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Phil's World Trail Project

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U.S. Department of the Interior
BLM
Southwest District
Tres Rios field Office
29211 Colorado State Highway 184
Dolores, CO 81323
Phone: (970) 882.6808

Colorado • Tres Rios Field Office



It is the mission of the BLM Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

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1. PURPOSE AND NEED FOR THE ACTION

1.1. Background

This Environmental Assessment (EA) has been prepared to disclose and analyze the environmental effects of the Phil's World Trail Project as proposed by the Southwest Colorado Cycling Association (SWCCA, formally Kokopelli Bike Club) of Cortez, Colorado.

The Tres Rios Field Office (TRFO) has recognized distinct recreation niche opportunities and experiences that are available across the BLM lands of southwest Colorado and has established Special Recreation Management Areas (SRMAs) to guide the management of these areas. One such area is the Cortez SRMA which offers a unique combination of terrain, scenery, and climate allowing for nearly year-round recreation close to towns and surrounded by panoramic backdrops. The relatively small blocks of public land are particularly conducive to stacked non-motorized trail systems (ie, easy trails located close to trailheads and parking, with progressively longer and more challenging trails located further out). The Cortez SRMA is comprised of two Recreation Management Zones (RMZs): 1) the Montezuma Triangle (including Phil's World, Chutes and Ladders, Summit, and Aqueduct) and 2) Mud Springs. The Montezuma Triangle RMZ is managed to primarily target local hikers, runners, and mountain bikers wanting to participate in human-powered recreation activities within a short commuting distance of town.

The Phil's World area comprises approximately 2,400 acres of BLM Public Lands and 730 acres of Department of Colorado State land (leased by SWCCA). The area is located approximately 3 miles East of Cortez, Colorado, primarily between Highway 160 and Montezuma County Road M (with approximately 400 acres north of Road M in Simon Draw). There are currently approximately 27 miles of single track trails across both the BLM and State managed lands. Recorded visitor use from October 2014 through September 2015 was 17,754 visitors based trail counter data.

The trail system is accessed from County Road 30.1 at Highway 160. The current trailhead is located on the leased State Land and consists of a parking area that can accommodate approximately 60 vehicles. The trail system on both BLM and State land is directional (meaning that all bicycle riding is conducting in one direction; clockwise). The trails on BLM land are open to all non-motorized single track trail use (hiking, equestrian, and biking), though the predominant use is by mountain bikers.

1.2. Purpose of and Need for Action

The purpose and need of the proposed action is to provide the benefits associated with a single track trail system across the portion of the Phil's World RMZ which does not currently provide these opportunities. The purpose of the proposed action is to provide a system of trails within the RMZ that is sustainable, ecologically sensitive, and meets the recreation setting objectives identified in the Tres Rios RMP (February 2015). These objectives include, 1) expanding non-motorized trail opportunities; 2) dispersing use; and 3) and linking communities to each other and to isolated parcels of public lands while retaining the area's predominantly natural appearing landscape. The need for the proposed action is to respond to a project request by SWCCA which seeks to implement the objectives of RMZ identified above.

1.3. Decision to be made

The decision to be made is whether or not BLM will develop additional trails and trailheads within the BLM managed portion of Phil’s World and to identify allowable maintenance activities for existing and proposed trails.

1.4. Conformance with Applicable Land Use Plan(s)

The Proposed Action is in conformance with the February 2015 Tres Rios Resource Management Plan (RMP) with Record of Decision (ROD). (See Table 1: Applicable Desired Conditions, Goals, and Objectives):

Table 1: Applicable Desired Conditions, Goals, and Objectives

Resource	Desired Condition/Goal/Objective	Page #
	The 2015 RMP identified the Phil’s World area as part of the Cortez SRMA. The proposed action and alternatives are consistent with the desired conditions, goals, and objectives in the SRMA guidance, as highlighted by the following:	N/A
Recreation	Desired Condition: 2.15.1 Activities are regulated primarily in order to protect the quality of the recreation settings and benefits, as well as to protect natural and cultural resources. Managers monitor conditions and implement management strategies in order to maintain desired setting characteristics. Recreation users have opportunities to benefit from the diversity of varied terrain, scenery, and nature in the canyons, mountains, and mesas, as well as on the rivers.	II-83
	Desired Condition: 2.15.6 Public accesses to lands near communities provide a day-to-day lifestyle connection with the foothills, canyons, and mountains. Neighborhood trailheads and convenient access points provide quick entry to a natural setting. These lands are a community asset and help contribute to a healthy lifestyle for people of all ages.	II-84
	Desired Condition: 2.15.7 The TRFO offers motorized and non-motorized recreation experiences in large, predominantly naturally appearing landscapes, where active management may occur. Primitive dispersed camping sites, developed campgrounds, and trailheads are present in order to support dispersed recreation use.	II-84
Special Recreation Management	Desired Condition: 2.15.45 Management of SRMAs is derived first and foremost by the recreation management objectives and prescribed Recreation Settings Characteristics Matrix, and all implementation actions are guided by those prescriptions.	II-87

Areas		
	<p>Desired Condition: 2.15.46 Cortez SRMA: The Cortez/Mancos/Dolores area offers a unique combination of terrain, scenery, and climate that allows for nearly year-round recreation close to towns and surrounded by panoramic backdrops. The relatively small blocks of public land are conducive to non-motorized trail use with opportunities for short motorized trails and clearly defined open play/training areas. The Cortez SRMA is comprised of two Recreation Management Zones (RMZs): 1) the Montezuma Triangle (including Phil’s World, Chutes and Ladders, Summit, and Aqueduct) and 2) Mud Springs. The Montezuma Triangle RMZ is managed to primarily target local hikers, runners, and mountain bikers wanting to participate in human-powered recreation activities within a short commuting distance of town. The Mud Springs RMZ is also managed for non-motorized trails, but includes greater emphasis on motorized recreation while protecting cultural resources. Other recreation activities are allowable in the Cortez SRMA to the extent they are compatible with the primary targeted activities (see Volume III, Appendix E, for a more extensive description of the Cortez SRMA).</p>	II-87
Appendix E	<p>Due to connectivity with the adjacent state land mountain bike trails systems, seasonal closures for wildlife at Phil’s World cannot be reasonably be managed and therefore would not be implemented.</p>	E-3
	<p>Phil’s World: The targeted activity would be mountain biking. Consistent with the Mancos-Cortez TMP Decision Notice, Phil’s world would be designated day-use only, with the exception of the non-motorized trails at Phil’s World, which would allow use at night. Recreational shooting would be prohibited.</p>	E-3
Wildlife	<p>Guideline: 2.4.5 Cortez SRMA: Critical winter range closure will be placed on Chutes-n-Ladders, Summit, and the Aqueduct portions of the SRMA and closure time periods will be analyzed during the site specific analysis.</p>	II-30
	<p>Table 2.4: Raptor Timing and Buffer Zone Distance**** Standards and Guidelines (paraphrased): Structural Improvements: New structures (including trails) must not occur within a 0.5 mile radius of an active nest. **</p> <p>**This does not apply to historic levels and patterns of disturbance under which the nest was established and is intended to apply to additional levels of change in disturbance patterns.</p> <p>****Buffer distances for some species may vary based on site</p>	II-32

	<p>specific information, current science, and agency wildlife biologists' professional judgment. Area closures may be considered where appropriate.</p> <p>Where literature and other evidence shows, exceptions may occur when individuals are adapted to human activity. Management is designed to reduce affects during sensitive periods.</p>	
Heritage and Cultural Resources	<p>Desired Condition: 2.17.1: Significant heritage and cultural resources, such as sites on the NRHP, are maintained in good to excellent physical condition. Significant cultural values are protected and preserved. Heritage and cultural sites are preserved and stabilized, and may be available or interpretation and research; they may have site-specific management plans. Sites are protected from physical damage and excessive wear and tear resulting from visitor use.</p>	II-98
	<p>Guidelines: 2.17.20: Activities that could adversely affect sites eligible or potentially eligible for the NRHP should avoid these sites by a minimum of 300 feet, unless otherwise specified by the Authorized Officer, and/or unless other mitigating measures are developed. If a project is specified by the Authorized Officer to be within 100 feet of an eligible or unevaluated site, all ground disturbing activity should be monitored by a qualified archaeologist.</p>	II-100

1.5. Relationship to Statutes, Regulations or Other Plans

Montezuma County Land Use Code-On January 6th, 2016 the BLM received a letter from Larry Don Suckla, Chairman of the Montezuma County Board of County Commissioners regarding Land Use Code Compliance. It states “The County Land Use Code and Comprehensive Plan do not address issues such as recreation and tourism in detail; however the proposed expansion does not in any way conflict with county regulations.”

The project would also conform to:

- 1973 Endangered Species Act, as amended
- Migratory Bird Treaty Act of 1918 (16 USC 703711)
- Bald and Golden Eagle Protection Act (1962)

1.5.1. Scoping and Public Involvement

Internal scoping began on November 13th, 2013 when the proposal was first brought before the Tres Rios Interdisciplinary Team for consideration. Formal external scoping was initiated on December 15th, 2014 when 25 scoping letters were sent out to individuals who had expressed interest in the project, as well as to the Montezuma County Board of Commissioners. This letter was also posted on the BLM NEPA webpage on January 8th, 2015. On January 7th, an article in

the Cortez Journal featured the project and included information on public comment processes and deadlines (January 30th). The project was also announced via various radio spots and stories during January 2015 on local Cortez station KSJD. On May 1, 2015 a second letter was sent out to the Interested Publics list (172 letters) providing a project update and list of issues identified during the scoping process (as identified below). There are no known properties of religious or cultural significance. Tribal consultation is in progress. On May 4th, 2015 this project was presented to the tribes via a letter from the Tres Rios Field Office Manager. On May 18th, 2015 the Hopi Tribe responded that they would like copies of the survey report and draft EA. On June 1, 2015 the Southern Ute Indian Tribe provided a letter of ‘no effect’.

1.5.2. Key Issues to be analyzed

Issues considered further through Alternative Development and Analysis:

1.6.2.1 Cultural Resources

- 1) How would cultural resources eligible for listing on the National Register of Historic Places be affected by non-motorized trail construction and use?

1.6.2.2 Soils/Hydrology/Riparian

- 1) How would streams and riparian vegetation be affected by proposed trail locations in canyon bottoms?
- 2) How would trails adjacent to streams and alcoves affect water availability?
- 3) Would trails built on steep slopes and sensitive soils result in increased erosion?

1.6.2.3 Wildlife

- 1) How would New Mexico Meadow Jumping Mouse, listed as endangered under the Endangered Species Act, be affected?
- 2) How would golden eagles be affected?
- 3) How would big game be affected?

