster regional environmental stewardship
- Develop a public, stacked loop trail system
- Design lively trailheads that can serve as economic drivers for the region
- Ensure new trails are sustainable and low maintenance
- Work with volunteers to develop and maintain trails
- Ensure non-motorized and snowmobile trails adhere to standard policies of TNC
- Create accessible trails and trailheads
- Create recreation opportunities to build a healthy community
- Minimize impacts to the local community

Opportunities and Constraints

A massive project like the Teanaway Corridor trail plan is built upon existing conditions that provide positive opportunities while also limiting the practicality of some design concepts. See Opportunities and Constraints Map in the Site Analysis Appendix for additional observations.

Opportunities:

- Build on existing system of trails in Roslyn Urban Forest
- Connect to trails on the Teanaway Community Forest (TCF)
- Create destination viewpoints along Cle Elum Ridge: at Wedding Rock and at ridge connections to the Teanaway valley.

Constraints:

- Protect critical wildlife habitat in Canyon 3 corridor, elk winter range, and other sensitive wildlife habitats.
- Create a series of trailheads, at each community to protect private property and improve connections to The Nature Conservancy (TNC) forest lands

Case Study Examples

The following case study examples serve as models of different types of trail systems, some with solely mountain bike trails and some with a variety of user groups. These can help guide the discussion on what the appropriate mix of trail types could be for the Cle Elum Ridge trail system. The maps for these trail systems are included in the Case Study Appendix.

- **Tumut State Forest Mountain Bike Trails** – limits the complexity by only identifying blue and black diamond trails
- **Helena Montana South Hills MTB trail network** – 4 mountain bike trails are divided by difficulty levels: easy, medium, difficult and most difficult. Approximately 60% to 70% of the trails are “medium.”
- **Port Gamble Trails** – 25% green/easy trails; 25% black diamond/most difficult trails; 50% blue/intermediate trails; shared use for hiking, mountain biking and horseback riding.
- **Whistler Trail System** – mountain bike trails, hiking trails, hiking & mountain bike shared use trails, and mountain bike park; majority of trails are blue/“challenging”, some green/“somewhat challenging” trails and some black diamond/“difficult” trails (mainly in mountain bike park).

Potential Programmatic Uses and Facilities

Program Uses and Trail Typology

Prior to the development of alternative plans, a recreational program was developed to guide the initial design. The following program items were considered.

Trail Types

To be consistent with the vision of the Kittitas County Park, Recreation and Open Space (PROS) Plan, the trail master plan will be for a system of trails that include a range of mountain bike trail types that serve people with varied physical abilities and skills, walking and hiking trails that serve people with varied physical abilities and skills, equestrian trails and snowmobile trails. Note that the trail system will be developed primarily on private, The Nature Conservancy-managed land that is designated only for non-motorized recreation and limited snowmobiling.

- Hiking Trails
- Mountain Biking Trails
- Equestrian Trails
- Snowmobile Trails
- Cross Country Skiing Trails
- Snowshoe trails

Trail Classifications

Classified using the USDA Forest Service trail standards. (Note that the Washington State DNR trail standards are consistent with and reference the USFS trail standards.):

- Trail Class 1 – Minimally Developed
- Trail Class 2 – Moderately Developed
- Trail Class 3 – Developed
- Trail Class 4 – Highly Developed

See Site Analysis section above, for summary description of each Trail Class.

Proposed Trail Typology for Alternative Plans

Mountain Bike Trails

- Black Diamond – USFS Trail Class 2 and some Class 1 (most difficult) (single mode) (downtracks for mountain bike use only)
- Blue/Intermediate – USFS Trail Class 3 (single mode) (downtracks for mountain bike use only)
- Green/Easiest – USFS Trail Class 4 (potential shared use)

Hiking Trails

- Black Diamond – USFS Trail Class 2 and some Class 1 (most difficult)
- Blue/Intermediate – USFS Trail Class 3 (single mode)
- Blue/Intermediate – USFS Trail Class 3 (shared hikers & equestrians) and some for shared hikers and mountain bikes
- Alternatively, consider creating a mix of Class 2 and Class 3 trails that are not identified separately on the map.

Multi-Use Trails

- Blue/Intermediate – USFS Trail Class 3 (Multi-use: mountain bikes, hikers, some ADA, equestrian, and winter uses)
- Green/Easiest – USFS Trail Class 4 (Multi-use: mountain bikes, hikers, some ADA, equestrian, and winter uses)

Winter snowmobile and Cross-country Ski Trails

- USFS Trail Class 2: 2'-4' ungroomed, minimum 3' wide structures, obstacles uncommon, target grade: 5%-15% (Is this too steep? If so, Class 3 would be more appropriate.)

Equestrian Trails

- Consider selecting only one trail class for equestrian trails. Potential Class 2

Amenities

- Wayfinding signs in town centers and other key locations
- Interpretive signs: historic and cultural
- Trail head / Gateway:
 - Sign Kiosk with Trail System Map
 - Parking (Passenger Vehicles, including ADA)
 - Restroom
 - Trash Receptacle
 - Interpretive Sign
- Picnic areas
- Car/truck and trailer parking and turn-arounds
- Bus and van parking
- Viewpoints

