

Public notice of this proposed action was originally published in the Eugene Register-Guard on August 15, 2012 for a 30-day public comment period that ended on September 14, 2012. As stated in a public notice published in the Eugene Register-Guard on September 19, 2012, the public comment period is extended to October 4, 2012.

Comments must be submitted in writing to the BLM, Field Manager, Siuslaw Resource Area by close of business (4:30 p.m.) on or prior to September 14, 2012. Comments may be delivered using one of the following methods:

Delivery to site address (Note: DO NOT send mail to this address):

3106 Pierce Parkway, Suite E
Springfield Oregon

By mail:

Bureau of Land Management
P.O. Box 10226
Eugene, Oregon 97440

By e-mail:

BLM_OR_EU@blm.gov

Comments, including names and street addresses of respondents, will be available for public review at the Eugene District office, 3106, Pierce Parkway, Suite E, Springfield, Oregon, during regular business hours (8:00 a.m. to 4:30 p.m.), Monday through Friday, except holidays, and may be published as part of the EA or other related documents. Individual respondents may request confidentiality. If you wish to withhold your name or street address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your written comment. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses and from individuals identifying themselves as representatives or officials of organizations or businesses will be made available for public inspection in their entirety.

If you have any questions concerning this proposal, please call Wade Judy at (541) 683-6457.

Some portions of this document may not be 508 compliant.

**United States
Department of Interior
Bureau of Land Management**

**Eugene District Office
Siuslaw Resource Area**

**Carpenter Bypass Non-Motorized Trail and Gravel Parking Lot Construction
Environmental Assessment Number DOI-BLM-OR-E050-2012-003-EA**

August 15, 2012

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INTRODUCTION

The Siuslaw Resource Area is considering the designation, establishment, and maintenance of the Carpenter Bypass non-motorized trail system located within the administrative unit of the Bureau of Land Management (BLM), Eugene District in Oregon. The location for present or future trail establishment would occur on BLM-managed lands in Township 20 South, Range 5 West, Sections 23, 27 and 35. This Environmental Assessment (EA) analyzes the effects of alternatives for the proposed action. This proposed action only addresses management of trails on BLM-managed lands and does not address any trails on private land in the vicinity of the trail system. An assessment provided by the International Mountain Bike Association (IMBA) and Federal Equestrian Guidelines are used to designate trails in this EA.

Background

The Carpenter Bypass Road area has become a popular destination for the non-motorized travel community, most notably, mountain bikers. What started approximately 15 years ago as a relatively unknown trail system that a few locals utilized has today become a well-known recreation opportunity enjoyed by large groups and individuals from the local and regional mountain biking public. Other users include trail runners, hikers and some local equestrian users. The proximity of this trail system to the Eugene/Springfield area lends itself as an outstanding recreation resource, and provides the public with a high quality, all-season trail experience, filling a critical need in the area.

Partnership

On May 6, 2010, representatives from a collection of community-based, mountain biking club organizations met with representatives of the BLM to discuss the possible designation of the existing trail system within the Siuslaw Resource Area. During this and subsequent interaction, the BLM expressed a desire to develop a partnership, based on mutually-agreed upon goals and objectives, for the continued current and future use of the trail system. The BLM and the Disciples of Dirt (DOD), a 501(c)(3) non-profit group, developed and signed a Memorandum of Understanding, which includes the long-term maintenance agreement for the trail system between the BLM and DOD, with the DOD providing a volunteer work force.

Sustainability Assessment

During the summer of 2011, in order to evaluate the current condition and long-term sustainability potential of the trail system, BLM personnel worked with the International Mountain Biking Association's (IMBA) Trail Solutions team to complete a sustainability analysis. The assessment included both social sustainability (patterns of user behavior and potential conflict) and environmental sustainability (the ability of the trail to handle current and expected use without intensive maintenance).

Evaluating environmental sustainability of trails is based on several factors including:

- Prevailing slope to trail grade alignment ratio
- Absolute trail grade
- Canopy cover and adjacent vegetation
- Soil type and rock content
- Current tread condition (widening, muddiness, etc.)
- Level of anticipated use

Applying these factors, the assessment found that a few segments were unsustainable. Poor alignment and lack of proper drainage were found to be the primary drivers of undesirable trail conditions.

The Trail Sustainability Assessment is included in the Appendix. The assessment includes a map color-coded map to provide information on the sustainability of the trail system by trail segment (see map 1 in the appendix). For example, a green color for a particular trail segment defines it as having a sustainable alignment and is in generally good condition. A yellow trail segment can be made maintainable after restoration within the existing trail corridor. A red trail segment is one that cannot be made sustainable or maintainable, and would need to be relocated or reconstructed.

PURPOSE AND NEED FOR ACTION

The purpose of the action is to formally designate the existing trail system network in the Carpenter Bypass area as non-motorized and to improve, re-route, and newly construct mountain bike trails. Mountain bike trail improvements and new construction would follow the guidelines in the assessment provided by the International Mountain Bike Association (IMBA). Equestrian trails would be assessed based on federal equestrian guidelines. The purpose of the action is to also construct a parking lot for visitors to utilize, and to install a toilet to provide much needed sanitation facilities for visitors to the Carpenter Bypass trail system.

Trail designation is necessary to ensure trail use occurs on established and designated trails so that there would be an associated decrease in trail braiding and trail migration. The parking lot would provide a safe and secure parking area for visitors to the Carpenter Bypass area and is necessary because there is currently no designated parking area for visitors to use while loading and un-loading gear. The installation of a toilet to provide sanitation facilities is needed because the surrounding forest area is currently being used for deposition of human waste, leading to unhygienic conditions.

The need is also established in the Eugene District RMP (1995) (page 80-81). The RMP states “continue to provide non-motorized recreation opportunities and create additional opportunities where consistent with other management objectives; provide a wide range of developed and dispersed recreation opportunities that contribute to meeting projected recreation demand within the planning area, and support locally sponsored tourism initiatives and community economic strategies by providing recreation projects and programs that benefit short and long-term implementation”.

Management direction from the Eugene District RMP (1995, page 83) “encourages the continued operation and maintenance of developed recreation sites/facilities and developed trails. Some sites/facilities and trails could be maintained and managed through partnerships or agreements with other agencies or groups. New sites/facilities and trails could be developed as funding becomes available. Develop these facilities and trails to minimize adverse effects to other resource values”.

Decision Factors

In choosing the alternative that best meets the purpose and need, the Siuslaw Resource Area Field Manager will consider the extent to which each alternative would:

- Effectively address current and future recreation demand within the BLM Eugene District Siuslaw Resource Area.
- Provide recreational opportunities by designating trails that would control unauthorized use and reduce the risk of resource degradation.
- Minimize impacts to the environment through appropriate project design features.
- Promote the ability to utilize existing volunteer resources and strong partnerships to maintain, improve and construct trails.
- Reflect current and future budget availability.

Land Use Planning Conformance

This project is in conformance with the Eugene District’s 1995 RMP, as amended.

PROPOSED ACTION AND ALTERNATIVES

This section describes the No Action alternative (Alternative 1) and two Action alternatives. Alternative 2 considers designation of trail for mountain bike use, and use by trail runners and hikers on approximately 18.8 miles of existing trail, and also considers approximately 10 miles of new mountain bike trail construction. Alternative 3 considers equestrian trail designation in addition to what is being considered in Alternative 2.

Description of Alternative 1: No Action

The no action alternative is a continuation of current environmental conditions and trends. It is a continuation of the existing situation, and would not implement any of the management actions proposed under Alternatives 2 or 3. This alternative would not allow for the construction of new trails, the re-routing of existing trails in the project area, or the designation of legitimate recreation opportunities. Periodic maintenance of the trail network on BLM-managed lands, based on the current MOU, would continue to occur. No re-alignments or new sections of trail would be constructed, and the recommendations from the IMBA assessment would not be implemented. No parking lot would be constructed along Carpenter Bypass Road. No toilet would be installed. The no action alternative also serves as a baseline for evaluating the environmental effects of the proposed action alternatives.

Approximately 4.7 miles of gravel roads that exist in the planning area meet federal equestrian guidelines, and would remain open for equestrian use (see map 3 in Appendix). These roads are currently open and available for equestrian and other recreational use throughout the year.

Description of Alternative 2

Alternative 2 analyzes the improvement and rehabilitation of trails on approximately 18.8 miles of non-motorized trail on BLM-managed lands (see map 1 in Appendix) and approximately 10 miles of new mountain bike trail construction. Utilizing the IMBA sustainability assessment, the BLM would implement recommendations via an established partnership with a local mountain bike association. In addition to periodic maintenance of the trail network, trail re-route, rehabilitation, or closure of trails, and construction of approximately 10 miles of new trails would occur. These actions would occur to preserve the long-term environmental and social sustainability of the identified trail segment. The trail system would be designated for non-motorized travel only, including mountain bikes and foot traffic.

The current MOU with the Disciples of Dirt (DOD) would be updated to reflect a long-term maintenance agreement. The Disciples of Dirt (DOD), in partnership with the BLM, would improve and maintain trail in accordance with mountain bike trail standards. The BLM would construct a gravel parking lot, and install a concrete vault restroom at the parking lot location (see design in Appendix, page 14). The parking lot would not be designed to accommodate equestrian horse trailers. Informational kiosks and signage would be installed at the parking lot and various locations in order to educate, inform, and orient users of the trail system.

All user groups would continue to utilize informal parking area pullouts along gravel roads and Carpenter Bypass Road, which afford access to different areas of the trail system.

Approximately 4.7 miles of gravel roads that exist in the planning area meet federal equestrian guidelines, and would remain open for equestrian use. These roads are currently open and available for equestrian and other recreational use throughout the year.

Description of Alternative 3

Alternative 3 analyzes the improvement and rehabilitation of mountain bike trails on approximately 18.8 miles of non-motorized trail on BLM-managed lands (see map 1 in Appendix) and approximately 10 miles of new mountain bike trail construction. In addition, this alternative analyzes the designation of 2.4 miles of the existing 18.8 miles of trail for equestrian use. Utilizing the IMBA sustainability assessment, the BLM would implement recommendations via an established partnership with a local mountain bike association to perform periodic maintenance of the trail network, trail re-route, rehabilitation, or closure of trails, and construction of approximately 10 miles of new mountain bike trails. The 2.4 miles of trail designated for equestrian use would not be maintained by the mountain bike groups; however this section may require minimal maintenance since the equestrian trail is being designated on decommissioned gravel roads. The actions would occur to preserve the long-term environmental and social sustainability of the identified trail segment.

The 2.4 miles of equestrian trails that would be designated are in accordance with federal equestrian trail use guidelines and would meet the requirements of federal guidelines (see map 2 in the Appendix). Trail re-routing, construction, or maintenance needed to bring any trail sections into compliance with federal equestrian trail use guidelines would not occur at this time as established partnerships and funding are not available or in place for any needed improvements.

Approximately 4.7 miles of gravel roads in the planning area meet federal equestrian guidelines, and would remain open for equestrian use. These roads are currently open and available for equestrian and other recreational use throughout the year.

The BLM would construct a gravel parking lot, and install a concrete vault restroom at the parking lot location. The parking lot would allow for equestrian trailer parking in the overflow parking area as depicted (see design in Appendix, page 15). Further, the parking lot would be expanded on the south end to accommodate for equestrian trailer parking. Informational kiosks and signage would be installed at the parking lot and various locations in order to educate, inform and orient users of the trail system.

All user groups would continue to utilize informal parking area pullouts along gravel roads and Carpenter Bypass Road, which afford access to different areas of the trail system.

PROJECT DESIGN FEATURES

Mountain Bike Trail Construction Guidelines to Protect Resources

Sustainable trail design: Mountain Bike Trail design in the Carpenter Bypass area would allow for a high quality trail experience for users, while protecting sensitive cultural and natural resources. A sustainable trail balances many elements, addressing both environmental and social impacts. It has very little impact on the environment, resists erosion through proper design, construction, and maintenance, and blends in with the surrounding area.

A sustainable trail is designed to provide enjoyable and challenging experiences for visitors by managing their expectations and their use effectively. Ideally, each trail is designed, constructed, and maintained to meet certain specifications.

These specifications are based on the recreational activities the trail is intended to provide, the amount of use, and the physical characteristics of the land. Sustainable trail principles incorporated in any improvement or new construction on the trail system include sustainable trail alignment, sustainable grade, grade reversals, out sloping, minimizing user-caused soil displacement, and regular maintenance.

Proposed trail corridors: Proposed trail alignments provide corridors within which a trail can be constructed or improved. Corridors were designed with sufficient width to accommodate minor alignment adjustments to facilitate construction and meet experience goals within environmental constraints. It should be assumed that trail corridors are 25 feet in width from either side of the center alignment of the existing route. Useable trail width for mountain bikes is approximately two to three feet.

Project Design Features for Mountain Bike Trails for Alternatives 2 and 3

The following Project Design Features (PDFs) are included in the design of the trail system, and would be implemented in the proposed action unless otherwise specified.

- **Timing of Work** Trail work would most likely begin in the late summer or fall of 2012 and continue for the next several years.
- **Trail re-route, improvement, and new construction** would only be conducted during dry periods to minimize run-off of loose soils.
- **Construction Techniques** would be performed using a SWECO (trail dozer), and/or hand tools including but not limited to pulaskis, McLeods, digging bars, shovels, hack saws, pruners, etc. Smaller motorized equipment such as chainsaws may also be used if necessary in compliance with any wildlife and/or fire restrictions. To help prevent the spread of noxious or invasive weeds, all tools will be cleaned before entering the project area for construction and maintenance activities.
- **Sustainable trail development** would occur within the planning area. Trail design would allow for a high quality experience while protecting sensitive cultural and natural resources.
- **10 percent average trail guideline:** The average trail grade for any given trail network would not exceed 10%.
- **Out slope and grade reversal guideline:** Trail out slope of 10% or greater would be implemented to facilitate proper drainage.

- **Half rule guideline:** Trail grade or steepness would not exceed half the grade or steepness of the hillside.
- **Trail reconstruction and realignment** would be utilized for poorly aligned existing trails when necessary.
- **Vegetation removal:** Trail design minimized vegetation removal through route designation. No vegetation over 11 inches in diameter would be removed as part of the trail construction process. It is expected that any tree felling would be kept at a minimum, if any at all.
- **Trail Brochures** would be developed for all planned routes stressing trail etiquette and Tread Lightly principles.
- **Trail Signage** would be placed where appropriate.
- **Trail Closures** would be clearly posted and other relevant regulatory information would be available through a variety of channels including brochures, web-based outreach and partnerships.
- **Soil Removal** from trail beds will be hauled (via bucket or wheelbarrow) to a location outside identified sensitive areas to not allow soil migration into any stream channels.
- **Stream Crossings** if present would be well armored with rock to allow crossing without silting the water or obstructing water flow. Where needed, appropriate structures (e.g. bridges, boardwalks) would be constructed.

Approaches to stream crossings (side hills within each drainage) would be designed to reduce grade and potential for erosion (by roughly maintaining contour where possible), routing approaches at more durable locations where possible, and building crib walls where necessary to stabilize the downhill side of the trail and prevent trail sloughing.

Special Status and Survey and Manage Botanical Species

- **Reroute trail segment 67** to include avoidance of the *Cimicifuga elata* site.
- **Botany Surveys:** Conduct surveys for botanical resources on any new segments to be constructed, generally during May 15 to September 1, for vascular plants.

Noxious and Invasive Weeds

- **Weed surveys:** Survey any new segments to be constructed. Monitor existing trails for newly established weeds on a periodic basis.
- **Weed treatments:** Treat sites of shade-tolerant weeds, particularly the false brome and herb Robert sites.
- **Ensure trail maintenance crews** treat noxious weeds with manual methods as possible depending on weed identification skills of crews, and clean trail maintenance tools, and equipment before arrival on BLM lands.
- **Sow native grass seed** on bare ground areas as appropriate, after parking lot construction and trail maintenance operations have been completed.
- **Encourage trail users** to remove mud and seeds from footwear and bicycles to reduce weed spread before arriving in the area.
- **Overstory trees:** To preclude an increase in light and consequent weed growth, removal of overstory trees during trail maintenance would be avoided and trees larger than 11 inches diameter at breast height (dbh) would not be removed.

Wildlife

- If tree removal cannot be avoided, felling would be extremely minimal and trees would not exceed 11 inches in dbh. Any trees felled would be left on site as coarse woody debris to benefit wildlife species.

Equestrian trail designation guidelines to protect resources and to maintain safety

The following Engineering Standards for Equestrian Trails for safe shared-use are noted in numerous guidebooks. The following guidelines were taken from the federal document, Equestrian Design Guidebook, USDA:

http://www.fhwa.dot.gov/environment/recreational_trails/publications/fs_publications/07232816/toc.cfm

- Adequate sight distance and alignment. This is critical in approaching bicyclists. Constrained areas recommend minimum sight distance of 50 feet with 100 feet preferred.
- Adequate room when two horses meet and maintenance of adequate space for passing each other.
- Day-use trails would be 5 to 25 miles in length. No shorter than 5 miles.
- Adequate water source for animals.
- Trail overhead clearance minimum 10 feet.
- Trail horizontal clearance is a tread width of 1.5 to 2 feet plus 2 to 3 feet each side, which gives total trail width of a minimum 5.5 to 8 feet.
- Alignment should have no sharp turns and a radius of 5 to 6 feet is recommended around turns.

Trail slope for 90% of the entire trail should be less than or equal to 10% grade with exceptions of 20% grade for no more than 200 feet based on any soils, hydrological conditions, use levels, and any other factors that contribute to surface stability and erosion potential.

Trail slope, distance, width, horizontal clearance, sight distance, and turning radius are important elements for horses. Design parameters for mountain bikes differ from that of equestrian use.

Criteria used to identify 2.4 miles of equestrian trail in Alternative 3

The following criteria were used to identify equestrian trail use on the 18.8 miles of trails that were assessed by IMBA:

- Horse trails not to exceed 10% steepness in slope, particularly given the silty/clay substrates found in this area that are prone to compaction, erosion and sedimentation to streams (Tabor, et al. 2007).
- Alignment would have no sharp turns. Radius of 5 to 6 feet for low development.
- Trail overhead clearance minimum 10 feet for low development.
- Evaluation of slope for horse use. The following table illustrates the number of segments of inventoried trail that have average slopes >15% and those that might exceed 0% but be <15%. The data is from the IMBA assessment. There are about 70 segments which were deemed unsuitable for horses according to slope requirements from federal guidelines for equestrian use and the silty/clay substrates found in this area. Many of these segments are connector segments which would close off horse access to much of the trail system.

Table 1: Trail segments with a grade from 0% to 15% and more than 15% grade from the IMBA report.

Segment Number	Approximate range of grade 0% to 15%	Segment Number	Approximate range of grade >15%
11	5-15	5	30-40
20	5-15	8	10-20
23	5-15	14	10-20
25	5-15	15	25-30
26	5-15	16	10-20
27	5-15	17	15-25
41	5-15	19	10-15
44	5-15	21	30-40
54	5-15	31	10-20
55	5-15	32	10-20
72	5-15	35	10-20
78	5-15	40 close	15-30

Segment Number	Approximate range of grade 0% to 15%	Segment Number	Approximate range of grade >15%
81	5-15	46	15-20
90	5-15	48	10-25
92	5-15	49	10-20
95	5-15	56 close	10-30
98	5-15	58	10-20
101	5-15	65	15-20
107	5-15	66	10-20
108	5-15	67	25-35
109	5-15	71	25-30
110	5-15	76	10-20
133	5-15	80	20-35
136	5-15	82	10-25
138	5-15	87	10-20
141	0-15	88	10-20
144	0-15	91	15-25
146	5-15	96	25-35
159	5-15	97	15-25
168	5-15	103	25-35
		114	15-25
		120	25-35
		122	20-30
		139	20-30
		140	20-40
		145 close	15-35
		153	15-25
		156	10-20
		158	20-30
		163	10-20

- Guidelines for equestrian trails include a minimum of a 5 mile loop up to 25 mile loops of trail. There would not be any substantial loops available for horse use given the steep topography of this trail system. The total mileage of trail that is being designated is approximately 18.8 miles; there are about 10 miles of new trail being considered for mountain bike use as well. Removing the segments with steep slopes prone to soil displacement and erosion from horse use will substantially limit where horse use would be permitted. Many of the trails have steep connectors which would be unsuitable for horse use.
- Average width of the trails is currently 18 to 24 inches and the majority of trails are single track. The majority of trails do not meet the 5.5 to 8 foot (66 to 96 inches) width required for horses. Many segments of the trail have trees growing next to the trail with limited horizontal clearance. In some cases, the adjacent stands are old growth trees which give a recreational experience that is unique to the trail; however, they are in conflict with the horse trail engineering guidelines that recommend a clearance of 5.5 to 8 in some of the areas. Of the 18.8 miles of trail being considered, there are some dirt and gravel roads that are double tracked and meet the engineering guidelines for horse trails. Approximately 2.4 miles of equestrian trail designation has been considered in Alternative 3. Currently, the width of the majority of the trail does not meet the engineering principles or standards to accommodate horse use.
- Line of sight that is required for horses is not adequate on these trails. Equestrian trail guidelines of 50 to 100 feet for line-of-sight is not appropriate for this landscape. Approaching horses or bikes may suddenly appear on the trails and be a safety issue.