1.6.2.4 Socio-Economics

- 1) How would development of new trails affect the local (Montezuma County) economy including property values (both adjacent properties and local area properties)?
- 2) How would development of new trails affect economics associated with other existing or potential uses of the project area (hunting, wildlife viewing)?

1.6.2.5 Recreation

- 1) How would trail development and use affect dispersed use of the area by other recreational users (hikers, walkers, hunters)?
- 2) How would trail development and use enhance existing (bicycle) riding opportunities (new terrain, views, challenge, social interactions, connectivity to communities)?
- 3) How would trail development and use affect amount of trash on landscape?
- 4) How would trail development and use affect existing motorized riding opportunities?

- 5) How would trail development and use affect personal and community benefits associated with non-motorized trail use?
- 6) How would trail and trailhead development affect use by other non-motorized single track users (equestrian, hiking)?
- 7) How would trail development and use affect safety of users accessing the trail systems (access available away from highway 160, new access/egress along county roads).
- 8) How would trail development and use affect use of county roads?

1.6.2.6 Visual Resources

- 1) How would trail and trailhead development and use affect the visual setting of the landscape?

1.5.3. Issues Considered but Not Analyzed

- 1) How would adjacent private lands be affected by increased use of currently 'undeveloped' portions of the landscape?

The overall management of the Phil's World area was addressed in the 2015 Approved RMP which identified this area as a Special Recreation Management Area (SRMA) with a targeted activity of mountain biking. The undeveloped portions of the landscape adjacent to private property under consideration for this project are public lands. There is no more preference assigned to its use by adjacent landowners than to other citizens of the United States. Unauthorized or illegal activities such as private land trespass or vandalism are not under consideration for approval (nor within the realm of the authority of the BLM) and thus are not analyzed in this document.

- 2) How would trail construction and use affect the spread and establishment of noxious weeds species?

The proposed project area has some known populations of noxious weeds specifically Russian knapweed, musk thistle, Canada thistle. Design Criteria 4, 5, 6, 7, 10 and 17 would minimize effects of trail development on vegetation and limit the spread of noxious weed species to a level which does not require further analysis.

- 3) How would new trail construction affect existing vegetative communities?

While some vegetative clearing would result from any of the action alternatives, Design Criteria 4, 5, 6, 7, 10 and 17 would minimize effects of trail development on vegetation and limit the spread of noxious weed species to a level which does not require further analysis. There would be no overall effect to the existing vegetation communities.

2. PROPOSED ACTION AND ALTERNATIVE(S)

The BLM Interdisciplinary Team takes a rigorous look and objectively analyzes a reasonable range of alternatives which meet the underlying purpose and need "...to provide the benefits associated with a single track trail system across the portion of the Phil's World RMZ which does not currently provide these opportunities... (and)...to provide a system of trails within the RMZ that is sustainable, ecologically sensitive, and meets the recreation setting objectives identified in the RMP".

This section provides a description of Alternative A (the No-Action Alternative), Alternative B (the Proposed Action was brought to the BLM by the SWCCA), and two additional 'action alternatives'. The Proposed Action represents an amended proposal resulting from feedback from the BLM on SWCCA's initial trail alignments. It attempts to address resource concerns that the proponents were not aware of during the development of their proposal.

Specifically, all of the action alternatives have been designed to avoid direct affects to cultural sites and provide substantial buffers around the active Golden Eagle nest.

Particular attention was also paid to keeping trails out of the view shed of the active Golden Eagle nest to minimize visual and auditory affects. All proposed trail alignments utilize techniques such as vegetative and topographic screening from the nest. Additionally, to protect big game habitat, proposed trails were also removed from canyon bottoms as much as possible, while still maintaining trail connectivity throughout the SRMA.

In response to issues identified during internal and external scoping, the following Design Criteria have been developed which would apply to all Action Alternatives.

Design Criteria Common to All Action Alternatives:

- 1) Action: A buffer zone (with no trail construction within the zone for as long as the nest is 'active'*) for the active Golden Eagle nest would be implemented based on RMP guidance. Actual buffer dimensions would vary by alternative.

*Colorado Parks and Wildlife defines an 'Active nest' as "Any nest that is frequented or occupied by a raptor during the breeding season, or which has been active in any of the five previous breeding seasons. Many raptors use alternate nests in various years. Thus, a nest may be active even if it is not occupied in a given year" (CPW, 2008)

Responsive to Issue: 1.6.2.3-Wildlife

Rationale: To minimize potential for nest abandonment potentially caused by trail construction or use.

- 2) Action: All new trails and parking areas would be located to avoid direct impacts to National Register eligible cultural resources.

Responsive to Issue: 1.6.2.1- Cultural Resources

Rationale: To protect eligible cultural resources from damage caused by trail use.

- 3) Action: Trails would be designed to International Mountain Biking Association (IMBA) standards: Trails would be designed to contour the terrain as much as possible; water drainage would be accomplished with grade reversals and drain dips rather than constructed features (water bars) as much as possible; trails would be designed for running slope not to exceed ½ the grade of the side slope; trails would be designed for a maximum 15 percent grade wherever possible (the sustainability of trail grades is largely dependent on surface durability: where trails segments cross bedrock, for instance, grades can exceed typical design standards and remain highly sustainable); trails would be designed for an average grade under 10 percent; trails would be routed using positive control points (viewpoints, water, and other attractions) to minimize user-created trails; climbing turns would be designed to facilitate bicycle use).

Final trail alignment and a variety of construction techniques would be utilized to maximize the sustainability of trails, particularly on steep slopes and erodible soils. These techniques could include, but are not limited to: routing trails onto bedrock; tread hardening with locally sourced native flagstone, engineered drainage features such as waterbars and sediment traps, frequent monitoring and trail maintenance, and hardened live water crossings.

As with all BLM managed roads and trails, temporary emergency closures could be utilized to prevent trail damage due to wet conditions. Utilization of these types of closures are not anticipated as use of the existing trail system has been observed to be largely self-limiting during periods of wet conditions (for example, the Ledges Trail loop, which holds snow longer into the spring due to its northern aspect, is generally the last trail to be utilized each spring).

Responsive to Issue: 1.6.2.2- Soils and Hydrology

Rationale: IMBA standards are designed to produce sustainable trail systems and provide guidelines for running grades, cross drainage, grade reversals, etc...

- 4) Action: Final trail construction would align as close as possible to the trails depicted on the maps for each alternative. Final alignment may vary based on site specific conditions in order to achieve a sustainable and enjoyable system of trails. However, trails would not 1) Encroach into areas identified for each alternative as ‘unavailable for new trail development’; 2) Exceed by 10% the total miles of trails approved for each alternative; 3) Directly affect an eligible cultural resource site.

Responsive to Issue: 1.6.2.1- Cultural Sites, 1.6.2.2- Soils and Hydrology, 1.6.2.3- Wildlife, 1.6.2.5- Recreation (and Vegetation)

Rationale: This strategy allows for the greatest flexibility in developing an enjoyable and sustainable trail alignment while identifying disturbance limits and respecting avoidance areas.

- 5) Action: A maximum six foot wide corridor would be cleared through undergrowth (oak, willow, etc.) unless additional clearing is necessary to provide safe sight lines on the inside corners (never to exceed 15 feet).

Responsive to Issue: 1.6.2.2- Soils and Hydrology, 1.6.2.5- Recreation, 1.6.2.6-Visual Resources (and Vegetation)

Rationale: Limiting vegetation clearance maximizes the natural appearing setting, limits disturbance, maintains soils, and provides positive anchors when trails change direction. Sightlines and safety for trail users are maintained by providing adequate clearances through thick underbrush.

- 6) Action: Final trail width would be 18-24” wide. Construction disturbance would be minimized as much as possible, with the greatest effect on severe side slopes where cut and fill trail design is necessary (never to exceed 20 feet). (See Photo 1: Typical Trail Construction by Volunteers)

Responsive to Issue: 1.6.2.2- Soils and Hydrology, 1.6.2.5- Recreation, 1.6.2.6-Visual Resources (and Vegetation)

Rationale: Limiting ground disturbance maximizes the natural appearing setting and limits affects to vegetation, cultural resources, and soils.

Photo 1: Typical Trail Construction by Volunteers



- 7) Action: Single trees would need to be limbed or removed, but no clumps of trees would be removed.

Responsive to Issue: 1.6.2.2- Soils and Hydrology, 1.6.2.5- Recreation, 1.6.2.6-Visual Resources (and Vegetation)

Rationale: Limiting tree removal maximizes the natural appearing setting and limits affects to vegetation, and soils.

- 8) Action: Due to terrain, there may be some locations where ‘hike-a-bike’ (stepping off a bicycle and walking) would be required.

Responsive to Issue: 1.6.2.5- Recreation, 1.6.2.6-Visual Resources

Rationale: Allowing for ‘hike-a-bike’ sections of trails accomplishes two recreational goals: It allows for extremely challenging riding opportunities for those seeking that experience, and it also helps maintain a natural setting for all users rather than over-engineering a trail that might otherwise not conform to the landscape.

9) Action: Trails would be designed and signed for directional (traffic all in one direction) travel to maximize safety and minimize social contacts. If any sections require bi-directional travel, they would be clearly posted.

Responsive to Issue: 1.6.2.5- Recreation

Rationale: The existing trail system at Phil's World is designed and signed for directional trail use. Current trail users are accustomed to this management direction. However, with the proposed trail expansion, there may be instances where avoidance areas result in the need for short stretches of bi-directional travel.

10) Action: Trail construction would be accomplished primarily by hand and with mechanical advantage tools such as a grip hoists and come-alongs to move large rocks. Motorized trail building equipment such as a micro/mini excavator or SWECO may be used where such equipment would achieve the same results and remain within the trail building parameters defined. All such equipment would be thoroughly cleaned prior to entering public lands to minimize potential spread of noxious weeds/invasive species.

Responsive to Issue: (Noxious Weeds/Invasive Species)

Rationale: The SWCCA has an active membership who have expressed the willingness to volunteer their labor for the construction and maintenance of the Phil's World trail system. Such volunteer (hand) labor is generally cheaper and less ground disturbing than utilizing motorized trail building equipment. However, where the use of such equipment is deemed appropriate, steps must be taken to ensure the potential for the dispersal of invasive species is minimized.

11) Action: Road (County) crossings, signage, and access would be coordinated with Montezuma County Road and Bridge.

Responsive to Issue: 1.6.2.5- Recreation

Rationale: While management of County Roads falls to the County rather than the BLM, coordination with the County for development of access points is both necessary and prudent for the safety of all users.