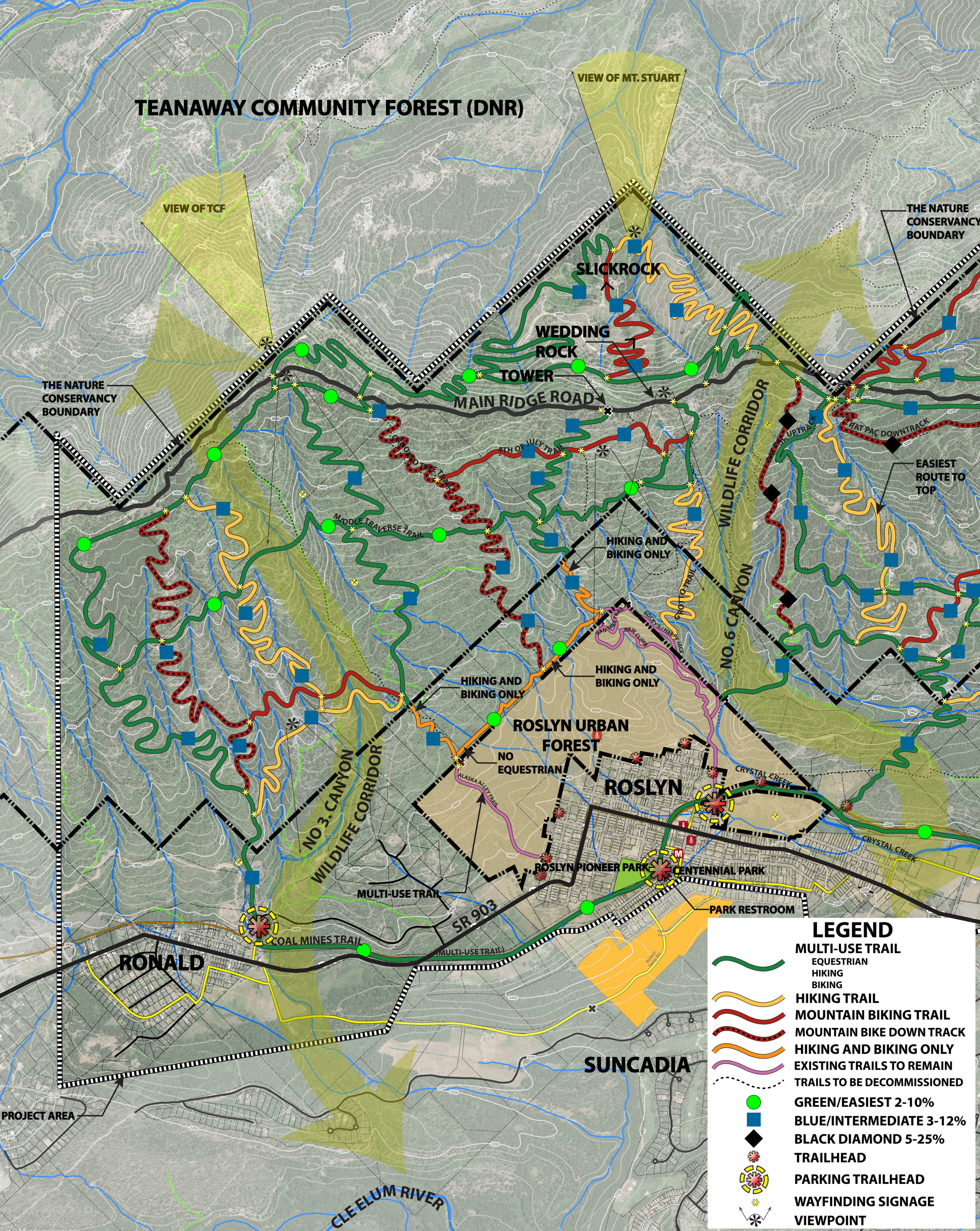
Master Plan Description

The trails master plan for Towns to Teanaway is the result of over 18 months of collaboration with the Towns to Teanaway Corridor Project Leadership Group (PLG) and the local communities of Roslyn, Cle Elum and Ronald. Two alternatives for the trail design were developed and presented to the PLG and to the public. After feedback from this process and further collaboration, Alternative 2, "The Playful Loop Concept," was chosen as the preferred alternative. This plan option was further refined to incorporate input received through PLG meetings, public meetings, and comments from other stakeholders.

The final plan graphic is shown on the fold-out maps in this section.

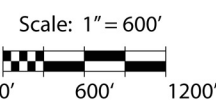
The master plan trail system evenly disperses trail routes between the towns of Roslyn, Cle Elum and Ronald to provide exceptional access and recreation opportunity for all three communities. There are three separate trail types to fit the needs of hiking, mountain biking, equestrian, and winter uses. The trails will connect the towns to the Main Ridge Road and beyond into the Teanaway Community Forest. This organized trail system will enable multiple recreation uses to coincide together and offer both local and visiting users active and passive ways to enjoy this beautiful forest. Breathtaking views from the trails include Mt. Adams, Mt. Rainier and into the Teanaway. Views of the Stuart Range from Cle Elum Ridge are nothing short of spectacular and well worth the climb.

TEANAWAY COMMUNITY FOREST (DNR)

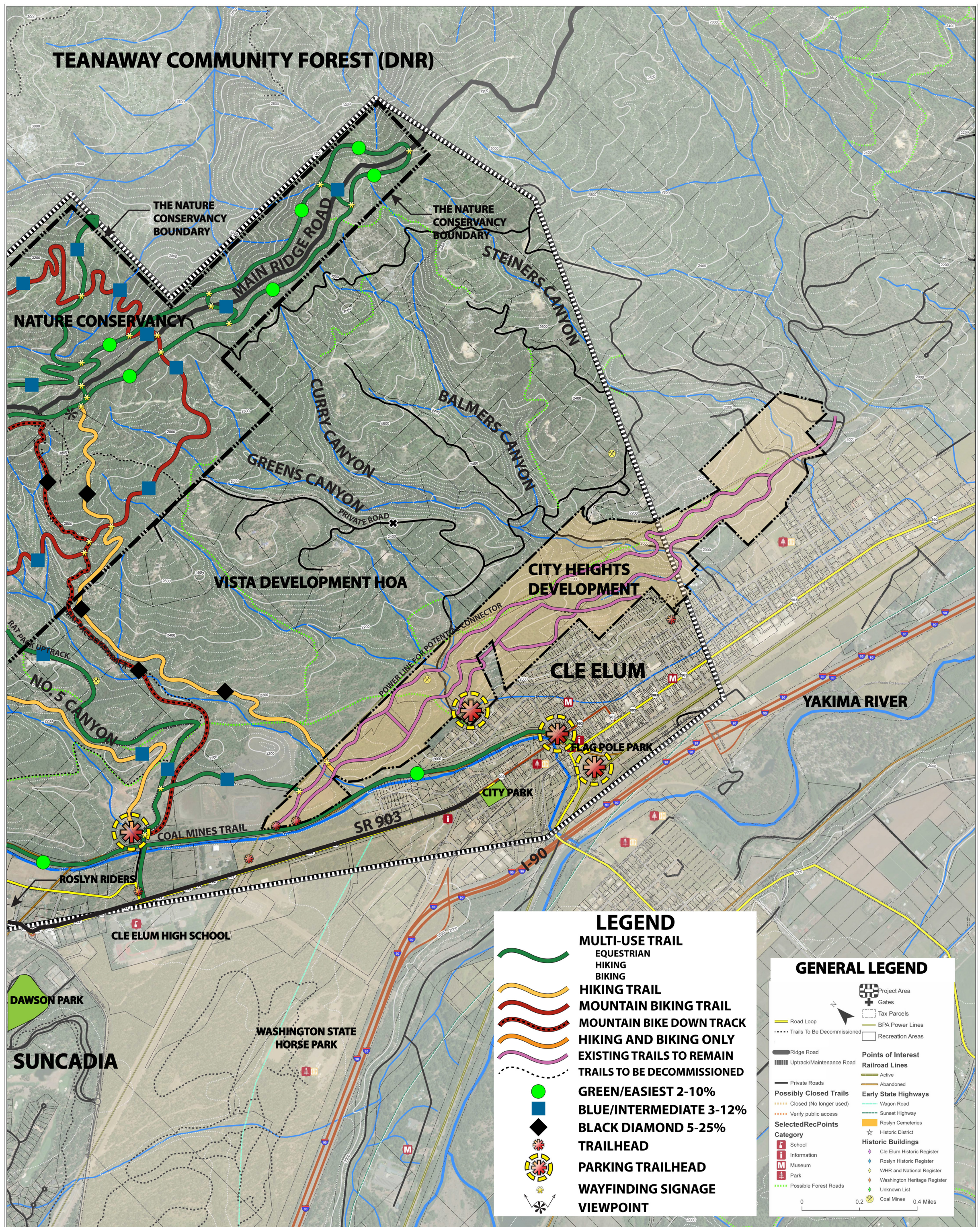


LEGEND

- MULTI-USE TRAIL
- EQUESTRIAN
- HIKING
- BIKING
- HIKING TRAIL
- MOUNTAIN BIKING TRAIL
- MOUNTAIN BIKE DOWN TRACK
- HIKING AND BIKING ONLY
- EXISTING TRAILS TO REMAIN
- TRAILS TO BE DECOMMISSIONED
- GREEN/EASIEST 2-10%
- BLUE/INTERMEDIATE 3-12%
- BLACK DIAMOND 5-25%
- TRAILHEAD
- PARKING TRAILHEAD
- WAYFINDING SIGNAGE
- VIEWPOINT



