

**Hood River County
Forestry Department**

Recreation Trail System Master Plan



December 2010

*Prepared with technical assistance from the
Rivers, Trails and Conservation Assistance Program
of the National Park Service*



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The Rivers and Trails mission is to advocate and assist community based conservation action. We build and support partnerships that conserve natural and cultural resources, provide recreational opportunities, and contribute to economic and social well being.

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Abbreviations

ATV – All Terrain Vehicle

BPA – Bonneville Power Administration

Class I ATV – Quads - Vehicles that are 50 inches wide or less, 800 pounds or less, have a saddle or seat, and travel on three or four tires

Class II ATV – Four wheel drives (4x4's) – Vehicles that are more than 50 inches wide, or more than 800 pounds

Class III ATV – Motorcycles – Vehicles that travel on two tires, and have a dry weight of less than 600 pounds

FRTC – Forest Recreation Trail Committee

HRC – Hood River County

HRCFD – Hood River County Forestry Department

HRCPD – Hood River County Planning Department

HRCSD – Hood River County Sheriff's Department

LOA – Landowner Agreement

NPS – National Park Service

ODFW – Oregon Department of Fish and Wildlife

OPRD – Oregon Parks and Recreation Department

RTCAP – Rivers, Trails and Conservation Assistance Program

USDA – United States Department of Agriculture

Executive Summary

Master Plan Development

This document is meant to accompany the Hood River County Trail Management Plan. The Trail System Master Plan is intended to set a vision and direction for recreation trails on County Forest lands. The Plan was developed over the course of three years through a collaborative effort of user groups and land management agencies and was led by the Hood River County Forestry Department (HRCFD). The planning effort received help through a technical assistance grant from the National Park Service (NPS) Rivers, Trails and Conservation Assistance Program (RTCAP).

Existing Trail System

Over 160 miles of recreation trails have been inventoried on Hood River County (HRC) lands. Some of these routes run onto adjacent property that is privately owned or owned by other agencies. Until 2003, these trails were unofficial, user-made routes with little or no management from the County. With the formation of the Forest Recreation Trail Committee (FRTC) and the creation of the Trail Management Plan, HRC has begun to take an active interest in the development and management of trails on County land. The trails are primarily used by equestrians, hikers, trail runners, mountain bikers, motorcyclers, and all-terrain vehicle riders. Because of the lack of past management, many of the inherited trails were poorly aligned, poorly constructed, and in an unsustainable condition. However, the majority of trails offer excellent recreation opportunities for local residents as well as being a draw for people from the Portland Metro Area and far beyond.

Trail Management Zones

The Trail System Master Planning Subcommittee has recommended the creation of thirteen distinct trail management zones that will help guide the development and management of trails throughout the County's ownership. These zones provide a framework to trail managers and volunteers when making decisions about trail work and trail management. Some zones seek to create equestrian-friendly trails (open to all non-motorized users), others look to create mountain bike opportunities, and some provide for motorized use. Trail management zones are meant to provide guidelines for decision making and are generally not exclusionary to specific users. Overall, the Subcommittee was very clear about their desire to make trails open to as many users as possible. For the detailed list of zones and their descriptions, see the "Trail Management Zones" section on page 33.

Trail Recommendations

For the entire list of trail recommendations, see the "Recommendations" sections on pages 38, 43, 47, and 51. The following lists highlight a few key recommendations but are not meant to be comprehensive or prioritized in any way:

Trail Management

- Expand collaboration with adjacent landowners, including United States Department of Agriculture (USDA) Forest Service, Oregon Parks and Recreation Department (OPRD), and private landowners.
- Acquire voluntary landowner agreements (LOA) for the management of trails and/or purchase of trail easements (from willing sellers) where needed.
 - Establish maximum trail densities in all of the trail areas throughout the County's system.
 - Inventory and analyze (for flow, sustainability, density, etc.) all trails on County lands.
 - Analyze the need for staging/parking areas throughout the trail system.
 - Delineate equestrian-friendly trails.
 - Install signage throughout the trail system.
 - Create and distribute maps of the trail system.
 - Minimize impacts on natural resources and fish and wildlife.

Trail Development

- Explore the feasibility of constructing the Valley Loop Trail (necklace) that would connect the City of Hood River, the Northwest Area, Middle Mountain, and the East Area.
- Create beginner level cross-country routes in Zone 1 that would accommodate non-motorized users such as equestrians, cross-country bicyclers, runners, and hikers.
- Focus free-riding (stunts) in Zone 1 for free-ride bicycle users.
- Create an equestrian-friendly trail system in the north half of Middle Mountain.

Vision Statement

Provide a sustainable system of recreation trails within the HRC Forest Lands that is managed cooperatively by the HRC Forestry Department, all recreation user groups, and trail partners, for the benefit and enjoyment of HRC residents and visitors.

Background

The HRC Forestry Department manages 31,064 acres of land in HRC, primarily for commercial timber production. Four unorganized and previously unmanaged systems of recreational trails were created by users and exist in separate areas of County ownership. They are the Northwest, Middle Mountain, East, and South Areas.

The majority of trails in these areas have been designated for multiple-use. Multiple-use trails allow many of the various user groups to share trails at the same time. Even though the majority of HRC's trails are primarily designed for a specific user group, the overwhelming majority still remains as multiple-use and are appropriate for motorized and non-motorized forms of recreation. Within these areas it is estimated there are 429 miles of these multiple-use routes that include 149 miles of multiple-use trails and 280 miles of forest roads.

Ordinance Number 251

In October 2003, the HRC Board of Commissioners (BOC) adopted Ordinance No. 251; Forest Recreation Trails (Appendix A), incorporated into Title 12, Parks and Other Places, of the existing County Code. The Ordinance stated that the primary purpose in owning and managing the forest lands was for the production and sale of timber and that no provision in the Chapter would be allowed to limit the County's ability to manage its forest. The HRCFD was mandated to develop and manage the system of recreation trails. The Ordinance called for the creation of a Forest Recreation Trail Committee. The Committee is comprised of individuals appointed by the BOC to represent the various user groups that utilize the trail system, one citizen at large, and one member from the Forest Advisory Committee. The FRTC holds monthly meetings at the HRCFD and the meetings are open to the public.

The Ordinance called for the FRTC to develop an HRC Forest Recreation Trail Management Plan which would govern the operations of the trail system. The Ordinance also mandated that a TSMP be created by the FRTC.

Trail System Development Order

Ideally, for efficient trail system development, a Master Plan would have been created first, then a Trail Management Plan, and then construction of a trails network. Because HRC trails already existed when the County passed Ordinance No. 251, this process was not possible. Once the Ordinance was passed in 2003, the FRTC was formed. The Committee had an immediate need for a plan to manage the existing trails, so they worked with HRCFD to develop the Trail Management Plan and finally the TSMP.

Trail Management Plan

The HRC Forest Recreation Trail Management Plan, as adopted by the BOC on October 20, 2003, governs the operations of the trail system within the HRC

Forest. The Management Plan encourages ongoing cooperation between recreation user groups and the Forest Manager to create a relationship whereby timber production and forest recreation can co-exist with a safe and positive result for everyone involved.

The Management Plan (Appendix B) provides specific procedures for taking inventory of existing trails, establishing and adopting new trails, adopting existing trails, performing trail maintenance, creating trail numbering, naming, and signage. It outlines standards for trail construction, establishes a process for obtaining LOAs with private property owners and allows for future amendments to the Plan itself.