12) Action: Trail and bridge construction techniques would be used to minimize affects to sensitive live water and riparian area crossings. Techniques could include, but are not limited to: trail alignments which directly cross riparian areas; limiting vegetative removal within riparian areas to the minimum necessary; designing sediment catchments in upland locations to prevent trail related sediment from entering the floodplain; utilizing native and locally sourced flagstone to create hardened crossing 'spill overs' in small live water channels; and constructing bridge/boardwalk features to span larger live water channels and saturated soil areas in canyon bottoms. (See Photos 2-5: Example Bridge and Boardwalk Structures)

Photos 2-5: Example Bridge and Boardwalk Structures



Where bridges/boardwalks would be utilized, they would be designed and constructed to blend with the natural surroundings and would typically be 3' wide (or 4' wide without rails). Bridge materials would be pre-made as much as possible and packed in for assembly on site with portable power tools. Anticipated locations and numbers of structures are as follows:

- a. Cash Canyon Area= 1-2 bridges
- b. Highline Area = 3 bridges
- c. Poquito Burrito Trail= 2 bridges
- d. Simon Draw Area = 2 bridges

Responsive to Issue: 1.6.2.2- Soils and Hydrology, 1.6.2.3- Wildlife, 1.6.2.6-Visual Resources

Rationale: Minimizing affects to waterways and riparian vegetation limits potential for erosion, sedimentation, and disruption of habitat.

- 13) Action: Bicycle friendly (riders do not have to dismount) width restrictors would be installed wherever the trail adjoins/crosses an open road with motorized vehicle traffic. Culverts would be installed on the edge of each side of each road crossing (L and M) to facilitate both trail use and water drainage. (See Photo 6: Example Width Restrictor)

Photo 6: Example Width Restrictor



Responsive to Issue: 1.6.2.2- Soils and Hydrology, 1.6.2.5- Recreation

Rationale: The installation of width restrictors would help ensure that trails designed for non-motorized use are not inadvertently used by ATVs/UTVs. The use of culverts would allow for trail crossings at roads without affecting engineered drainage features.

14) Action: Signage would be installed at every trail entrance and junction. Signage would include trail name, direction of travel, and warnings (such as dangerous intersections).

Responsive to Issue: 1.6.2.5- Recreation

Rationale: To facilitate use and safety and to minimize inadvertent user created trails.

15) Action: Interpretive signage with preservation messages regarding cultural and natural resources would be developed for placement at any new trailhead locations approved on BLM managed lands. These signs would be installed prior to opening any new trails to public use.

Responsive to Issue: 1.6.2.1- Cultural Sites, 1.6.2.3- Wildlife

Rationale: To educate the visiting public and minimize unintended affects to key resources in the area.

16) Action: Trail alignments would be flagged prior to construction and evaluated by a BLM archaeologist (or BLM approved archaeologist) and recreation specialist. A signed agreement (i.e., Memorandum of Understanding and/or Volunteer Agreement) would be in place prior to construction efforts carried out by non-BLM entities outlining specific roles, limitations, and expectations.

Responsive to Issue: 1.6.2.1- Cultural Sites, 1.6.2.5- Recreation

Rationale: To ensure eligible cultural resource site avoidance and sustainable design.

17) Action: Once any new trail is open to the public, the BLM and/or BLM partners would monitor the trail at least three times a year to identify the development of any unauthorized, user-created trails. If unauthorized user-created trails are identified, the BLM would ensure actions are taken to obscure the trails as soon as possible to avoid continued unauthorized use.

Responsive to Issue: 1.6.2.1- Cultural Sites, 1.6.2.2- Soils and Hydrology, 1.6.2.3- Wildlife, and 1.6.2.5- Recreation (and Invasive Species/Noxious Weeds and Vegetation)

Rationale: Minimizing user-created trail development maximizes the natural appearing setting, limits disturbance to soils, wildlife, vegetation, and cultural resources.

18) Action: Maintenance would be accomplished either by BLM staff or partners under written agreement. Agreement documents would define allowable actions and limitations to ensure preservation of cultural resources while maximizing responsiveness and efficiency.

Responsive to Issue: 1.6.2.1- Cultural Resources

Rationale: To protect eligible cultural resources sites from damage caused by trail maintenance.

19) Prioritized Implementation Schedule

- a. Highline Area Trails, Road L Trailhead, and Stinky Springs Connector Trail (First building season (i.e., Spring or Summer) after approval)
- b. Cash Canyon Area Trails and Road M Trailhead
- c. Poquito Burrito Trail
- d. Simon Draw Area Trails
- e. Stinking Springs Area trails
- f. Road N Access Trail, Road 30.2 Access Trail, and Poquito Burrito Access trail (dependent on perfected public access through adjacent private lands)

20) Action: Trail Construction Timing Restrictions:

- a. Any trails approved for construction within ½ mile of an active Golden Eagle nest would have an allowable construction window of July 16th-January 31st, inclusive.
- b. Any trails approved for construction within New Mexico Meadow Jumping Mouse habitat would have an allowable construction window of October 1st - April 30th, inclusive.

Responsive to Issue: 1.6.2.3-Wildlife

Rationale: Restricting construction related activities to these allowable windows would minimize affects to these species during critical periods of their respective life cycles.

Development (Trails and Trailheads) Common to All Action Alternatives:

1) Trailheads/Parking Areas

Road L: This trailhead would be located about 300 feet southeast of Road L, approximately .7 miles from the Golden Eagle nest in Cash Canyon. Vegetation within the disturbance area is a mixture of grass, sage, and sparse pinyon-juniper. The parking area would be approximately ½ acre in size (200' x 100') and would require minimal tree clearing (less than 15 individual trees). The site is relatively flat, but would require a limited amount of earthwork and would be surfaced with imported road-base. The site is currently close to full-sized vehicles, but is located at the terminus of an Off-Highway Vehicle (OHV) trail designated for use in the 2008 Mancos-Cortez Travel Management Plan and carried forth under the Tres Rios RMP. A closed, but not fully rehabilitated road would be re-opened to full sized vehicles for purposes of accessing the parking area/trailhead from County Road L. Fencing/barriers would be installed to delineate the parking area and an informational kiosk would be constructed to provide natural and cultural resource interpretation as well as a trail map. A vaulted restroom could be installed or portable restroom facilities furnished,

dependent on trailhead use and demand. Other similar trailhead related structures could include shade cabanas and picnic tables.

2) Trails:

Simon Draw Area (North of County Road M)

This area would consist of five 'stacked loops' (loops that can be ridden independently, or combined for progressively longer trail opportunities) and two access trails. The stacked loops would be designed for additional challenge and greater technical skills the farther they are from the trailhead. The two small access trails, would allow access to the trail system from County Road 30.2 and County Road N. This area would have approximately 9 total miles of trail under all action alternatives.

Carly Trail:

This loop trail would be accessed from the County Road M Trailhead/Parking Area. It would be generally flat and designed for riders of all abilities. The short (about 1.4 mile) loop would wind through widely spaced pinyon-juniper and sagebrush, ideal for a kid's loop, warm up, or jumping off point for the rest of the trails in the Simon Draw area. Average Grade: Approx. 7%.

Schuster Trail:

This loop trail adds about 1.5 miles to the Carly Loop, providing scenic views into the shallow canyon of Simon Draw. It adds an element of challenge and difficulty with about 250 feet of elevation gain onto a small mesa top and a minor side-drainage crossing. Average Grade: Approx. 7%.

Paul Trail:

This loop trail would add approximately 1.2 additional miles to the first two loops of this stacked loop system. It affords views of a deeper and more dramatic side canyon to Simon draw without the difficulty of dropping into, or climbing out of the drainage. Average Grade: Approx. 7%.

LaBon Trail:

This loop option, tiering off of the Paul trail, continues to follow the dramatic side canyon of Simon Draw. It peaks out at around 6,600 feet in elevation with nice overlook options into the canyon, and adding about .8 of a mile to the trail system. Average Grade: Approx. 6%.

Garfunkel Trail:

The Garfunkel Loop would be the farthest from the Road M trailhead and providing opportunity for the most technical difficulty and challenge of the Simon Draw system. It would add approximately 3.3 miles of trail, crossing into and out of the un-named side canyon of Simon Draw. It would also feature linkages out to County Road N to the west, and County Road 30.2 to the north (pending the perfection of access off of these roads and through willing private land owners property). Average Grade: Approx. 8%.

Road N Access Trail:

This trail would spur off of the Garfunkel Trail to the west, potentially accessed from the end of road "N". There is currently no parking available along County Road N. There is currently a user-created OHV trail utilized by users to access the Simon Draw area. Survey and title work conducted by the BLM and Montezuma County depict the County Road as bordering BLM managed lands for 75', thus providing access to this potential trail directly from the County Road.

Road 30.2 Access Trail:

This trail would spur off of the Garfunkel Trail to the north, potentially accessed from the end of road “30.2”. There is currently no parking available along County Road 30.2. This 300’ access trail would only be built if and when public access was perfected through the adjacent private land.

Cash Canyon Area (Between County Roads L and M)

There are no trail proposals common to all alternatives in this portion of the unit.

Highline Area (Between Ledges Trail and County Road L)

This area would be comprised of two main single track trail loops which connect the existing non-motorized trail system to Road L. The closest access to this area would come from the County Road L trailhead, though they would also connect directly to the existing Ledges trail. There are several miles of designated OHV trails in this area as well. This area would have approximately 5.5 total miles of trail under all action alternatives.

Highline Trail:

The Highline Trail forms a nearly 3 mile loop off of the County Road L trailhead. It features a variety of terrain from small rolling arroyos, to cliff bands, to overlooks of the Sleeping Ute. Its gentle terrain lends itself to opportunities for beginning to moderate riders. Average Grade: Approx. 6%.

Canal Trail:

The Canal Trail represents the middle of three stacked loops in this area (the third loop represented by the existing Ledges Trail which provides the greatest level of technical difficulty of the three). This trail would add a 2.3 miles of trail to the Highline Trail and range from about 6,400 feet to 6,700 feet in elevation. Average Grade: Approx. 8%.

Stinking Springs Area (Southern Portion of Phil’s World)

Within the Stinking Springs area would be three new single track trails, and one new connector trail along the Stinky Springs trail. This area would have approximately 3.6 miles of new trails under all action alternatives.

Poquito Burrito Trail:

This trail would form a new loop opportunity off of the existing Stinky Springs trail. It would pose a high degree of challenge where it enters and exits Stinking Springs canyon. It would likely feature ‘hike-a-bike’ sections where the majority of riders would have to step off their bikes to navigate difficult terrain. This loop would add approximately 2.25 miles of new trail to the Stinky Springs loop. Average Grade: Approx. 7%.