Approximately 2.4 miles of IMBA-surveyed trail do meet federal equestrian trail guidelines.

Project design features for equestrian trails in Alternative 3

Noxious and Invasive Weeds

- **Weed surveys:** Monitor existing trails for newly established weeds on a periodic basis.
- **Weed treatments:** Treat sites of shade-tolerant weeds, particularly the false brome and herb Robert sites.
- **Trail maintenance crews** would treat noxious weeds with manual methods depending on weed identification skills of crews, and would clean trail maintenance tools and equipment before arrival on BLM lands.
- **Sow native grass seed** on bare ground areas as appropriate, after parking lot construction and trail maintenance operations have been completed.
- **Encourage trail users** to remove mud and seeds from horse hooves to reduce weed spread before arriving in the area.
- **Overstory trees:** To preclude an increase in light and consequent weed growth, avoid removal of overstory trees during trail maintenance.
- **Weed free forage** is required on Oregon BLM lands. Anyone possessing, using, or storing hay, hay cubes, straw, and mulch must have proof of weed-free certification or be subject to fine.

AFFECTED ENVIRONMENT

Alternatives

Only substantive site-specific elements possibly affected by the proposed action or no action alternatives are discussed in this chapter. If an element of the human, cultural, or natural environment is not discussed, BLM has determined that implementation of either management alternative will have no relevance to that element. The following elements were found to be unaffected by the proposed action or no action alternatives because of alternative design or the absence of the element within the area of potential environmental impact: air quality, areas of critical environmental concern, environmental justice, farmlands, floodplains, wild horse and burros, wild and scenic rivers, and wilderness areas. These elements have been dismissed from further analysis. Resources considered for analysis of direct and indirect effects include recreation/visual resources, soils/hydrology, botany, fisheries, wildlife, cultural (heritage) resources, and the cumulative effects of implementing either action alternative. The trails being analyzed in this EA are currently being used by mountain bikers, hikers, trail runners, and equestrian users.

Recreation and Visual Resources

Non-motorized recreation opportunities, Eugene District BLM, Siuslaw Resource Area: Current management condition

The BLM Siuslaw Resource Area utilizes BLM-funded recreation program labor and materials along with contracted labor, for example Northwest Youth Corps, and other resources to manage and maintain the following non-motorized trail systems:

Hiking/Trail Running

Recreation uses in the Siuslaw Resource Area include a variety of non-motorized recreation opportunities within a relatively short drive from the Eugene/Springfield area. Highly-accessible, "close-in" walking trails were constructed and are now maintained on BLM-managed lands in the West Eugene Wetlands. Hiking trails have been constructed and managed proximal to Whittaker Creek and Clay Creek campgrounds.

Equestrian

In the fall of 2009, through a community driven proposal and consultation with local equestrian organizations, the BLM constructed several miles of new trail in the Upper Lake Creek Special Recreation Management Area. In addition to the trail construction, other associated amenities were installed, including hitching posts, corrals, informational kiosk, and concrete vault restroom.

Mountain Biking

Currently there are no designated, non-motorized trail systems designed and maintained for the mountain biking community within the BLM Siuslaw Resource Area.

Low elevation non-motorized trail opportunities

There are other non-motorized trail opportunities provided by a variety of recreation providers within a 50 mile radius of Eugene/Springfield. In addition to several hiking/foot traffic trails, the following table reflects areas utilized by the Mountain Biking and Equestrian communities:

Table 2 - Regional Opportunities

Mountain Biking	Equestrian
Eugene Ridgeline Trail (City of Eugene)	Row River Trail (Bureau of Land Management)
North Shore Trail (Corps of Engineers)	Hult Reservoir Trail (Bureau of Land Management)
Goodman Creek (U.S. Forest Service)	Elijah Bristow (Oregon State Parks)
	Hardesty Mountain (U.S. Forest Service)
	Mt. Pisgah, Howard Buford (Lane County)
	Goodman Creek (U.S. Forest Service)
	North Shore Trail (Corps of Engineers)
	Mildred Kanipe Memorial Park

Non-Motorized Recreation Opportunities, Carpenter Bypass Trail System

In recent years, an area of BLM-managed lands near the entrance to Carpenter Bypass Road has developed into a well-known destination for the non-motorized travel community, principally mountain bikers. What started approximately 15 years ago as a relatively anonymous trail system has today become a recreation area utilized by large groups and individuals from the local and regional non-motorized recreation community. In addition to mountain biking, recreational uses on BLM lands within the project area include hiking, trail running, equestrian, nature study, and dog walking. Typical of a rural-urban interface area, unauthorized recreation use on both public and private property in the area has been observed. The majority of this use is concentrated along “user” created trails in the project area.

Visitor Utilization at Carpenter Bypass by Activity

Equestrian

Currently, minimal equestrian use of the identified trail system occurs. Historical use is from local residents of the area who access parts of the trail from their homesteads, on a mostly seasonal basis (approximately April through October). In terms of trail system use, this activity represents a small percentage (approximately 1%) of overall usage at this time.

Hiking and Trail Running

Running groups and individuals from the local and regional area have utilized the trail system as a viable option for trail running. Individual hikers utilize Carpenter Bypass for the day hike experience, to walk their dogs, etc., on a year-round basis. In terms of overall trail system use, hiking/walking for pleasure and trail running for physical fitness represents a small percentage of usage at this time (approximately 3%). Trail running is an activity that has seen some growth in the area recently, and small groups use Carpenter Bypass trails more frequently for group runs.

Off-Highway Vehicle (OHV)

Currently, minimal OHV use of the identified trail system occurs. Use has been predominantly from motorcycle riders, and has seen a decrease in recent years. In terms of trail system use, this activity represents a small percentage (approximately 1%) of overall usage at this time.

Mountain Biking

Mountain bikers make up the predominant user group on the Carpenter Bypass trail system. From individuals out on a ride after work to large groups in excess of 200 riders, this user group represents the highest percentage of usage on the system (approximately 96%). Mountain bikers utilize the trail year-round.

All visitor use percentages are approximate and are based on professional judgment of BLM recreation program staff.

In addition to the approximately 18.8 miles of trail and approximately 10 miles of newly constructed trail on public land that is the focus of this analysis, approximately 4.7 miles of gravel roads exist in the planning area. All types of use occur on these 4.7 miles of road. All other roads and trails in the vicinity are outside the scope of this analysis.

Trail Design

Visitors to public lands seek a variety of different recreation experiences, and often the terrain type and setting dictates the experience. Trails at Carpenter Bypass were designed and built to emphasize a mix of beginner, intermediate, and advanced sections of trail that offer different degrees of technical challenge for the mountain bike rider. Trails were built to feature significant trail twisting, with narrow turns, steep downhill stretches, jumps, and berms. The trail has several downhill sections that are fast and flowing in sections, with many tight turns, high speed corners, and dips.

The majority of trails at Carpenter Bypass are “single-track”, and therefore they require visitors to travel single file. Single-track trails average about two feet in width. Trees and shrubs create a “tunnel effect” in areas of Carpenter Bypass, and the trail tends to wind around obstacles such as trees, large rocks, and bushes. Single-track generally blends in to the surrounding environment, disturbs less ground, and is easier to maintain than wider trails and roads.

User Group Recreation Experience

Mountain Bikers User Group

From beginner loops on single-track trail to more technical downhill and climbing routes, mountain bikers seek a number of different trail riding experiences. Mountain bikers seek the experience of riding a narrow, roller coaster trail where twists and turns are encountered, with a good amount of uphill and downhill riding opportunities. High speed trails can allow advanced mountain bikers and trail runners to race-train at high speeds. Many mountain bike enthusiasts seek a higher degree of challenge than can be found on jeep trails or forest roads.

Equestrian User Group

Equestrians seek some of the same experiences as mountain bikers, in that they enjoy getting out in the forest with their horses to enjoy themselves in an outdoor setting. Equestrians ride for a number of reasons, including training their horses, and the companionship of going out with other equestrians. In contrast to the mountain biking user group, equestrians generally seek trails with less gradient (not as steep), and long sight lines. Equestrian users prefer a line of sight at a minimum of 50 feet with a preference of 100 feet or greater. This adequate space allows reaction time for both the horse and the user to adjust for any change in trail condition or allow room for an oncoming user. Equestrians desire trail lengths of 5-25 miles, and adequate water sources for their horses.

Safety - Shared Use Trail Risk Factors

Sightlines and High Speed Trails

Carefully planned sightlines are important on all trails, particularly shared-use or high-traffic routes. The goal is to ensure that users can see the trail, obstacles, or other users ahead, and adjust their riding accordingly – including stopping and dismounting, if necessary (Webber, 2007). Sightline should be set in accordance with rider speed, trail surface, grade, obstacles, and other trail users. Mountain bikers travelling around blind corners need to be especially vigilant.

Trail Width

Adequate trail width is a key component for a safe shared-use trail riding experience. Federal equestrian trail guidelines express that trails should have a width of 5 to 8 feet with a vertical clearance of 10 to 12 feet. Suitable trail width should allow for oncoming horses or other trail users to safely pass through. Mountain bike single-track trail is approximately 2 feet in width. Popular trail systems with crowded trails can be detrimental to the experience and create safety concerns for users on shared use trail systems.

User Group Conflict, Existing Management Condition

Trail conflict can occur among different user groups, or within the same user group. An important aspect of user group conflict is the potentially unsafe conditions that can occur on trail systems. Such conflicts are possible between mountain bike users and equestrian users if trail conditions are narrow, as they are on the majority of the trail system being analyzed. The IMBA assessment concluded that due to its location and existing use patterns, levels of direct user conflict on the Carpenter Bypass trail system is low, mostly because equestrian use is infrequent. The assessment notes that the primary users are mountain bikers, with hikers, runners, and the occasional equestrian user.

Safety – Parking and Access

The trail system is currently accessible from several informal parking area trailheads along Carpenter Bypass Road, and is comprised of forest roads and single-track trail utilized predominantly by

mountain bikers from the surrounding communities of Eugene, and regionally by visitors from California and Washington and points in between. The main staging area for visitors currently is at an active gravel pit site at the north end of the trail system.

During group rides and other events where large numbers of mountain bikers convene, vehicles are often parked inappropriately on the shoulder of Carpenter Bypass Road. The heavily utilized gravel pit area along Carpenter Bypass Road is not expansive enough to support large groups, and does not have delineated parking or sanitation facilities. Further, the gravel pit is active, and can fill up with large amounts of gravel at certain times of the year.

The proposed parking lot is centrally located with respect to the 18.8 mile assessed trail system. The designation of a parking area would provide a more secure and permanent parking facility, and would provide users with information on the trail system with respect to any trail safety updates and other educational materials via informational kiosk.

It is understood that all user groups would continue to utilize informal parking area pullouts along gravel roads and Carpenter Bypass Road, which afford access to different areas of the trail system. It is reasonable to anticipate that future parking lot locations would be considered, were use of the trail system observed to increase significantly over time.

Socioeconomic Factors – Economic Implications of Trail Systems

The availability of high quality recreation opportunities has been shown to be connected to increases in local property values, overall attractiveness for business development and the in-migration of retirees. In addition, travel and tourism-related activity can lead to positive benefits for the service sector and long term benefits with respect to travel-related dollars injected into local communities.

Soils/Geology

Geologically, the area is mapped as *Tt*, Tyee Fm., with micaceous massive-bedded sandstone and subordinate siltstone. There is also graded bedding *Tss*, Spencer Fm, tuffaceous siltstone and sandstone mapped in the near area which most likely fingers into this unit (Walker and MacLeod, 1991). The landforms on this hillslope are composed of large earthflows and seeps that can be found in concavities of headwalls. The dirt bike trails are built through many of these ancient slumping landforms.

Soils of the area are highly erosive. The mountain bike trails in this area have been constructed in soils consisting of clay, silt and sand. The surface soils are of the Bellpine Series which have high silt and clay content (Patching, 1987). The soil temperatures remain warm and moist through late spring and early summer.

Compaction and Erosion

Runoff in this area occurs typically as a result of rain, not snow. Estimated precipitation of approximately 50 inches per year, combined with the current trails that exist within the assessed area, on slopes greater than 5%, has caused erosion where soil was excessively disturbed. Stream crossings are present and include metal culverts, log culverts, in-stream crossings and manmade wooden bridges. Compaction of the forested area has occurred due to the mountain bike trails that have been built as well as legacy logging roads. Frequently, parallel trails exist which increase the aerial extent of compaction. Parts of the trail have been built on old logging roads that are compacted and in some cases are deeply eroded along the tread of the road prism. There are several large ponded areas on logging roads from a lack of drainage or failing culverts. The failing log culverts have fills as deep as 15 feet.

A general description of the area use, the trails, and also some of the soil resource damage occurring includes:

1. Most of the trails are less than 2 feet in width. Those on logging roads are the width of the road (13 feet). The trail system has caused the forest floor soils to be compacted.
2. Old logging roads are being used and have overgrown and provide a single-track trail (e.g., Segment 162). Some trails follow old skid roads that are not single-track trail and are eroding along the tread (e.g. Segments 141, 67, 156). Legacy logging roads exist throughout the assessment area.
3. Extra parallel trails and short-cut trails, sometimes braiding around trees, are causing additional compaction.

4. Slash has been placed along some trails in what appears to be an attempt to close them.
5. There is no "signage." Some of the compaction occurs because of trail migration and braiding.
6. A picnic table has been set-up in the forest near Segment 98. There is no undercover vegetation and no slash in this area. Trails wind in and out of this area, creating a heavily compacted and overused area.
7. Overall, there is little to no trash evident; some evidence of human waste is visible on some trails. One trailhead is marked with wooden pallets and debris.
8. There are some short length and several long length steep sloping trails (up to 30%) with erosion from the tread. Gulleys, rills, and sediment wedges at the base of the slopes are evident. Examples are Segments 67, 156, 162, 163 (old dirt road beds) and steep approaches to streams such as Segments 120 and 122.
9. Overall, there has been good use of contouring the trails to slope, with retaining walls being used to route users and direct drainage.
10. Lots of downed wood, slash, limbs are present from the recent winter 2012 wind and snow storms. Trails are cleared by users in cooperation with the BLM.
11. There are eleven areas on the trails with water crossings. Some are seeps, headwater streams, and crossings occurring on old logging roads that the trails are built on. Road crossings include corrugated metal pipe and log culverts.
12. The BLM gravel stockpile site is currently being used as a parking lot for people using the trails. Users are parking on old gravel logging roads at different trailheads throughout the assessment area.
13. Dogs are frequently seen, unleashed, accompanying bikers.
14. The proposed area for a new parking lot with restroom facilities adjacent to a BLM progeny site was likely an old landing and is fairly level. The soil is de-compacting due to the root action of grasses and plants which allow the infiltration of water and air. There is no erosion present.
15. Rutting from OHV use is evident on some of the segments and on old legacy skid roads and trails.
16. The IMBA report indicates horse damage is evident in some segments.

Hydrology

The proposed project is located entirely within the Upper Siuslaw River (5th field) Watershed (Hydrologic Unit Code – H.U.C. 1710020603) and within the Letz Creek- Siuslaw River (H.U.C. 171002060303) and South Fork Siuslaw River (H.U.C. 171002060301) sub-watersheds (6th field). The primary drainages in the vicinity of the project include tributaries of Gardner Creek (east of the trails in Sections 23 and 27 and north of the trails in Section 35), tributaries of the South Fork of the Siuslaw River (east and northeast of the trails in Section 23), tributaries of Letz Creek (south of the trails in Section 27 and west of the trails in Section 35), tributaries of Sandy Creek (south and east of the trails in Section 35), and unnamed tributaries of the Siuslaw River (located west of the trails in Section 23 and north and west of the trails in Section 27). Annual precipitation in the project areas averages about 52 inches per year. The project area is characterized as relatively low in elevation (800 to 1,350 feet above sea level).

The IMBA assessment for the project area analyzed trail sustainability located on about 18.8 miles of trail on BLM land. This report was used as a starting point in the hydrologic review of the project. The IMBA identification numbers used to identify individual segments are incorporated for reference purposes. The trails are primarily used by mountain bikers with some evidence of casual equestrian use.

A field review of many of the segments (BLM land) by the area soil scientist and area hydrologist indicated that erosion from the road segments appears to be relatively minor overall but some of the segments need armoring, closure, or re-routing as shown in the IMBA report. The existing trails are generally narrow (<2 feet) except in areas of braiding and where the trail system utilizes old road beds. Some of the trails exceed recommended gradients and are subject to rutting and erosion. Most of the trail system was constructed between the existing overstory trees with very little disturbance of the canopy in the uplands or riparian zones. Most of the overstory vegetation are stands of conifer that are 30 to 70 years old with some older stands located in Section 23.

The existing stream system in the project area was mapped from field surveys, GIS data base, and aerial photo review. No wetlands were found adjacent to the existing constructed trails on BLM land. Eleven stream crossings were identified on the existing constructed trails on BLM land. In addition, short lengths of Segments 126 and 154 and all of Segment 128 are within 100 feet of a stream channel (without stream crossings).

Table 3: A description of the 11 stream crossings located on the 18.8 miles of trail.

Segment Number	Type of crossing	T/R/Section	Road or trail	Drainage
141	Log culvert w/fill	T20S-R5W-23	Road	Tributary of Gardner Creek
141	Log culvert w/fill	T20S-R5W-23	Road	Tributary of Gardner Creek
141	Log culvert w/fill	T20S-R5W-23	Road	Tributary of Gardner Creek
82	Existing Bike bridge	T20S-R5W-27	Trail	Unnamed Tributary
119	At headwater - no structure	T20S-R5W-27	Trail	Tributary of Letz Creek
120	Existing Bike bridge	T20S-R5W-27	Trail	Tributary of Letz Creek
122	Existing Bike bridge	T20S-R5W-27	Trail	Tributary of Letz Creek
155	Stream culvert	T20S-R5W-35	Road	Tributary of Sandy Creek
162	Stream culvert	T20S-R5W-35	Road	Tributary of Sandy Creek
162	Log culvert w/fill	T20S-R5W-35	Road	Tributary of Sandy Creek
33	Ford - no culvert or bridge	T20S-R5W-35	Trail	Tributary of Sandy Creek

Of the existing 18.8 miles of trail system on BLM land approximately 2.4 miles of trail/road are within 1 site tree (210 feet) of a stream channel. The existing trail system on BLM land includes about 0.7 miles of trail/road within 100 feet of a channel. These areas are located near the stream crossings and the segments listed above. The stream crossings are generally located on small, intermittent, 1st order channels in the upper reaches of the stream system. The exceptions are the log fill crossing at the end of Segment 162 which is located on a perennial, 3rd order stream and the three log crossings on Segment 141 which are located on 1st and 2nd order, perennial streams.

The three crossings on Segment 141 are on an existing dirt road (BLM Road No. 20-5-23) that has been blocked to prevent automobile traffic. Erosion predominately unrelated to bicycle use is evident in the vicinity of the crossings from previous motor vehicle use when this was a logging road. The road is rutted east of the northernmost crossing. The road gradient over the crossings is relatively flat. The fill over the log culverts vary from about 12 feet deep (northernmost crossing) to 20 feet deep (southernmost crossing). The middle crossing has a tendency to pond water behind the road fill during winter time with water levels that overflow into an 18 inch wide "channel" across the top of the road. The two southern crossings have evidence of fill failure with a fairly deep (15 to 25 feet) hole located west of the road bed on the southernmost crossing.

These crossings will eventually fail without mitigation. Heavy equipment would be needed to remove the logs and fills from these crossings, but these sites can be armored to reduce sediment delivery from erosion of the running surface in the short term. An over flow culvert would be needed to completely eliminate water from coming over the road at the middle crossing under winter flow conditions.

The stream crossing at Segment 82 is just below (approximately 35 feet) the initiation point of the stream. There is an existing bike bridge across a small channel. Stream flow is likely intermittent. The approaches on either side of the crossing are relatively flat. Some periodic sedimentation is possible in this vicinity but because of the flat terrain and the bridge the amount is likely to be minimal under most conditions. The site can be hardened in the immediate vicinity of the crossing or the segment can be moved above the initiation point, as recommended in the IMBA report, to reduce or eliminate delivery of sediment.