Planning Department Involvement

The Hood River County Planning Department (HRCPD) is involved in the approval process for trails infrastructure development. The HRCFD and FRTC approve locations for new trail construction or major reroutes. Ordinance No. 251 states that, "Approval for the construction of any structure, such as a restroom or other building must be obtained through the County Planning Department under current law."

Master Plan Development

The TSMP was developed to assess the existing trail system and make recommendations for its future needs. The Plan reviews the existing conditions, identifies system needs, and how those needs can be satisfied, while protecting natural resources and not adversely affecting HRC's timber harvest program. The Plan addresses the system's history, its present condition, and outlines a vision for the future.

In January of 2007 the NPS partnered with HRCFD through a technical assistance grant from the Rivers and Trails Conservation Assistance Program to produce the Master Plan. The Plan is designed to identify needs, and to set objectives and management priorities in order to facilitate the continued co-existence between timber production and forest recreation. A Trail System Master Plan Subcommittee was formed and crafted the Plan over a three-year period. Once a rough draft was completed a Public Open House was held to provide an opportunity for public comment on stipulations of the Master Plan. Changes were made based on those comments and then the final draft of the Plan was adopted by the FRTC.

The NPS worked with HRCFD and the TSMPS to create a non-statistically significant survey that was conducted on the internet. The survey was directed at users of the trail system and the questions addressed; frequency of trail system use, type of use, experience while recreating, and needed improvements. The survey was designed to give the TSMPS general ideas about the trail system's current and future needs. Because the survey was not statistically significant, no decisions were made based on survey results. Actual survey results are in Appendix D. A summary of survey results can be found on pages 17-19.

Each of the four trail areas were divided into Trail Management Zones. A list of the Trail Management Zones and a description of each are listed on page 33. Specific recommendations were made for each area. These recommendations can be found on pages 38, 43, 47, and 51.

General Area Description

Elevation and Climate

Despite it being one of the smallest counties in the state, HRC's elevation and climate vary widely. With the Columbia River forming its northern boundary, the County rises from a low of 51 feet above sea level on the river, to its southern tip on the top of Mt. Hood, at 11,245 feet. Its western boundary lies in the Cascade Range and its eastern boundary is roughly marked by Fir Mountain, Bald Butte and Surveyor's Ridge (Scholl-Erdmann, 2007).

HRC is in a transition area between the temperate marine zone and the semi-arid continental zones. Precipitation ranges from an average of 130 inches per year along the crest of the Cascade Mountains to less than 30 inches along the eastern ridgelines, with most precipitation falling November through March. Snowfall is heavy at high elevations and can reach 30 feet deep at Timberline Lodge on Mt. Hood. The mean annual temperature near the City of Hood River at 510 feet is 52 °F (Coccoli, 2004). Some HRC Forest Land exists in each of these ecoregions.

Soils & Geology

HRC has about 30 different types of soil (US Department of Agriculture, 1981). The County's geology is dominated by the strato-volcanic cone of Mt. Hood formed of lava and pyroclastic flow deposits. Volcanic rock forms ridges and drainages beyond the base of Mt. Hood, and Columbia River basalt is the most widespread rock formation. Pleistocene-era glaciers and Holocene floods have shaped the landscape into steep narrow valleys and terraces of clay, silt, sand, gravel and boulders (PacifiCorp, 1998). The Hood River Valley is separated into an upper and lower valley by the 2,642-foot elevation Middle Mountain. The lower valley is a broad north-sloping bench (Coccoli, 2004). These river valleys are quite fertile with the dominant soil type being sandy loam. The characteristics of each soil type have major implications (erodability, compaction, etc.) for trail construction and maintenance.

Botany

The greatest proportion of land cover in HRC is by conifer forest. Vegetation cover types are variable depending on elevation, longitude, and aspect. Douglas fir dominates the western half of the County, interspersed with western hemlock, red cedar, Pacific silver fir, noble fir, grand fir, and Engelmann spruce. Ponderosa pine and Douglas fir stands dominate the eastern half of the valley, interspersed with white pine, tamarack, and hemlock. At lower elevations, Oregon White oak and pine-oak stands are common, especially to the east and on south-facing slopes, with deciduous stands and grasslands on the eastern foothills of the Cascades.

Vegetation and wildlife habitats that once existed in the Hood River Valley have been substantially altered in the last 150 years by human development. The most obvious change from historic conditions is the replacement of conifer

forests with orchards. Although trees are still the dominant vegetation in the valley, trees covering lower elevation lands and the valley floor today are deciduous, uniformly spaced, and planted in single-species monotypes. Timber management and fire suppression have altered the age, species composition, and structure of native forest stands in lower and mid-elevation forests while higher-elevation forest areas remain less altered (Coccoli, 1999).

Hydrology

HRC's hydrology is dominated by the Hood River and its tributaries. The Hood River watershed covers about 340 square miles between Mt. Hood and the Columbia River. The Hood River has 3 main branches - the East Fork, Middle Fork and West Fork. These forks converge on the west side of the Hood River Valley to form the mainstem Hood River, which joins the Columbia River just east of the City of Hood River. The Hood River is a dynamic, glacially-influenced system with steep terrain (Coccoli, 1999).

The South, Middle Mountain and East Areas of HRC encompass many miles of waterways that feed into the Hood River. The Northwest Area largely includes waterways that feed into the Columbia River. In all, there are over 200 miles of mapped waterways crossing land owned by HRC.

Water Quality

Waterways in the Hood River Valley are naturally high gradient streams mostly confined by narrow valleys with seasonal turbidity, frequent landslides, and debris flows caused by glacial melting and other factors. These characteristics create a river system that is very dynamic. Human disturbance throughout the Hood River basin has contributed to fish passage barriers, low in-stream flows, lack of habitat complexity and impaired water quality. The Oregon Department of Environmental Quality has found many streams in the Hood River watershed to be exceeding state standards for temperature. Others are currently being monitored for concerns related to high temperatures, sediment loading, nutrients, bacteria and toxics (Stampfli, 2008 Update). There are many efforts currently underway both locally and regionally to reduce the input of these pollutants into HRC waterways.

Fish & Wildlife

The Hood River watershed is home to resident and anadromous (ocean-going) fish populations including cutthroat trout, bull trout, rainbow trout, and mountain whitefish. Sea-run cutthroat trout are still present in low numbers. Many of these fish species have dwindled to very low numbers, and several Endangered Species Act listings were made affecting five of the six anadromous populations (spring and fall Chinook, summer and winter Steelhead, and Coho) and one resident species (Bull Trout) (USDA Forest Service, 2006).

Terrestrial wildlife of all sizes are common in HRC including black bears, cougars, bobcats, coyotes, elk, deer, beavers, raccoons, weasels, gophers, squirrels, skunks and turkeys to name just a few. A major ecological

consequence of the conversion of low-elevation conifer forest to orchard and residential environments is the loss of winter range and key structural habitats for wildlife. The construction of utility corridors and human travel corridors (roads, highways, railroads and trails) has resulted in additional fragmentation and disturbance of wildlife habitats. According to the Hood River Watershed Assessment, the combined human travel corridor density is 4.3 miles per square mile, excluding utility lines and unmapped trails (Coccoli, 2004).