Stinky Springs Connector:

This small connector (approximately 200 feet) would provide a cutoff along the Stinky Springs trail, eliminating much of the most challenging terrain for those wishing for an easier trail option. The connector would follow a small ephemeral drainage. Average Grade: Approx. 2%.

Tiny Dancer Trail:

A portion of the Stinky Springs loop weaves in and out of private and public lands along the northern rim of Stinking Springs Canyon. This trail, approximately 1.2 miles in length,

would shift the trail northward, away from the canyon rim, and entirely onto publically managed lands. Average Grade: Approx. 5%.

Short N Sweet Trail:

This trail would stay on BLM managed lands to the east of the private lands. The new portion of trail would be approximately .5 miles in length. Average Grade: Approx. 3%. (See Table 2: Comparison of Action Alternatives Trail)

Table 2: Comparison of Action Alternatives Table

	Alternative B	Alternative C	Alternative D
Trails	<p>Simon Draw Area:</p> <ol style="list-style-type: none"> 1) Carly 2) Simon 3) Schuster 4) Paul 5) LaBon 6) Garfunkel 7) Road N Access 8) Road 30.2 Access 9) Misc. Connectors <p>Cash Canyon Area:</p> <ol style="list-style-type: none"> 1) Talon 2) Cash-Money 3) Aquila 4) Eyrie 5) Misc. Connectors <p>Highline Area:</p> <ol style="list-style-type: none"> 1) Highline 2) Canal 3) 6400 	<p>Simon Draw Area:</p> <ol style="list-style-type: none"> 1) Carly 2) Simon 3) Schuster 4) Paul 5) LaBon 6) Garfunkel 7) Road N Access 8) Road 30.2 Access 9) Misc. Connectors <p>Cash Canyon Area:</p> <ol style="list-style-type: none"> 1) Talon 2) Cash-Money (modified) <p>Highline Area:</p> <ol style="list-style-type: none"> 1) Highline 2) Canal 	<p>Simon Draw Area:</p> <ol style="list-style-type: none"> 1) Carly (modified) 2) Simon 3) Schuster 4) Paul 5) LaBon 6) Garfunkel 7) Road N Access 8) Road 30.2 Access 9) Misc. Connectors <p>Cash Canyon Area:</p> <p>No trails</p> <p>Highline Area:</p> <ol style="list-style-type: none"> 1) Highline (modified) 2) Canal

	Stinking Springs Area: 1) Poquito Burrito 2) Tiny Dancer 3) Short N Sweet 4) Stinky Springs Connector 5) Poquito Burrito Access	Stinking Springs Area: 1) Poquito Burrito 2) Tiny Dancer 3) Short N Sweet 4) Stinky Springs Connector	Stinking Springs Area: 1) Poquito Burrito 2) Tiny Dancer 3) Short N Sweet 4) Stinky Springs Connector
Total Additional Trail Miles	26.5 miles	21.5 miles	18.0 miles
Trailheads /Parking Areas	1) Road L, .5 acres 2) Road M (pre-disturbed area within < ½ mile from nest), 1.5 acres	1) Road L, .5 acres 2) Road M (previously undisturbed area > ½ mile from nest), .5 acres	1) Road L, .5 acres 2) Road M (previously undisturbed area > ½ mile from nest), .5 acres
Wildlife Buffer for Active Eagle Nest (no new trail development area)	263 acres	355 acres	398 acres

Alternative A: No Action

Under the No-Action Alternative, no new trails would be constructed. Non-motorized trails would continue to be provided for only in the southern 1/3 of the Phil's World portion of the Cortez SRMA. Trail use would continue to be concentrated out of a single access point located on Department of Colorado State Land.

This alternative would not meet the purpose and need for the proposed action, but provides important baseline information for the decision maker and the public when reviewing the analysis of the action alternatives

2.1. Alternative B: Proposed Action

The SWCCA is proposing approximately 26.5 miles of new single track, non-motorized trails, as well as two new trailhead/parking areas, to be added to the existing Phil's World trail system in Cortez Colorado. The trails would tie into the existing trail system and provide a wide variety of terrain, challenge, and loop options. The two new trailheads would be designed to disperse use throughout the Phil's World area and would take pressure off of the existing trailhead facilities. (See Map 1: Alternative B, Proposed Action)

This Proposed Action seeks to maximize the single track trail opportunities in the Phil's World area while shifting trail design and location away from sensitive resources identified during the internal and external scoping process.

Under Alternative B the following elements would differ from the "Design Criteria Common to All Action Alternatives" and "Developments (Trails and Trailheads) Common to All Action Alternatives":

- 1) Modification of Design Criteria #1 (Active Eagle Nest Buffer) of the "Design Criteria Common to All Action Alternatives" is described below:

The buffer area around the active Golden Eagle nest in Cash Canyon would be a key component of this alternative. Rather than a 'perfect circle' ½ mile buffer, the boundaries of this buffer area would take into consideration private land boundaries to the north, terrain, and vegetation. The buffer also reflects proximity of the nest to existing disturbances such as County Roads L and M (.3 miles and .45 miles from the nest, respectively) and residential developments (.25 miles from the nest) which may demonstrate habituation by the eagle. The buffer would extend .6 miles to the east to protect the entire mesa top adjacent to the eagle nest from new trail development. The south boundary of the buffer would follow the southern edge of the canyon to the south of the nest. The western edge of the boundary would extend .3 miles from the nest, excluding a nearly 3 acre area of pre-existing disturbance, which would be used for trailhead parking under this alternative. The total buffer area set aside under this alternative would be approximately 263 acres.

- 2) Trailheads/Parking Areas

Under this alternative, there would be two new trailheads/parking areas developed to facilitate access to the northern portion of the Phil's World area.

In addition to the trailhead listed under "Development (Trails and Trailheads) Common to All Alternatives", the following trailhead would be developed:

Road M: The northernmost trailhead would be located in a pre-disturbed site east of Road M, approximately .3 miles northwest of the Golden Eagle nest in Cash Canyon. Approximately 1.5 acres of the 3 acre pre-disturbed area would be used for this trailhead/parking area. Vegetation within the disturbance area is a mixture of grass and small sage. No tree clearing would be necessary at this site. The site is also nearly flat, so little to no earthwork would be required, though surface gravel (road-base) would likely be imported. The area is currently gated off to

full-sized vehicles, but allows access to a small system of Off-Highway Vehicle (OHV) trails designated for use in the 2008 Mancos-Cortez Travel Management Plan and carried forth under the Tres Rios RMP. Under this alternative, the gated entrance road would be re-opened to full sized vehicles for purposes of accessing the parking area/trailhead. Fencing/barriers would be installed to delineate the parking area and an informational kiosk would be constructed to provide natural and cultural resource interpretation as well as a trail map. A vaulted restroom could be installed or portable restroom facilities furnished, dependent on trailhead use and demand. Other similar trailhead related structures could include shade cabanas and picnic tables.

3) Trails

In addition to the trails listed under “Development (Trails and Trailheads) Common to All Alternatives”, the following trails would be developed:

Cash Canyon Area (Between County Roads L and M)

The three loops in this portion of the trail system could be accessed from either of the proposed trailheads. Access from the Road L trailhead would provide opportunities for easy to moderate trail experiences, while the access from the Road M trailhead would provide a more challenging option where it would drop briefly into Cash Canyon via the Cash-Money trail connection. When combining the 3 main loops south of Cash Canyon with the access trails from the County Road M Trailhead (Cash-Money trail), this area would have approximately 8 total miles of trail.

Cash-Money Trail:

The Cash-Money trail would serve as the access/egress trail from the County Road M Trailhead to the Cash Canyon Area trails. This trail would likely involve small hike-a-bike sections for the majority of riders in order to keep the trail as far from the Golden Eagle nest as possible. This trail from the County Road M Trailhead to the Talon Trail could be used as a 1.75 mile stand-alone loop, but would more likely serve as a connector trail between the Cash Canyon Area trails and the Simon Draw Area trails. Average Grade: Approx. 9%.

Talon Trail:

The Talon Loop would represent the initial loop into the Cash Canyon area trails from the County Road L trailhead. Its nearly 2 miles would provide opportunities similar to the Ribcage (with an undulating terrain) and a brief glimpse into Cash Canyon. Average Grade: Approx. 5%.

Aquila Trail:

The Aquila Trail forms a natural extension of the Talon Loop, lengthening the loop out to approximately 2.5 miles and providing views into the un-named canyon which branches off of Cash Canyon to the east. This portion of trail is approximately 1.3 miles in length with an average grade of approximately 6%.

Eyrie Trail:

This third and final leg of the stacked loop trails in the Cash Canyon area adds an additional 1.75 miles of trail to the system. Like the Aquila Trail, the Eyrie trail offers canyon views but does not drop into the canyon. It would be designed to give beginner users views of the canyon with minimal effort and technical requirements. Average Grade: Approx. 6%.

Highline Area (South of Road L, north of existing Ledges Trail)

6400 Trail:

The 6400 Trail would provide a secondary linkage between the existing Ledges Trail to the Canal and Highline Trail. This approximately 1.1 mile trail would provide views into a small un-named canyon as well as views of the Sleeping Ute. Average Grade: Approx. 6%.

Stinking Springs Area:

Poquito Burrito Access Trail:

Under the Proposed Action, the Poquito Burrito Trail would include a small (approximately 600') spur trail to the BLM/private land boundary. This 600' access trail would only be built if and when public access was perfected through the adjacent private land.

2.2. Alternative C

Under Alternative C the following elements would differ from the “Design Criteria Common to All Action Alternatives” and “Developments (Trails and Trailheads) Common to All Action Alternatives”:

- 1) Modification of Design Criteria #1 (Active Eagle Nest Buffer) of the “Design Criteria Common to All Action Alternatives” is described below:

The buffer area around the active Golden Eagle nest in Cash Canyon would more closely follow a strict interpretation of the ‘perfect circle’ ½ mile radius identified in the RMP. The boundary would still be modified to recognize private land boundaries to the north. It would also be adjusted to exclude BLM managed lands beyond County Roads L and M (.3 miles and .45 miles from the nest, respectively) which represent existing disturbances and may demonstrate habituation by the eagle. The southwestern edge of the boundary would extend .4 miles from the nest, allowing for trail linkages between Roads L and M based on topographic screening at the confluence of Cash Canyon and the unnamed canyon entering from the east. The total buffer area set aside under this alternative would be approximately 355 acres. (See Map 2: Alternative C)

- 2) Trailheads/Parking Areas

Under this alternative, there would be two new trailheads/parking areas developed to facilitate access to the northern portion of the Phil’s World area.