The initiation point of a small stream is located on the south edge of the existing trail on Segment 119. The approaches to this location were flat on both sides of this area. Winter time stream flow was evident below this point for about 150 feet. The channel characteristics below this appeared to be marginal – indicating ephemeral and sub-surface flow for greater than 200 feet. The risk of sedimentation would appear to be low under most flow conditions. The trail could easily be re-routed a short distance to the north or hardened in this location to eliminate or reduce sedimentation.

Segments 120 and 122 include stream crossings with small wooden bicycle bridges currently in place. The approaches to both crossings are relatively steep (20% to 35%) with erosion likely. The existing trail appears to be hardened from use. Rutting of the surface was not visible when the site was observed under fairly high soil moisture conditions. The IMBA recommendation to armor and reduce trail width would be

beneficial at these locations in reducing sedimentation. Some rerouting of the trail might be feasible in reducing trail gradient.

The stream crossing at Segment 155 is a short distance (<50 feet) below the initiation point of the intermittent stream. The crossing is on an existing dirt road (BLM Road No. 20-5-35). The existing corrugated metal pipe is not functioning properly. The road gradient is relatively flat but there was water on the road on the survey date and the road is rutted in the vicinity of the crossing. The crossing needs improvement and the site could be hardened to reduce sedimentation.

The two stream crossings on Segment 162 are on an existing dirt road (BLM Road No. 20-5-35.6) that is overgrown with vegetation and not drivable to automobiles. The crossing to the east has flat gradient on the approaches on either side of the culvert, which is an 18 inch metal culvert. The stream is a 1st order, intermittent stream that had stream flow on the survey date (March 28, 2012). The culvert which is under about 5 feet of fill, is rusty and in fair condition. The crossing on the west side of Segment 162 is a log fill culvert that is about 12 feet deep. There is some fill erosion on the downstream side of the crossing, but overall the crossing appeared to be in fair condition. This is a 3rd order, perennial channel which had strong flow on the survey date (March 28, 2012). Flow does not appear to be impeded at all under the fill. The approaches to the stream are moderately steep- particularly from the west side. Some hardening of these two sites, particularly the western crossing, is recommended in the IMBA report to reduce sedimentation.

The crossing of Segment 33 is directly over the small, 1st order, intermittent channel. The approaches are relatively flat and the wetted channel width was about 2 inches on the survey date (March 28, 2012). There is gravel in the substrate at this location. The stream gradient is relatively gentle (5% to 8%) in the vicinity of the crossing. There is an existing dirt spur about 175 feet below the crossing that effectively disrupts channel surface flow below this for about 200 feet. The IMBA recommendation to armor the crossing and add reversals would be beneficial in reducing erosion and sedimentation.

The proposed gravel parking area and concrete vault restroom area would be located on flat to gently sloping topography a short distance below Road No. 20-5-14.1. This area is more than 500 feet from the nearest stream channel. An existing dirt spur currently provides access to the area.

The closest filed water rights are for irrigation use and are located about 3 miles downstream on Letz Creek, about 1.2 miles downstream on South Fork of the Siuslaw, and about 1.2 miles downstream on the unnamed tributary to the Siuslaw River (T. 20 S., R. 5 W., Section 22).

Fisheries

Currently, undesignated bicycle and motorized recreational vehicle trails exist in portions of T. 20 S., R. 5 W., Sections 23, 27, and 35 (BLM-managed land). Many of these routes cross unnamed tributaries within the Siuslaw River basin.

An April 2012 survey conducted by the Area Fisheries Biologist identified sub-drainages of mainstem Siuslaw River tributaries that have been crossed by previously mentioned trails (see Table 2, page 16). In addition, observations showed that several old logging roads were being used and maintained as recreational trails here.

All age classes of Oregon Coast Coho Salmon (*Oncorhynchus kisutch*) are found in the following streams that surround the trail system: Letz, Sandy, Gardner, and Lick Creeks. Upslope, unnamed tributaries of these mainstem, coho bearing streams are found within the area being analyzed (see map 4 in the Appendix). Most of these unnamed tributaries are non-fish bearing. Oregon Coast Coho have been listed as *threatened* since 2008.

Vegetation, Invasive Non-native Plants, and Botany

Vegetation in the project area consists of Douglas-fir forests commonly with salal, dwarf Oregon-grape, sword fern, California hazelnut, and oceanspray. Stands range from relatively dense, dark young forests to older stands.

Special Status Species and Survey and Manage Species

Botanical surveys were conducted in the project area for the BLM Special Status (federally listed Threatened or Endangered, and BLM Sensitive) vascular plants, lichens and bryophytes documented or suspected on the Eugene District BLM. Surveys were also conducted for Survey and Manage

botanical species for which pre-disturbance surveys are required (USDI 2011). These surveys covered the current project area (trails and proposed parking area), using established survey methods for rare plants (“intuitive-controlled” surveys). Trails were surveyed including 25 feet on either side allowing for potential rerouting or trail realignment. Surveys occurred in May 2012. No Special Status or Survey and Manage Species were located.

Cimicifuga elata was located at one site, with nine plants along and near trail Segment 67. The site is in a relatively moist area at the bottom of a north facing escarpment, in 70 year old forest. The trail segment descends an old steep, wide, rutted road bed cut into the escarpment and is proposed for reroute. This vascular plant was recently removed from the Bureau Sensitive list late in 2011. It remains on Oregon Biodiversity Information Center List 4, hence monitoring to assess population trends is still appropriate, but active management is not currently considered necessary (ORBIC 2010). *Cimicifuga elata* often occurs in small isolated populations that can be vulnerable during succession, but are more secure where occurring in late-successional forest stands.

Viola howellii was located at thirteen sites. The plant is on the Eugene District Review List; its status is under review for possible submission to the Oregon Biodiversity Information Center as a rare species. It occurs in shaded environments along road and trails, and in some forest understory habitats. Because it is found mostly in shaded disturbance areas, it may be under increasing threat from shade tolerant non-native invasive weeds.

Special Status fungi may occur in the project area; surveys were not conducted for fungi. On the Eugene District there are 3 Documented and 19 Suspected Bureau Sensitive fungi species, and 9 Documented and 67 Suspected Bureau Strategic species. According to USDI (2004), pre-disturbance surveys in proposed project areas for these fungi are not practical to conduct and should not be attempted. No currently known sites of Special Status fungi are found in the project area.

Equivalent effort surveys for Survey and Manage Category B fungi are required for habitat-disturbing projects in old growth stands, beginning fiscal year 2011 (USDI 2011). The protocol would require two years of fungi surveys. Two of the late-successional stands on the far northern portion of the trail system may qualify as old growth under the definition in USDA-USDI (2001). However, the trail segments in these stands are not slated for reroute or reconstruction, so that the action is not habitat-disturbing. Any new construction segments in these stands may require equivalent effort fungi surveys.

Noxious and Invasive Weeds

Executive Order 13112 refers to invasive species as non-native species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Non-native weeds that occur in quantity can be considered invasive species. Invasive species are to be prevented from being introduced, and are to be monitored and controlled. “Noxious Weeds” refers to species listed by the Oregon Department of Agriculture as Noxious Weeds. These weeds are particularly detrimental to agriculture, biodiversity, and other resources, and are the subjects of control measures. Weeds are spread by trail users and road building and logging equipment, as well as wildlife, wind, and water, and spread more readily to open, disturbed sites.

During 2012 botanical surveys, the project area’s trails and proposed parking lot were surveyed for Noxious and Invasive Weeds (Table 4). The most egregious weeds were mapped for tracking and treatment purposes. Cut-leaf blackberry is not listed by the ODA, but is a species related to Himalayan blackberry, with similar effects in the same habitats. Widely scattered ODA Noxious Weed species not explicitly mapped include bull thistle, Canada thistle, common St. Johnswort, and tansy ragwort. These four species are generally ubiquitous on the Siuslaw Resource Area, mostly along roads, but rarely form dense infestations, probably due to biological control with introduced insects. All of the weeds in Table 4 were also documented in 2005 roadside weed surveys except for false brome, herb Robert, and shining geranium.

Table 4: Noxious and Invasive Weeds in the Carpenter Bypass Project Area May 2012.

Species	Impact
Bull thistle	Sparsely scattered along roads and trails.
Canada thistle	Sparsely scattered along roads.
Common St. Johnswort	Sparsely scattered along roads, very sparse on trails.
Cut-leaf blackberry	Small thickets, mostly along roads.
False brome	A single site on road-to-trail Segment 165.
Herb Robert	A single site on trail Segment 43.
Himalayan blackberry	Small thickets, mostly along roads.
Scotch broom	Very common, mostly small plants, scattered along roadsides and in openings.
Shining geranium	A single site at the gravel stockpile site.
Tansy ragwort	Sparsely scattered along roads and trails.

Most weed infestations appear related to roads and forestry treatments, rather than the single-track trails through intact forest. Roads are especially notable for Scotch broom and blackberries. Small Scotch broom plants are nearly constant along the roads, with larger plants and small thickets of blackberries in places. Most of the weeds that occur along trails are at the recently thinned progeny site, and along the road-to-trails sections (closed roads used as trails), where the road was fairly recently used for thinning operations in Section 35. Trails through shaded forest had sparse bull thistle, with little evidence of reproduction in these plants. The single site of herb Robert was the only occurrence that appeared due to trail users. Evidently, seeds had been deposited at this point, and have spread to an approximately 20 by 30 foot long area along the trail.

Within the project area, manual weed treatments have occurred along the main roads. Small sites of meadow knapweed were treated in 2006, 2007, 2009, 2010 and 2011; at least some of these sites appear eradicated. Thistles and tansy ragwort were treated in 2009, and blackberry in 2005. Extensive treatments of Scotch broom occurred in 2005 and 2009. The small sites of herb Robert and false brome were hand pulled during 2012 botany surveys, but will no doubt require retreatment.

Wildlife

Roughly 18.8 miles of proposed trail improvement and about 10 miles of new trail construction would be located on Bureau lands in T. 20 S., R. 5 W., Sections 23, 27 and 35

As currently delineated, the trail with associated parking lot and staging area would be located in coniferous and mixed deciduous/conifer forests ranging from about 25 to over 200 years old. The different seral stages represented in the 25 to 200 year old stands serve as habitat for a variety of wildlife species.

Federally Listed Species

Northern Spotted Owl (listed threatened)

Of the approximate 18.8 miles of proposed trail designation, about 1.8 miles (7%) would be located in suitable nesting/foraging habitat, 12 miles (61%) would be in roosting/foraging habitat, while 6 miles (31%) would be located in habitat not yet suitable for these life functions. Spotted owls currently use the area surrounding the proposed trail system. The 10 miles of new trail proposed for construction would have the potential to run through suitable, foraging, and dispersal habitat.

The proposed trail system is located within the South Willamette/ North Umpqua Area of Concern (AOC). The project area does not fall within currently designated Critical Habitat for the spotted owl. However, Critical Habitat recently proposed in early 2012 includes lands in Section 35 (subunits ORC 2 and ORC 3), but not Sections 23 and 27. New trails constructed for mountain bike use may pass through 2012 proposed critical habitat for Northern spotted owls.

Marbled Murrelet (listed threatened)

Older stands with their larger trees typically provide more of these nesting substrates than do younger stands; however, large remnant trees in younger stands also provide nesting opportunities. Since the younger stands within the project area contain some large scattered remnant conifers with suitable

nesting structure, most of the proposed trail system either passes through suitable habitat or within 100 yards of marbled murrelet suitable nesting structure.

The project area is approximately 44 miles from the Oregon coast, putting it at the outer edge of the 50 mile range of the murrelet. Most murrelet nesting has historically occurred within 35 miles of the coast and this has been supported by the Resource Area's survey results over the past 20 years. All murrelet occupancy documented in the Resource Area has been within 35 miles from the coast. Given this information, chances of murrelet nesting this far inland is considered to be very low. The project area does not fall within Critical Habitat for this species.

Other Wildlife Species of Interest

Survey and Manage Species

This category of species was afforded special habitat management considerations due to either their rarity or lack of knowledge about them. Within the Siuslaw Resource Area, only one species is in this group, the red tree vole, is in need of consideration. This is an arboreal rodent associated with mature and late-successional coniferous habitat and is expected to occupy the older stands in the project area.

Migratory Bird Treaty Act/Bird Species of Conservation Concern

This group of birds is of special concern because of population declines over recent years. Table 5 lists those birds that most likely would be expected to occur in the variety of habitats existing within the project area.

Table 5: General Habitat Associations of Bird Species of Conservation Concern Suspected to Occur in the Project Area

Species	Foraging Habitat	Nesting Habitat
Bl. Throated Grey Warbler	Shrub to canopy	Trees/shrubs 3-10 ft. above ground
Olive-Sided Flycatcher	Perches on trees/snags catches prey in flight	Trees in low to mid canopy
Mourning Dove	Open areas close to ground	Trees in low to mid canopy
Band-Tailed Pigeon	Shrubs and trees from low to high canopy	Tree tops from mid to high canopy
Rufous Hummingbird	Flowering plants of shrub layer	In dense shrubs
Northern Goshawk	All habitat in action area	Forested stands mid canopy

Special Status Species

Federally listed species are included in this category. Table 6 lists those species that could occur (with varying degrees of probability) within the varied habitats in the project area.

Table 6: General Habitat Associations of Special Status Species Suspected to Occur in the Project Area

Species	Foraging Habitat	Reproductive Habitat
Bald Eagle	Open water and lands	Upper canopy generally in sight of a large waterbody
Northern Goshawk	All habitat in action area	Forested stands mid canopy
Purple Martin	Open areas; catches prey in flight	Cavities in Snags in open areas
Common Nighthawk	All open habitat; catches prey in flight	Bare ground
Yellow-Breasted Chat	Open areas and forest edges	Shrub layer
Townsend's Big-Eared Bat	Open areas; catches prey in flight	Buildings, snags, caves
Fringed Myotis	Open areas; catches prey in flight	Buildings, caves, mines
Fisher	Older Forest	Older Forest
Tillamook Western Slug	Ground and upper litter level	Ground and upper litter level
Spotted Tailedropper	Ground and upper litter level	Ground and upper litter level

ENVIRONMENTAL CONSEQUENCES

Recreation and Visual Resources

Alternative 1

Recreation opportunities within the project area would remain at the current level with a reduction in quality but continued recreation impacts (establishment of unauthorized trails and parking areas, etc.). Current level of recreation use combined with limited public access will lead to continued problems with trespass, litter, and vandalism on private and public lands. Visitor experiences would continue to be compromised by the lack of amenities, such as parking areas, signed trails, restrooms, educational messages, maps for orientation, and seating areas.

There would be little change to the current recreation management levels within the project area. The problems associated with public use of the lands within the project area are likely to continue if additional access points and/or facilities are not provided. Continued unregulated recreational use would most likely cause a negative impact on the quality of a visitor's experience, and a decrease in the realization of potential benefits. Inability to improve and rehabilitate the trail system using sustainable practices would likely see a continual degrading of the quality of the trail system and overall recreation experience.

Litter, unauthorized trails, and inappropriate parking areas would likely continue and incidents of recreation-related trespass and vandalism would be expected to continue. Low agency presence and monitoring may also result in a slight to moderate degradation (low levels of public contacts, uneducated/uninformed users) of the recreational experience due to lack of visitor contacts for information, safety, and other interpretative purposes.

There would be no effort to implement visitor use surveys within the project area. No efforts would be made to establish preferred visitor experiences and associated benefits. This would result in the general lack of baseline information for future recreation planning efforts.

Potentially unsafe conditions relative to conflict between mountain bikers, trail runners, hikers, and equestrians would exist. User group conflict would be expected to continue at its present level. Local equestrian use would likely continue at its present rate. Safety concerns relative to inappropriate parking along Carpenter Bypass Road would continue to exist (see Affected Environment).

Economic implications relative to stimulus of the local economies would likely remain steady. Given that the trail system is not formally managed and would not be improved to a higher level and quality of user experience, visitors from local and regional population centers would not increase significantly over time, and therefore positive economic impact to local restaurants, recreation equipment vendors, hotels, gas stations, and other tourism-related businesses would not be improved significantly.

Cumulative effects

Adverse cumulative effects would result from the unmanaged and uncontrolled recreational use of the area. Physical impacts would likely include soil disturbance, bank erosion, and an increase in the number of unauthorized trails. Litter and other sanitation problems would likely continue. Provision of managed, low elevation single-track trail opportunities in the geographic region defined as within an hour's drive of the Eugene/Springfield metropolitan area would continue to be deficient.

Alternative 2

Given the proximity of the Carpenter Bypass Area to Eugene/Springfield, the demand for local developed and undeveloped recreational opportunities is expected to increase. The creation of "user" created trails will continue to be a management issue if the demand for non-motorized trails is not met.

The improvement where needed of approximately 18.8 miles of trail along with approximately 10 miles of newly constructed mountain bike trail would provide recreational and interpretive opportunities for non-motorized recreationists, such as mountain bikers, hikers, and trail runners. Currently, the BLM Eugene District does not formally manage any trail system for the mountain biking user group, which is the predominant user group of the Carpenter Bypass trail system. Mountain bike trail opportunities are limited in the region. This alternative would provide a much needed recreation opportunity for mountain bikers and other users in the Eugene/Springfield area and surrounding communities. The trails outlined in this EA are meant to address the needs for recreationists within the region and is based on an analysis for recreation resources.

This action would increase visitation. Local and regional communities would benefit from the availability of a year-round, accessible, inexpensive recreation opportunity for individuals and families to enjoy. Increased non-motorized recreation would provide the “eyes and ears” for the BLM in this area and illegal OHV use would be reduced due to the use by non-motorized users. A new parking area would curb the inappropriate parking practices caused by the existing parking area getting filled to capacity on high-use days, fostering a safer and more secure situation as well as less denuding of vegetation. Installation of informational kiosks and signage would allow for visitor trail use information and the dissemination of interpretive information.

While motorized activities are likely to decrease in the area, opportunities for non-motorized recreation may increase, especially if non-motorized multiple use trails are established. Local resident equestrian use will likely continue to exist at its current levels, which would likely not create serious user conflict, soil erosion or other detrimental effects. Many routes exist in the area which are not a part of the analyzed trail system and would continue to be available for equestrian use.

Potentially unsafe conditions relative to conflict between mountain bikers, trail runners, hikers, and equestrian users would be low to minimal. Through education materials, trail signage and other interpretive efforts user group conflict would likely not increase. As noted in the IMBA report, this site at present has very little user conflict, and because of its location and existing use patterns, it is expected to continue to have little user conflict concerns.

Recreation opportunities would be enhanced, creating diverse and sustainable visitor experiences in the long term. The recreation experience would be enhanced by the phased development of new designated and signed trails, parking areas, and visitor facilities.

The installation of trailhead, directional, and trail difficulty signs would allow people to safely find access to the trail system from road areas other than the main parking lot.

The creation of high-quality trail-based opportunities would likely lead to an increase in local tourism and travel related dollars to the cities of Lorane, Crow, the greater Eugene/Springfield area, and Cottage Grove.

Given that the system would be formally managed and improved to a higher level and quality of user experience, visitors from local and regional population centers would likely increase significantly over time. Positive economic impact to local restaurants, recreation equipment vendors, hotels, gas stations and other tourism-related businesses would likely be improved significantly.

Mountain bike riders would likely be spending their travel and tourism dollars in the local area, rather than other areas in the state that maintain quality, managed mountain bike riding trail systems; for example, Sandy Ridge in Northwest Oregon.

Given that the trail system is relatively close to Eugene/Springfield and surrounding communities the amount of time required to drive in order to access non-motorized recreation opportunities is short. This provides an economic benefit in the form of less gasoline utilized by the visitor to the Carpenter Bypass trail system, while non-motorized recreation also promotes forms of recreation that do not utilize gasoline, therefore contributing to lessen the carbon footprint for the environment as a whole.

Cumulative Effects

Beneficial cumulative effects would result from land use restrictions and management actions that address unauthorized and unregulated activities and recreational uses. Restrictions would provide higher levels of protection for sensitive resources, improved habitat conditions, and enhanced recreation opportunities within the area. Provision of managed, low elevation single-track trail opportunities in the geographic region defined as within an hour's drive of the Eugene/Springfield metropolitan area would be a beneficial cumulative effect.

No adverse cumulative impacts have been identified for the combination of any past, present, or reasonably foreseeable future actions. Cumulatively, an estimated 3.5 acres of land within the planning area would be modified by proposed recreational facility development such as the construction of a parking lot and new trails.

Alternative 3

The differences between Alternative 2 and 3 are the authorization of equestrian use on sections of the trail system that meet federal equestrian trail guidelines, and the expansion of the parking lot to accommodate horse trailers. Therefore, the environmental consequences and cumulative effects described in Alternative 2 would be largely the same for Alternative 3, with some exceptions described here.