TEANAWAY COMMUNITY FOREST (DNR)



LEGEND

- MULTI-USE TRAIL** (Green line)
- EQUESTRIAN** (Yellow line)
- HIKING** (Orange line)
- BIKING** (Red line)
- HIKING TRAIL** (Yellow line)
- MOUNTAIN BIKING TRAIL** (Red line)
- MOUNTAIN BIKE DOWN TRACK** (Red line with black dots)
- HIKING AND BIKING ONLY** (Orange line)
- EXISTING TRAILS TO REMAIN** (Dashed line)
- TRAILS TO BE DECOMMISSIONED** (Dotted line)
- GREEN/EASIEST 2-10%** (Green circle)
- BLUE/INTERMEDIATE 3-12%** (Blue square)
- BLACK DIAMOND 5-25%** (Black diamond)
- TRAILHEAD** (Red starburst)
- PARKING TRAILHEAD** (Yellow starburst)
- WAYFINDING SIGNAGE** (Yellow starburst with arrow)
- VIEWPOINT** (Yellow starburst with arrow)

GENERAL LEGEND

- Project Area** (Black outline)
- Gates** (Black cross)
- Tax Parcels** (Thin black lines)
- BPA Power Lines** (Thin black lines)
- Recreation Areas** (Thin black lines)
- Ridge Road** (Thick black line)
- Uprack/Maintenance Road** (Thick black line with white dashes)
- Private Roads** (Thin black line)
- Possibly Closed Trails** (Thin black line)
- Closed (No longer used)** (Thin black line)
- Verify public access** (Thin black line)
- SelectedRecPoints** (Thin black line)
- School** (Red 'S' icon)
- Information** (Red 'I' icon)
- Museum** (Red 'M' icon)
- Park** (Red 'P' icon)
- Possible Forest Roads** (Thin black line)
- Points of Interest** (Thin black line)
- Railroad Lines** (Thin black line)
- Active** (Green line)
- Abandoned** (Yellow line)
- Early State Highways** (Thin black line)
- Wagon Road** (Thin black line)
- Sunset Highway** (Thin black line)
- Roslyn Cemeteries** (Thin black line)
- Historic District** (Thin black line)
- Historic Buildings** (Thin black line)
- Cle Elum Historic Register** (Thin black line)
- Roslyn Historic Register** (Thin black line)
- WHR and National Register** (Thin black line)
- Washington Heritage Register** (Thin black line)
- Unknown List** (Thin black line)
- Coal Mines** (Thin black line)

Scale: 0 0.2 0.4 Miles

Regional Connectivity

Not only will this trail system connect the towns to their beautiful surroundings, it will provide a link between the towns. The Coal Mines Trail is currently the main connector between these communities but the addition of new loop trails will offer additional links between Roslyn, Cle Elum and Ronald. Residents will be able to hike or bike to neighboring towns while enjoying beautiful views and natural areas. Each Town will have excellent access to the Nature Conservancy Land. Private land owners have been extremely generous in providing easements across their property to connect each town to the Nature Conservancy (TNC) managed land, creating an easily accessible trail system for all communities. This plan offers the opportunity to connect to the Teanaway Community Forest and even beyond to U.S. Forest Service land and the Alpine Lakes Wilderness.

Parking Lots & Trailheads

The new trail master plan incorporates trailheads and enhancements for existing trailheads. Some key trailheads will offer parking and allow people to drive to them, while some may be accessed only by foot. Trailheads will provide a variety of amenities including vault toilets and information kiosks with maps and signage. The parking trailheads will provide better access for visitors driving in from outside the area and other smaller trailheads will be more tailored to local access.

Wayfinding & Signage

A hierarchy of signage to help users find their way will be implemented throughout the trail system. Each town will have a centrally located kiosk to direct people to the trail system and to summarize the recreation opportunities. Wayfinding signage will direct visitors to the parking areas and trail heads in each town. Smaller trail heads in the towns will not have signage and will be developed for the local community. At trailheads there will be an informational kiosk with signage that describes the trail type, distance of the trail, difficulty rating, and viewpoint destinations. Intersection points may have more minimal signage and only show direction, trail type, trail use and difficulty rating.

Events

The trail system will be a great opportunity for local events such as outdoor races, work group parties, and even small rustic weddings. Multi-purpose gathering areas can be integrated into the trail heads, viewpoints, and adjacent parks and meadows to create flexible event hosting facilities. The potential for event hosting will enhance the notoriety of the recreational amenities and boost the tourism economy of the region.

List of potential races and events:

- Volksmarch
- Mountain bike events
- Cycle-Cross bike races
- School cross country races
- CWU events
- Cross country run
- Equestrian events
- Cross country ski races
- Geology tours or other educational events

Stewards of the Towns to Teanaway Corridor Trails should consider how event management and organization will take place. Online scheduling tools and designated part-time staff would be a benefit to ensuring successful event activities for years to come.

Key Destinations and Viewpoints

The plan highlights Wedding Rock along the Main Ridge Road as a popular destination and existing viewpoint. New viewpoints located on proposed trails will provide views into the Teanaway River valley, the Stuart Range, and south to Mount Rainier.

General Road Closure Concepts

This plan focuses on trail opportunities and does not address the management of roads, but old logging and mining roads could be an asset or a liability to trail implementation in the future. Historically, many of the roads within the project area were developed for natural resource mining or timber logging. Over the years many of these roads were abandoned while others have remained open for various levels of use. One key road labeled the Rat Pack Uptrack is a key trail route in the master plan. Along with recreational use, this road is used as a service road to access Cle Elum Ridge by TNC, communication companies, and fire crews. A fire break was developed along the Ridge Road in the summer of 2017 during a large fire event. This critical access route is gated and will remain open to vehicular use for management purposes by TNC, who owns the land, but it is also identified in the plan as open for non-motorized trail use.

Private land owners including TNC can close roads on their property as they desire. New roads may be added for access as well. As part of the trail system management, permanent road closures may be desired. When needed, create a ditch at the road closure point and place boulders and logs as a visual and physical barrier. If needed, install a gate or other road-blocking methods. Temporary road or trail closures or re-location may be required by private land owners for timber management, fire suppression, and maintenance. Temporary road closures are not expected to impact established trail easements or corridors identified in this plan, because the design focuses on trail recreation connections that do not rely on roads.