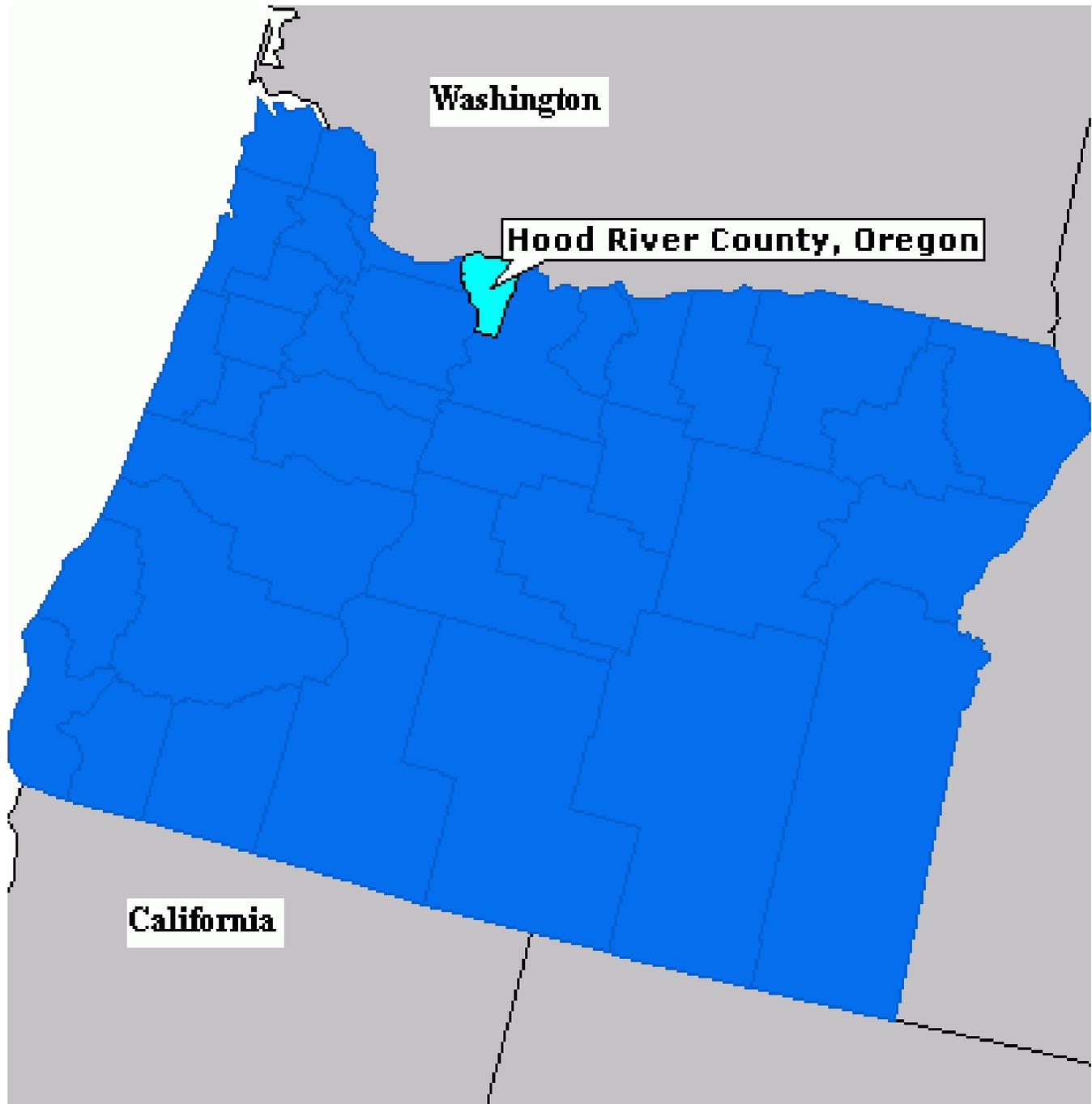
As a result of this loss of habitat in the valley, many species of wildlife have migrated to the conifer forests along the east and west ridges of the valley and on Middle Mountain. Stream corridors with riparian vegetation also provide important wildlife refuge. Remnant forest patches in the lower and upper valley are often fragmented. Vehicle traffic and year-round trail and backcountry recreation has likely affected wildlife species that are intolerant of human activity (Coccoli, 1999).

Timber harvest has increased forage and edge habitat preferred by deer and elk, and in turn has probably increased these populations relative to pre-European settlement, along with cougar, their main predator (Coccoli, 2004). The winter range of large migratory animals like deer and elk in the Hood River Valley is now largely limited to these forested parcels owned by the USDA Forest Service, HRC and private timber companies.

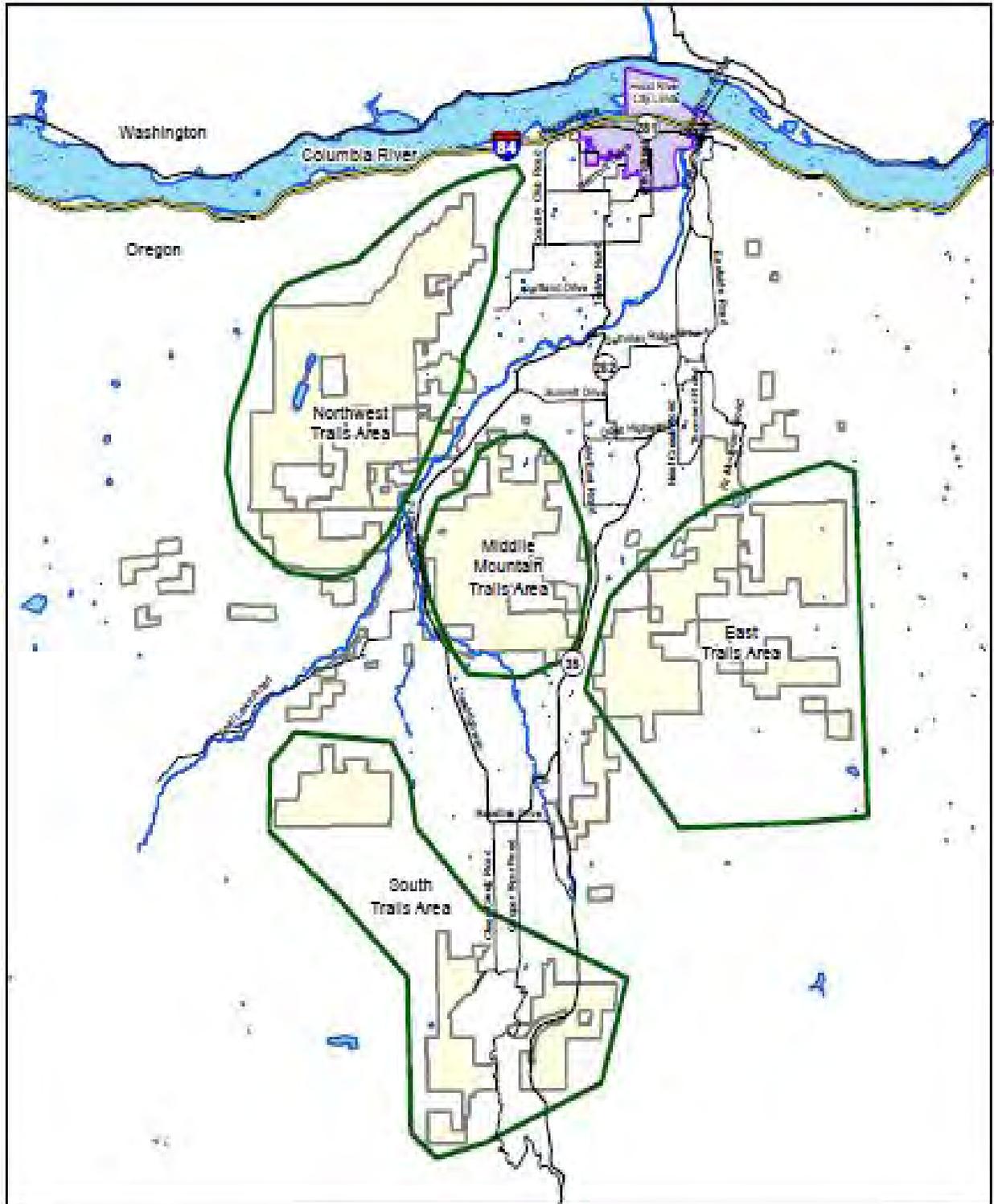
The Trail System

The HRC Forestry Department manages 31,064 acres of land in HRC primarily for commercial timber production. These lands are also managed for recreation. Four systems of recreation trails exist in separate areas of County ownership. They are the Northwest, Middle Mountain, East, and South Areas. The majority of trails in these areas are designated for multiple-use. This provides opportunities for various user groups to co-exist on many of the trails at the same time. Within these areas it is estimated that there are 429 miles of Off-Highway Vehicle routes which include 149 miles of multiple-use motorized trails (open to all users) and 280 miles of forest roads.