Of the approximately 18.8 miles of trail included as part of this EA analysis, approximately 2.4 miles would meet federal trail guidelines. From an equestrian riding experience standpoint, this alternative would not likely offer a route or loop trail of the adequate length to satisfy most equestrian users. However, there are existing routes in the planning area that meet federal equestrian guidelines (4.7 miles of gravel roads) that are currently available for equestrian use but are not a part of this analysis.

Potentially unsafe conditions relative to conflict between mountain bikers, trail runners, hikers, and equestrians would be low to minimal. The approximately 2.4 miles of trail identified as meeting federal equestrian guidelines have sufficient trail width for passing between different or the same user groups, adequate sight lines in order to avoid potential safety concerns, and good trail alignment with adequate radius for turning.

It is possible that equestrian use of the system by visitors from outside the local area would increase, but given the low amount of trail mileage currently available it is not likely. Local equestrian use would likely continue at the present rate. Through education materials, trail signage and other interpretive efforts user group conflict would likely not increase.

An expanded parking lot area would accommodate equestrian trailers. Given that the trail mileage available for equestrian use would be minimal, equestrian use of the parking lot would likely be low.

Cumulative effects

Cumulative effects would be the same as Alternative 2.

Soils/Geology

Soil Compaction

The Carpenter Bypass Assessment Area has compacted mountain bike trails as well as compacted abandoned native surface roads and skid roads from past logging operations. There are approximately 18.8 miles of mapped compacted mountain bike trail (IMBA, 2011). The trails are extensive and parallel, short-cut, and braid around trees. It is currently an unmonitored trail system, previously built and now maintained by a local mountain bike organization through a maintenance agreement with the BLM. Located in close proximity to Eugene, increased use is expected with designation of a recreational trail.

Soil compaction can persist for decades given the climate, geology, and the silty/clayey soil series common to this area. Compaction removes the pore spaces between particles resulting in very slow rates of recovery. The soil atmosphere is critical to plant and microorganism survival. Human trampling studies have shown that the heavier the trampling, the more immediate the loss of vegetation cover and soil compaction. The estimates of standing ground pressure created by equipment and horses are relatively high values as a result of the weight distribution over hooves or tires.

Equestrian trail use can cause a significant amount of damage. The average pressure a horse exerts when standing on four hooves is about 40 pounds per square inch (psi); however, when the horse is moving, its weight is distributed on only two hooves. This doubles the pressure applied to the ground to 80 psi. In comparison, the pressure that a hiker exerts is 8 psi, an all-terrain vehicle (ATV) about 18 psi, a mountain bike about 30 psi, a car about 30 psi, and semi-truck about 98 psi (Tabor, et al. 2007).

Standing ground pressure does not necessarily indicate the degree of compaction or disturbance to soil because differences in vibration, pressures during loaded movement or turning, and total ground area affected produces relative compaction levels that may not correspond to differences between animals or equipment types (Adams et al, 1984). For horses, adverse climbs and the weight of a rider cause the psi to increase substantially with each hoof, and the pressure applied can significantly loosen the top layer of soil.

Surface Erosion/Ground Disturbance/Sedimentation to streams

The Carpenter Bypass area receives approximately 50 inches of rain per year. Soils are saturated for months during the winter and spring seasons. There are many segments present along the trail system with slopes between 10 and 30%. The degree of trail damage that has occurred is a function of the presence of the silty/clay soils and steeper slopes. The amount of traffic and trampling of trails by vehicles, horses and humans, in tandem with trail slope can cause significant erosion in this geologic substrate. When slopes are steep, there is a greater potential hazard for erosion by running water. The disturbing force of water, gravitationally, coupled with the low soil strength reduces soil wearing resistance and the ability for the soil to resist movement. Sand and silt have low soil strength making them subject to erosion. High silt content in soils makes the soil especially susceptible to erosion by running water. Clay is less likely to be entrained; however, with disturbance and saturation it erodes rapidly.

Alternative 1

Soil Compaction and human waste

There would be no new trail construction under this alternative with some trail maintenance by the mountain bikers; however, the IMBA report recommendations would not be implemented under this alternative. Currently, the compaction footprint is less than 1% of the areal extent of three sections of BLM land. This includes mountain bike trails, legacy logging skid roads, gravel roads, and pavement.

The IMBA report identified parallel, braided, and unsustainable trails that could not accommodate long term bicycle use. It can be expected that the best attempts of mountain bike organizations to maintain the trail with shared use (no designations) would not be manageable. Lateral disturbance of soils and vegetation should be expected. The direct effect to leaving the trail system undesignated would result in continuing unmonitored recreational use with the potential for an increase in length of the trail system, including short-cuts, braiding, and further trail building. If equestrian use increased on mountain bike trails, it can be expected that the compaction footprint would double or triple to accommodate horse size.

There would be no parking lot or vault toilet under this alternative and no associated compaction. Direct effects caused by compaction would be less than the under the action alternatives. The forest floor and soils would continue to be contaminated with human waste. There would be an increasing health hazard with this alternative. Susceptibility to water quality impacts from animal and human waste would be greatest under this alternative.

Indirect effects of Alternative 1 include a decrease in soil porosity with increasing compaction. Soil porosity is an essential component of site productivity, instrumental for water infiltration, water storage, and gas exchange. Soils with good porosity have favorable conditions for root growth, water movement, nutrient uptake by roots, and mycorrhizal growth. Contamination of soil through human waste would continue. Indirect effects of compaction would be greater than Alternative 2 or Alternative 3.

Erosion

Direct effect of Alternative 1 is more erosion potential than Alternatives 2 or 3 because IMBA recommendations may not be followed. No rerouting or closing of trails that are unsuitable for use would occur as recommended by the IMBA report. Roads and trails would continue to concentrate runoff, particularly on steeper trails, causing gullies to form in the treads. Deterioration of the trail system results in further trail development as users would find detours around any muddy spots.

The indirect effect would be a loss of forest soil, soil productivity, and potentially an exceedance of turbidity levels in streams. The existing trail design does not meet the Engineering Standards for Equestrian Use. If horse-use increases on these trails, it can be expected that trails would widen, including trampling of vegetation; turning radius of bends would increase; and steep slopes would deteriorate under this Alternative. Damage from OHV use would continue.

Cumulative effects

The cumulative effect of leaving trails undesignated is an expected increase in length of an unmonitored trail system and associated compaction in the project area. There would be loss in soil productivity due to compaction and erosion.

Alternative 2

Soil Compaction and human waste

This alternative would designate the trail for the use of mountain bikers and hikers and include approximately 10 miles of new mountain bike trail construction within the planning area. The IMBA report recommendations would be followed. The trails would be limited to the length of the trail system to that which the IMBA survey recommends, approximately 18.8 miles. There would be no further lateral disturbance of soils and vegetation. Trails will be repaired, rerouted and/or closed according to IMBA recommendations. Short-cuts, braiding trails, muddy low spots, bridges, and undue erosion on trails would be monitored. Maintenance of the trails would occur through partnerships developed with dirt bike organizations. The areal extent of compaction would be limited to the current trails. Mountain bikes tend to compact a running surface of the trail tread with repeated passes, causing particles to be pushed together and increasing shear strength. An increase in shear strength of the soil has greater ability to resist erosive forces. About 10 miles of designated new trail for mountain bike and hiking use may be constructed in the future; however, the new trails would follow all the constraints and design features recommended by IMBA and would not contribute to soil erosion.

Bathroom and parking facilities would be built. This would increase the area of compaction to the footprint of the design of the parking lot compared to Alternative 1; however, it would lessen the degree of unhealthiness to the soils in the surrounding forest floor.

Indirect effects of Alternative 2 would maintain the current loss of soil porosity to the current compaction level. Soil porosity is an essential component of site productivity, instrumental for water infiltration, water storage, and gas exchange. Soils with good porosity have favorable conditions for root growth, water movement, nutrient uptake by roots, and mycorrhizal growth. The forest soils would not become contaminated with waste.

Erosion

Direct effect of Alternative 2 is that areas susceptible to erosion would be avoided or design features would be specifically implemented to amend the erosion along the trail length recommended by IMBA. Trails would be maintained to dirt bike and hiking standards and guidelines. Roads and trails would be monitored and maintained to prevent the concentration of runoff, particularly on steeper trails. Deterioration of the trail system through erosion would be expected to be very limited.

Cumulative effects

There are no other designated recreational trails for mountain bikes in the Siuslaw Resource Area. The cumulative effect of designating this trail system would be to limit the areal extent of compaction and erosion within these three BLM sections. Alternative 2 would have the least effects to long term compaction and erosion as compared to Alternatives 1 or 3.

Alternative 3

Soil Compaction and human waste

Alternative 3 would adopt the IMBA report and equestrian use would be allowed, but be limited to the trails where equestrian trail standards are met. New trail construction of about 10 miles of new mountain bike trails is also being considered in this alternative. This alternative would cause greater compaction than Alternative 2 on trails designated for horse use. Trails that do not meet equestrian trail standards would not be designated for horse use. Designating horse use would increase compaction because of greater lateral disturbance of soils and vegetation along 2.4 miles of IMBA trail. There are approximately 4.7 miles of gravel roads that meet equestrian trail standards and are currently available for equestrian use, similar to Alternatives 1 and 2. Guidelines for rider safety includes a wider horizontal footprint for horse traffic on a single track and even wider for double or passing tracks. Trails designated for equestrian use would fall into a higher maintenance level for repairing, rerouting and/or closing. It would not be expected that maintenance of the trails would be implemented by the mountain bike organizations for equestrian use. The areal extent of compaction would be limited to the current trails and roads.

Toilet and parking facilities would be built, including accommodation for horse trailers. The areal extent of compaction to the footprint of the design of the parking lot would increase from that in Alternative 2. Human soil contamination from waste would be less than Alternative 1. The addition of designated horse trails in Alternative 3 could increase manure on roads if trail etiquette is not followed.

Indirect effect of compaction in Alternative 3 includes an increase in loss of soil porosity due to wider trails and more compaction area than Alternatives 1 or 2. Soil porosity is an essential component of site productivity, instrumental for water infiltration, water storage, and gas exchange. Soils with good porosity have favorable conditions for root growth, water movement, nutrient uptake by roots, and mycorrhizal growth. The parking area footprint would be larger than in Alternative 2. The forest soil would not be contaminated by human waste.

Erosion

The direct effect of Alternative 3 is that erosion has the potential to be greater than Alternatives 1 or 2 because of horse use on designated trails. There would be an increase in sheetwash, rilling, and gullying of the existing trail system in areas designated for horse use. The high rainfall and the silty clay soils predict that use of equestrian trails by horses has the potential to produce increased erosion from the high pressure exerted by a hoof, which displaces soil as well as contributes to high sedimentation rates. Mountain dirt bikes compact the trail tread with repeated passes, causing particles to be pushed together, increasing shear strength in contrast to an animal hoof which applies a lot of pressure, causing movement and displacement of soil and substrates rather than providing a hard compacted running surface.

Deterioration of the trail system would be expected within the trail areas designated for horse use. Trails would continue to be maintained for mountain bikers and hikers, but not for horses because there is no established partnership with equestrian users for trail maintenance.

Indirect effects of damaged roads and trails include deterioration of the road prisms and trails in areas designated for horse use and a potential for an increase in sedimentation to streams, degrading fish habitat and water quality. The addition of horse trail construction increases the detachability of soil particles of the surface soil due to the disturbance that a horse hoof print has on any given area of soil. Erosion would be less than Alternative 1 because of designating the specific horse trails and only allowing them on those mountain bike trails which meet equestrian standards (2.4 miles), but more than Alternative 2, where no trails would be designated for horse use.

Cumulative effects

Cumulatively, compaction and erosion would increase across these sections under Alternative 3. The greatest cumulative impacts occur under Alternative 1 and the least occur under Alternative 2. Even with equestrian use on designated horse trails, it can be expected that with the pressure applied by horse hooves, erosion and disturbance to the surface of the trail would increase over Alternative 2.

Hydrology

Alternative 1

There would be no new trail construction under this alternative. Some trail maintenance would be performed to keep the trails as functional as possible, even though some segments are unsustainable in their current condition and location. The IMBA report recommended re-routing, armoring, or closing about one-third of the evaluated segments to accommodate long term bicycle use (see map 1 in the Appendix). The report also indicated that about 40% of the segments are rated as red (unsustainable) or yellow (needing improvement). These segments would not be closed or improved under this alternative.

No major work would be done to upgrade the existing eleven stream crossings, although some hardening of the sites to reduce sedimentation could occur over time. No systematic plan would be in place as under Alternatives 2 or 3. Maintenance of the trail would occur at current levels.

There would be no beneficial addition of vault toilets and no long term sanitation facilities as under Alternatives 2 or 3. The amount of future use is uncertain but for this alternative use was analyzed at current rates for bicycle, hiker, and equestrian uses. Current equestrian use appears to be very light on all of the existing trails with no discernible use in the vicinity of the stream crossings.

Soil erosion and compaction are expected to continue at existing rates if unsustainable trails are retained, and if the trails are not hardened or improved. This alternative has the highest potential for erosion and sedimentation of all the alternatives without substantial improvement or re-routing of the unsustainable segments, as would occur under Alternatives 2 or 3.

The estimated compaction from the existing trail is about 5 acres total on 3 sections of BLM-managed land. This is less than one-half of one percent of the acreage in these sections. This does not include about 3.7 miles of trails on old logging roads which are a legacy of forest harvesting which preceded the construction of the trail system. Compaction could increase under this alternative due to braiding of trails by bicycles/horses/hikers over time without a long term plan for managing use and maintaining trails. There would be no increase in compaction from new or re-routed trail construction, or parking lot construction under this alternative as would occur under Alternatives 2 or 3.

The effects to flows (peak, low, water yield) from the trail system are currently negligible because of the small changes in compaction and vegetation that have occurred and the dispersed nature of the trail over 3 sections of land. Relatively minor change has occurred in the interruption of sub-surface flows as most of the trail segments were created without machinery and without deep cuts into the slope. Some routing of flow does occur from the compacted surface of the trail on the moderate to steeper portions of trail, but generally for short distances because of the trail design.

A small reduction in overstory canopy has occurred in the riparian areas and the uplands because the majority of the trail system was constructed between the existing overstory trees. Canopy cover is high and most of the streams are small, 1st order, intermittent streams in the vicinity of the stream crossings. It is unlikely that there has been any impact to stream temperature and minimal changes to microclimate from the small openings in the vicinity of the trails as the riparian zones are largely intact. Most of the overstory tree removal was vegetation less than 8 inches in diameter.

The trails are typically <2 feet in width, excluding the trails on the road system. This alternative would not involve re-routing the trail system or creating new trail as under Alternatives 2 or 3. There would be no new stream crossings. Additional removal of the understory could occur from braiding or trail widening but minimal overstory disturbance would occur under this alternative.

Six of the eleven crossings are on old logging roads and additional disturbance of overstory vegetation is unlikely. Some disturbance of the understory in the vicinity of the crossings could occur in the future from increased width of the trails through braiding. Intentional trail widening or re-routing is not planned under this alternative.

Some turbidity/sedimentation is likely in the vicinity of the stream crossings from the development and use of the trail system. The effect currently appears to be short term during intermittent use by predominately bicyclists and hikers. The effect is correlated to the amount of use and the condition of the trails in the vicinity of the crossings. Widening and/or braiding of the trail near the stream crossings would increase turbidity/sedimentation if there is not a corresponding improvement in trail design or hardening of the trail. The majority of the existing trail system poses no threat in terms of turbidity/sedimentation as less than 4% of the existing trail segments (miles) are within 100 feet of the stream system.

The use of the trail system under very moist conditions and/or in areas with road drainage issues (middle stream crossing of Segment 141, improperly functioning culvert of Segment 155) and the segments with steeper approaches (Segments 120, 122, and the western crossing of Stream 162) are the most prone to erosion/sedimentation. Nine of the eleven stream crossings are currently over bridges or road culverts, although some of the bridges are not suitable for equestrian use. Most of the approaches are relatively flat in the vicinity of the crossings.

Dispersed recreation can cause an increase in human and animal (dog/horse) waste to the ecosystem potentially increasing pathogenic (*Giardia*, *Cryptosporidium*, *E. coli*, etc.) organisms and/or nutrient additions (phosphate and nitrate) to streams (MacDonald et al 1991). This can add to the background levels produced by wild animals.

Fecal matter transported via erosion to stream systems or deposited directly into the stream system has the potential of degrading water quality. The risk of this happening under this alternative is very low for most of the trail segments because of the distance to stream systems but is possible in the immediate vicinity of the stream crossings. This is more likely to occur if these areas are heavily used without proper disposal techniques. There would be no human sanitation facilities added under this alternative as under Alternatives 2 and 3.

Pet (dog) use is expected to be similar to somewhat lower under this alternative in comparison to the other alternatives because use is expected to increase under Alternatives 2 and 3 and remain the same under this alternative.

Cumulative effects

This alternative potentially has a greater likelihood of increasing sedimentation and turbidity than the other alternatives without a corresponding improvement of the sites. Re-design of some of the more problematic crossings (steeper approaches and/or failing drainage structures) are not part of this alternative, so sedimentation and turbidity would be likely to continue to occur at current rates or increase over time if braiding or widening of the trail occurs. There is no planned expansion of the equestrian network under this alternative so there would be no new stream crossings for horse use.

Compaction would increase if braiding of existing trails from bicycle/hiker/horse use continues to occur. The use would be dispersed over 3 sections of land.

Impacts to water quality (pathogens/nutrients) from human and animal waste (dog/horse) are potentially higher under this alternative than under Alternatives 2 or 3. Restroom facilities would not be constructed under this alternative to help reduce human waste as with the other alternatives. Impacts to water quality from animal (dog/horse) waste would continue without conscientious trail etiquette. The segments of the trail susceptible to this are in the vicinity of the stream crossings - approximately 4% or less of the existing trail miles.

Alternative 2

This alternative would incorporate the improvements to the trail system in the IMBA report to eliminate unsustainable road segments and improve the long-term sustainability of the remaining segments. Trail use is likely to increase because of the formal designation of the trail system, the improvement in trail design, and the addition of parking and restroom facilities. Equestrian use would be excluded under this alternative but might still occasionally occur, without approval, on some of the trails.

Erosion/sedimentation on the existing trails would likely decrease in the long term even with increased usage as improvements occur in trail design (reduction in grade, removal of unsustainable segments, improving trail drainage). The hardening of the sensitive sites and the stream crossings would also be beneficial in reducing erosion/sedimentation in the long term. Erosion/sedimentation could increase in the short term if there is a significant increase in use that precedes the trail improvements. The potential for erosion from OHV use of the trail would probably decrease in the long term if bicycle/hiking use increases and the trails become actively managed under this alternative.

This alternative would have slightly more compaction than Alternative 1 because of the addition of a parking area, the eventual addition of new trails, and the re-routing (construction) of some of the existing trails to mitigate poor trail design. The parking area would add less than about 0.5 acres of new compaction in Section 27.

Future new trail construction and re-routed trail construction is estimated at 10 miles or less (total) over the long term (10 years). This compaction would be about 3 acres or less and would probably be distributed over all 3 sections. Trail width could decrease on some trail segments (roads) to convert double track trails to single-track trails and through the reduction of braided trails. Trails are currently wide enough for bicycle use and would not need to be widened under this alternative (no equestrian use).

Additional removal of overstory would occur on up to 10 miles of trail as segments are re-routed and/or if the trail system is expanded. No vegetation over 11 inches in diameter would be removed. The trail system would be constructed between overstory trees to the extent possible to reduce the amount of cut trees.

Additional stream crossings could be constructed if the trail system is expanded. The location and number of crossings is not known at this time. Some erosion and sedimentation could occur in the construction of new crossing sites, but this would be substantially reduced with the implementation of the design features. These features would be used: reduce trail grade, locate crossings in the upper portions of drainages where channels are smaller and more likely to have intermittent flow, and remove excavated soil from the trail bed to upland areas or stable side slopes to minimize soil migration to the

new crossings. Trail techniques such as grade reversals, alignment, out-sloping, and adding rolling grade dips would also be used to reduce the potential for erosion and sedimentation.

Stream crossings would be designed to minimize alteration of shading overstory vegetation and to maintain the microclimate in the riparian areas. New crossings would be well armored with rock to reduce the potential for siltation without obstructing stream flow, or crossings would be constructed with structures such as bridges or culverts.

Impact to flows would be similar to Alternative 1. There would only be small differences in the total amount of compaction and removal of overstory vegetation between alternatives. This action includes design features to facilitate proper drainage off of existing trails, re-routed trails, and new trails so that movement of flow from the compacted trail surfaces to the adjacent undisturbed areas are improved. Closed trails would be re-claimed, to the extent possible, to mitigate routing of flow.