Master Plan Trail Typology and Level of Difficulty

Four trail types with three trail difficulty designations are incorporated into the Master Plan. The parameters for difficulty levels are based on the US Forest Service Trail Design Parameters (*USDA Trail Fundamentals and Trail Management Objectives*), which are also consistent with the Washington State DNR trail standards. These standards provide a federally accepted basis for each trail design, to ensure that appropriate difficulty levels are allocated to each trail type. While based on the Forest Service trail standards, the standards for the TTC Master Plan have been tailored slightly to provide simpler, more streamlined parameters for ease of future implementation.

For the hiking and mountain biking trails, there are black diamond (most difficult) and blue/intermediate (moderate difficulty) trails. The hiking and biking only trails are blue/intermediate or green/easy. All green/easy trails are multi-use trails, as many of these trails will traverse across the slopes and serve as connector trails. Multi-use trails may also have a blue/intermediate difficulty level since some of these trails climb to the ridge. The following outline provides more specifics on trail types and the gradient range within the difficulty level.

Trail Types

- Hiking Trails (only)
- Mountain Biking Trails (only)
- Hiking and Biking Only Trails
- Multi-use Trails (Equestrian, Hiking, and Biking allowed)

Trail Difficulty Levels

- Black Diamond – Most Difficult
- Blue/Intermediate – Moderate Level of Difficulty
- Green/Easiest – Easy Level of Difficulty

Hiking Trails

The trails designated for hiking only are modest in length and climb to the ridge with approximately 1,500-foot elevation gain. They provide a relatively easy hike, mostly due to the short length, but when rated through the standard trail rating system, the designations may slightly exaggerate the difficulty of the hike.

- Black Diamond – USFS Trail Class 2 (most difficult) (single mode)
 - 5-25% gradient range
 - Short pitch maximum: 40%
 - Maximum density pitch: 20-40% of trail
 - Native, limited grading. May be continuously rough
- Blue/Intermediate – USFS Trail Class 3 (single mode)
 - 3-12% gradient range
 - Short pitch maximum: 25%
 - Maximum pitch density: 10-20% of trail
 - Native, with some onsite borrow or imported material where needed for stabilization and occasional grading – intermittently rough.

Mountain Bike Trails

- Black Diamond – USFS Trail Class 2 and some Class 1 (most difficult) (single mode)
 - Gradient range 5-20%
 - Short pitch maximum: 30% (50% on downhill segments only)
 - Maximum density pitch: 20-30% of trail
 - Native with limited grading. May be continuously rough. Sections of soft or unstable tread on grades less than 5% may be common
- Blue/Intermediate – USFS Trail Class 3 (single mode)
 - Gradient range 3-10%
 - Short pitch maximum: 15%
 - Maximum density pitch: 10-20% of trail
 - Native, with some onsite borrow or imported material where needed for stabilization and occasional grading – intermittently rough. Section of soft or unstable tread on grades less than 5% may be present, but not common.

Hiking and Biking Only Trails

- Green/Easiest – USFS Trail Class 4 (Multi-use: mountain bikers and hikers, some ADA (several will not allow equestrian use as noted on the plan), and winter uses)
 - 2-10% gradient range
 - Short pitch maximum: 15%
 - Maximum pitch density: 5-20% of trail
 - Native with improved sections of borrow or imported material, and routine grading – stable with minor roughness
- Blue/Intermediate – USFS Trail Class 3 (Multi-use: mountain bikers and hikers)
 - 3-12% gradient range
 - Short pitch maximum: 25%
 - Maximum pitch density: 10-20% of trail
 - Native, with some onsite borrow or imported material where needed for stabilization and occasional grading – intermittently rough. Section of soft or unstable tread on grades more than 5% may be present, but not common.

Multi-Use Trails (Equestrian, Hiking, and Biking allowed)

- Green/Easiest – USFS Trail Class 4 (Good for mountain bikes, hikers, some ADA, and winter uses)
 - 2-10% gradient range
 - Short pitch maximum: 15%

- Maximum pitch density: 5-20% of trail
- Native with improved sections of borrow or imported material, and routine grading – stable with minor roughness
- Blue/Intermediate – USFS Trail Class 3 (Multi-use: mountain bikes, hikers and winter uses)
 - 3-12% gradient range
 - Short pitch maximum: 25%
 - Maximum pitch density: 10-20% of trail
 - Native, with some onsite borrow or imported material where needed for stabilization and occasional grading – intermittently rough. Section of soft or unstable tread on grades more than 5% may be present, but not common.

Trail Operations, Maintenance, and Management

Management of the overall trail system, including organization of ongoing maintenance and funding for the trails and trail heads, will be critical to the success of the project. Proper maintenance of the trail system will minimize user conflicts, improve the safety and recreation experience, and improve aesthetics.

The effective stewardship of trail facilities depends not only on the quality of trail construction, but also on effective organization through a sound operations and maintenance plan. A holistic management plan for the trail system will help organize volunteers effectively, and may be a crucial consideration for donors and grant agencies interested in supporting the TTC. Tools for operational management could include an online maintenance log for tracking trail needs and project priorities for staff and volunteers.

Operations

The proper management of a trail system involves a guiding operations plan. The operations plan should include an inventory of trails to document trail type and purpose, estimated volume and season of use, and intended level of development.

The plan should document appropriate trail management objectives to guide use of funds, as well as defining leadership roles and responsibilities for the system of trails, trailheads and facilities. Important aspects to consider include: which organization is responsible for overseeing facility and who within the organization would be most appropriate for managing the maintenance and operations?

A good guide for this plan is the USFS's Trail Management Objective (TMO) form, which will help compile the information needed to develop the best management objectives for each trail. Input items include the trail type, the designed use, design parameters of the trail and the frequency of maintenance needed for efficient and safe operations. It is important to remember that TMO's are not static documents, and should be updated on a regular schedule to include new information.

Trail closure and decommissioning:

As new trails are constructed and old trails rerouted, every effort should be made to close and decommission the routes they are replacing. This is critical to ensuring there is not a proliferation of trails and that old, poorly located trails do not continue to impact the land. Many resources exist to guide successful trail decommissioning. Key steps include installing erosion control structures and fully scarifying and "disguising" the old route to make it less noticeable and attractive to the trail users. In some cases, signage will be needed to inform trail users why the former route was closed and a new route was established.

Maintenance

The maintenance of a trail system includes the various activities involved in keeping the trail in a safe, usable condition. This includes numerous efforts ranging from root cutting and brush removal, to

replacement of damaged signs or benches, to reconstruction of the trail. Lifetime trail maintenance will place ongoing costs on the operating agency, and this should be considered during the trail planning and funding process.