Hood River County Location Map



Trail Areas in Hood River County



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Trail User Types

There are currently 149 miles of multiple-use trails in HRC. Multiple-use trails allow many of the various user groups to share trails at the same time. Even though the majority of HRC's trails are primarily designed for a specific user group, most still remain as multiple-use and are appropriate for motorized and non-motorized forms of recreation.

Equestrian

Equestrians have been using the local system of trails for decades and were the original developers of many of the routes. Numerous equestrian users currently recreate throughout the County on sanctioned as well as unsanctioned trails and frequently use state and federal lands on both sides of the Columbia Gorge. It is essential that equestrian users continue to have the opportunity to enjoy these various areas to ride. HRC provides a rural setting that is well-suited for the large numbers of horses that exist in the area. This suitability is facilitated by the concentrations of commercial riding establishments found in the Northwest and Middle Mountain Areas. Many equestrian owners have the luxury of accessing public trails from their property while the majority have to trailer to trailhead locations.

Equestrians have a few special requirements: parking areas need to provide large turn-arounds that are capable of accommodating horse trailers; trail corridors need to be brushed back to elevated heights and widths; hitching posts are necessary at strategic locations; and drinking water should be available for horses. In addition, the size and weight of horse and rider require bridges to be engineered to equestrian standards and trails need to be wide enough, firm enough and smooth enough to allow horses to use without injury or danger.

All Terrain Vehicles (ATV) and motorcycles are only allowed on designated roads, during fire season, (except under waiver in the Northwest Area). Fire season is generally from the beginning of July until the end of September. The most appropriate and accessible trails for equestrians may be the ATV and motorcycle designated trails during this time.

Presently, there is only one trail on County property that has been primarily designed for equestrian use. Equestrians are typically comfortable on the same types of trails as those constructed for hikers, trail runners, and cross-country mountain bikers. A system of trails has been planned for the north half of the Middle Mountain Area that will be specifically designed for equestrian use, though open to all non-motorized users. The policies and management of the HRC Trails System will strive to provide access for equestrians as well as other users, while offering each user group opportunities to enjoy diverse, scenic and safe riding experiences.

Mountain Bike

Mountain biking arrived on the Hood River trails in the 1980s and has grown in popularity ever since. Today, it is the most popular trail use in the HRC system. (Over 60% of survey respondents stated their primary mode of use was some type of mountain biking). With its increase in popularity, mountain biking has become more diverse. This Plan uses three classifications of mountain biking: cross-country, free-riding, and down-hill/shuttle riding. It should be noted that the lines between the three types of riding are often blurred with many riders doing more than one type in any given ride.

Cross-Country Riding

Cross-country is a riding type that involves equal amounts of climbing and descending with challenges on the trail but not nearly to the extent of free-riding. Challenges are usually not man-made. Cross-country riding is the most popular of the three types of mountain biking on HRC lands (just over 44% of survey respondents). However, there are less than 15 miles of trails that are “geared” towards this type of trail use. In both the survey and through the planning process, there was a clearly demonstrated need for more cross-country trails (especially easier routes) particularly in Zone 1. This is based on the number of survey respondents who stated they were cross-country mountain bikers and who primarily rode in Zone 1.

Down-hill/Shuttle Riding

Down-hill/shuttle riding usually involves cars or trucks shuttling bicycles and riders up to trails at higher elevations. This allows riders to minimize the amount of climbing and maximize the amount of descending. Down-hillers often have heavy bikes that handle well at high speeds and that are designed to absorb large drops. Because of the terrain, there are not many places on County lands where riders can be shuttled. The few places that exist are heavily used. Based on survey responses, down-hill/shuttle riding accounts for 31.5% of mountain bikers in the HRC trail system.

Free-Riding

Free-riding is the newest of the three types of mountain biking. Free-riders enjoy stunts and challenges of various levels, many of which are man-made such as ladders, teeter-tots, and tight bridges. The tread of a trail may be entirely fabricated and elevated off the ground. For most free-riders, the challenges and accompanying adrenalin rushes are the most important parts of a ride.

Official, sanctioned free-riding areas are rare and besides Black Rock (Falls City, OR), there are no larger formalized places for this type of mountain biking in the region. It should be noted that free-riding is becoming increasingly popular. Through the planning process and online survey, users expressed a desire for more free-riding trails in the

Northwest Area. Twenty-four percent of respondents said they free-ride more than any other type of mountain biking on HRC trails.

Motorcycle (Class III)

A large number of the trails throughout the County are appropriate for motorcycle trail riding. Motorcyclists are fortunate in that many of the routes are single track. These highly valued trails are rare in many OHV areas in Oregon and HRC is fortunate in this regard. Over the years, the total number of trails nationwide that are open to motorcyclists has been reduced. This is particularly true on federal as well as private lands. HRC lands help fill the need for regional motorcycle trail access. About 26% of survey respondents listed motorcycles as their primary means of recreating on trails. Motorcyclists are riding throughout the trail system with the heaviest of concentrations in Zone 2 of the Northwest Area. Many more are also riding in the Middle Mountain and East Areas.

All Terrain Vehicle (Class I)

ATVs are three and four-wheeled motorized vehicles that work well for trail riding. ATVs that are 50 inches wide or less are allowed on ATV designated trails in HRC's trail system. ATV riding takes place predominantly in Zone 2 of the Northwest Area. Some riding is also taking place in the Middle Mountain and East Areas. ATVs require a wider trail surface than the other modes of trail travel. Less than 2% of survey respondents stated their primary use was ATVs. This number seems a bit low and could be due to the lack of an organized ATV club in the area.

4x4 (Class II)

Vehicles greater than 50 inches wide fall into this category. At the present time, the only routes that allow 4x4 use on HRC property are roads that appear on the NW Area OHV Map Guide. HRC is currently working with OPRD and 4x4 users to establish additional routes for their use.

Hiker

While there is no formal hiking group in the area, many people still enjoy walking on trails in the HRC system. Hikers typically use the same trails that equestrians and cross-country mountain bikers do. Unlike many of the other trail user types, hikers do not care as much about the quality of the tread. Many are concerned about the aesthetics of a trail and often walk to a particular destination (waterfall, lake, peak, view, etc.). As a result, most local hikers go to more scenic areas such as those in the Columbia Gorge National Scenic Area and USDA Forest Service trails on or near Mount Hood.