There would be no risk of increased sedimentation from the construction and use of the parking and restroom facilities. These facilities would be located on flat to gently sloping topography and would be at least 500 feet away from any stream channels. The access road (Road No. 20-5-14.1) would have a low risk of sediment delivery from increased road use because of the resistance of the chip sealed (paved) tread.

The vault toilet facilities would be beneficial in reducing human waste additions to the area and reduce the potential of pathogenic organisms being added to the stream channels by recreationists. This could also reduce the potential increase in nitrogen and phosphorous to the stream system from human waste. This alternative would not include waste from horses as equestrian use would not be part of the proposed action. The parking facilities kiosk could be used to educate users (signage/brochures, etc.) on the proper disposal of human and animal (dog) waste. Permanent and/or temporary restroom facilities could be added to the other BLM sections for large events or if general usage greatly increases to help mitigate the human sanitation issues.

Cumulative effects

The long term effects would be a decrease in sedimentation/turbidity as the existing stream crossing sites are improved. Some of the stream crossings (Segments 82 and 119) can be eliminated through re-routing. Sedimentation/turbidity could increase in the short term if trail use increases significantly before improvements are made. Future crossings (non-equestrian) could also contribute sediment but could be substantially mitigated with proper siting and the proposed design features.

A reduction in overstory would occur where trails are re-routed, the parking lot is reconstructed, and up to 10 miles of new (biker/hiker) trail is constructed. The impacts to flow and stream temperature would be negligible because of the minimal amount of changes on 3 sections of land. Most of the proposed parking lot area is currently in an area with few trees (existing road and open area). The new and re-routed trails would be narrow (<2 feet) and would be positioned between the majority of overstory trees. Design features would be in place in the location and construction of any new crossings to minimize the alteration of overstory.

Compaction from the parking lot, the re-routing of existing trails and the eventual construction of up to 10 miles of new trail would increase by less than 3.5 acres. The construction of vault toilets and other facilities as needed would be beneficial in reducing human waste impacts to water quality. There would no equestrian use under this alternative so there would be no additions of horse waste. Impacts to water quality from animal waste (dog) could increase if use goes up substantially and if pet owners are not conscientious about clean-up.

Alternative 3

This alternative would also adopt the IMBA report improvements to the trails as under Alternative 2. Equestrian use would be allowed but unlike Alternative 1 it would be limited to about 2.4 miles of existing trail where trail guidelines are met and the trail is sustainable. The majority (1.92 miles) of the allowable equestrian trail would be on existing aggregate or natural surfaced roads. The trail would also utilize about 400 feet of existing single-track trail. This alternative would include the addition of vault toilets as under Alternative 2 but a slightly larger parking area would be constructed than under Alternative 2 to accommodate horse trailers.

This alternative would have very similar compaction levels as Alternative 2. The parking area would be about 1/10th acre larger than under Alternative 2. The increase in the trail miles from new or re-routed bicycle/hiker trails would be similar (up to 10 miles) to Alternative 2 and would add up to less than 3 acres of new compaction. Trail widths on the equestrian segments would only be wider than under Alternative 2 to accommodate horses on the short section (approximately 400 feet) of approved equestrian trail that is not on existing roads. This would add less than 0.1 acres of additional compaction from trail widening.

There would be a decrease in sedimentation/turbidity when the existing stream crossing sites are improved and the trail is hardened as indicated in the IMBA report. Equestrian use would only occur over one stream crossing (Segment 155). This crossing would need to be hardened to accommodate equestrian traffic. Some of the crossings might eventually be eliminated through re-routing to reduce sedimentation/turbidity.

There is no planned expansion of the equestrian network under this alternative so there would be no new stream crossings for horse use. OHV use of the trail would probably also decrease in the long term as under Alternative 2. The removal of overstory is expected to be nearly identical to Alternative 2 in the construction of new trail and the construction of the parking area, and the re-routing of existing trail.

The impact to flows would be similar to Alternatives 2 as there would be only small differences in the total amount of compaction and the alteration of overstory vegetation. Improvements to the existing trail system and closure of unsustainable trails would be similar to Alternative 2.

Additional stream crossings for hiker/biker use could be constructed as under Alternative 2 if the trail system is expanded. Design features would be incorporated as under Alternative 2 to minimize the alteration of overstory canopy and reduce the potential for erosion/sedimentation to occur in these areas.

The impacts on sedimentation from the construction and use of the parking and restroom facilities would be the same as for Alternative 2. The vault toilets would provide similar benefit in reducing human waste on the trail as under Alternative 2. The parking facilities with kiosk could be used as in Alternative 2 to educate users in the importance of proper disposal of human and animal (dog/horse) waste.

Permanent and/or temporary restroom facilities could be added to the other BLM sections as under Alternative 2. Impacts would be dependent on the level of use of the trail in the vicinity of the stream crossings and how conscientious users are in the disposal of human/animal waste. Horse use in the vicinity of stream crossings would be less than under Alternative 1 because equestrian use would be restricted to about 2 miles of segments (mostly existing roads) and only 1 stream crossing where trail guidelines and long term sustainability can be achieved.

Cumulative effects

Compaction from the parking lot, the re-routing of existing trails, and the eventual construction of up to 10 miles of new bicycle trail would increase by up to 4 acres. The widening of some of the existing trail to accommodate equestrian use would add less than 0.1 acres of additional compaction.

There would be a decrease in sedimentation/turbidity on the stream crossing segments that can be improved and hardened.

Some of the crossings (Segments 82 and 119) might eventually be eliminated through re-routing. There is no planned expansion of the equestrian network under this alternative so there would be no new stream crossings for horse use.

A reduction in overstory would be nearly identical to Alternative 2. The parking area would about 1/10th acre larger than under Alternative 2. Only about 400 feet of trail would be wider to accommodate horse use. The impacts to flow and stream temperature would be negligible and similar to Alternative 2 because of the minimal amount of changes to overstory vegetation on 3 sections of land. Design features would be incorporated in the siting and construction any new stream crossings (non-equestrian) to reduce impacts from overstory removal.

The construction of vault toilets and other facilities as needed would be beneficial in reducing human waste impacts to water quality. Impacts to water quality (pathogens, nutrients) from animal (dog/horse) waste could increase if use goes up substantially without conscientious trail etiquette. This alternative would have a higher level of animal use than Alternative 2 because of the addition of equestrian use, but because equestrian use would only occur in the vicinity of one stream the impacts would be very similar. The segments of the trail susceptible to human and pet (dog) waste in the vicinity of the stream crossings is approximately 4% or less of the existing trail miles.

ACS Objectives

ACS objectives 1-9 would be maintained for all alternatives at the site scale and at the watershed and sub-watershed scale.

ACS 1 would be minimally affected by any of the alternatives because existing stand structure and vegetation would continue to develop at its present rate. Only small alterations would occur in overstory condition on less than 4 acres within the 3-section project area for all alternatives. No enhancement of the distribution, diversity, and complexity of watershed conditions would occur as a result of these alternatives.

Connectivity (ACS 2) and the physical integrity (ACS 3) of the aquatic system would not be altered under Alternative 1 as there would be no new trails or crossings constructed. New crossings under Alternatives 2 or 3 could be designed to have minimal impacts to connectivity and physical integrity at a site scale and no impacts at a sub-watershed or watershed scale.

It is unlikely that there would be an impact to stream temperature (ACS 4) under any of the alternatives at the site scale (or larger). Alternative 1 would not involve re-routing trails, adding trails, or the addition of stream crossings. Alternatives 2 or 3 might eventually increase the number of overall crossings but the overall number is likely to be few. The minimal width of the trail and the proposed design features would insure that stream shading would be maintained because a very high percentage of existing overstory (trees) would be retained in the vicinity of streams.

Periodic erosion and sedimentation (ACS 5) pulses would continue to occur at the 11 stream crossing sites in the short term depending on the extent of use and maintenance of the trail system. Alternatives 2 and 3 would involve some restoration (hardening and narrowing of the trail, reduction in grade, improving trail drainage, removal of unsustainable segments, improvement of stream crossings) of these sites at a site scale that would reduce erosion and sedimentation to a slight extent in the vicinity of the stream crossings (long term). It is unlikely that the reduction in sedimentation would be measureable at the sub-watershed or watershed scales for these alternatives.

Impacts to flow (ACS 6) are very unlikely at the site scale (or larger) because of the relatively small amount (<4 acres) of added compaction that would occur on 3 sections of land under all alternatives. Some minor improvement in trail drainage on some segments is likely from the implementation of the IMBA report under Alternatives 2 or 3.

No measurable changes to in-stream flows or water table elevation in meadows and wetlands (ACS 7) would be anticipated under any of these alternatives because of the retention of the overwhelming majority of overstory trees and the minimal increase in compaction in the project area.

Fisheries

Under all alternatives no major work is to be completed at stream crossings (i.e. excavations of fills and culverts). Therefore temporary delivery of sediment at stream crossings and associated turbidity increases would not occur as normally associated with heavy equipment operations. Some sediment delivery at stream crossings exists and would continue to occur because of topography, trail systems and road network, although work could be done to reduce the current "minimal" delivery rates associated with the current analysis area.

Alternative 1

Because of the popularity of this trail network, use by both cyclists and equestrians would continue in coming years. However some new (illegal) trail construction may occur. Because the potential for recreational use in the analysis area is high one could conclude that soil erosion and compaction rates would increase due to lateral trail migration. Stream crossings (11) here make up a fraction of the total percent of trails in use. Consequently, it is unlikely that there would be significant sediment delivery from said trails to tributaries feeding coho streams. Several stream crossings were observed for

sediment delivery during an April field survey that coincided with a major rain event. Although some sediment appeared to be entering crossings from the trails, the amount was visually less than the background or natural rates being delivered to reaches above and below said crossings.

The introduction of fecal matter to area stream reaches via human and horse vectors is a possibility. Once again, the area potentially delivering fecal matter to streams would be minimal because this area represents a small portion of the trail system. Also, the odds of humans and horses defecating in these delivery zones would be extremely small. No construction of designated waste stations are planned for humans therefore one could assume a greater chance for human waste accumulations.

Alternative 2

Under this alternative, although trail use is expected to increase because of trail designation, recreational trail improvements would be implemented to reduce sediment delivery to stream crossings. In addition, toilets would be provided to reduce the potential human waste accumulations. Since equestrian use is not designated under this action one would expect that the potential for horse feces entering the neighboring creeks to be less than Alternative 3.

It is assumed that new stream crossings will occur as trail expansion evolves. BMPs should reduce or negate the potential for sediment delivery at these future crossings.

Vehicle parking and restroom construction will have no effect on streams associated with the analysis area as these sites will be at a minimum of 500 feet away from active channels.

Alternative 3

As in Alternative 2, although an increase in trail use is expected because of trail designation, this option would include recreational trail improvements designed to reduce sediment delivery to stream crossings from biking and hiking and also would allow the use of approximately 2.4 miles of existing routes for horseback riding.

Horses would be restricted to hardened roads that do not deliver sediment to fish bearing reaches in this alternative. There is also no planned expansion of horse trails in the planning area under this action.

New bike/hike trails could include future stream crossings. Again, BMPs should reduce or negate the potential for sediment delivery at these future crossings.

Vegetation, Invasive Non-native Plants, and Botany

Alternative 1

The no action alternative would involve continued trail use and possibly some maintenance. Trail migration, braiding, erosion, and the proliferation of additional "use trails" (trails created by the passage of traffic) could be expected. Therefore, impacts to vegetation may be expected under the no action alternative.

Special Status Species and Survey and Manage Species

No federally listed Threatened or Endangered plant species were located during surveys, and no effects to these species are anticipated. No mitigation measures are necessary.

No Bureau Sensitive plants were found during surveys.

The *Cimicifuga elata* site may be impacted by ongoing trail use, erosion, and trail migration under the this alternative.

Special Status fungi may occur in the project area, and if so, may be impacted by ongoing trail use, erosion and trail migration. However, according to BLM Information Bulletin Number OR-2004-145 (Attachment 5), protection of known sites along with ongoing large-scale inventory work is thought to be adequate in assuring that projects will not contribute to the need to list these species under the ESA. This determination stems from the analyses regarding these species occurring in USDA-USDI 2004.

Pre-disturbance surveys for certain Survey and Manage botanical species are required for habitat-disturbing activities in late-successional habitat. Surveys were carried out, and no Survey and Manage vascular plants, lichens or bryophytes were located.

Noxious and Invasive Weeds

Single-track trails through shaded forests have produced very little weed invasion. Only a single site was found during surveys that appeared related to trail use, a small site of herb Robert. However, there remains a risk that increasing weed infestations will occur, due to trail users acting as seed vectors, and due to increasing amounts of disturbance from unmaintained and unmanaged trail use. Shade tolerant weeds are of particular concern. Shade tolerant weeds in the area include false brome and herb Robert. False brome is of greatest concern because it has shown an ability to dominate forest understories to the near exclusion of native species. Himalayan blackberry also can dominate forest understories in some areas once it becomes established. These weeds often appear to need a disturbance event to establish in otherwise intact vegetation. Shade intolerant weeds such as Scotch broom only dominate vegetation, producing near monocultures, in more open conditions.

Cumulative effects

Forestry operations have occurred in the project area, and are expected to occur in the future. Timber sales have a much greater risk of promoting weeds than the trails. Trail use impacts would be additive to timber sale impacts; for example, weeds could be introduced by trail users, then spread when timber sales create disturbed ground and open conditions conducive to weeds.

Alternative 2

Vegetation impacts under Alternative 2 would be similar to those under the no action alternative. However, because the trails would be maintained and managed, with non-sustainable segments closed or rerouted, impacts would be generally less severe or less likely. Trail migration, braiding, erosion and the proliferation of additional “use trails” would be lessened, although trail realignment or rerouting is expected and about 5 to 10 miles of new mountain bike trail may be constructed.

Special Status Species and Survey and Manage Species

Effects are the same as the no action alternative except that there is less risk to undocumented sites of Bureau Sensitive or Survey and Manage species from trail migration, braiding, or proliferating “use trails.” Any additional trail segments beyond those from the IMBA report would be surveyed before construction.

Under this alternative, trail Segment 67 is to be rerouted, and can be aligned to avoid effects to *Cimicifuga elata*.

Trail management poses some risk to epiphytic Special Status lichen species on old growth trees and snags; trails should be rerouted to avoid hazard trees rather than felling these trees.

Noxious and Invasive Weeds

Under this alternative, there is less risk of noxious weed spread. Disturbance would be lessened by managing and maintaining the trail system. Weed introductions can be more easily located on a designated trail system. Mitigation measures can be put in place (see project design features).

BLM Manual 9015. Mitigation is prescribed by the risk assessment in BLM Manual 9015 – Integrated Weed Management. The risk assessment considers the likelihood of spread and the consequence of spread (level of effects) to come up with a risk rating. For Alternative 2, factor 1 (likelihood) is considered moderate as noxious weeds are located in the project area, and activities are likely to result in some areas becoming infested. Factor 2 (consequence) is considered moderate as cumulative effects on the native plant community are likely but limited.

These factors lead to a moderate risk rating, for which BLM Manual 9015 prescribes the development of preventive management measures including seeding with desirable species, monitoring the area, and controlling infestations discovered through monitoring.

Alternative 3

Under the equestrian use alternative, impacts to botanical resources are expected to be largely the same as Alternative 2. Alternative 3 would promote equestrian use on some trail segments.

Horses may be expected to have a higher rate of weed spread than hikers or mountain bikers. In addition to seeds in mud, seeds can be carried in horse hair, and spread through manure. Weaver and Adams (1996) found 29 species of weeds dispersed via horse manure. However, weed introduction can be an uncommon occurrence. For example, Gower (2007) found no establishment of non-native

species from hay, hoof debris, or manure samples experimentally placed along trails, evidently in part due to shaded trailside conditions.

Wildlife

Alternative 1

Under the no action alternative, approximately 18.8 miles of existing trails would be expected to continue to sustain unregulated use and expansion. Given the range of seral stages in the project area, an array of species associated with a variety of habitats could be affected by continued lack of management and oversight. In addition to the effects to spotted owl habitat and their prey, Tables 5 and 6 list additional species of particular concern and their associated habitats.

Trail braiding and trail migration has resulted in increased impacts from mountain bike activity and other users and would continue to degrade the immediate area by damaging understory vegetation, ground litter, and coarse woody debris that these species depend on. Overstory canopy structure would be unaffected by the unregulated use while damage to mid-story vegetation would be expected to be minimal.

It is reasonable to assume that any wildlife species presently occurring in the vicinity have acclimated to the existing habitat conditions and disturbance levels. However, unregulated activities such as trail braiding and trail migration would be expected to be a source of disturbance to wildlife species in the vicinity because wildlife would not have acclimated to these new disturbances. Red tree voles would remain un-affected in this alternative. There is a small chance that spotted owls and marbled murrelets occupy small portions of the older forest types and could be subject to disturbance. Reaction to seeing mountain bikers and the associated noise could interrupt the daily or seasonal routines of local wildlife. Such disruption could result in increased predation, nest abandonment, changes in foraging patterns, or forced movement out of traditional territories.

Alternative 2

This alternative would establish a managed trail bike system, including construction of up to ten miles of new mountain bike trail, improvement of existing trails, elimination of trails causing degradation to local ecosystems, and regular trail maintenance.

Construction of new trails would not involve felling of trees greater than 11 inches dbh, but may involve alteration of woody debris, and removal of shrubs and herbaceous plants. These actions would result in minor alteration of the mid-story and the removal of some of the understory which serves as habitat for spotted owl prey and the species in Tables 5 and 6 and/or their prey.

Trail construction would have no influence on the habitat of the marbled murrelet or red tree voles because the diameter limit on tree felling would preclude damage to habitat (large branches or other suitable nesting substrates) of these species. Nesting habitat for the spotted owl would also be unaffected, while there may be very minor changes in roosting habitat in the mid-story as a result of felling trees less than 11 inches dbh. These new trails may occur in one or all of the following spotted owl habitats: dispersal, foraging, roosting and nesting. The construction of 10 miles of new trail would not alter the overall function of any of these habitat types.

The effects from the about 10 miles of new mountain bike trail construction on habitat alteration and disturbance to wildlife would be confined to the constructed and designated trail. After the initial disturbance during trail construction, wildlife would acclimate to disturbance from repeated use of the designated trail system. Design features such as felling only trees smaller than 11 inches dbh if needed and avoiding thickets of vine maple where feasible would minimize the effects to wildlife. This alternative would reduce both habitat altering and disturbance effects to wildlife species occurring in the area compared to the no action alternative. If the maximum 10 miles of trail are constructed, the result would be the loss of approximately 3.4 acres of mid-story and understory habitat. Within the 1,560 acre planning area, that level of habitat loss would not alter the current function of any habitat type for these species.

Some newly constructed trail segments may occur within the 2012 proposed spotted owl critical habitat in Section 35; new trail construction may result in the removal of the down wood, shrub and herbaceous component occurring the understory. Overstory would not be altered by this action, while some modification of the mid-story would occur if 11 inch trees are felled. The possible loss of about 3.4 acres of understory habitat would not alter the current overall function of the surrounding habitat,

regardless of what components are modified, and spotted owl proposed critical habitat will continue to function as such.

Minor re-routing of problem segments is planned. These re-routes would be located adjacent to or within 25 feet of the problem segment and would not expand the footprint of the proposed system. Although some brush and herbaceous vegetation would be removed during the re-routes, trees are not proposed for felling. If tree removal cannot be avoided, felling would be limited to trees less than 11 inches in dbh. Any trees felled would be left on site as coarse woody debris.

The removal of detrimental trails that are created due to unregulated use such as trail braiding and trail migration, the improvement of remaining trails, and establishment of a more regulated bike system would result in a reduction of the negative effects to wildlife described under Alternative 1, due both to wildlife habitat alteration and disturbance. Trail designation is known to restrict use to the regulated/designated trails.

Alternative 3

This alternative is similar to Alternative 2 except that some trail segments would also accommodate equestrian activities. The equestrian segments would be located on decommissioned roads with previously compacted surfaces. The environmental impact of adding this activity would not alter the environmental consequences or management actions described in Alternative 2 since it would not expand the footprint of that alternative.

Cumulative effects of the action alternatives

Both Alternatives 2 and 3 would include up to ten miles of new construction resulting in a 50% cumulative increase in trails. That increase, along with an expected increase in usage would result in additional disturbance to wildlife associated with more human activity.

Given a trail width of three feet, 10 miles of trail would equate to a cumulative loss of about 3.4 acres of wildlife habitat cumulatively adding to the 18.8 miles (7 acres) of existing trail in the project area. Depending on the location of the new trails, the proposed trail expansion of 10 miles may incur a loss of 3.4 acres of foraging habitat for the northern spotted owl, black throated grey warbler, band-tailed pigeon, rufous hummingbird, northern goshawk, yellow-breasted chat, fisher, Tillamook western slug, and the spotted tailedropper.