The responsibility for TTC trail maintenance and operations may be assigned in part or whole to the project planning partners:

- Kittitas County Park District
- The Town of Roslyn
- The town of Cle Elum
- Volunteers
- User groups
- Private land owners

Many resources exist for creating the TTC's preferred maintenance program. The following recommendations include practices adapted from the US Forest Service (USFS)'s *Trail Construction & Maintenance Notebook* (2007). Additional resources are listed in the References and Resources section.

Trail Head Maintenance

The trail head parking lots will require trash removal from trash receptacles, grading of crushed rock parking lots, gate closures, periodic pumping of vault toilets, and landscape maintenance. Interpretive kiosks will need periodic cleaning and replacement of trail maps.

Fallen Tree Removal (Logging Out)

Fallen trees can be trimmed and the log pieces can be rolled off the trail on the downhill side. Never leave them across ditches or water bar outflows. If you leave logs on the uphill side of the trail, turn or bury them so they won't roll or slide onto the trail.

Root & Stump Removal

Leave flush, perpendicular roots in place. Remove parallel roots, and perpendicular roots that are not flush with the trail tread. Use a sharpened pick mattock to chip away at the roots. For stumps, use stump grinders or explosives.

Rock Removal

Use rock bars, pick mattocks, sledge hammers, assorted motorized equipment (winch & cable systems, rock drills, etc.), and/or chemical and blasting agents to move or remove rocks. Remove rocks to a depth of at least 4" below the tread surface rather than cutting a rock flush with the trail to prevent obstacle formation. Do not kick stones loose. Consider closing trails to public use while rock removal is taking place, and constructing log barriers to intercept rolling loose rock.

Slough & Berm Management

Loosen compacted slough with a mattock, then remove the soil with a shovel. Reshape the tread to restore an out slope (cross slope that drains to outside or downhill edge). Avoid disturbing the entire backslope (excavated, exposed area above the tread surface), unless it is absolutely necessary to do so. Chop off the toe of the slough and blend the slope back into the hillside. Compact the tread thoroughly.

Remove berms with similar tools to sloughs. Reshape the tread to restore an out slope and compact thoroughly. If berms persist, consider shaping the tread to an in sloped condition. Berms are problematic in forming false edges and accelerating erosion.

Tread Upkeep

Clear debris such as sticks, stones and litter often. If damaged by landslide, uprooted trees, washouts or boggy conditions, reshape tread according to trail design widths & restore out slopes.

Sign Upkeep

Sign maintenance consists of remounting loose or fallen signs, repairing or replacing signs, and resetting or replacing leaning, damaged, rotting, or missing posts.

If a sign is missing, a replacement sign should be ordered and installed. Consider why the sign is missing. If the sign was stolen, consider using theft-resistant hardware to mount its replacement. If the sign was eaten by wildlife, consider less palatable materials. If weather or natural events damaged the sign, consider stronger materials, a different location, or a different system for mounting the signs.

For signs mounted on trees, you may need to loosen the lag screws slightly to give the tree growing room. If the sign is on a post, check to make sure that it is snugly attached. Replace rotting posts. Don't just try to get through "one more season." Consider the consequences of not repairing or replacing deficient signs.

Weed Control / Management

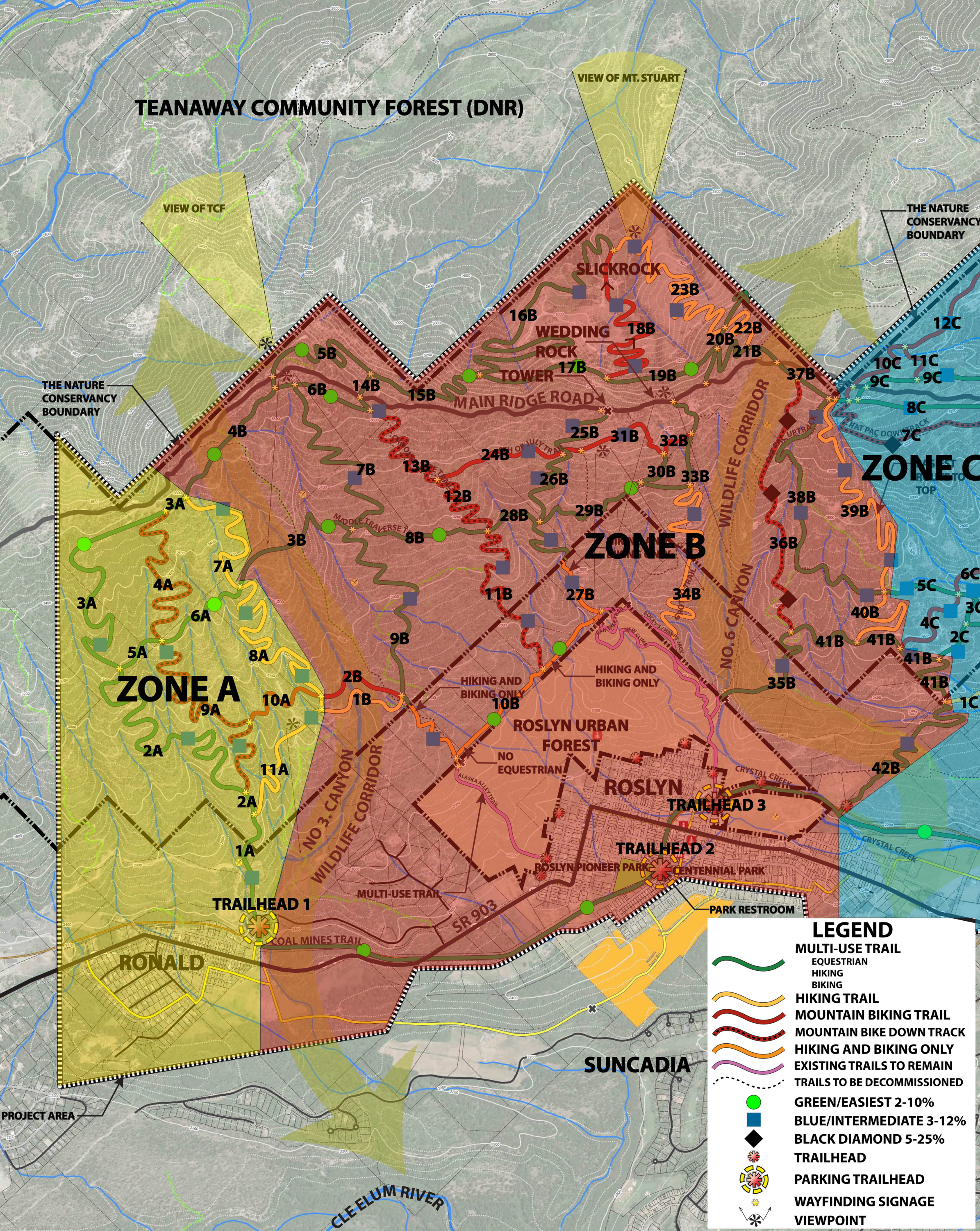
Weeds should be controlled at the site to the extent possible. Educational signage should be considered at trail heads to limit weed invasion. Trail users can introduce weed seeds onto the site. Horse feed is one of the issues that should be addressed in educational signage. Noxious weeds will need to be controlled in keeping with the Kittitas County Noxious Weed Control Board. This link provides information on noxious weed control: <https://www.co.kittitas.wa.us/noxious-weeds/default.aspx>.