In addition to the trailhead listed under “Development (Trails and Trailheads) Common to All Alternatives”, the following trailhead would be developed:

Road M: The northernmost trailhead would be located on the northwest side of Road M, outside of the ½ mile radius from the eagle nest, servicing trails in the Simon Draw area. The parking area would be approximately ½ acre in size (200’ x 100’) in an area previously disturbed but not fully reclaimed. Vegetation consists mostly of grass and small sage, with a few sparsely populated pinyon-juniper. The area would have to be cleared (approximately 10 pinyon-juniper trees removed), graded, and surfaced similar to the parking area proposed at Road L. A new access road (approximately 60’ in length) would also be necessary. Fencing/barriers would be installed to delineate the parking area and an informational kiosk would be constructed to provide natural and cultural resource interpretation as well as a trail map. A vaulted restroom could be installed or portable restroom facilities furnished, dependent on trailhead use and demand. Other similar trailhead related structures could include shade cabanas and picnic tables.

- 3) Trails

In addition to the trails listed under “Development (Trails and Trailheads) Common to All Alternatives”, the following trails would be developed:

Cash Canyon Area (Between County Roads L and M)

Under Alternative C, a pair of trails (Cash Money and Talon) linking Roads L and M would be developed between the two trailheads. Access from the Road L trailhead would provide

opportunities for easy to moderate trail experiences, while the access from the Road M trailhead would provide a more challenging option where it would drop briefly into Cash Canyon. When combining the Talon Trail with the access trails from the County Road M Trailhead (Cash-Money Trail), this area would have approximately 3 total miles of trail.

Cash-Money Trail:

The Cash-Money trail would serve as the access/egress trail from the County Road M Trailhead to the Talon Trail. This trail would likely involve small hike-a-bike sections for the majority of riders in order to keep the trail as far from the Golden Eagle nest as possible. This trail from the County Road M Trailhead to the Talon Trail could be used as a 1 mile stand-alone loop, but would more likely serve as a connector trail between the Cash Canyon Area trails and the Simon Draw Area trails. Average Grade: Approx. 12%.

Talon Trail:

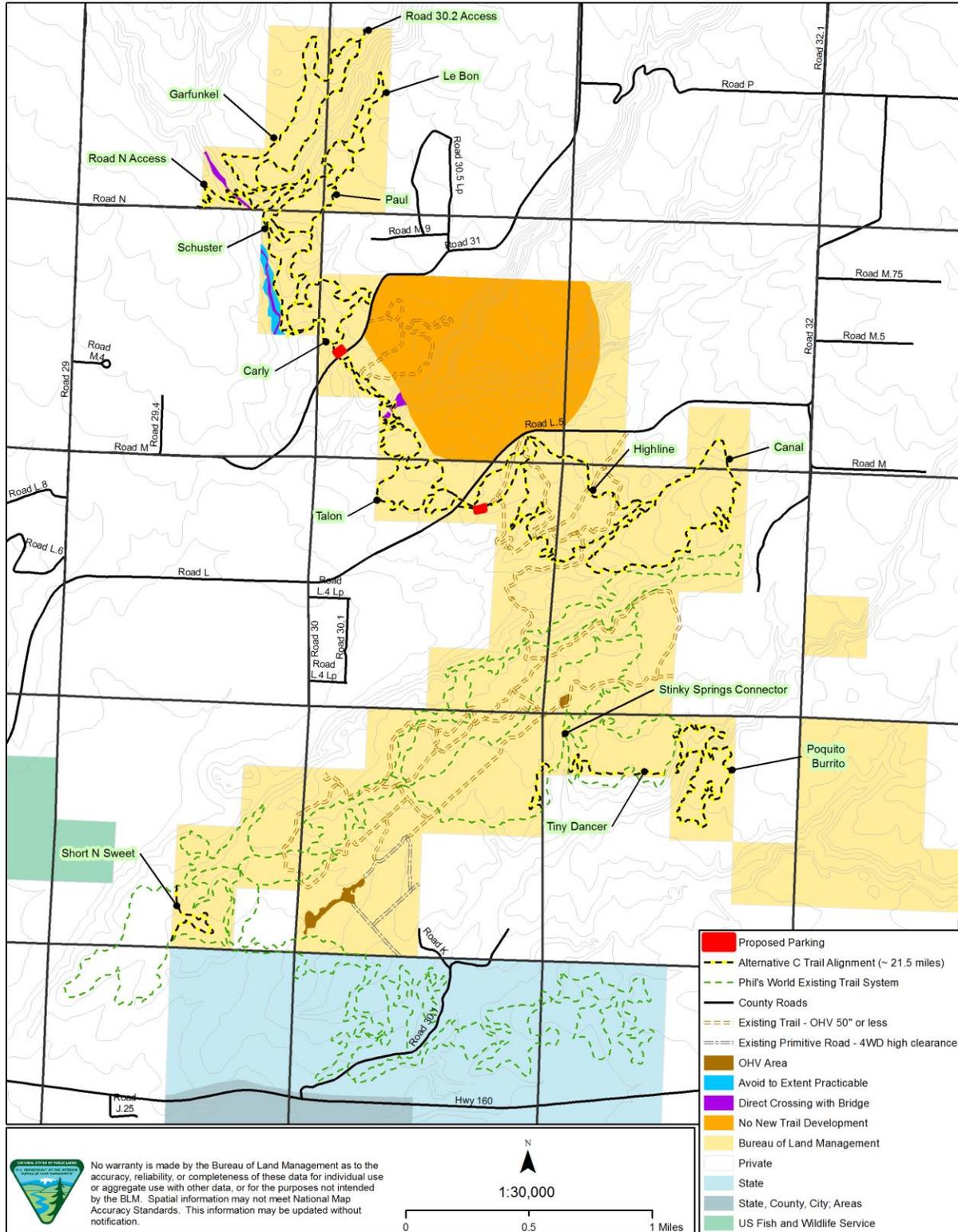
The Talon Loop would tie in with the Cash Money Trail to provide access between the Road L Trailhead and the Simon Draw Area trails. Its nearly 2 miles would provide opportunities similar to the Ribcage (with an undulating terrain) and a brief glimpse into Cash Canyon. Average Grade: Approx. 5%.

There would be approximately 21.5 total miles of new trails under this alternative.

Map 2: Alternative C

PROPOSED PHIL'S WORLD TRAILS - ALT C

08/25/2016



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2.3. Alternative D

Under Alternative D the following elements would differ from the “Design Criteria Common to All Action Alternatives” and “Developments (Trails and Trailheads) Common to All Action Alternatives”:

- 1) Modification of Design Criteria #1 (Active Eagle Nest Buffer) of the “Design Criteria Common to All Action Alternatives” is described below:

The buffer area around the active Golden Eagle nest in Cash Canyon would include the entire ½ mile radius identified in the RMP, modified only to recognize private land boundaries to the north. The total buffer area set aside under this alternative would be approximately 398 acres. (See Map 3: Alternative D)

- 2) Trailheads/Parking Areas

Under this alternative, there would be two new trailheads/parking areas developed to facilitate access to the northern portion of the Phil’s World area. There would be no trail linkage between the trailheads.

In addition to the trailhead listed under “Development (Trails and Trailheads) Common to All Alternatives”, the following trailhead would be developed:

Road M: The northernmost trailhead would be located on the northwest side of Road M, outside of the ½ mile radius from the eagle nest, servicing trails in the Simon Draw area. The parking area would be approximately ½ acre in size (200’ x 100’) in an area previously disturbed but not fully reclaimed. Vegetation consists of mostly of grass and small sage, with a few sparsely populated pinyon-juniper. The area would have to be cleared (approximately 10 pinyon-juniper trees removed), graded, and surfaced similar to the parking area proposed at Road L. A new access road (approximately 60’ in length) would also be necessary. Fencing/barriers would be installed to delineate the parking area and an informational kiosk would be constructed to provide natural and cultural resource interpretation as well as a trail map. A vaulted restroom could be installed or portable restroom facilities furnished, dependent on trailhead use and demand. Other similar trailhead related structures could include shade cabanas and picnic tables.

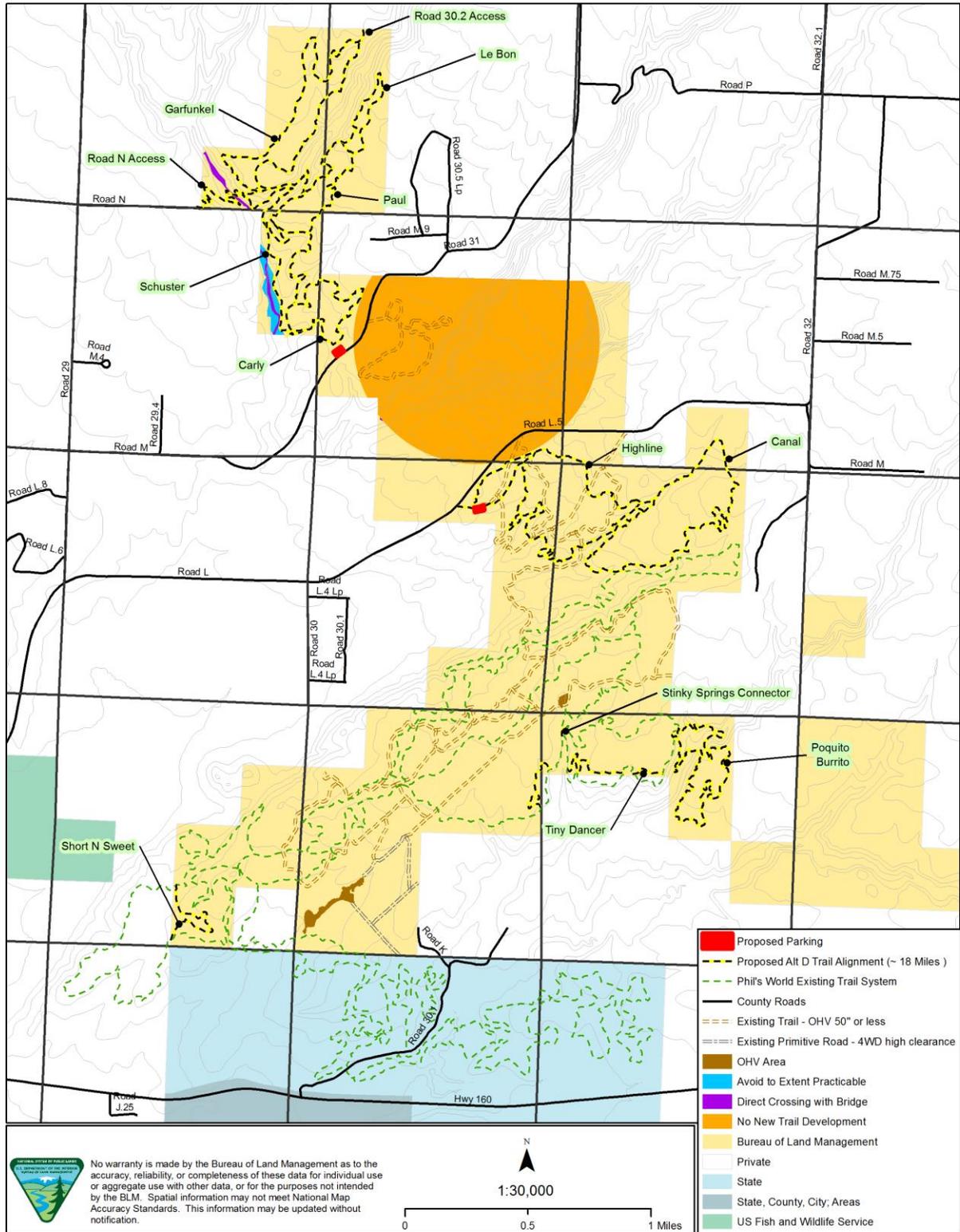
- 3) Trails

There would be no additions to the trails listed under “Development (Trails and Trailheads) Common to All Alternatives”.