Alternatives 2 and 3 may also incur the same loss of nesting/rearing habitat for the black-throated grey warbler, rufous hummingbird, common nighthawk, fisher, Tillamook western slug, and spotted tailedropper. Consequently, the two action alternatives would contribute to the cumulative effects of habitat loss and disturbance produced by the existing trail system.

If the maximum 10 miles of trail are constructed, resulting in the loss of approximately 3.4 acres of habitat within the 1,560 acre planning area, that level of habitat loss would not alter the current function of any habitat type in the vicinity.

No other similar projects are known to exist or are being planned in the vicinity. As previously mentioned, any habitat manipulation would be negligible and would occur in habitat that is locally abundant. Consequently, the action alternatives would not contribute to any cumulative effects.

Cultural Resources

This project occurs in the Oregon Coast Range physiographic province where the terms of Appendix D of the *Protocol between the Oregon State Historic Preservation Office and the Bureau of Land Management* are in effect. Cultural resource inventory techniques are based on this protocol and require post-disturbance inventory on slopes of 10% or less or where professional judgment prompts such efforts due to topographic features or existence of nearby cultural resources.

Eugene District cultural resource maps, reports, and other documents were consulted to ascertain the existence of any known cultural resources. Reconnaissance surveys were conducted to attempt to locate historic resources that were identified from "tickler" documents that were discovered while conducting background research. Two potential historic structures were identified from historic documents but were never field verified; therefore, there are no site records. GLO timber notes from 1939 identified a timber plank truck road that potentially crossed part of the trail in this project. Additionally, a summary of historic records identified a historic "settlement" once existing within the vicinity of some of the trails in this project.

There were no site forms, photos, or good documentation of either of these resources, only legal location descriptions and poor vicinity maps. Using this information, the archaeologist attempted to relocate these two resources in the field and surveyed the trails in the vicinity of their potential locations. No historic remains were discovered in the identified locations or near the trails identified for this project, resulting in no effects to cultural resources.

If any cultural and/or paleontological resource (historic or prehistoric site or object) is discovered during project activities all operations in the immediate area of such discovery would be suspended until an evaluation of the discovery could be made by a professional archaeologist to determine appropriate actions to prevent the loss of significant cultural or scientific values.

CONSULTATION AND COORDINATION

Wildlife

This project is currently undergoing consultation with the U.S. Fish and Wildlife Service. A response in the form of a biological opinion (BO) is expected late summer or early fall, 2012. The project has been designed to result in a determination of “May Affect, but is Not Likely to Adversely Affect” the spotted owl as a result of understory habitat modification, some minor mid-story alteration, and disturbance that may occur; however, the rest of the habitat types will not be affected and no other impacts are expected.

The proposed action alternatives “May Affect, Not Likely to Adversely Affect” proposed spotted owl critical habitat for the same reasons. Critical habitat would continue to function as is.

There would be “No Effect” to the marbled murrelet as a result of habitat modification because trees above 11 inches dbh would not be cut. Disturbance “May Affect, Not Likely to Adversely Affect” marbled murrelets, because trail construction may occur during the nesting season; however, the chances of murrelets nesting this far inland are considered to be very low.

There would be “No Effect” to marbled murrelet critical habitat since the project is not located in marbled murrelet critical habitat.

Fish

ESA Consultation

The alternatives are located in the Upper Siuslaw River 5th Field hydrologic unit code area (HUC). These actions occur within the Douglas/Letz 6th Field HUC (T20S R5W Section 27) and in the South Fork Siuslaw River 6th Field HUC (T20S R5W Sections 23, 27, 35). Although critical habitat (CH) for Oregon Coast coho exists within the Upper Siuslaw 5th Field HUC no CH is present within the project area. Non coho bearing headwater streams within the project area do drain into CH in Letz, Gardner, Sandy and Lick Creeks (tributaries of the Siuslaw River). The alternatives will have *No Effect* on coho salmon and its designated CH; therefore, consultation with NMFS will not be required.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act requires Federal agencies to consult with the Secretary of Commerce regarding any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH) under the Act. The proposed alternatives as described and analyzed in this environmental assessment would have “No Effect” on waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.

SCOPING AND PUBLIC INVOLVEMENT

In early April of 2012 outreach informing the public of the EA planning effort and upcoming public meeting was sent out through formal press release to weekly papers, including the *The Creswell Chronicle*, *Cottage Grove Sentinel*, and *Eugene Weekly*. This outreach was also sent to radio stations *KLCC*, *KUGN* and *KPNW*. Further outreach with the same information was published on the BLM public website, and at informational kiosks located at BLM Siuslaw Resource Area Recreation areas, including Hult Reservoir Equestrian Trailhead and Hult Reservoir Parking Lot. Informational flyers were provided to local businesses and the University of Oregon.

A public scoping meeting was held on April 26, 2012 at the Lorane Grange in the town of Lorane, Oregon. The meeting was advertised via Press Release, BLM public website, and the reader board at the Lorane Grange.

Approximately 55 members of the public attended the meeting, in addition to 5 Bureau of Land Management staff. Comment forms were provided at the meeting, and 17 forms were filled out and submitted. In addition to public meeting comment forms the BLM received 54 comments via postal or e-mail correspondence. Comments were supportive of the trail system as a whole, and many provided input on whether or not the system should or should not be authorized for equestrian use.

IMPLEMENTATION

Under Alternatives 2 and 3, trail improvement and repair would take place beginning in 2012, and continue for approximately the next 10 years. Any future new trail development would take place only in the identified planning area over approximately the next 5 to 10 years, and be subject to the same goals, objectives and guidelines set forth in this EA. The parking lot construction would be completed in 2012 and the concrete vault restroom would be targeted for completion in 2013.

LIST OF PREPARERS

The alternatives were developed and analyzed by the following interdisciplinary team of BLM specialists.

Name	Title
Sharmila Premdas	BLM NEPA Planner
Steve Steiner	Hydrologist
Karin Baitis	Soil Scientist
Dan Crannell	Wildlife Biologist
Leo Poole	Fish Biologist
Heather Ulrich	Archaeologist
Doug Goldenberg	Botanist
Tom Jackson	GIS
Mike Millay	Recreation Technician, Trails Specialist
Mike Fieber	Recreation Technician, Trails Specialist
Justin Pattison	Engineer
Luis Palacios	Engineer
Wade Judy	Outdoor Recreation Planner

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Carpenter's Bypass Trail System Assessment

Summer 2011

PREPARED FOR: Bureau of Land Management, Eugene District

PREPARED BY: The International Mountain Bicycling Association - Trail Solutions program
PO Box 7578
Boulder, CO 80306



Carpenter's Bypass Trail System Assessment

In an effort to establish a management plan for the Carpenter's Bypass area, the existing trail system at Carpenter's Bypass was assessed for sustainability. In addition to sustainability ratings, broad recommendations for maintenance or realignment were given for each trail segment.

This assessment was made possible by the Bureau of Land Management (BLM) and IMBA's Trailbuilding Fund; facilitated through IMBA's Assistance Agreement with the BLM. Trail Solutions would like to acknowledge the assistance of the Disciples of Dirt in providing route guidance and context for evolution of trails at this site.

Corridor Assessment

We desire trails to be both environmentally and socially sustainable. In many ways, social and environmental sustainability are linked - users on the trail appropriate and enjoyable for them are less likely to exhibit environmentally damaging behaviors (e.g. skidding, trail widening, off trail travel).

Social Sustainability: Reduce user conflict and enhance user experience.

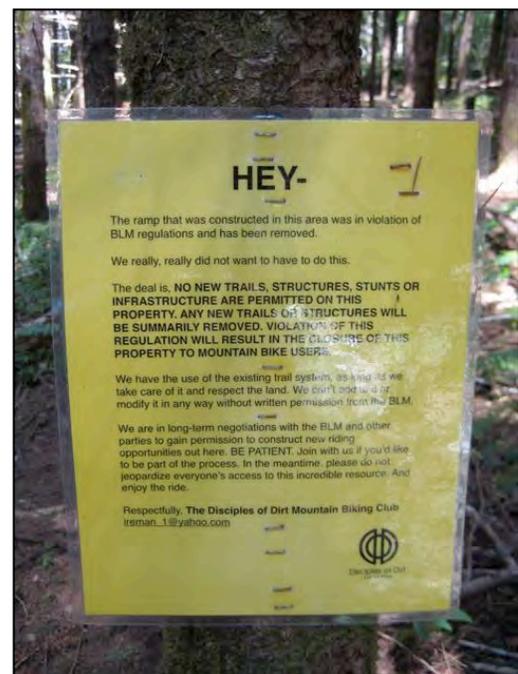
Environmental Sustainability: Reduce water- and user-based erosion, displacement, and muddiness, and require minimal maintenance.

There are many broad guidelines that apply to most situations, such as fall-line alignments as unsustainable, but many that are situation and setting specific. For the Carpenters Bypass Trails, there are several setting-specific social and environmental factors that were considered in the assessment:

Social

This site has very little user conflict, and because of its location and existing use patterns, it is expected to continue to have little user conflict concerns. The primary users are cyclists, but with runners, hikers, and occasional equestrian users as well; user patterns have established organically as the trail system has grown and changed. The largest potential conflict here is within the cycling user group: as riders seek more technical challenge and create new trails and/ technical features within existing trails that may be socially and/or environmentally unsustainable.

Social sustainability here is more defined by user experience goals for challenge, both skill and fitness. The system currently does not adequately offer appropriate advanced experiences. There are limited natural terrain



Conscientious DoD volunteers try to help manage the informal trail system and foster partnerships with land management.

features for technical challenge (e.g. rock outcroppings) and the system has formed primarily via user creation. Without a management plan, trail development can seem haphazard and confusing. Some riders seek out any challenge they can find, while others want to avoid obstacles. Without clear distinction among trails, this leads to many trails feeling similar, with braiding where obstacles are placed or form along the trail (e.g. roots exposed due to erosion, or a log falling across the trail).

Other factors considered within social sustainability were:

- Sightlines
- Flow to intersections
- Skill ratings

Environmental

Primary concerns for environmental sustainability rest with existing road alignments, proximity to clear-cut areas (typically on adjacent private property), and illegal motorized use. Most of the user-created trails are in relatively good shape, and many see routine maintenance from volunteers. However, given the potential for year-round use, and the anticipated increase in use as the system is formalized, there are many trail sections that will need significant maintenance and/or realignment. Realignments should focus on fall-line sections and in moving routes off of roads, particularly those that see vehicle traffic.

Ratings for sustainability vary based upon several factors:

- Prevailing slope to trail grade alignment ratio
- Absolute trail grade
- Canopy: maturity, daylighting, deciduous vs conifer
- Vegetation: wet indicators, ecological health, disturbance/invasive species
- Level of anticipated use
- Watershed area
- Soil type and rock content
- Current tread condition: widening, muddiness, flow, etc.



Sustainable trail: this trail section is narrow, with meander and undulations. Additionally, volunteers actively maintain the tread, hardening low spots and muddy areas.



Trail braiding and widening are common to avoid wet spots and trail obstacles. Trail should be maintained and braided/widening areas restored and choked to prevent reestablishment.

Sustainability Map Key

Green: Trail corridors in a sustainable alignment and generally in good condition. Some trail segments may require significant maintenance to improve tread condition, but the corridor is sustainable.

Yellow: Trail corridors where tread can be made maintainable after restoration within the existing corridor. May involve significant armoring or other tread hardening and regular maintenance, but can be made sustainable. Many yellow sections of trail are overdue for regular maintenance and require rolling grade dips, knicks, meanders, and/or hardening.

Red: Trail corridors that cannot be made sustainable or maintainable. Due to the costs associated with reconstructing an unsustainable trail, the continued maintenance required, and the possibility of failure during catastrophic rain events and/or heavy use, it is likely that most of these trails will need to be relocated. Relocation within the existing corridor (e.g. adding undulations and meander, corralling), the use of concrete pavers, major armoring, and other techniques can be used to create a more stable, maintainable tread.



This trail segment is in a sustainable alignment, but needs tread improvements: as roots are exposed, the tread becomes more off-camber and slippery, users go around the roots, causing trail widening and further impact to roots. A small retaining wall with fill should be added to protect the roots; or roots can be armored with rock and chokes added to prevent user widening.



This heavily trenched section of road is part of the trail system. Old roads have much greater surface areas for erosion and typically make less desirable trail experiences. Road to trail conversions or reroutes are recommended.

Carpenters Bypass Trail Assessment								
Segment ID	Sustainability Rating	Average Grade	Maintenance Prescription	Relative Skill Rating	Comments	Photo #	Route Type	Reroute or Closure
1	3	0-10	close; or reroute (RR) at clearcut (CC) & maint: RGD every 75', harden	Int	old rd bed, ends in CC & pvt ppty; very muddy/wet	4182	DT	RR/close
2	2	0-10	harden, rolling grade dip (RGD):50lf	Int	old rd bed, muddy, some rubble added	4182	DT	
3	1	0-10	RGDs & harden occ. wet spots	Int	upper line: ST, nice, twisty	4184	ST	
4	3	0-10	close	RR	muddy, rutted rd bed: use upper line	4185	DT	close
5	3	30-40	armor 40lf or RR	RR	very short steep section (40lf), reroute to intersection	4188	ST	
6	1	0-10	nice, continue exist maint.	Int	nice, existing tread maint	4189	ST	
7	1	0-10	nice, continue exist maint	Int	outer line, along edge of CC: nice, twisty		ST	
8	3	10-20	RR into woods (N), close	RR	on pvt ppty: steep, loose, eroding, brushy	4186	ST	RR
9	2	0-10	RGDs:50', harden	Int	rd bed, ok, minor cupping		DT	
10	1	0-10	enhance optl lines- challenge	Adv	side route w/optl features		ST	
11	2	5-15	ok, harden: confusing area- guide & sign	Int	ok, close to CC, little steep		ST	
12	1	0-10	good now, watch approaches @ upper turns	Int	nice, good UM, upper turns a little steep		ST	
13	1	5-10	good; confusing area- guide & sign	Int	nice, undulation and meander (UM)		ST	
14	3	10-20	RR or harden, armored RGDs for adv line	Adv	steep, cupping, fall-line		ST	RR/armor
15	3	25-30	RR; or major armoring for adv line	Adv	very steep, cupping, straight, fall-line	4187	ST	RR
16	2	10-20	harden, armored RGDs for adv line: or RR	Int	reroute to steeper line: better: top steep		ST	
17	3	15-25	RR or harden, armored RGDs for adv line	Adv	steep, fall-line		ST	RR/armor
18	2	0-10	RGDs:75', harden	Int	rd bed, muddy, exist maint/harden		DT	
19	2	10-15	RGDs to fall-line sections, armor dips & >15%	Int	ok, but some fall-line/steeper		ST	
20	1	5-15		Int	ok		ST	
21	3	30-40	RR 50lf to intersection	Int	50lf very steep/fall-line to rd intersection		ST	RR
22	1	0-10	knick, harden dips;	Beg	nice, rolling; few wet low/outside berms	4190	ST	
23	1	5-15	Minor bench improvements (MIB):camber & debern: ret wall over roots	Int	mostly good; partial bench, roots exp: wet spots	4191-92	ST	
24	1	0-10	MIB: knick & harden low spots	Int	sust; few low muddy spots		ST	
25	2	5-15	MIB: bench; + turn platforms; close braiding/armor	Adv	partial bench, roots exp, camber		ST	
26	2	5-15	Improve bench (IB), bench tread or close	Adv	very low/no use, road connector	4193	ST	RR/close
27	1	5-15	MIB: bench, camber	Adv	good: few roots exp, partial bench		ST	
28	1	0-10	clean up garbage dumping	Adv	good, road connector: garbage dumped		ST	
29	1	0-10	close braiding, choke; harden low spots	Int	ok: braiding, occ low muddy spots	4194	ST	
30	1	0-10	close to CC, harden low spots	Int	mostly good, UM; occ loose & muddy near CC		ST	
31	3	10-20	RR to align w/Y88: or RGDs@30', harden, choke.	Int	steep, fall-line runout to road; RR to align w/Y88	4195	ST	RR
32	2	10-20	elev/berm turns & harden: RGDs@75'	Int	fun, low-angle fall-line, UM; need maint w/use inc		ST	
33	1	5-10	armor draw xing & add reversals	Int	nice, UM: moto tracks, drainage xing	4196	ST	
34	2	0-10	RGDs@75', harden	Int	rd bed, open canopy		DT	
35	2	10-20	low priority: RGDs@50'	Int	short, sl fall-line connector; good now		ST	
36	1	0-10		Beg	nice, UM		ST	
37	1	0-10	close & choke braiding & shortcuts; harden low	Beg	nice, UM; occ braid & wet spots, shortcuts		ST	
38	1	0-10	sign connector/ rd xing	Beg	short road connector		DT	
39	1	0-10		Beg	good	4198	ST	
40	3	15-30	close: use existing RR		steep, fall-line - use existing RR	4197	ST	close
41	1	5-15	berm turns, harden low spots& steep pitches	Int	pretty good, UM		ST	
42	1	0-10	sign & guide along road	Beg	short road connector		DT	
43	1	0-10	IB: bench, armor dips (low P); close soc trls @Y97	Int	low use, good align, partial bench; soc trails @97	4199	ST	
43	1	0-10	imp turns near road: berm/build up	Int	good, except few turns @ beginning		ST	
44	1	5-15	RGDs/knicks w/topo, harden dips	Beg	ok, minor cupping	4200	ST	
45	1	0-5		Beg	nice		ST	
46	3	15-20	RR or armor 40lf	Int	steep, fallline from Y21		ST	RR/armor
47	1	5-10	RGDs/knicks w/terrain, harden dips	Beg	minor braiding & cupping; mostly good, UM	4201-02	ST	
48	3	10-25	RR & close: too many routes here!	Int	redundant & fall line: too many parallel trails	4203	ST	RR
49	2	10-20	RR or armor/RGD. RR from TreeJail TH?	Int	shortcut to Road, ok, steep but contour		ST	
50	1	0-5		Beg	From TH: brushy, ok, limited canopy		ST	
51	1	0-8	close braiding (lower/wet line), choke	Beg	good, UM, occ braiding, mud @ X/Y18		ST	
52	1	0-8	close & choke braiding	Beg	UM, occ braiding		ST	
53	1	0-8		Beg	short connector to road, UM		ST	
54	3	5-15	RR: or major maint- RR much easier	Int	fall-line, cupping, widening, exist maint	4204	ST	RR
55	2	5-15	elev/berm turns, +reversals, +harden/fill	Int	UM, ok, some good armoring	4205	ST	
56	3	10-30	close	Int	steep, fall-line, cupping		ST	close
57	2	5-10	RR, or RGDs@50', armor dips, add UM	Int	low angle fall-line, cupping, widening, braiding	4206	ST	RR/armor
58	2	10-20	bench & RR thru drainage: or close	Int	very low/no use: fall-line thru draw		ST	RR/close
59	1	0-10		Int	lower use, nice		ST	
60	2	0-10	corridor, harden, knicks	Beg	low use, along CC edge, very brushy!	4207	ST	
61	2	0-10	corridor	Beg	low use, ok		ST	
62	1	0-8	harden turns & dips, knicks	Beg	UM; thinned: limited canopy & brush		ST	
63	1	0-8		Beg	nice, UM, good beg route		ST	