Implementation Matrix

As a tool for managing the operations and maintenance of the TTC system, the attached figure lists trail segments broken into three zones. The matrix and zone plan map should be used together to assist with future implementation including developing cost estimates, construction strategy, and maintenance schedules.

Typical Maintenance Needs & Example Trail Schedule				
Maintenance Activity	Optimal Frequency			Notes
	Weekly Monthly Quarterly Annually	Spring/Fall	After Storm	
General				
1. Safety Inspection	W		X	
2. General debris & trash pick up	W		X	
3. Vandalism inspection	W			
4. Encroachments				Ongoing
Pavement / Surfacing Repair				
1. Survey	A	S/F		
2. Crack sealing				Reactionary
3. Patching				As Needed
4. Seal				As Needed
5. Reconstruct				As Needed
6. Repaint markings				As Needed
Vegetation Management				
1. Mowing (clear zones, trailhead areas)	W/M			
2. Brush trimming/overhead trimming	A	S		
3. Sight line trimming at intersections	W			Roads, other trails
4. Tree removal			X	As Needed
5. Trail sweeping / blowing		S/F		
6. Clear zone weed control				As Needed
7. Seeding		S		
8. Root cutting				As Needed
Drainage				
1. Erosion repair	Q	S	X	
2. Culvert/catch basin clearing	Q		X	
3. Ditch maintenance (clear debris, trash, etc.)	A	S	X	
4. Standing water repair	A		X	

TEANAWAY COMMUNITY FOREST (DNR)



LEGEND

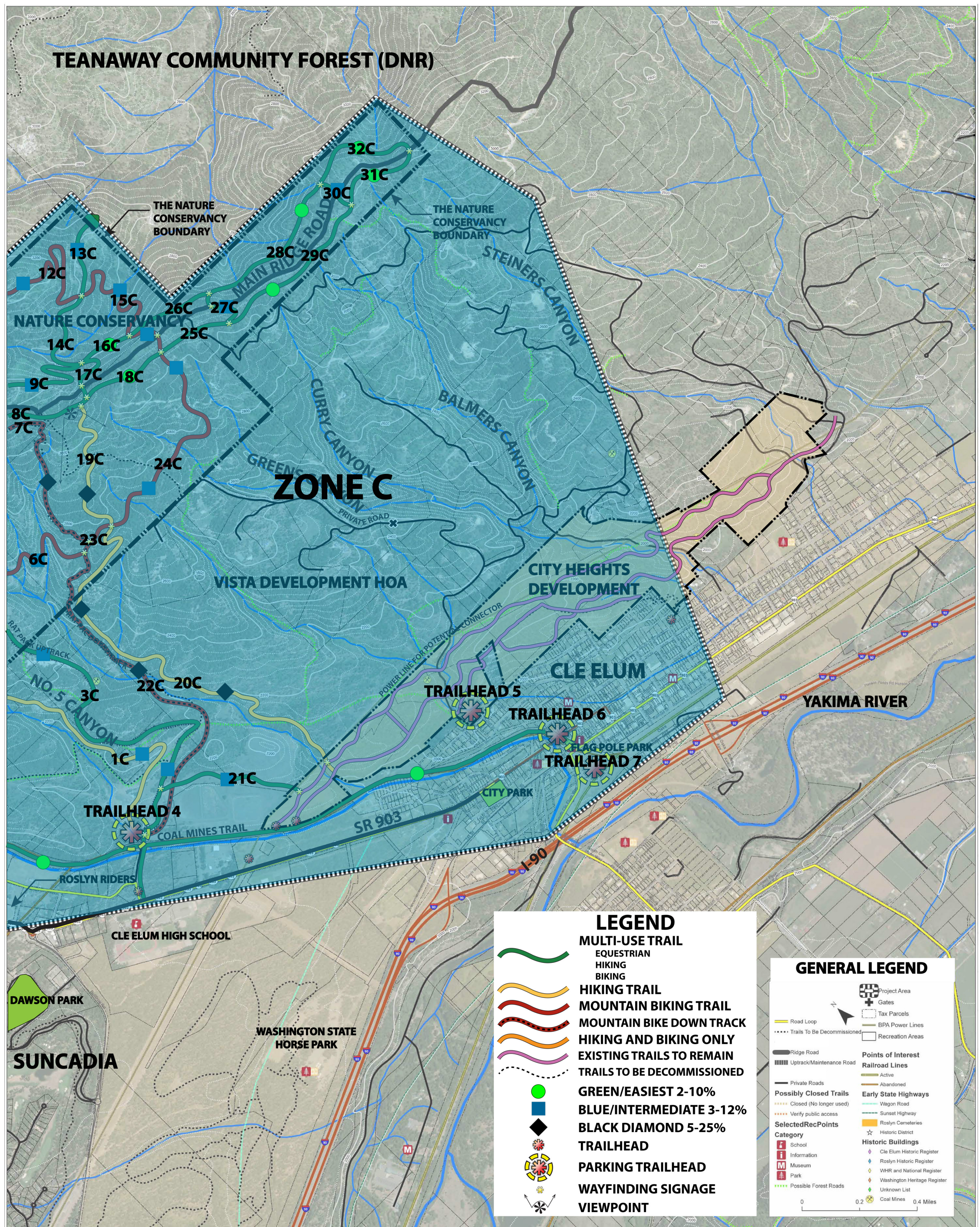
- MULTI-USE TRAIL
- EQUESTRIAN
- HIKING
- BIKING
- HIKING TRAIL
- MOUNTAIN BIKING TRAIL
- MOUNTAIN BIKE DOWN TRACK
- HIKING AND BIKING ONLY
- EXISTING TRAILS TO REMAIN
- TRAILS TO BE DECOMMISSIONED
- GREEN/EASIEST 2-10%
- BLUE/INTERMEDIATE 3-12%
- BLACK DIAMOND 5-25%
- TRAILHEAD
- PARKING TRAILHEAD
- WAYFINDING SIGNAGE
- VIEWPOINT



Scale: 1" = 600'
0' 600' 1200'



TEANAWAY COMMUNITY FOREST (DNR)



LEGEND

- MULTI-USE TRAIL** (Green line)
- EQUESTRIAN** (Green line with dots)
- HIKING** (Orange line)
- BIKING** (Red line)
- HIKING TRAIL** (Orange line)
- MOUNTAIN BIKING TRAIL** (Red line)
- MOUNTAIN BIKE DOWN TRACK** (Yellow line)
- HIKING AND BIKING ONLY** (Purple line)
- EXISTING TRAILS TO REMAIN** (Purple line)
- TRAILS TO BE DECOMMISSIONED** (Black dashed line)
- GREEN/EASIEST 2-10%** (Green circle)
- BLUE/INTERMEDIATE 3-12%** (Blue square)
- BLACK DIAMOND 5-25%** (Black diamond)
- TRAILHEAD** (Star icon)
- PARKING TRAILHEAD** (Star icon with parking spots)
- WAYFINDING SIGNAGE** (Star icon with arrow)
- VIEWPOINT** (Star icon with magnifying glass)