Trail Runner

Unlike hiking, trail runners place a greater emphasis on the trail tread than aesthetics. As a result, the HRC trails are a popular place to trail run. Just under 3% of respondents stated trail running was their primary use of HRC trails. This number seems a bit on the low side which is probably due to the lack of an organized trail running club in the area. Trail runners typically enjoy loop trails and, like cross-country mountain bikers and equestrians, want a smoother tread than down-hill bicyclers or free-riders.

Trail Survey

The HRC Forestry Department administered an online survey to gather input from local, regional and national users of the HRC trail system. The survey was developed with significant assistance from the RTCAP of the NPS. The survey allowed HRCFD an inexpensive way to reach a large number of trail users. Local, regional and national trail clubs were contacted and made aware of the trail survey. From the spring to the fall of 2008, over 900 responses were collected. Although a great effort was made to advertise the survey, it is understood that many trail system users either never received notice that the survey was taking place or did not bother to take the survey. It should also be noted that even though the results from this survey are not statistically significant, the results do provide valuable insights into use of the trails. No planning decisions were made based on survey results. A complete list of questions and results can be found in Appendix D. Below are some highlights from the survey results:

- Roughly 75% of survey respondents had been to the trail system.
- Of those that had been to the trails, 48% were from the Columbia Gorge.
- Nearly half of the survey respondents from outside of the Columbia Gorge were from the Portland/Vancouver Metro Area.
- Trail use is primarily from March through November with the heaviest use from May to July. 23% of the respondents use the trails for winter recreation (cross-country skiing and snowshoeing).
- The overwhelming majority (71%) of trail use was in the Northwest Area (Zones 1 and 2). East Area use was at 18% and the other areas were 6% or less.

Of those survey respondents that had not been to the trail system:

- 91% were from outside of the Columbia Gorge.
- 81.8% said it was important to have trail maps readily available.
- 59.8% stated trailheads should be easy to find.
- 56.5% said that well marked trails were important.
- 70.3% said trails should allow for a variety of skill levels.
- 69.4% stated camping near trails was important.

Of those respondents from outside of the Columbia Gorge who had used the HRC trails:

- Nearly two-thirds found out about the trails by word-of-mouth.
- 87% said their reason for coming to Hood River was for the trails.
- 63% said they stayed for at least one night.
- 27% stated they stayed for four or more nights.

Trail-tourism related expenditures (non-local respondents):

- 53% said they spent \$100 or more while on their last visit to the HRC trail system.
- 16.5% responded that they spent more than \$500 on their most recent visit.
- Nearly 95% of respondents said they spent money on gas and food.

- 29% reported spending money on lodging.
- Nearly half spent money on trail-related goods.
- 40% also went shopping while in Hood River.

Types of trail users who responded to the survey:

- 61.1% were mountain bikers (44% cross-country, 32% down-hill/ shuttle riders, 24% free-riders)
- 26.4% motorcyclists
- 4.4% hikers
- 2.3% trail runners
- 2.1% equestrians
- 1.8% ATV riders

Trail preferences:

- Respondents were evenly split between preferring trail lengths of less than and greater than 15 miles.
- 61% of respondents stated they preferred loop trails while 16% said they liked to car shuttle.
- When asked what amenity or single most important thing about their trail experience was, the majority of survey respondents stated it was the quality of the tread/trail surface.

Trail user's experience:

- 91% of the respondents stated they had a good or excellent time on the trail system. Only 1% stated they had a poor time.
- Only 15% of respondents stated that they had a conflict with another trail user recently. In terms of which user type they had the conflict with, it mirrored the overall trail system usage (outlined above) with the exception of ATVs which accounted for 32% of the conflicts (compared to 1.8% of the use).

Most important future developments:

- 24% of respondents stated that they wanted more free-ride trails in Zone 1 (Notably the majority of these respondents were free-riders).
- 24% requested the development of a loop trail ("Valley Loop Trail") connecting all of the Trail Areas and closed to ATVs.
- 16% said to develop more cross-country trails in Zone 1.

Improvements to the trail system:

- 58% of the responses said to create more long-distance routes.
- 44% requested improved trail signage and maps.
- 28% requested an increase in the number of stunts (Most of these respondents were free-riders).
- 26% requested better maintenance of trails.

Management of the trail system:

- 85% of survey respondents said they were aware that the trails were located on lands primarily used for timber production.

- 94% stated that trail recreation and timber production can co-exist to provide a quality trail experience.
- 78% of survey respondents were willing to support a seasonal closure of the trails in the wet season (November-March).
- 81% of respondents were willing to do volunteer work on the trail system with 26% stating that they were already volunteering on the trails.
- When users were asked what they would be willing to purchase (if the monies went back into the trail system), respondents listed trail maps (88%) and t-shirts (59%) as the most supported items.
- 60% of the survey respondents would be willing to buy a trail pass to use the trail system. 75.2% of people preferred an annual pass over a day pass. 93% of respondents who were willing to buy an annual pass said they would pay at least \$10 for the year. 91% of people who would buy a day pass said they would pay at least \$3 for one.

Issues

Regulations Governing Use

The land owned by HRC and managed by the HRCFD is primarily designated for the production and sale of timber. As such, the HRC Forestry Department's use of this land is regulated under HRC Ordinances and the Oregon Forest Practices Act. To manage a successful and legal timber operation, the HRCFD must remain in compliance with the Administrative Rules imposed by the OFPA. The rules apply to all forest operations and activities including harvest, reforestation, road construction and repair, slash disposal, chemical use and stream, lake and wetland protection. Scenic resources along visually sensitive corridors and sensitive resource sites, such as bird nesting and roosting locations, and threatened and endangered species sites are also protected under the rules. The HRC Forestry Department is required to remain in compliance with these rules, and shall not be hindered by recreational use on these lands.

Despite the fact that commercial timber production is the designated land use on this property, recreational trail use and development are regulated under a different set of County rules. The HRC Board of Commissioners adopted the Forest Recreation Trail Management Plan (Appendix B) as the document which governs the day-to-day operations of the trails system within the HRC Forest. In addition to the guidelines established in the Management Plan, trails must also abide by rules governing activities in certain sensitive areas such as riparian corridors of fish-bearing streams (as regulated by HRC Ordinance No. 253, Article 42), the Floodplain zone as designated on the County zoning maps, wetlands (as delineated by the Department of State Lands), the Columbia Gorge National Scenic Area and within the County road right-of-ways. The HRC Planning and Building Services Department is responsible for enforcement of these regulations unless otherwise noted. County Zoning Ordinances are available for review at www.co.hood-river.or.us.

Primary Use of the Forest

As previously stated, HRC Ordinance No. 251 'Forest Recreation Trails' states, "Hood River County's primary purpose in owning and managing Hood River County forest lands is for the production and sale of timber." The proceeds from these sales are an important source of funding for County services.

One benefit of HRC officially recognizing the recreation trail system is that recreation trail activities are now being coordinated with timber harvest activities. It is now easier to avoid potential conflicts and dangerous situations than in the past. For example, the FRTC is notified once a timber sale is planned for an area. The FRTC is updated on a regular basis until the sale is complete. Trails are temporarily closed while timber sales and other forest management activities are in progress. HRCFD also notifies logging contractors of recreation trails that are close to or within sale boundaries.

Trail Design

The majority of HRC trails were user-created and therefore many were not properly designed or constructed to sustainable standards. The goal of HRC and the FRTC is to have a system of recreation trails that are largely multiple-use, sustainable, and properly designed for the primary user group. Multiple-use trails allow many of the various user groups to share trails at the same time. Even though the majority of HRC's trails are primarily designed for a specific user group, most still remain as multiple-use and are appropriate for motorized and non-motorized forms of recreation. The County strives for a trail system design that disperses users throughout the trail system as opposed to recreating close to staging areas or being concentrated in a minimum number of locations. A properly designed trail system will persuade users to recreate on trails as opposed to roads, thereby increasing safety, maximizing carrying capacity, and increasing enjoyment. Trail numbering, naming, signage, and construction standards and procedures are found in the Forest Recreation Trail Management Plan (Appendix B).