Carpenters Bypass Trail Assessment								
Segment ID	Sustainability Rating	Average Grade	Maintenance Prescription	Relative Skill Rating	Comments	Photo #	Route Type	Reroute or Closure
64	2	0-5	+ rollers, harden, elev/berm turn @Y29	Beg	along ppty edge/CC, straight, flat, minor cupping		ST	
65	3	15-20	close, RR through thinned area	Int	straight, fall-line, cupped, skidding	4213	ST	RR
66	2	10-20	RGDs@50', armor steep pitches (>20%)	Int	UM, cupping & widening		ST	
67	3	25-35	RR & close	Int	steep, wide, rutted, road bed, motos	4208	DT	RR
68	1	0-10	replace asphalt w/rock, fill low spots, harden;	Int	nice, exist armoring; dead end @ clearcut!	4209-10	ST	
69	2		RR! trail is gone	Int	trail abolished in clearcut! need to reroute!		DT	RR
70	1	0-10	close/choke braiding & widening @ roots	Int	braiding, roots exposed	4211-12	ST	
71	3	25-30	RR, close	Int	steep, wide, rutted, fall-line		ST	RR
72	1	5-15	armor (or RR) short steep pitches (>20%)	Int	mostly nice, few short steep pitches (25-35%)		ST	
73	1	0-5	knicks, harden (low P)	Int	nice, gravel added; road connector		ST	
74	1	0-8	+ rollers, harden low spots	Beg	ok, mostly flat, open. good to add more UM		ST	
75	1	0-5	harden, knicks	Beg	old skid, ok		DT	
76	2	10-20	armor or RR	Int	low-angle fall-line, low use; rd connector		ST	
77	1	0-10	define route, harden @ start; close all routes	Int	Gift Area: very confusing, X's & parallel trls		ST	
78	1	5-15	+ reversals & berm turns, harden (low P)	Int	nice		ST	
79	1	0-10		Int	nice, UM, contour	4214	ST	
80	3	20-35	major armoring or RR - armor for challenge line?	Int	steep climb from draw, on sidehill	4214	ST	RR/armor
81	2	5-15	reversals & berm turns, harden	Int	UM, nice flow; breaking bumps, widening @turns	4215-16	ST	
82	3	10-15	RR further up draw; or armor & replace bridge	Int	fall-line into draw, cupping, muddy	4217	DT	RR/armor
83	2	0-10	close braid, keep upper line; RGDs@50', harden	Int	rd bed, braiding, cupping, upper turnpike line	4218	DT	
84	1	0-5		Beg	nice, sidehill		ST	
85	1	0-10	RGD@75', harden; distinguish from parallel route!	Beg	lower rte, nice, brushy -near clecut; redundant		ST	
86	1	0-10	corridor, harden spots	Beg	ok, brushy, nice		ST	
87	2	10-20	rebuild or close	Int	poor const, pitches >20%; horse damage; align ok	4219	ST	close
88	3	10-20	RR or armored RGDs@30', harden	Int	steep/fall-line, but short section		ST	RR/armor
89	1	0-10		Beg	rd bed		DT	
90	2	5-15	rollers/RGDs@50' (low P)	Beg	low angle fall on knob, ok, UM		ST	
91	3	15-25	RR; or berm & armor turns, RGD@50', harden	Int	long steep turns, fall-line. rebuild or RR		ST	RR/armor
92	2	5-15	RGDs@75', harden dips, add UM	Int	rd bed, straight; maint or RR		DT	
93	1	0-10		Beg	short connector, nice		ST	
94	1	0-10	remove log jump- replace w/optl feature	Int	nice, UM	4220	ST	
95	1	5-15		Beg	nice to drainage		ST	
96	3	25-35	RR or armor & choke	Int	steep up from drainage 200', skidding, cupping		ST	RR/armor
97	2	15-25	reversals & elev, armor/pavers, chokes; or RR	Int	berms steep & long, + ret wall&fill		ST	RR/armor
98	1	5-15	reversals & elev, armor/pavers, chokes; or RR	Int	nice above turns		ST	
99	1	5-10		Int	nice, good UM		ST	
99	1	0-10	good; close side trails, jumps; add sust TTFs	Int	nice, good UM; lots of side trails, jumps	4224	ST	
100	1	0-10		Beg	connector		ST	
101	2	5-15	RGDs@50', +UM	Beg	ok, old rd bed, sust/maint	4223	DT	
102	1	0-10	RGDs@50', +UM	Beg	ok, old rd bed: sust/maint	4223	DT	
103	3	25-35	RR; close; add sust TTF/challenge zone	Int	steep, fall-line, Gift Zone; create real TTF area		ST	RR
104	1	0-10	remove log jump/double, add sust TTFs	Int	short connector; rotting log jumps; sust grade.		ST	
105	1	0-10	close & choke braiding; harden dips	Beg	nice, UM; occ braiding; exist maint	4225	ST	
106	1	0-10	continue existing maint	Beg	nice, existing maint.		ST	
107	1	5-15	build up berm lower legs;+ reversals	Int	nice, fun, UM		ST	
108	2	5-15	move berm -40' S; close turn; or use pavers	Int	turn too steep, erosion & widening, loose		ST	RR/armor
109	2	5-15	close & fix outer line/turn; or RGDs@50', harden	Int	ok, low use shortcut to steep, loose turn		ST	
110	2	5-15	harden dips & steep pitches (~15%, low P)	Int	short connector, low-angle fall-line		ST	
111	1	0-10	+UM, close/choke braiding, harden/elev berms	Int	old rd bed? wider, low-angle fall, cupping	4230	DT	
112	1	0-10		Int	nice, contour, UM		ST	
113	1	0-10	close/choke braiding; add optl features	Int	nice, tight & twisty, rooty, fun		ST	
114	2	15-25	RR short section	Int	too steep, skidding to road		ST	RR
115	1	0-10	harden small berms (low P)	Int	nice, rolling, rooty, twisty	4226	ST	
116	1	0-10	add optl lines & TTFs?	Int	nice, flat/open, twisty, rooty		ST	
117	1	0-10	harden low spots	Int	good, rolling, twisty		ST	
118	1	0-10	choke roots, harden/fill low; improve all lines	Int	T&T, nice. few all lines; widening @roots, logs		ST	
119	1	0-10	RGDs@75', harden	Int	straighter, ok		ST	

Carpenters Bypass Trail Assessment							
Segment ID	Sustainability Rating	Average Grade	Maintenance Prescription	Relative Skill Rating	Comments	Photo #	Route Type Reroute or Closure
120	3	25-35	RR or armor & choke (~200'), replace bridge BMPs	Int	steep into bridge, erosion	4227-28	ST RR/armor
121	1	0-10	RGDs@75', harden low spots	Beg	wider, smooth, but nice, minor cupping		ST
122	3	20-30	RR or armor & choke (~200'), replace bridge BMPs	Int	steep into bridge, erosion		ST RR/armor
123	2	0-10	add UM, R2TC, harden- use machine! jumps?or RR	Beg	cupping; low/angle fall;convert to jump line?	4229	DT R2TC/RR
124	1	0-10	elev & berm turns.	Beg	nice, contour, short pitches @15%		ST
125	1	0-10	MIB- full bench, camber	Int	align good; tread breaks, camber, pitches @15%		ST
126	1	0-10	knicks, harden dips & cupped areas	Int	good UM, short pitches @15%	4231	ST
127	1	0-10	elev/harden lower leg of turns; harden low spots	Int	S-curves, winding, nice UM		ST
128	2	0-10	harden approach to road, close/choke braiding	Int	low angle fall-line, some braiding; good UM	4231	ST
129	1	0-10	continue maint- harden low spots	Int	gentle climb, curves, nice maintenance	4232	ST
130	1	0-5		Beg	nice, open ridge connector		ST
131	1	0-10	continue exist maint.	Beg	good maint, nice, ridgeline, views		ST
132	1	0-10	choke & close braiding, cont existing maint	Beg	minor braiding; good maint.		ST
133	2	5-15	harden existing rollers, dips, choke widening	Int	low-angle fall-line, cupping & widening	4233	ST
134	1	0-10	harden low spots	Beg	sust.		ST
135	1	0-5		Beg	low use connector, rolling		ST
136	1	5-15	harden & elev berm, harden tread, choke	Int	pitches @15%, braiding, steep berm		ST
137	1	0-5		Beg	nice, open, ridge connector		ST
138	2	5-15	elev & armor berm, harden dips, choke	Int	mostly good, outside line@ berm, armored	4234	ST
139	3	20-30	close or major armoring & chokes	Adv	fall-line, steep, rutted	4234	ST close
140	3	20-40	RR; or major armor & DH only	Adv	very steep, fall-line to road	4234	ST RR/close
141	3	0-15	R2TC: RGDs/swales@75', UM, harden- ST RR is better	Int	trenching, mud, erosion, wide; 0-10, pitches@15	4235	DT R2TC/RR
142	2	0-10	R2TC: RGD/swale@75', UM, harden; or close	Int	fall-line, wide, muddiness		DT R2TC/RR
143	2	5-10	harden, choke	Int	nice side trail, slight fall-line		ST
144	1	0-15	berm & harden turns	Int	twisty, low use, nice; few pitches@15%, fall-line		ST
145	3	15-35	close	Int	fall-line, straight, low use: upper 1/2 is steep	4237	ST close
146	2	5-15	RGDs@50', harden dips & turns	Int	ok, some cupping		ST
147	1	0-10	use instead of lower line?	Beg	nice, good maint, sust; lower use upper line	4237	ST
148	2	0-10	harden dips, RGDs w/terrain, choke; redundant	Int	more use, good maint, low-angle fall-line sections	4238	ST RR/close
149	1	0-10	harden/fill low spots,knick, choke: cont maint.	Beg	good maint, wider, some cupping; into CC/ppvt ppty	4237	ST
150	1	0-10	good existing maint.	Beg	minor cupping, good UM		ST
151	2	0-10	replace/remove log ride; add TTF w/BMPs	Adv	log ride- good idea, poor construction, fall zone	4239	ST close
152	1	0-10	harden & elev berms, harden dips & fall-lines	Int	nice, mostly contour, short pitches @15%		ST
153	3	15-25	RR fall-lines or armor; RGDs@30', harden, add UM	Int	fall-line pitches, too straight, not too bad yet nice, UM, pitches @15%, lower use, minor braiding		ST RR/armor
154	1	0-10	choke braiding	Int			ST
155	2	0-10	R2TC or RR, culvert Xing needs major imp	Beg	old rd bed, grade ok, could be nice		DT R2TC/RR
156	2	10-20	R2TC or RR & decomm road	Int	rd bed, fall-line, wide, rutting, moto use		DT R2TC/RR
157	0				gravel road		Road
158	3	20-30	RR, close; unsust; trail goes to pvt ppty.	Int	fun but unsust, braiding, all routes, rutting	4240	ST RR/close
159	3	5-15	RR, close/reclaim	Int	rutted, steep, fall-line, moto use		DT RR/close
160	0		RR to avoid road		gravel road		Road RR
161	0		RR to avoid road		gravel road		Road RR
162	2	0-10	RR or R2TC, RGDs@75', UM, corridor	Beg	grown in, low use, mid section- good canopy		DT R2TC/RR
163	3	10-20	RR, or R2TC, RGDs@75', UM, corridor	Int	steeper, fall-line;		DT R2TC/RR
164	2	0-10	RR or R2TC	Int	very low use, limited canopy- harder for maint		DT R2TC/RR
165	0		RR to avoid road section		road, overgrown		Road RR
166	0		RR to avoid road section		Carpenters Pass Rd		Road RR
167	1	0-10	harden low spots	Int	good UM, existing maint; goes to CC edge		ST
168	2	5-15	RGD/rollers, harden, choke to rd intersection	Int	ok, exist maint, follow CC edge		ST



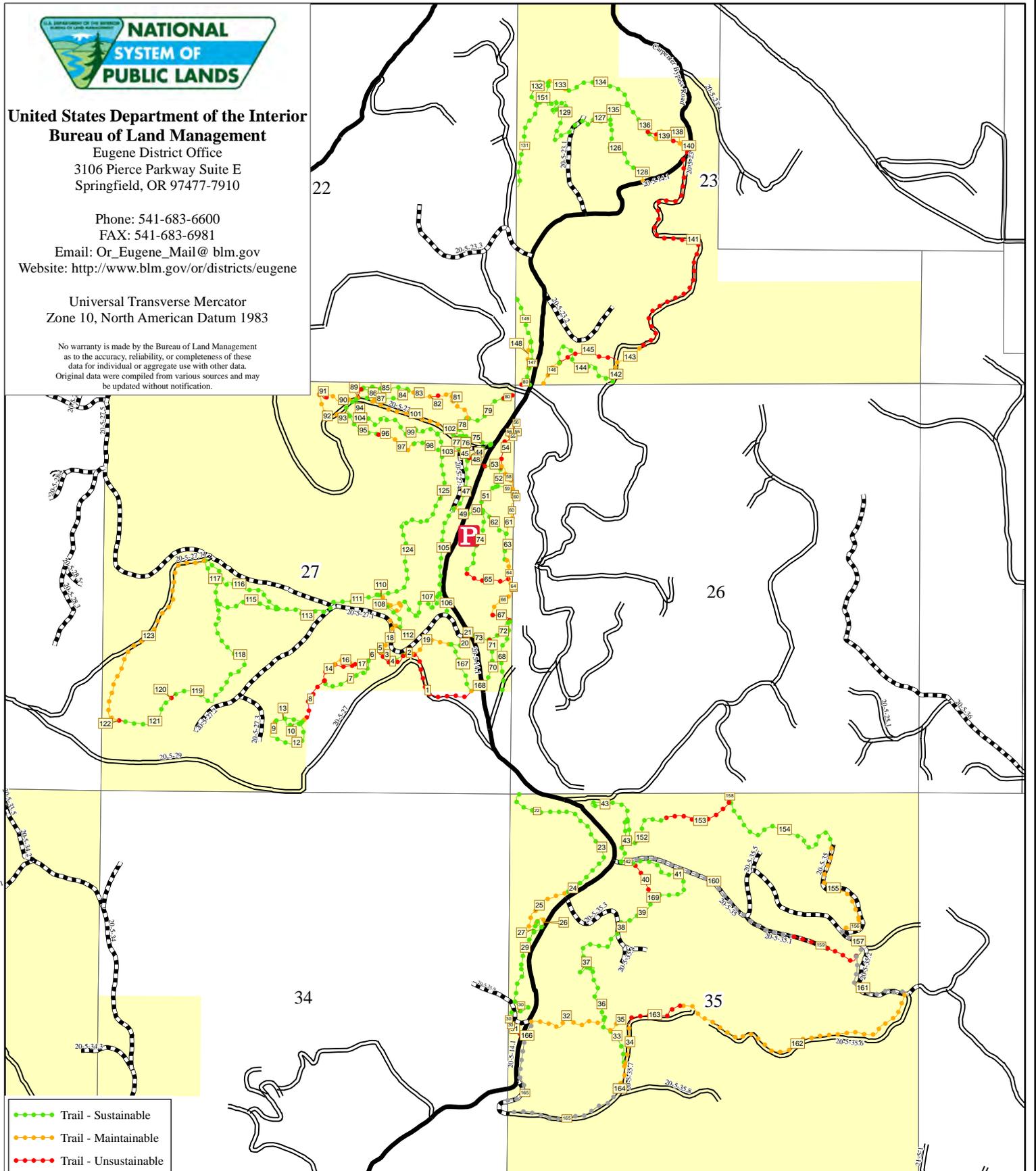
United States Department of the Interior
Bureau of Land Management
 Eugene District Office
 3106 Pierce Parkway Suite E
 Springfield, OR 97477-7910

Phone: 541-683-6600
 FAX: 541-683-6981

Email: Or_Eugene_Mail@blm.gov
 Website: <http://www.blm.gov/or/districts/eugene>

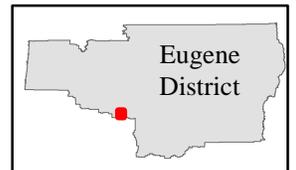
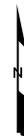
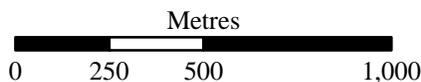
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- Trail - Sustainable
- Trail - Maintainable
- Trail - Unsustainable
- Trail - Other
- Road - Paved
- Road - Rocky
- Road - Other
- BLM Ownership
- Parking

Carpenter Bypass Map 1
 Trail System - Sustainability Assessment
 T.20 S., R.5 W.





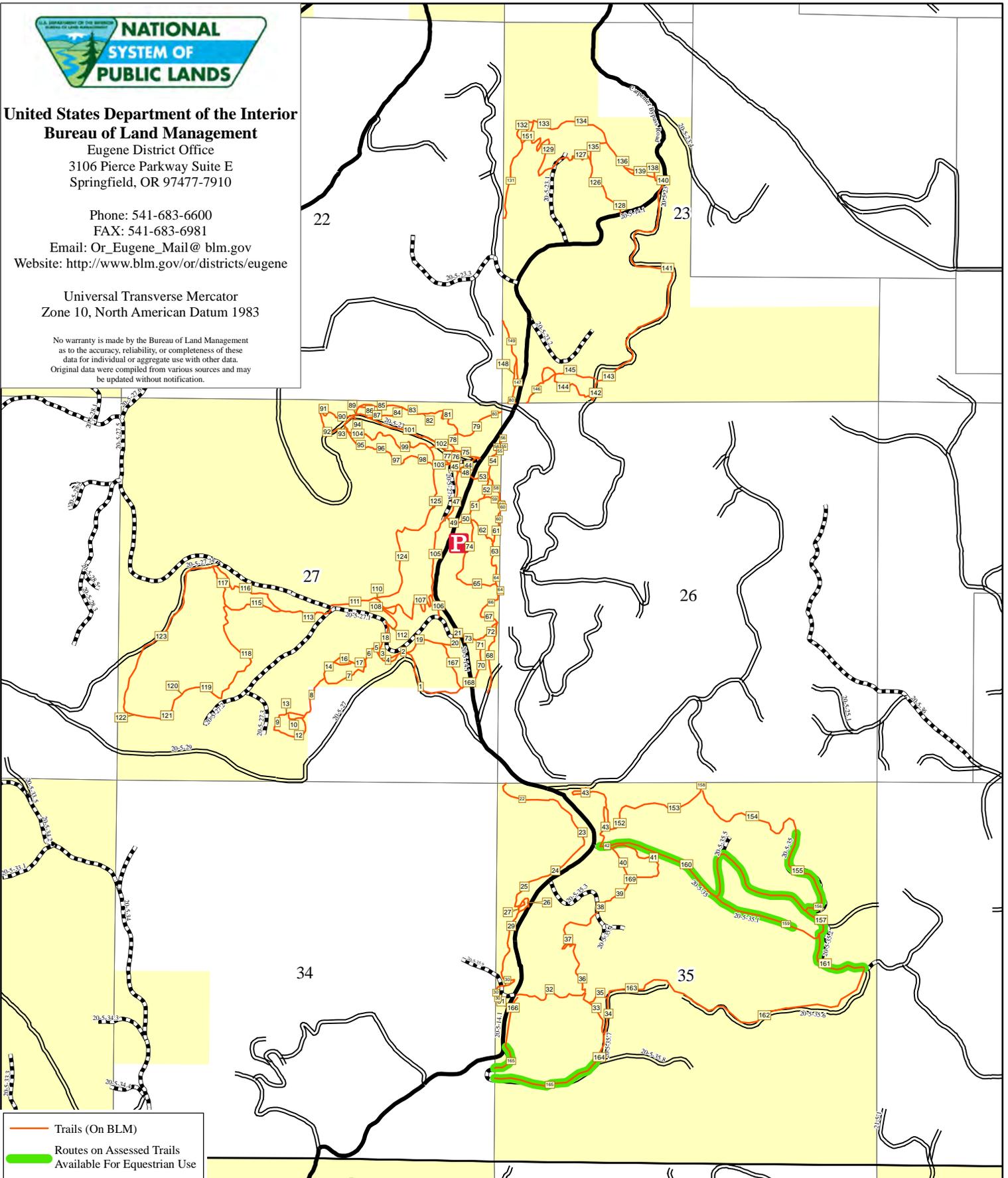
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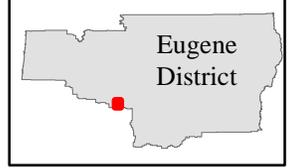
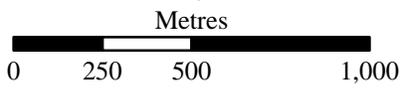
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- Trails (On BLM)
- Routes on Assessed Trails Available For Equestrian Use
- Road - Paved
- Road - Rocked
- Road - Other
- BLM Ownership
- Parking

Carpenter Bypass Map 2
 Mountain Bike Trail System With Equestrian
 T.20 S., R.5 W.