GENERAL LEGEND

- Project Area** (Black outline)
- Gates** (Cross icon)
- Tax Parcels** (Thin black lines)
- BPA Power Lines** (Thin black lines)
- Recreation Areas** (Light green fill)
- Points of Interest**
 - Railroad Lines**
 - Active (Black line)
 - Abandoned (Grey line)
 - Early State Highways (Yellow line)
 - Wagon Road (Blue line)
 - Sunset Highway (Red line)
 - Roslyn Cemeteries (Green area)
 - Historic District (Star icon)
- Historic Buildings**
 - Cle Elum Historic Register (Blue square)
 - Roslyn Historic Register (Blue diamond)
 - WHR and National Register (Blue circle)
 - Washington Heritage Register (Blue triangle)
 - Unknown List (Blue star)
- Category**
 - School (Red 'S' icon)
 - Information (Red 'I' icon)
 - Museum (Red 'M' icon)
 - Park (Red 'P' icon)
 - Possible Forest Roads (Dotted green line)

Scale: 0, 0.2, 0.4 Miles

TTC Trail Management and Implementation Matrix

Worksheet Instructions: This matrix is a tool for the TTC to manage maintenance and implementation for the project trails identified in the Master Plan. Trails are listed by their Zones (A, B, and C) and locations are identified on the plan graphic. This tool can be used to consider a variety of implementation scenarios, track project completion, and assign maintenance tasks. To use the table as a planning tool, begin by identifying trail implementation priorities. To understand the scope and limitations of each trail segment implementation, describe maintenance needs and assign a person or organization to complete the maintenance.

TRAILS - ZONE A				
Description	Length (ft) ⁽¹⁾	Project Priority ⁽²⁾	Maintenance Needs ⁽³⁾	Primary Responsibility
Trail 1A (multiuse intermediate)	6,672	(High)	(Brush Clearing)	(Volunteers/staff fromXYZ Org)
Trail 2A (multiuse intermediate)	8,250	(Medium)	(Resurfacing)	
Trail 3A (multiuse intermediate)	6,552	(Low)	(Erosion repair)	
Trail 4A (mountain bike down track intermediate)	5,675		(Root cutting)	
Trail 5A (multiuse intermediate)	1,094			
Trail 6A (multiuse intermediate)	2,234			
Trail 7A (hiking intermediate)	3,451			
Trail 8A (hiking intermediate)	6,818			
Trail 9A (mountain bike down track intermediate)	6,222			
Trail 10A (mountain bike intermediate)	2,031			
Trail 11A (hiking intermediate)	5,845			
Total Length	54,844			

(1) 5,280 ft in 1 mile. (2) High Priority = Implementation within 0-2 Years | Medium = 2-6 Years | Low = 6-20 Years. (3) See example maintenance schedule

TRAILS - ZONE B				
Description	Length (ft)*	Project Priority ⁽¹⁾	Maintenance Needs ⁽²⁾	Primary Responsibility
Trail 1B (hiking intermediate)	2,048			
Trail 2B (mountain bike intermediate)	1,883			
Trail 3B (multiuse easy)	3,078			
Trail 4B (multiuse easy)	2,567			
Trail 5B (multiuse easy)	4,146			
Trail 6B (multiuse easy)	1,784			
Trail 7B (multiuse intermediate)	3,776			
Trail 8B (multiuse easy)	2,456			
Trail 9B (multiuse intermediate)	5,687			
Trail 10B (multiuse easy)	3,857			
Trail 11B (mountain bike down track intermediate)	4,877			
Trail 12B (mountain bike down track intermediate)	1,921			
Trail 13B (mountain bike down track intermediate)	3,915			
Trail 14B (multiuse intermediate)	1,312			
Trail 15B (multiuse easy)	3,621			
Trail 16B (multiuse intermediate)	7,235			
Trail 17B (multiuse easy)	2,477			
Trail 18B (mountain bike down track intermediate)	6,210			
Trail 19B (multiuse easy)	2,378			
Trail 20B (multiuse intermediate)	1,690			
Trail 21B (multiuse intermediate)	2,227			
Trail 22B (hiking intermediate)	1,930			
Trail 23B (hiking intermediate)	7,659			
Trail 24B (mountain bike intermediate)	2,579			
Trail 25B (mountain bike intermediate)	1,212			
Trail 26B (multiuse intermediate)	2,333			
Trail 27B (multiuse intermediate)	3,055			
Trail 28B (multiuse intermediate)	1,340			
Trail 29B (multiuse easy)	2,585			
Trail 30B (multiuse intermediate)	787			

Trail 31B (mountain bike intermediate)	2,394			
Trail 32B (mountain bike intermediate)	708			
Trail 33B (multiuse intermediate)	2,685			
Trail 34B (hiking intermediate)	7,747			
Trail 35B (multiuse intermediate)	2,713			
Trail 36B (mountain bike down track difficult)	5,562			
Trail 37B (multiuse intermediate)	1,231			
Trail 38B (multiuse intermediate)	6,357			
Trail 39B (hiking intermediate)	6,639			
Trail 40B (hiking intermediate)	2,980			
Trail 41B (multiuse intermediate)	5,505			
Trail 42B (multiuse intermediate)	5,314			
Trail 43B (multiuse intermediate) (Coal Mines Tra	12,133			
Total Length	154,593			

TRAILS - ZONE C				
Description	Length (ft)*	Project Priority ⁽¹⁾	Maintenance Needs ⁽²⁾	Primary Responsibility
Trail 1C (hiking intermediate)	6,203			
Trail 2C (multiuse intermediate)	885			
Trail 3C (multiuse intermediate)	8,980			
Trail 4C (mountain bike intermediate)	1,893			
Trail 5C (multiuse intermediate)	1,389			
Trail 6C (mountain bike intermediate)	3,093			
Trail 7C (mountain bike down track difficult)	7,708			
Trail 8C (multiuse intermediate)	4,192			
Trail 9C (multiuse intermediate)	5,160			
Trail 10C (mountain bike intermediate)	2,678			
Trail 11C (mountain bike intermediate)	862			
Trail 12C (mountain bike intermediate)	5,665			
Trail 13C (multiuse intermediate)	1,449			
Trail 14C (multiuse intermediate)	2,086			
Trail 15C (mountain bike intermediate)	2,927			
Trail 16C (multiuse easy)	1,013			
Trail 17C (multiuse intermediate)	1,316			
Trail 18C (multiuse easy)	1,757			
Trail 19C (hiking difficult)	3,020			
Trail 20C (hiking intermediate)	10,128			
Trail 21C (multiuse intermediate)	2,708			
Trail 22C (mountain bike down track difficult)	7,358			
Trail 23C (mountain bike intermediate)	751			
Trail 24C (mountain bike intermediate)	5,791			
Trail 25C (multiuse easy)	1,358			
Trail 26C (multiuse easy)	1,789			
Trail 27C (multiuse intermediate)	1,095			
Trail 28C (multiuse easy)	2,985			
Trail 29C (multiuse easy)	3,358			
Trail 30C (multiuse intermediate)	779			
Trail 31C (multiuse easy)	1,671			
Trail 32C (multiuse easy)	2,334			
Trail 33C (multiuse easy) (Coal Mines Trail)	13,148			
Total Length	117,529			