Trail Density

It is common for land management agencies to adopt trail density standards as a means for minimizing adverse impacts on water, fish, wildlife, soils, and other natural resources caused by unregulated trail development. In the late 1990's HRC Forestry Department realized there was an unauthorized proliferation of new trails on County Forest Land. In 2005, once the FRTC had created the Trail Management Plan, an approved procedure was developed that allowed for the construction of additional trails on County property. It was apparent that a trail density standard was needed.

Beginning in 2006 the HRCFD conducted an internet search on trail density and entered into density discussions with land management agencies, the FRTC, and local citizens. During this assessment period, the HRCFD proposed a County-wide trail density standard of 5.5 miles per square mile (quadrangle map section).

In later discussions, the HRCFD was advised by the ODFW to adopt a cumulative trail/road density of 2.0 miles per square mile, similar to that of the USDA Forest Service. HRC Forestry Department realized that if road density was included into a density standard of this type, there would not be room for very many, if any, recreation trails. It was also apparent that including forest roads into the density standard had the potential to cause a reduction in the amount of forest roads currently found on County property, and could adversely inhibit the County's primary priority, its ability to harvest timber. This would be in direct conflict with provisions of Ordinance No. 251. In order to compromise somewhat with ODFW, HRCFD voluntarily reduced their original County-wide trail density proposal of 5.5 miles per square mile, down to 4.5 miles per square mile for the Northwest Area, and down to 4.0 miles of trails per square mile for the Middle Mountain, East, and South Areas.

Additionally, the 4.5 and 4.0 trail miles per square mile will be used as an average over each of the four Trail Areas. This will allow for individual sections to exceed the allowable density as long as the average trail density of all the sections within that Area falls at or below the allowable trail density. For example, there may be individual sections in the Northwest Area that exceed 4.5 miles of trails per section. This is acceptable as long as the average density over the entire Northwest Area falls at or below 4.5 miles per section.

One question that arose while investigating density standards was, "What can be done to reduce trail density if the area already exceeds density standards?" To resolve this issue, HRCFD decided to impose a stipulation for approval of new trail construction proposals. If density in an area is above the allowable standard, then the trail proponent will be required to decommission additional trails at a minimum of 1.5 times the length of the of the proposed trail. This makes it theoretically possible for Areas that are too dense to eventually reach their target density.

Annual Trail Closures

In a typical year, the trail system is used for non-snow related activities during the months of April through November, with the exception of closure due to fire danger. HRCFD typically allows users to utilize the system until they voluntarily stop due to inclement weather. The FRTC is continuing a discussion concerning the temporary closure of weather-sensitive trails during the wet months of the year. Certain weather sensitive trails will experience seasonal closures beginning in the fall of 2010.

Annually during the summer months Oregon Department of Forestry (ODF) imposes a 'Regulated Use Closure' on non-federal publicly or privately owned land due to extreme fire danger. During this time all motorized use of trails is prohibited. Motorized use is still allowed on 'improved roads' (those designed for passenger car travel) within the designated Trail Areas as long as fire protection equipment is carried by users. Some OHV trail systems in Oregon receive waivers from ODF which allow motorized use during 'Regulated Use Closure'. In 2009 HRCFD received a waiver for the Northwest Area to remain open to motorized use during Industrial Fire Precaution Level 1 and 2 days in Regulated Use Zone MH-4 (Northwest Area). Users were allowed to utilize the trail system an additional three weeks during 2009 (July through September) because of the waiver. In 2008, the 'Regulated Use Closure' due to extreme fire danger was from July 1st to October 3rd.

Some OHV routes are closed to recreational use during certain times of the year. Many of HRC's forest roads are inaccessible to public use because they are isolated behind locked gates. There are some trails that junction with roads which are behind locked gates and they allow access to a few of the closed road systems. A number of gates are locked for most of each year while some are opened seasonally. Gates are locked for various reasons such as; to protect sensitive wildlife habitat, to protect road surfaces during periods of wet weather,

during some timber sales, and to facilitate certain Forestry Department field operations.

Law Enforcement

OHV recreation areas cannot be successfully managed without effective enforcement of rules and regulations and protection of trail system infrastructure. To accomplish these priorities Oregon Parks & Recreation Department (OPRD) administers the ATV Law Enforcement Grant Program. The program provides annual funding for law enforcement agencies to conduct recreation trail patrols. Funds are also provided for the purchase of motorcycles, ATVs, trucks, and other equipment that help satisfy law enforcement needs.

The HRCFD and the HRC Sheriff's Department (HRCSD) are working together to ensure that development, management, and protection of the trail system infrastructure is successful. This cooperation has presented new opportunities. It is now easy for HRCSD personnel to notify the HRCFD of maintenance needs for the trails or staging areas. The Sheriff's Department also provides a Trails Law Enforcement Update at many of the monthly meetings of the FRTC. Shortly after the first ATV Development Grant funding period began the Forestry Department produced a Search and Rescue Map for the HRCSD. This search and rescue emphasis has enabled the HRCSD to coordinate closely with other local search and rescue organizations. The new map is being distributed to these agencies and all are working with the HRCFD to develop a map that works to better streamline future search and rescue efforts.

Camping

A large majority of trail users enjoy camping in close proximity to the areas they use for recreation. The demand for places to camp on HRC land is on the rise. The HRCFD is investigating ways to provide more camping opportunities without interfering with day-use at staging area locations. HRC staging areas have been designated for day-use only. Visitors with camping needs have three options: 1) Camping is available at Tollbridge Park. It is located off of Highway 35 and is 5.0 miles from the East Area. 2) Camping is available at Tucker Park off of the Dee Highway (Highway 281) about 5 miles from the Northwest Area. 3) Additional camping opportunities exist in the Northwest Area, adjacent to the Kingsley Reservoir Staging Area at Kingsley Reservoir. All three of these camping locations are managed by HRC Parks & Buildings Department.

In order to satisfy this increased need for camping in the future, the HRCFD has long-range plans to submit an ATV grant that will request funding to develop a world-class OHV camping/staging facility at Kingsley Reservoir (Zone 2). It will be available for all users but will be designed with OHV use in mind. The area currently suffers from a lack of funding and poor design. HRC has never had a budget that would adequately fund operations at this location. Preliminary discussions are currently underway with OPRD personnel and all agree that this area has great potential. Plans are to have the camping/staging area professionally redesigned, acquire grant funding, and then proceed with construction. Needs for the area include: camp hosts at both ends of the

reservoir, a minimum of two bathrooms, additional camping sites, and access to potable water. The camping area will have properly posted rules and regulations, camping will be through pay-sites only, trails and roads will be adequately signed, and law enforcement will patrol the area on a regular basis.

Adjoining Landowners

Numerous trails on HRC property run onto adjacent properties not owned by the County. HRC has contacted many of these landowners and discussed recreation trail issues. Many public agency representatives and private landowners meet routinely with HRC during FRTC meetings and have participated in the Trail System Master Planning Subcommittee meetings. It was evident to HRC that many of the adjacent landowners had experienced a proliferation of unauthorized trail building similar to HRC.