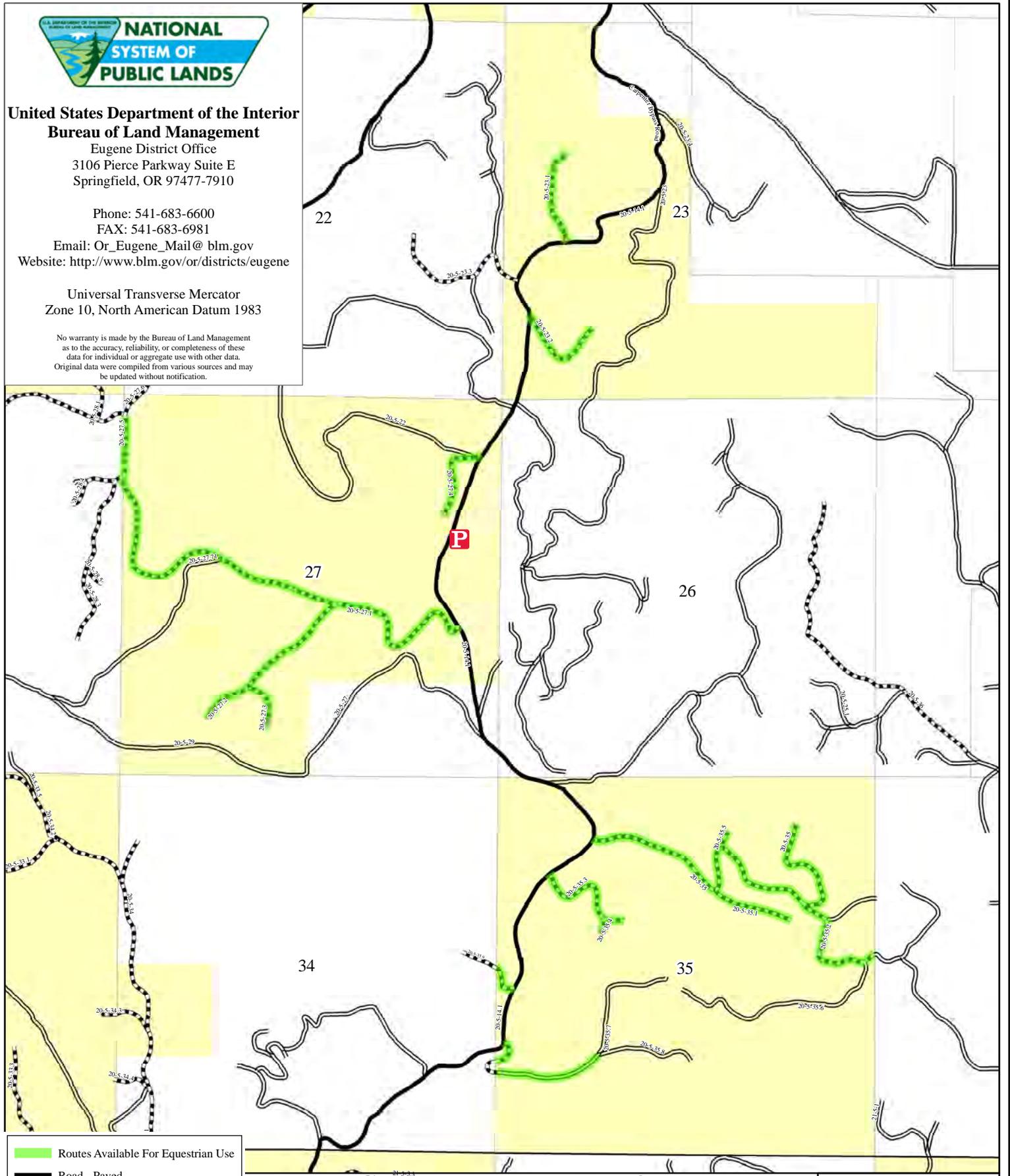
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 Springfield, OR 97477-7910

Phone: 541-683-6600
 FAX: 541-683-6981

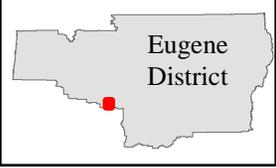
Email: Or_Eugene_Mail@blm.gov
 Website: <http://www.blm.gov/or/districts/eugene>

Universal Transverse Mercator
 Zone 10, North American Datum 1983

No warranty is made by the Bureau of Land Management
 as to the accuracy, reliability, or completeness of these
 data for individual or aggregate use with other data.
 Original data were compiled from various sources and may
 be updated without notification.



Carpenter Bypass Map 3
 All Equestrian Routes
 T.20 S., R.5 W.
 Metres



-  Routes Available For Equestrian Use
-  Road - Paved
-  Road - Rocked
-  Road - Other
-  BLM Ownership
-  Parking



**United States Department of the Interior
Bureau of Land Management**

Eugene District Office
3106 Pierce Parkway Suite E
Springfield, OR 97477-7910

Phone: 541-683-6600

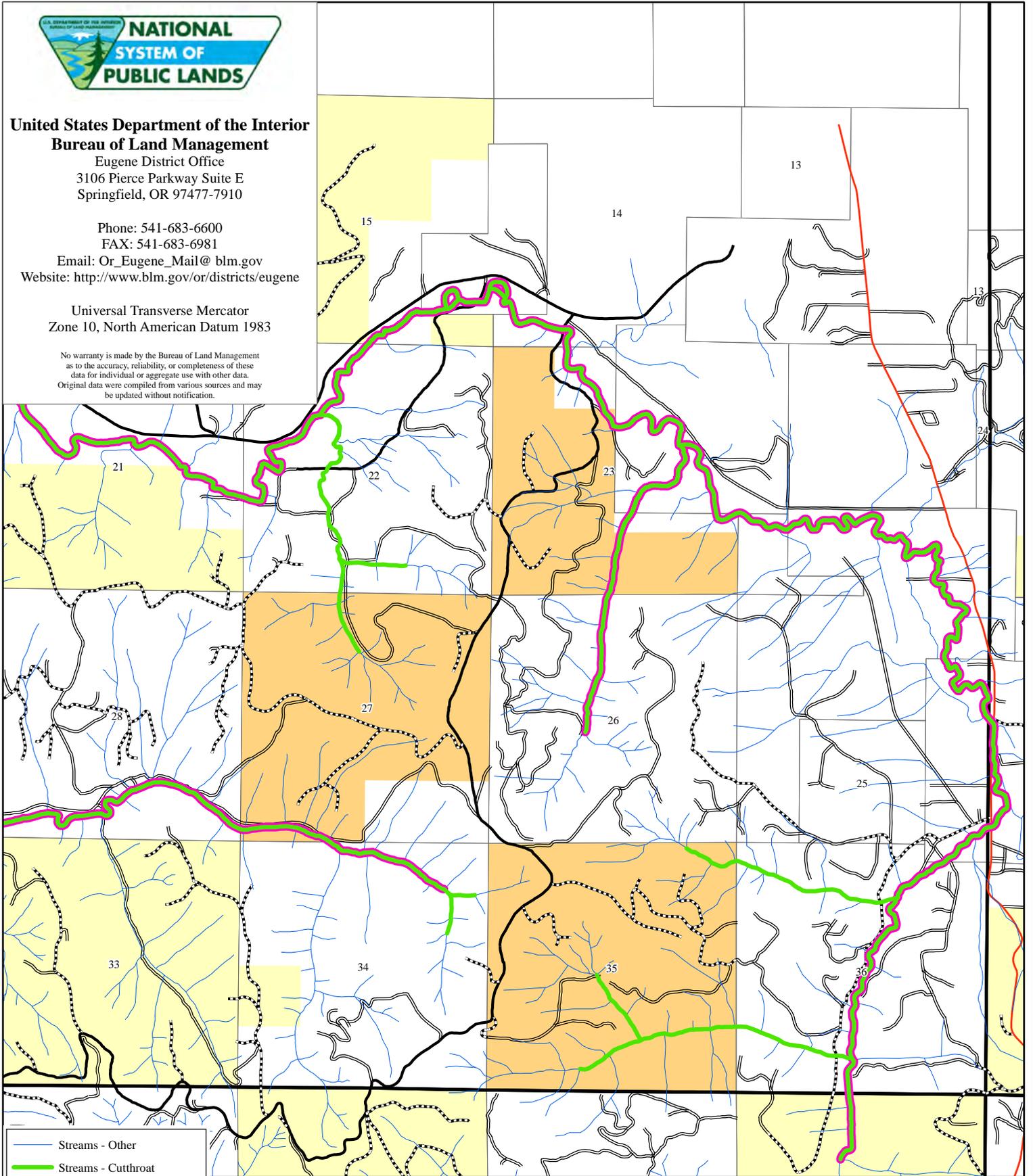
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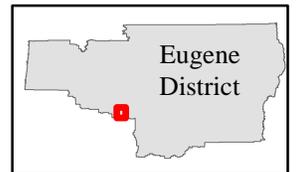
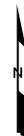


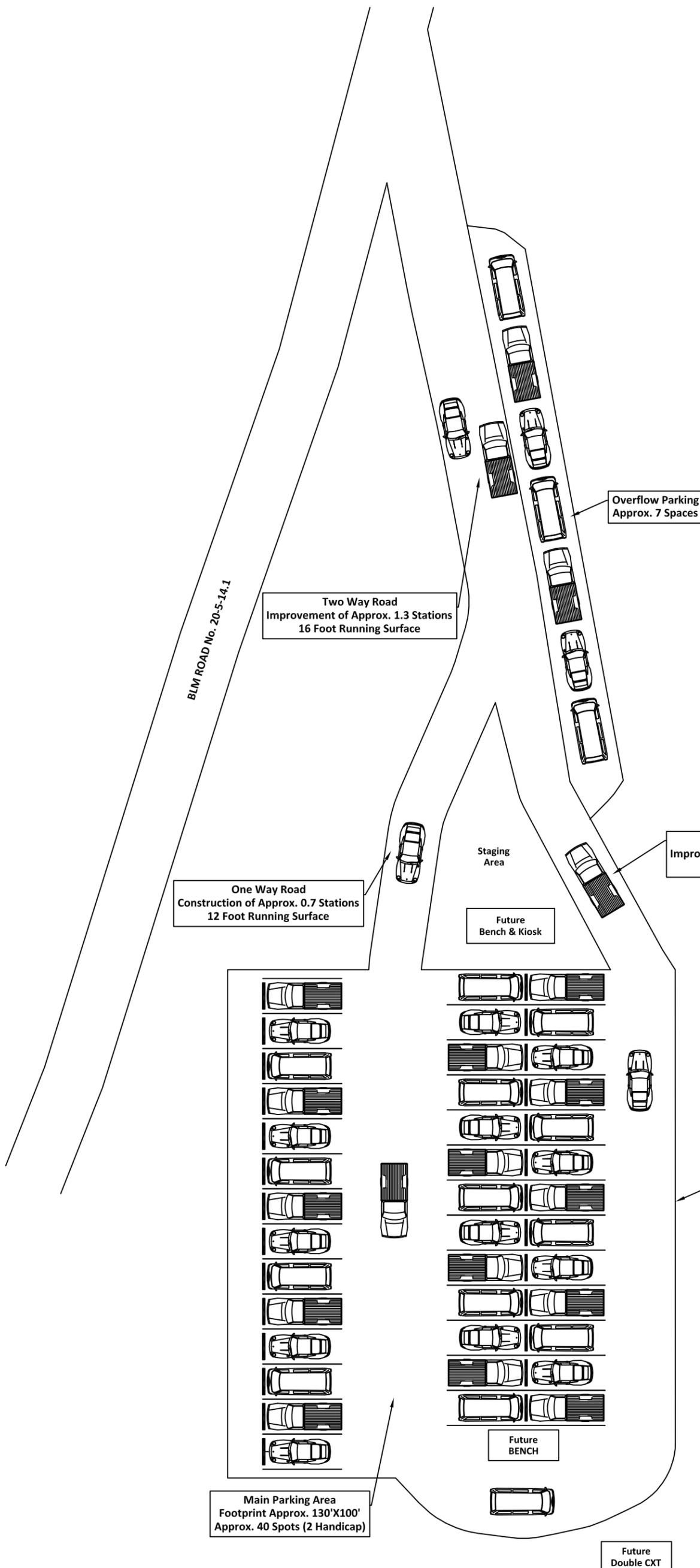
- Streams - Other
- Streams - Cutthroat
- Streams - Coho
- Highways
- Road - Paved
- Road - Rocked
- Road - Other
- BLM (Project Area)
- BLM (Outside Project Area)

Carpenter Bypass Map 4

Fish Presence
T.20 S., R.5 W.

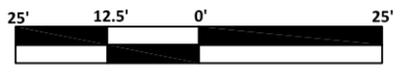
Metres





Notes:

- 1) This is a conceptual plan view based on a preliminary survey.
- 2) This conceptual plan view is intended for use in the NEPA process.
- 3) Excess excavation material is to be placed on-site and utilized in the construction of a pump track or wasted at Location T.B.D.
- 4) Parking Lot to be constructed by the Road Maintenance Organization during the 2012 construction season.

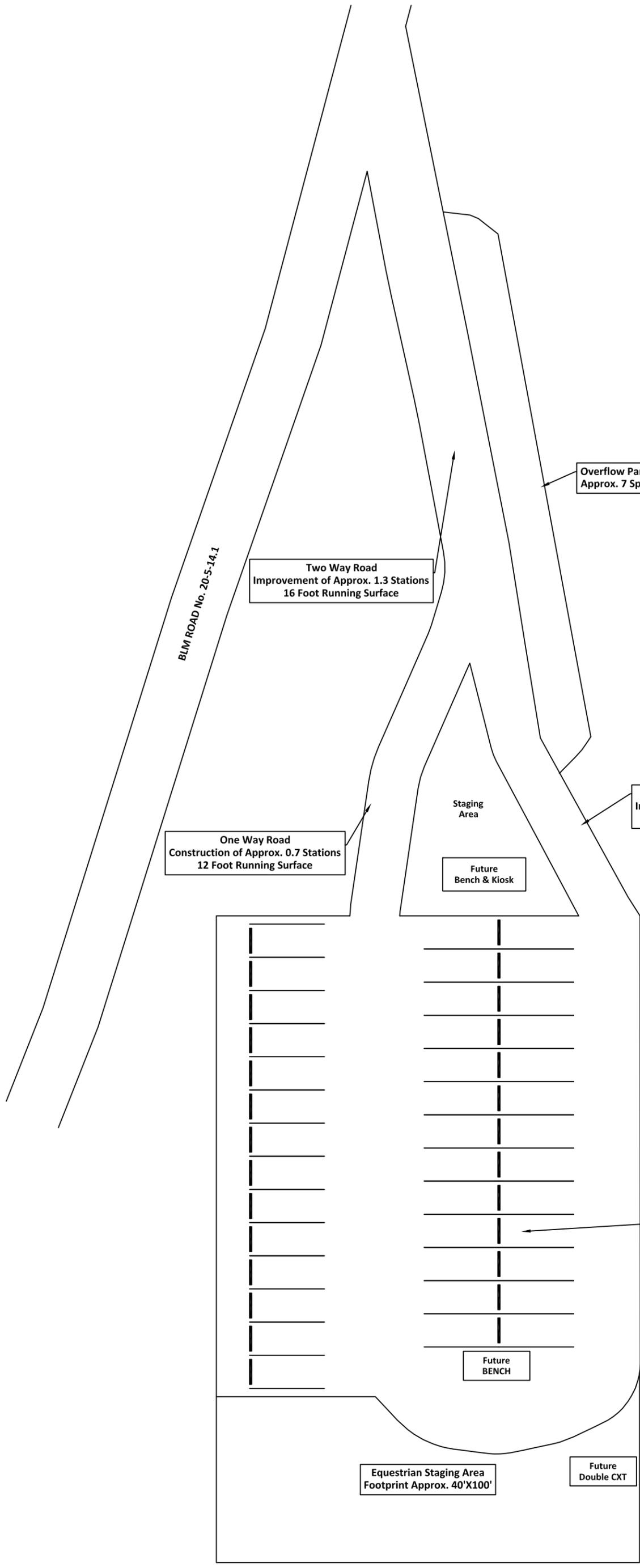


UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT
 EUGENE DISTRICT SPRINGFIELD, OREGON

CARPENTER BYPASS PARKING LOT
 CONCEPTUAL PLAN VIEW

DRAWN: J. Pattison

DATE: 4-20-12



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UNITED STATES DEPARTMENT OF THE INTERIOR
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 EUGENE DISTRICT SPRINGFIELD, OREGON

CARPENTER BYPASS PARKING LOT
 CONCEPTUAL PLAN VIEW

DRAWN: J. Pattison

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Glossary for IMBA Assessment

Segment ID: distinct ID # for each trail segment

Average Grade: % grade ranges for the given trail segment

Maintenance Prescription: recommendation for what should be done to fix each segment

Relative Skill Rating for Mountain Bike User Group: beginner, intermediate, or advanced

Route Type: existing route type, e.g. road, Doubletrack (DT) or Singletrack (ST)

Reroute or Closure: different prescriptions as detailed below in abbreviation section. If no comment here, it's slated for maintenance (as described in the Prescription field)

Abbreviations:

CC= clearcut

RR= reroute

RGD= rolling grade dip

RGDs= RGDs spaced at designated frequency ## (e.g. every 75')

UM= add undulation and meander, typically this is on a section of old road bed and is too straight, needs road to trail conversion and/or added chokes and rollers to give it a better/more compelling flow

R2TC= road to trail conversion

X= intersection

lf = linear feet

maint= maintenance

Int= intermediate

Beg= beginner

Adv= advanced

Appchs= approaches (to stream/drainage crossings)

MIB/IB = (minor) improve bench, bring bench up to IMBA specs, described specifics follow (e.g. reduce camber, de berm tread, establish full bench, etc.)

x-ing= crossing

TH= trailhead

**U.S. Department of the Interior
Bureau of Land Management
Eugene District Office**

Preliminary Finding of No Significant Impact

for

**Environmental Assessment
Carpenter Bypass Non-Motorized Trail and Gravel Parking Lot Construction
DOI-BLM-OR-E050-2012-003-EA**

Based on an analysis of the environmental impacts contained in the attached environmental assessment, I have determined that impacts to the human environment are not expected to be significant and an environmental impact statement is not necessary and will not be prepared. This conclusion is based on my consideration of CEQ's following criteria for significance (40 CFR 1508.27), regarding the context and intensity of the impacts described in the environmental assessment and based on my understanding of the project:

- 1) ***Impacts may be both beneficial and adverse.*** The EA considered both potential beneficial and adverse effects for substantive issues identified during external and internal scoping. None of the effects are beyond the range of effects analyzed in the Eugene District "Final Proposed Resource Management Plan/Environmental Impact Statement" (November 1994), to which the EA is tiered.
- 2) ***The degree to which the proposed action will affect public health and safety.*** No aspects of the proposed action have been identified as having the potential to significantly and adversely impact public health and safety. The proposed action is expected to provide safer conditions for hikers, bicyclists, and equestrians by providing safe non-motorized trails.
- 3) ***Unique characteristics of the geographic area such as proximity of historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*** No historic or cultural resources have been identified in the area. All newly constructed trails will be subject to survey where necessary. The proposed action will not adversely affect any of the other resource values of the area.
- 4) ***The degree to which the effects on the quality of the human environment are likely to be highly controversial effects.*** No anticipated effects have been identified that are scientifically controversial. A disclosure of the predicted effects of the proposed action is contained in the environmental assessment.
- 5) ***The degree to which the possible effects on the human environment are likely to be highly uncertain or involve unique or unknown risks.*** The proposed action is not unique or unusual and does not show that the action would involve any unique or unknown risks. The BLM has experience implementing similar actions in similar areas and have found effects to be reasonably predictable.
- 6) ***The degree to which the action may establish a precedent for the future actions with significant effects or represents a decision in principle about a future consideration.*** The proposed action does not set a precedent for future actions that may have significant effects, nor does it represent a decision in principle about a future consideration. The proposed action will stabilize and prevent unacceptable degradation of natural and cultural resources; minimize threats to life or property; and repair, replace, or construct physical improvements necessary to prevent degradation of land or resources by increased monitoring and maintenance of designated trails.
- 7) ***Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*** The interdisciplinary team evaluated the proposed action in context of direct, indirect and past, present and reasonably foreseeable actions. Significant cumulative effects are not predicted. A complete disclosure of the effects of the proposed action is contained in the environmental assessment.

- 8) ***The degree to which the action may adversely affect scientific, cultural or historical resources, including those listed in or eligible for listing in the National Register of Historic Places.*** The proposed action activities will not adversely affect cultural or historical resources as indicated in the EA's analysis.
- 9) ***The degree in which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*** The proposed action has been reviewed by BLM specialists and determined to "may effect, not likely to adversely affect" spotted owl habitat and 2012 proposed critical habitat. Spotted owl habitat modification such as understory removal or mid-story removal by felling trees smaller than 11 inch dbh may occur during new trail construction, which may add up to about 3.4 acres of habitat modification. Most likely, tree removal will be an exception rather than the norm. In addition, the planning area consists of about 1,560 acres of this type of habitat; therefore, the availability and functionality of understory and mid-story habitat will not be compromised. The Administrative Unit Biologist will make sure the trail route will result in minimal habitat loss during construction. If federally listed plants are encountered during trail construction the Administrative Unit Botanist will ensure trail re-routes are considered. Disturbance of spotted owls and marbled murrelets may occur during the nesting season; however, likelihood of occupancy of older stands in the planning area is very low. Marbled murrelets generally nest within about 35 miles of the coast whereas this project is located about 44 miles from the coast. Currently, spotted owls are not known to be nesting in the vicinity but may be using some of the older stands for roosting, foraging and dispersal. There would be no effect on marbled murrelet habitat and its critical habitat since large trees or limbs are not proposed to be felled, and the project area is not located within marbled murrelet critical habitat.
- 10) ***Whether the actions threatens a violation of environmental protection law or requirements.*** The proposed action does not violate any known Federal, State, or local law requirement imposed for the protection of the environment.

Alan D. Corbin
Field Manager
Siuslaw Resource Area

Date