Summary		
Total Trail Distances	LF	Miles
Total Multi-use Trail Distance	178,583	33.8
Total Hiking Trail Distance	64,468	12.2
Total Biking Trail Distance	83,915	15.9
Cumulative Total (All zones & trails)	326,966	61.9

Project Costs

To prepare an estimate of probable construction costs for the TTC master plan, trails were divided into geographic zones and segments. These trail segments can be built over time and will help organizers phase in the full project implementation. The cost estimate is based on public bid and construct costs and is provided in 2018 US Dollars. The trail lengths are based on the trail layouts shown on the master plan graphic. See the Appendix for more detailed planning-level cost estimate breakdown and list of assumptions.

Zone A Summary

Mobilization	\$37,922.40
Trails	\$260,509.00
Trail Signage	\$7,600.00
Trailhead 1 With Parking (Zone A - Ronald)	\$107,115.00
Zone A Trailhead Landscape	\$0.00
Site Amenities	\$4,000.00
<i>Subtotal</i>	<i>\$417,146.40</i>
Total (including tax, O&P, contingency)	\$608,866.89
Total including design & permitting (20%)	\$723,965.92

Zone B Summary

Mobilization	\$104,763.18
Trails	\$734,316.75
Trail Signage	\$24,400.00
Trailhead 2 With Parking (Zone B - Roslyn)	\$16,000.00
Trailhead 3 With Parking (Zone B - Roslyn)	\$171,635.00
Zone B Trailhead Landscape	\$85,280.00
Site Amenities	\$16,000.00
<i>Subtotal</i>	<i>\$1,152,394.93</i>
Total (including tax, O&P, contingency)	\$1,682,035.63
Total including design & permitting (20%)	\$2,000,004.44

Zone C Summary

Mobilization	\$109,622.78
Trails	\$558,262.75
Trail Signage	\$171,635.00
Trailhead 4 With Parking (Zone C - Cle-Elum High School Area)	\$171,635.00
Trailhead 5 With Parking (Zone C - Cle Elum)	\$171,635.00
Trailhead 6 With Parking (Zone C - Cle Elum)	\$16,000.00
Trailhead 7 With Parking (Zone C - Cle Elum)	\$107,115.00
Zone C Trailhead Landscape	\$53,300.00
Site Amenities	\$4,000.00
<i>Subtotal</i>	<i>\$1,363,205.53</i>
Total (Including Tax, O&P, Contingency)	\$1,760,059.43
Total Including Design & Permitting (20%)	\$2,092,777.70

Total TTC Project Summary

Total (including tax, overhead & profit, and contingency)	\$4,050,961.94
Total including design & permitting (20%)	\$4,816,748.06

References and Resources

Grant Funding Opportunities

Federal Funding Sources

- **US Dept. of Housing & Urban Development - Community Development Block Grants (CDBGs)** | Grants to improve community facilities and services, especially in low- and moderate-income areas.
- **US Dept. of Agriculture - Rural Development - Community Facilities Programs** | Funds to construct, expand or improve facilities that provide health care, education, public safety, and public services.
- **National Parks - Land and Water Conservation Fund** | Federal funding to State and Local agencies to safeguard natural areas, water resources and cultural heritage, and to provide recreation opportunities.
- **Federal Highway Administration – Surface Transportation Block Grant Program (STBG) & Recreational Trails Program (RTP)** | The TA Set-Aside authorizes funding for programs defined as transportation alternatives, including on- and off-road pedestrian and bicycle facilities, infrastructure projects for improving non-driver access to public transportation and enhanced mobility, community improvement activities such as historic preservation and vegetation management, and environmental mitigation related to stormwater and habitat connectivity; recreational trail projects; and safe routes to school projects.

State Funding Sources:

WA Recreation and Conservation Office (RCO)

The Washington State Recreation and Conservation Office provides a variety of grants for enhancing recreation and habitat in Washington State.

- **Land and Water Conservation Fund** | To preserve, develop and assure accessibility to outdoor recreation resources including parks, trail, and wildlife lands.
- **Recreation Trails Program** | Funding to renovate and maintain recreational trails and facilities that provide a backcountry experience.
- **Washington Wildlife and Recreation Program (WWRP)** | Funding for local and state parks, trails, water access, state land conservation and restoration, farmland preservation, and habitat conservation.

Foundation Grants & Other Private Funding:

- **Evergreen Mountain Bike Alliance** | Hosts trail building projects in Washington State <<https://www.evergreenmtb.org/trails/projects>>
- **Washington Trails Association** | Gathers volunteers for trail work parties <<https://www.wta.org/get-involved/volunteer>>
- **National Recreation and Parks Association** | Resource for parks and recreation funding sources. <www.nrpa.org/our-work/Grant-Fundraising-Resources/>
- **REI Conservation and Recreation Grants** | Supporting outdoor access, trail construction, and community health through a variety of funding routes. <www.rei.com/stewardship/creating-access>
- **The Trust for Public Land** | U.S. nonprofit organization with a mission to “create parks and protect land for people, ensuring healthy, livable communities for generations to come.
- **Kresge Foundation** | Grants for facility development, community health partnerships, developing healthy environments and more.
- **American Hiking Society’s National Trails Fund** | Grants to help build and protect hiking trails.

- **Robert Wood Johnson Foundation** | Working to improve the health and health care of all Americans, including investments in communities, children, and leadership programs.

Further Reading

USDA Trail Construction and Maintenance Notebook, 2007 Edition

<<https://www.fs.fed.us/t-d/pubs/pdfpubs/pdf07232806/pdf07232806dpi72.pdf>>

USDA Trails Management Handbook (FSH 2309.18) & Amendments

<https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5403600.pdf>

USFS / USDA Trail Management Tools

<<http://www.fs.fed.us/recreation/programs/trail-management/index.shtml>>

- [Trail Fundamentals and Trail Management Objectives](#)
- [Trail Assessment and Condition Surveys \(TRACS\)](#)
- [Standard Trail Plans and Specifications](#)

USFS/USDA Hand tools for Trail Work: 2005 edition

<<http://www.bchmt.org/documents/education/HandtoolsforTrailWork.pdf>>

Washington Trails Association: Trail Maintenance Resources

<<http://www.wta.org/get-involved/volunteer/about-volunteering/trail-maintenance-tool-and-technique-resources>>