The HRCFD has begun working with federal, state, and private landowners to assess existing trail routes and future trail needs in the Columbia Gorge National Scenic Area. In 2008 and 2009 a NPS grant allowed the HRCFD to GPS all recreation routes within the Scenic Area. This initial gathering of data allowed the USDA Forest Service, State of Oregon, and HRC to begin the trails assessment process.

The majority of lands adjacent to HRC land in the East Area are used for timber production with some acreage being leased by Bonneville Power Administration (BPA) for power line right-of-ways. Historically, private landowners viewed the area as a problem due to unauthorized recreation trail use. The landowners knew that HRC had begun to recognize recreation trails on HRC land and they were not convinced that it was a prudent thing to do. Three years ago the landowners had plans to visit an HRC Board of Commissioners meeting to request closure of all trails on HRC property in the East Area. Since that time the landowners have recognized that management efforts by HRCFD in the Northwest Area have had positive effects. In late 2006 the County began negotiating with these private landowners in order to increase future recreation opportunities in and around the East Area. Discussions with SDS Lumber Company, Longview Timber Company, USDA Forest Service, OPRD, and BPA concerning a multiple-ownership trail system are facilitating the development of LOAs that could allow HRCFD to manage a system of motorized trails that connect with and cross the lands adjacent to HRC's. It is likely that agreement with adjacent landowners will result in many unauthorized trails being decommissioned. The parties recognize that acquisition of grant funding is essential for the success of the project. The cooperative trail system across land owned by various owners will allow future access to all user groups but will be designed and managed for motorized use.

One problem with the proliferation of unauthorized trails is that there is a lack of signage. Most trail users do not know who owns the lands that are being used for recreation. With ATV grant funding and landowner permission, HRC has purchased property boundary markers and is marking boundaries where trails cross onto adjacent lands. User group designation stickers are also to be placed

on the markers. Although this is just an initial effort, most landowners agree that some type of active trail system management should continue into the future.

Volunteer Efforts

Until recently, the entire recreational trail system had been built, supported and maintained by numerous volunteers. Without volunteer participation, the system would not exist nor would it be able to continue. Volunteers have been responsible for building new trails, maintaining existing trails, installing signage and doing seasonal trash clean-ups. Most of the grant funding that the County has received in the past and will receive in the future will require some level of in-kind service match. A large portion of the match will be fulfilled through volunteer efforts. The system cannot survive without the continued participation and support of volunteers.

Funding and Assistance

It is not possible to build a trail system infrastructure, carry out a trail system maintenance program, or be assured of essential law enforcement patrols unless annual funding sources can be secured. At the present time HRC cannot provide funding for recreation trails. Fortunately, the County has been able to acquire monies to satisfy needs for the first four years of system development, management and law enforcement. It is necessary to continually investigate future grant funding sources.

The OPRD administers the ATV Grant Program. The program provides annual funding for motorized trail projects. A percentage of grant funds come from taxes generated from the sale of gasoline in Oregon and a percentage comes from the sale of ATV permits. Grant applications can be submitted once per year for operations and maintenance, and law enforcement, and four times per year for development. The HRCFD administered an ATV Development Grant during 2007-2008 to create a trails system infrastructure for the Northwest Area. A second Development Grant was administered in 2008-2009 to create a motorized staging area and a 10 mile loop trail system in the East Area.

The HRCSD began administering their third ATV Law Enforcement grant on July 1, 2009. These grants provide for law enforcement trail patrols on HRC property and on adjacent lands as long as permission is granted by landowners. This is an effective way to educate users of rules and regulations associated with OHV recreation while protecting the physical components of the trail system.

The NPS has been a valuable source of assistance for trail system development. HRCFD submitted a technical assistance grant through the NPS RTCAP. NPS guided HRC in the development of its TSMP. HRC was able to qualify for NPS end-of-year funds in late 2007. The funds were used to purchase signage for a portion of HRC's non-motorized trails. Because HRC was being assisted through the RTCAP they were allowed to submit a grant application through the NPS Challenge Cost Share Program. The grant was approved and

Provided funds to HRC to make improvements in safety, natural resource protection, and visitor services primarily on non-motorized trails. The grant was administered during 2008-2010.

Hood River Soil and Water Conservation District acquired grant funding through the Oregon Watershed Enhancement Board for natural resource protection and recreation trail related improvements along a section of Post Canyon Road. HRC and OPRD worked with HRSWCD to administer this grant during 2008 and 2009. Improvements were made to a parking area on OPRD property and to a portion of Post Canyon Road that runs through the middle of the area. Barriers were placed to protect a fish-bearing stream, and reduce erosion on adjacent road-side cut-banks. Drainage improvements were made to the road and parking area and an informational kiosk was installed. The Seven Streams Trail runs adjacent to the staging area, is one of the most heavily used recreation trails in the Northwest Area, and runs onto adjacent HRC property.

OPRD administers the Recreation Trail Program. The program provides funds for non-motorized and motorized trail projects. In 2006 approval was granted to fund the rerouting of a large portion of the Seven Streams Trail on HRC property. This protected the stream environment by placing the trail farther from Post Canyon Creek (fish-bearing) and by reducing the number of creek crossings. The grant also provided for the construction of two new equestrian-friendly bridges. OWEB also contributed grant monies for this project.

In the future, the County plans to add a line item to the HRCFD Budget that specifically addresses the needs of the growing recreation community. Since outdoor recreation has a certain value and is potentially a source of revenue, there is a need for HRC dollars to be available to assist in its support.

Soils

HRC has about 30 different kinds of soil. These soils occur on a wide range of slopes, many of which are quite steep. Knowledge of soils is needed in planning, developing, and maintaining areas used for recreation. Soil types and slopes have been analyzed for their erodability and potential for various uses, including recreation in the *Soil Survey of Hood River County Area*. The risk of soil loss is enhanced with increased slope and lack of vegetation. Additionally, some soil types are more prone to compaction than others. Generally, trails should not be constructed in areas that have limitations such as steep slopes, flood hazard, a seasonal high water table, or low bearing strength. These limitations generally require major soil reclamation, special design, or intensive maintenance.

Design and layout of paths and trails should require little or no cutting or filling. Soil features affecting this use are wetness, flooding during season of use, slope, surface texture, dust, rock outcrop, and number of pebbles, cobbles, or stones on the surface (US Department of Agriculture, 1981).

In keeping with the guidelines for trail construction and maintenance outlined in the HRC Recreation Trail Management Plan (Appendix B), efforts will be made to

minimize development of trails on slopes greater than 20%. Additionally, soil type, soil texture, seasonal flooding and proximity to waterways will be taken into consideration with each new trail developed. These characteristics will also be considered when maintaining, restoring or decommissioning existing trails.

Invasive Weeds

Roads and trails are known to harbor disproportionately more invasive plant species than surrounding habitats (Trombulak, 2000). While vegetation and soil damage can often be reversed after several years, invasive plants are difficult to eradicate once established. Also, while damage to soils and vegetation is often localized, invasive species often spread beyond points of colonization (Rooney, 2005). An additional reason for concern is that the trails addressed in this Master Plan are on HRC land which is actively managed timberland. An outbreak of invasive weeds could be devastating for the growth and establishment of commercial timber. Therefore, the spread of invasive plant species deserves attention as a potential environmental impact associated with trails.

Reducing the threat of invasive species requires identification and understanding of the ways humans facilitate their transport to and establishment in new areas. Many invasive weeds are able to reproduce and spread via seeds and vegetative fragments. Both seeds and plant parts can easily be transported from one area to another via horses, horse feed, bicycles, ATVs, OHVs, shoes, wildlife, wind and water. Trails offer the perfect conditions for weed spread because many, if not all, of these transport vectors use the trails and often visit other areas before traveling on these corridors. In this way, new plants are introduced from outside areas and then quickly spread along recreational trails (USDA Forest Service, 2004).