Map 3: Alternative D

PROPOSED PHIL'S WORLD TRAILS - ALT D

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2.4. Alternatives Considered but Eliminated from Detailed Study

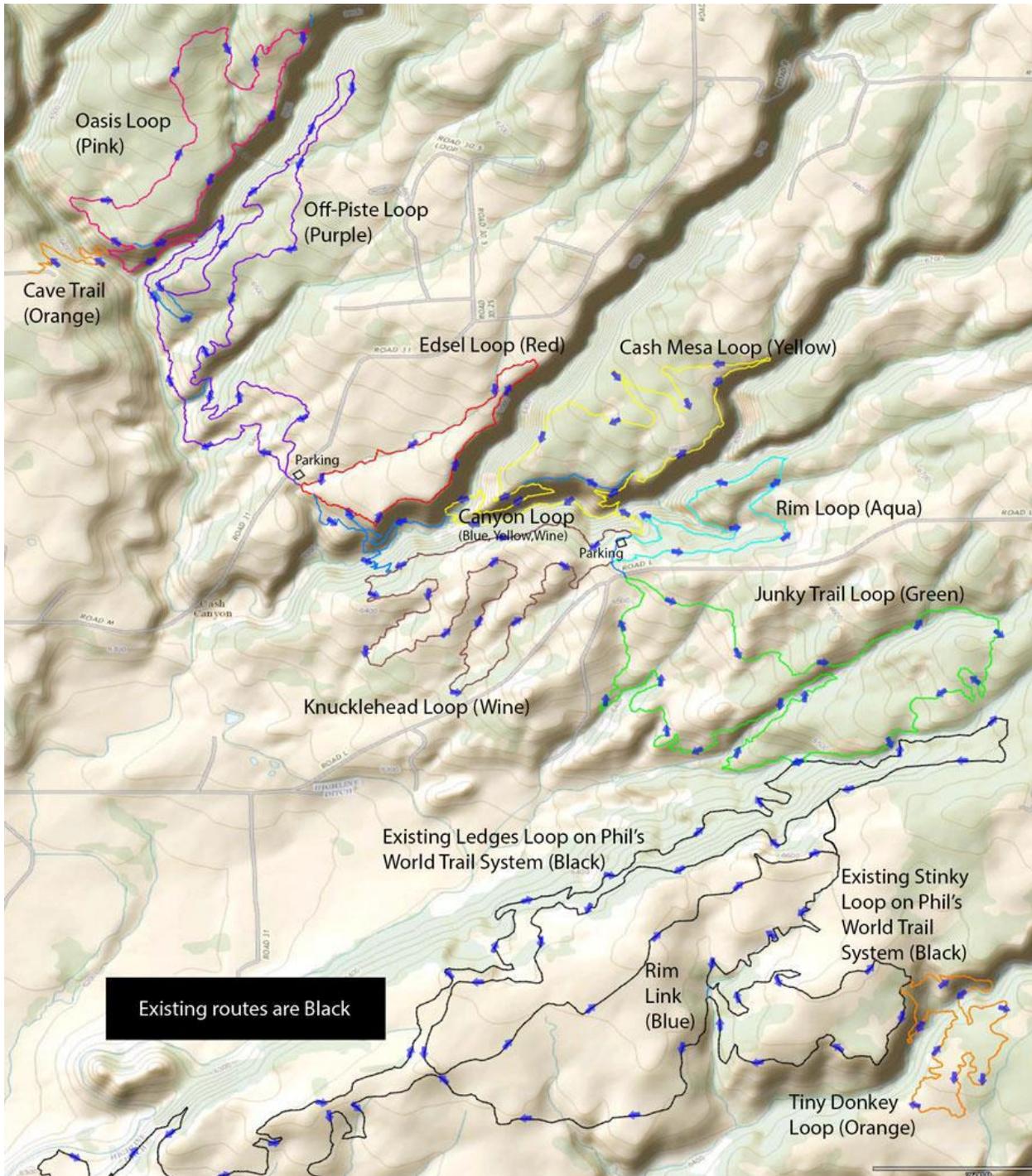
SWCCA Proposal #1

Prior to the completion of the 2015 Tres Rios RMP and the establishment of the Cortez SRMA, the SWCCA proposed a series of trails from 2004 to 2011 to the USFS/BLM office in the Phil's World area which were never evaluated by the agencies. These proposed trails were all located south of County Road M and included the Cash Canyon Trail (proposed 2005 and 2009), Cash Mesa Trail (proposed 2005 and 2009), Junky Trail, (proposed 2005 and 2009), and Tiny Donkey Trail (proposed 2011). In 2013 SWCCA updated their proposal to include the Knucklehead, Rim, Edsel, Canyon, and North Loops. (See Map 4: Original SWCCA Proposal)

However, after meeting with the BLM and hearing concerns from the BLM and Colorado Parks and Wildlife biologists regarding importance of the canyon features for big game habitat, the SWCCA adjusted their proposal once again; this time removing the proposed trails running up and down the canyon bottoms and focusing instead on the canyon rims. This adjustment came at the expense of the opportunity to ride in the shaded and sheltered canyon bottoms, an experience not currently represented by the existing Phil's World trail system. The SWCCA also volunteered to postpone their request for the proposed Tiny Donkey trail due to the lack of existing cultural survey work in that area (the BLM has decided to analyze that proposed trail in this document {now called the Poquito Burrito Trail}, rather than revisit the area at a later date).

As a result of both internal and external scoping on the SWCCA proposal in 2015, it was discovered that the proposed trails would pass through multiple eligible cultural sites and very near to an active Golden Eagle nest. The BLM developed three alternatives to the SWCCA proposal which would avoid direct affects to the cultural sites and provide substantial buffers (approximately 250 and 350, and 400 acres respectively) around the Golden Eagle nest. Although it results in the loss of two potential trail loops (Cash Mesa and Edsel) totaling 5.5 miles, connecting trails in one of the canyons, and the relocation of a trailhead/parking area, the SWCCA adopted one the BLM's alternatives as their Proposed Action. The 2013 SWCCA alternative (and its associated predecessors) has been removed from further analysis as it did not adequately resolve resource conflicts with cultural and wildlife resources.

Map 4: Original SWCCA Proposal



3. ENVIRONMENTAL EFFECTS

3.1. Affected Environment

3.1.1. Cultural Resources

The current archaeological record in the general vicinity of the planning area indicates at least 10,500 years of human presence. Prehistoric and historic traditions within the area are generally categorized and discussed in terms of periods or eras that represent trends of tradition evident in the material record. In southwest Colorado, Paleoindian, Archaic, Formative, Protohistoric and Historic periods/eras are present.

Cultural resources within the analysis area include a diverse array of prehistoric, protohistoric, and historic sites. The majority of the sites within the analysis area are open and sheltered camps and open and sheltered architectural habitation sites associated with Ancestral Puebloan occupation. Historic site types are also present, and include the remains of homesteads and historic inscriptions. The condition of these sites range from very good to impacted (vandalized and/or looted).

A total of 12 cultural resource inventories have been conducted within the 2,409 acre BLM parcel in the analysis area, resulting in approximately 2,301 acres of survey (96%). Cultural resource inventories have been conducted for all elements of the action alternatives that have the potential to directly affect cultural resources. A total of 139 archaeological sites have been recorded within the BLM portion of the planning area. One hundred ten of these sites (79%) are listed on or are eligible or potentially eligible for inclusion on the National Register of Historic Places (NRHP). Twenty nine of the sites in the BLM portion of the planning area are not eligible for listing on the NRHP.

3.1.2. Soils/Hydrology/Riparian

The three primary stream-canyons that dissect the analysis area are Simon Draw, Cash Canyon and Stinking Springs Canyon, all tributary to McElmo Creek. Each of the streams has been modified by irrigation withdrawals, irrigation return flows, water diversions, and impoundments. The median elevation of the area is approximately 6,500 feet and small watersheds at this elevation in southwest Colorado typically have short-duration peak flows in response to snowmelt runoff in the early spring. They may also have short duration peak flows associated with flash flooding triggered by monsoonal thunderstorms. Perennial flows in the major canyons and in their larger side tributaries are augmented by irrigation water return flow.

All of these streams support riparian vegetation in the canyon bottoms whether the streamflow is perennial or intermittent. Riparian vegetation consists of Fremont cottonwood, willow, Russian olive, cattail, rushes and sedges.

The analysis area lies within the Colorado Plateau geologic province. All of the proposed Phil's World trails would be built on bedrock or soils derived from the cretaceous Dakota Sandstone and Burro Canyon formations (Tewto, 1979). The Dakota sandstone is comprised of beach sands and is resistant to erosion, typically forming cliffs and the cap rock of mesas and plateaus.

When dissected by streams this formation tends to form the steep-sided canyons characteristic of the Phil's World analysis area. The Burro Canyon Formation is comprised of riverine conglomerate, sandstone, shale, limestone and chert and tends to form slopes, cliffs, and ledges under the Dakota Sandstone.

Soils on mesa tops are mostly sandy or loamy and relatively stable if located on flat areas including Wetherill loam, Sharps loam, Gladel-Pulpit soils units. These soils are low strength and on moderate to steeper slopes they are moderately to highly erosive. Gladel-Pulpit, Wetherill/Sharps loam has moderate suitability for road and trail construction on low slopes. Sharps loam has severe erodibility on slopes 6-12 percent. Steep canyon sides are typically soils of the Romberg-Crosscan unit which have very severe slope erodibility and are poorly suited for trail or road construction (NRCS, 2001).

3.1.3. Wildlife and Threatened and Endangered Species (TE&S)

The Phil's World Trail project area consists of pinyon-juniper woodlands and canyons with perennial and ephemeral flows. A variety of the wildlife use the area such as deer, elk, raptors, lizards, bats, small mammals, migratory birds and other species. The analysis for the Phil's World Trail project area will focus on Deer and Elk, Golden Eagles and New Mexico meadow jumping mouse. These species have the potential to be affected by the project.

Affects to wildlife from the Phil's World Trail Expansion Project can be divided into two categories: 1) trail construction and maintenance and 2) subsequent trail use. The latter is expected to generate the most meaningful disturbance to wildlife. Extensive disturbance by recreationists can have an immediate and long term effect on wildlife. Consequences of long term disturbance can result in net energy loss, affects to animal behavior and fitness, and avoidance of otherwise suitable habitat.

New Mexico Meadow Jumping Mouse

The New Mexico meadow jumping mouse (*Zapus hudsonius luteus*, NMJMM) is a habitat specialist that appears to utilize only two riparian communities: persistent, emergent, herbaceous, wetlands and scrub-shrub wetlands (Frey 2005). Twenty nine populations of NMMJM persist. They are located in Colorado (2 populations), New Mexico (15 populations), and Arizona (12 populations - US Fish and Wildlife Service). Critical habitat for NMMJM occurs in one location on the Tres Rios Field Office Surface Ownership on the Florida River, east of Durango, Colorado.

Existing Conditions

Potential habitat for NMMJM occurs in two drainages within the project area, totaling approximately 11 acres (see Map 5, New Mexico Meadow Jumping Mouse Potential Habitat on BLM). Each potential habitat location is a tributary to Simon Draw and both are connected to habitat on private land in Simon Draw. Year round water is suspected to come from nearby irrigation in both systems. Tall vegetation lines the bank and borders the stream. Riparian vegetation buffers the stream by varying widths, from approximately 2 to 12 meters. The habitat

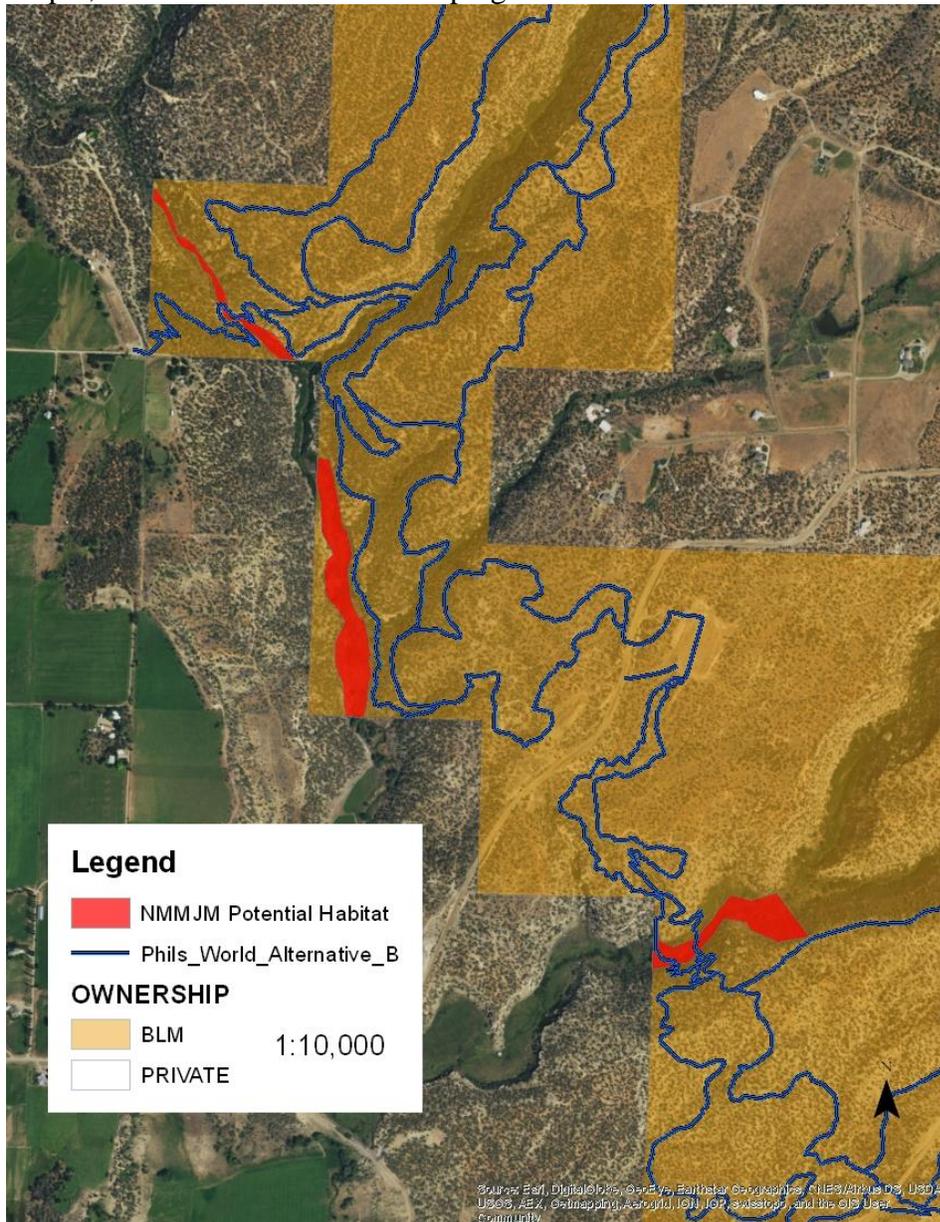
is not currently known to be occupied by NMMJM; however, the habitat is suitable and may be a suitable site for reintroduction in the future.

Recreation Affects

Currently 75% of the known NMMJM populations are impacted by recreational activities (Frey 2005). Recreational impacts range from removal of vegetation through trampling to changes in hydrology caused by off road vehicles driving through riparian areas.

There are no known threats from mountain biking or hiking in particular, other than activities associated with permanently removing vegetation, such as trail building.

Map 5, New Mexico Meadow Jumping Mouse Potential Habitat on BLM



Golden Eagle

Golden Eagles are protected by the Bald and Golden Eagle Protection Act (Eagle Act; 16 United States Code [U.S.C.] 668-668d). The act prohibits the “taking” of eagles which it defines as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb”. The act further defines disturb as:

“to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior”.

Existing Conditions

Golden eagles occur throughout the TRFO, primarily in open habitats near cliff faces adequate for nesting. TRFO monitoring of Golden Eagle nests identified 9 occupied nests out of 28 monitored in 2015 and 6 occupied nests out of 24 monitored in 2016. In 2015, 32% of nests monitored were occupied compared to 25% in 2016. In 2016, 3 nests were monitored and determined to have failed. A nest is considered failed if pair does not produce any young. The causes of nest failure were not known, however the lack of available prey is not suspected since Gunnison prairie dogs and cotton tail rabbits both appear anecdotally to be increasing in numbers.

There is one active Golden Eagle (*Aquila chrysaetos*) territory within the proposed action area. The territory consists of three nests on BLM land and one nest on adjacent private property. The territory was discovered to be active in 2010 by the nearby landowner (personal conversation with landowner). Prior to building housing on their property, the nest was on the landowner's property, but moved its current location on BLM land following the construction of the home. The nest on BLM has been observed to be occupied in 2010 through 2014 (see table 2.1, Golden Eagle Nest Monitoring, TRFO). The nest has not been active in 2015 and 2016, but eagle sightings in the area suggest that the territory is still occupied. Nests are considered active if they are “frequented or occupied by a raptor during the breeding season, or which has been active in any of the five previous breeding seasons” (CPW, 2008).

Table 2.1 Golden Eagle Nest Monitoring, TRFO

Golden Eagle Nest Monitoring TRFO		
Year Checked	Status	Number
2016 (24 nests monitored)	Occupied	3
	Occupied Failed	3
	Occupied Alternate	2
	Unoccupied	9
	Unoccupied Alternate	6
	Unknown	4

2015 (28 nests monitored)	Occupied	9
	Occupied Failed	--
	Occupied Alternate	--
	Unoccupied	14
	Unoccupied Alternate	3
	Unknown	4

Occupied – A nest in which a breeding attempt was made, indicated by fresh lining material in the nest, adult presence at or near the nest, a recent and well-used perch site near the nest, eggs or young in the nest, fledged young near the nest, or an incubating or brooding adult on the nest.

Occupied Failed – An occupied nest that did not fledge young.

Occupied Alternate – A tended nest within the boundaries of a territory housing an occupied nest.

Unoccupied – A nest with no apparent recent use or adult presence at the time of observation, but in good condition.

Unoccupied Alternate – An unoccupied nest within a territory that contains an occupied nest

Unknown – A nest who status was undetermined during subsequent surveys in the same nesting season.

Table 2.2 Golden Eagle Nest Monitoring, Project Area

Golden Eagle nest monitoring in the project area							
Nest ID	2010	2011	2012	2013	2014	2015	2016
Cash Canyon 1	--	--	--	--	--	UNOC	UNOC
Cash Canyon 2	OCCU	OCCU	OCCU	OCCU	OCCU	UNOC	UNOC
Cash Canyon 3	--	--	--	--	--	UNOC	UNOC
Cash Canyon 4	--	--	--	--	--	UNOC	UNOC

Occupied – A nest in which a breeding attempt was made, indicated by fresh lining material in the nest, adult presence at or near the nest, a recent and well-used perch site near the nest, eggs or young in the nest, fledged young near the nest, or an incubating or brooding adult on the nest.

Occupied Failed – An occupied nest that did not fledge young.

Occupied Alternate – A tended nest within the boundaries of a territory housing an occupied nest.

Unoccupied – A nest with no apparent recent use or adult presence at the time of observation, but in good condition.

Unoccupied Alternate – An unoccupied nest within a territory that contains an occupied nest

Unknown – A nest who status was undetermined during subsequent surveys in the same nesting season.

A nest near the new McPhee trail (decision signed in 2010, when the nest was not known to occur) on the San Juan National Forest produced young this year with some non-authorized traffic within 0.1m of the nest. This particular nest is known to have produced young twice in the last six years, including 2016, but the eagle has moved nest locations at least twice during that time. The new McPhee trail opened in Mid-July of this year, after the eagle breeding season and young had fledged, and sections within ½ mile of the eagle nest have not yet been completed. Future monitoring will determine how user traffic will impact the nest. Currently, both known nest locations, one near the trail and one across the canyon near housing developments, have disturbance within one half mile. Moving nest locations often occurs as a result of failed reproduction at a nest site or disturbance. Current nest site disturbance could be leading to frequent location changes at this site (Watson et al. 2010).