To prevent the introduction and spread of invasive plants in the HRC Forest, the following best management practices will be employed in the management of recreational trails.

- An effort will be made to educate trail users on identification of potentially invasive weeds. If a weed is spotted, the HRC Weed and Pest Division will be notified of the weed's location. Detection and eradication of small patches of weeds will be the first approach to preventing infestations.
- The disturbance of desirable native plants along trails, roads, and waterways will be minimized. When trails are built or decommissioned, reestablishing native vegetation will be a part of the Management Plan. Where possible, these sites will be monitored and native plants will be cared for to ensure survival.
- Equestrians will be encouraged to use pellet feeds or certified weed-free hay on the trails in lieu of hay which could contain weed seed.
- Machinery and imported materials used in construction and maintenance of trails should be free of weed seeds. This requires washing of machinery prior to entry and if moved from one site to another. Any imported materials (rock, soil, mulch, etc.) should come from approved weed-free sources.

Oak Woodland Habitat

Oak woodlands are characterized by an open canopy dominated by Oregon white oak. Oak woodlands may also have Ponderosa pine and Douglas fir. In general, the under story is relatively open with shrubs, grasses and wildflowers. Oak habitats are maintained through fire, which removes small conifers and maintains a low to moderate shrub cover. In the Hood River Valley, oak woodlands are located at the transition between Ponderosa pine and mixed conifer forests in the mountains, and the shrub lands or grasslands to the east. Oak habitats are very important to a variety of wildlife and rare plants (Oregon Dept. of Fish & Wildlife, 2006).

As a result of conifer plantings and changes in fire frequency and intensity, Douglas fir now dominates in many areas once inhabited by oaks. Oregon white oaks are slow-growing and intolerant of shade. Open-canopy, large-diameter trees continue to be lost due to over-shading by conifers, natural causes, intentional removal, and absence of replanting.

The loss of oaks is particularly concerning because oaks provide food and shelter for a great variety of wildlife. Acorn woodpeckers and western gray squirrels feed on the acorns. Birds forage for insects among the variety of lichens and mosses that grow on the large limbs. Mistletoe parasitizes its branches, providing fruit as important winter food for western bluebirds and is a host plant for Nelson's hairstreak (butterfly). Probably the most valuable habitat features of white oak are its dead branches and cavities, which provide safe places for wildlife to rest and raise young. For these reasons, the Oregon Department of Fish & Wildlife has identified the Oregon oak woodland as a priority habitat for conservation (Oregon Dept. of Fish & Wildlife, 2006).

Due to the sensitive nature of wildlife that inhabit oak woodlands, recreational activities in oak woodlands should be restricted to non-motorized use, and in some cases, new trail construction will not be allowed in these habitats. Areas known to have oak woodland habitat include the west side of Middle Mountain and many southeast slopes in the East Area of HRC land. Please see the Area maps and recommendations sections of this Master Plan for more details on specific use restrictions.

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General Trail Area Considerations

General Objectives

The following objectives apply to all trails on HRC land. The primary purpose for the HRC Forest is the production and sale of timber. No activity authorized by this Master Plan shall be allowed to limit the County's ability to manage its forest. Recreation trail development activities will not be allowed to cause a reduction in the number of tree seedlings per acre in units being reforested or a reduction in the merchantable value of trees. All HRC trail system development and management proponents should

- Work with the USDA Forest Service, OPRD and private landowners to use lands that are adjacent to and within the Columbia Gorge National Scenic Area for staging, official recognition of trail routes, and installation of signage. Acquire LOAs for the management of trails or purchase of trail easements on private lands. If LOAs are not possible an attempt will be made to re-route trails onto HRC land.
- Establish a maximum trail density of 4.5 miles per square mile in the Northwest Area and 4.0 miles per square mile in the Middle Mountain, East and South Areas (trail density calculations do not include forest road mileage). Work to reduce the amount of trails in sections that currently exceed the maximum. Future trail construction will not be allowed in Areas exceeding the maximum density unless the development proponents propose to decommission a trail or trails in that Area equal to one and a half times the length of the proposed trail or unless the proposed routes are deemed absolutely necessary for the functioning of the trail system. Decommissioning will take place prior to construction.
- Generate a Harvest Plan Report. The report will be a prediction of when certain locations will be logged and can aid in making decisions regarding the most appropriate areas for new trail construction and re-routes. Where possible, new trail construction will be targeted for areas that will not be logged for many years.
- Analyze the need for staging/parking areas and the extent of development required. There will be two levels of development:
 - 1) Primary Level will consist of some or all of the following: a kiosk, graveled parking area, a loading/unloading ramp, perimeter barriers consisting of either fencing or barriers constructed of rocks, and a vault toilet.
 - 2) Secondary Level will consist of some or all of the following: a kiosk, and native surfaced parking area.
- Inventory and analyze routes for flow, sustainability, dead-ends, trail density, and need for loops. Decommission and/or re-route or construct trails where appropriate. Do not exceed the trail density standard established for each Area unless deemed absolutely necessary for the proper functioning of the system.

- Explore the feasibility of constructing a loop trail (“Valley Loop Trail”), connecting the City of Hood River, the Northwest Area, Middle Mountain, and the East Areas of HRC land.
- Install trail signage throughout the system to help users determine their location and trail use designations, and facilitate emergency services operations.
- Create separate motorized and non-motorized maps for the trail system. The maps will show identical ground based features but will be geared towards different types of users. Maps should clearly delineate appropriate use designations, show trailheads, and provide important rules, regulations, and emergency contact information.
- Delineate trails that are appropriate for equestrian use.

General Management Practices for Fish & Wildlife

Generally speaking, certain management practices should be employed in those areas identified as important fish and/or wildlife habitat.

If not constructed properly, roads and trails can become conduits for water and sediment to be carried into natural waterways. In areas where fish-bearing waterways (including intermittent or seasonal drainages) are present, an effort will be made to:

- Eliminate all existing stream fords (crossings without bridges). These crossings will be replaced with alternate routes (not requiring stream crossings) or bridges where the crossing is deemed necessary by the FRTC.
- Avoid constructing new stream crossings.
- Avoid new trail construction within 100 feet of streams.
- Design appropriate drainage structures on approaches to stream crossings to minimize sedimentation.
- Use grade changes of trails to facilitate proper drainage and minimize rutting.

Trail maintenance is a very important component of minimizing impacts to fish and wildlife. As outlined in the Forest Recreation Trails Management Plan (see Appendix B) each trail will be assigned a trail adopter who will maintain the trail in such a way as to “minimize adverse impacts to water, fish, wildlife, soils and other natural resources.” Problem areas will be repaired or decommissioned and restored to natural conditions.

Where sensitive wildlife species and/or habitat exist, an effort will be made to minimize motorized use and keep trails to areas of existing disturbance (i.e. roads or existing trail corridors). Studies have shown that motorized users have a more profound effect on disturbing sensitive species than non-motorized users (Wisdon, Preisler, Cimon, & Johnson, 2004). For this reason, motorized use is especially restricted in areas where sensitive species exist.

Several local and regional agencies and organizations are working to conserve remaining fish and wildlife populations through habitat protection and

restoration projects. In keeping with this effort, this Master Plan sets forth measures for fish and wildlife protection with regards to trail development, use and management on HRC Forest lands. See the trail Area maps and recommendations in this plan for information on specific use restrictions in each Area.