Eagle Nest Site Disturbance

Golden eagles are long lived species and maintain nesting territories for generations, with territories being occupied for a century or longer. Territories with little disturbance and sufficient prey populations can be occupied by successive generations of eagles (Palmer 1988).

Golden eagles appear to be sensitive to human activity. Steidle et. al. (1993) found when observers were camped 400m (1300 ft or 1/4 mile) for 24 hours from golden eagle nests, adults spent less time near their nests, fed juveniles less frequently, and fed themselves and their juveniles up to 67% less food than when observers were camped 800m (2600 ft or 1/2 mile) away from nests for an equal period of time. In studies of golden eagle populations in the southwest (New Mexico, Colorado and Wyoming), D'Ostilo (1954), Camenzind (1969), and Boeker and Ray (1971) reported that some form of human disturbance accounted for 45-85% of all known nest losses. Watson et al. (2010) found Golden Eagle were less likely to occur near human disturbance. Kaisanlahti-Jokimaki et al. (2008) documented lower territory occupancy rates near tourist communities. In Idaho, in a study of 40 years of golden eagle territories, data showed that areas that experienced OHV use ($>4 \text{ km/km}^2$ within 3 km of the nest) saw a substantial decrease in nest productivity when compared with nests that had less OHV activity ($<3 \text{ km/km}^2$ within 3km of the nest). Nests that were near parking lots ($<700\text{m}$) were particularly affected - some not producing young for up to 15 years (Steenhof et al. 2014). Kochert (U.S.G.S, unpublished data) observed that territories that experienced disturbance that became vacant did so after at least one and sometimes several years of breeding failures. Eagles also do not frequently abandon nests once they become unsuitable for raising young because of the lack of suitable nesting habitat.

Based on the above information it appears that eagles are susceptible to many forms of human disturbance and that disturbance can lead to reproductive failure, death of young or reproductive discouragement.

Recommendations for Protecting Golden Eagle Reproduction

Nest site timing limitations and/or disturbance buffers are commonly used to prevent nest site disturbance. Colorado Parks and Wildlife (CPW) and research by Steidle et. al. (1993) recommends no disturbance buffer of 1/2 mile. There is not solid agreement about how much disturbance would likely lead to decreased productivity or territory failure. Typically the most reasonable management for eagles is to limit disturbance to the greatest extent possible to ensure adequate available nesting territories and successful reproduction.

The Tres Rios Field Office RMP (2015), Colorado Parks and Wildlife (2008), the US Fish and Wildlife Service Utah Field Office Guidelines (2002) and Suter (1981) all recommend 1/2 mile buffer no disturbance buffers around golden eagle nests during the breeding season.

Habituation to Human Disturbance

Some literature tries to address the possibility that golden eagles can habituate to human disturbance (Romin and Muck, 2002). Unlike bald eagles (Guinn 2004) no research has shown that golden eagles regularly habituate to disturbance. Behavior varies among individuals and at what level disturbance will impact eagles is difficult to determine based on individual and environmental factors. It should also be noted, that what is perceived as habituation to human activity, such as a bird nesting near disturbance, may still be increasing stress and result in decreased productivity. Steenhof et al. studied eagles and found that once disturbed a pair of eagles did not abandon their territory (apparent habituation), but the pair did not produce any young for 15 years (2014).

Elk and Mule Deer

Effects of recreation on Deer and Elk

Mountain biking and hiking have recently garnered concern in relation to their affects to wildlife. Forty million and seventy million Americans participate in mountain biking and hiking respectively at least once each year (USDA Forest Service and National Oceanic and Atmospheric Administration 2000). There is a limited body of evidence looking at the effects of non-motorized recreation on big game. In Utah, a study by Taylor and Knight (2003) demonstrated that mountain biking and hiking have an influence on big game of 100m on each side of the trail, eliciting a probability of response of 70%. They suggested that such disturbances “*may reduce the carrying capacity of public lands for wildlife*”. Similarly, elk demonstrate sensitivity to hiking and mountain biking, increasing the amount of time moving and decreasing time spent feeding or resting when disturbed by mountain biking (Naylor et al. 2009).

Mule Deer

Mule deer populations have been declining across the west over the last two decades likely as a result of drought and habitat fragmentation (deVos et al. 2003, Bishop et al. 2009, Monteith et al. 2014). Mule deer occupy large areas, migrating from low lands in the winter to higher elevations during the summer. The reality of two primary ranges connected by vast migratory corridors (up to 258 km) necessitates that ranges are very large, regularly exceeding 1,000 square miles. Degradation of habitat quality in such large ranges happens incrementally and is usually attributed to many factors. Recently, migratory routes have been shown to be one factor that can limit populations, sometimes poorly placed development such as housing developments and roadways can have disproportionate affects on population numbers (Sawyer et al. 2005).

Existing Condition

The Phil’s world trail system occurs in parts of the Mesa Verde Deer Herd Management area, also known as DAU-29 (Colorado Parks and Wildlife, 2014). The herd has seen large population declines over the last 20 years: from 11,000 in 1998 to 5,100 in 2012. Colorado Parks and Wildlife attribute recent reduction in numbers to anthropogenic degradation of habitat as a result of increasing human population and development. Of particular concern is fragmentation of habitat in winter range. CPW in their “*Mesa Verde Mule Deer Herd Management Plan*” (CPW 2014) attribute habitat degradation and herd population declines to: “*human disturbance from rural development and recreation, and overgrazing and drought*”. Confounding conflicts with humans, some deer herds in Southwest Colorado appear to migrate based not on forage and snow conditions but some other factor, initiating migration in the spring and fall at the same time each year. Deer in between Pagosa Springs and Bayfield, Colorado that winter on Southern Ute land, initiate migration in the spring on May 7th and fall on Oct 15th (unpublished data: Aran Johnson - Southern Ute GPS Telemetry Data, 2004-2010). This potentially causes greater conflict with recreationalists when compared with elk. Hikers, and to a greater degree, mountain bikers, avoid trails when they are covered with snow. If deer remain after snow has melted, when users begin

to use trails, they are more likely to experience disturbance. Although, not all deer herds seem to follow the same annual migratory patterns as those tracked by Johnson (Merkle et al. 2016).

Winter Range

Deer can be particularly sensitive to disturbance in the winter when food has poor nutritional value and cold conditions require greater energy expenditure. To a large degree local population success is dependent upon minimizing energy expenditure during the winter (Parker et a. 1984). As a result, timing limitations are often put in place to limit disturbance during the winter and therefore improve the health of populations. On the Tres Rios Field Office, timing limitations are implemented in severe and critical winter range, and not winter range in general (BLM 2015). Identification of critical and severe areas relies on mapping from CPW of historic ranges. However, ranges are constantly shifting based on food availability and human disturbance. Recent flight data show winter deer largely avoiding areas with existing trail development in the Phil's world area, mapped as severe and critical winter range, and heavy use where trail development is lacking (Brad Weinmeister, CPW, unpublished data, 2015).

Elk

Elk (*Cervus canadensis*) are considered habitat generalists. Elk tend to inhabit higher elevations during spring and summer, and then move to lower elevations for winter (some herds can be sedentary). Migrating elk typically follow the melting snowpack up in elevation in the spring, and fall migrations are tied to weather and forage availability.

Existing Conditions

The Phil's World area resides within the Disappointment Creek Elk management area in winter range. The entire management area, all annual habitats, covers 3,023,098 acres. Winter range covers 1,551,040 acres, 1,158,269 acres of which resides within the Tres Rios Field Office exterior boundary (although it occurs on multiple jurisdictions including National Forest, private, state, tribal, etc.). In 2006, the last time CPW released a management plan for the area, population numbers were estimated at 18,250 individuals. This number met the proposed population objective of 16,000-18,000 at that time. Wildlife managers have increased issuance of hunting licenses several times since 1987 to try and decrease rapidly growing elk populations within the management area (Colorado Parks and Wildlife, 2006).

Winter Range

Elk winter ranges are important habitats for maintaining populations. Cold temperatures and poor food nutritional value make elk sensitive to disturbance in the winter. Elk have a negative energy balance when temperatures are below 31°F. Cow elk that experience a decrease of 3% of body weight have smaller calves with lower survival rates. Energy expenditure of movement in elk increases daily energy expenditure 5.5%. Energy expenditure can be increased due to disturbance. Typically, 87% of daily forage consumption in the winter is used for metabolism. The remaining 13% is used for growth, reproduction, thermoregulation and movement (Nelson and Leege, 1982).

Traffic on roads and disturbances from construction equipment reduces elk habitat effectiveness, particularly in important winter range areas, by influencing animal distribution, habitat use, and survivorship (Rowland et al. 2005). Managing the affects from a wide variety of human activities on winter ranges is important for maintaining long-term habitat capability for elk. Additionally, affects from disturbance to elk can be more pronounced in limited wildlife habitat areas such as winter concentration and production areas where animals are more concentrated, are often in reduced body condition, and have fewer opportunities to move away from disturbance to more secure areas. Road and trail closures and/or use limitations have been shown to reduce the effects of roads and traffic on wildlife and minimize the negative effects of human activities on wildlife habitat effectiveness (Cole et al. 1997; Montgomery et al. 2012; Priesler et al. 2006; Sawyer et al. 2009).

Mountain biking and hiking have been shown to negatively affect elk. In mosaic forested ecosystems elk move more daily and are more active in areas with mountain bike and hiking activity (Naylor et al 2009, Wisdom et al 2004).

3.1.4. Socio-Economics

Certain existing demographic and economic features influence and define the nature of local economic and social activity. Long-held customs, social cohesion, and history of an area provide valuable insight into how events or changes to the area may affect the livelihood and quality of life of the residents.

The Phil's World area is located in Montezuma County, Colorado and Montezuma County is the socio-economics analysis area for this EA. The overall population in Montezuma County in 2014 was 25,812 residents (Colorado Department of Local Affairs 2015). In 2014, the majority of the residents lived in unincorporated areas (14,882 people), while 8,606 individuals resided in Montezuma County's largest incorporated community of Cortez and the remaining population residing in the incorporated towns of Dolores and Mancos (Colorado Department of Local Affairs 2015). There were 14,690 jobs in the county in 2014 and the three top industries providing jobs were government, retail trade, and health care/social assistance (U.S. Bureau of Economic Analysis 2015). More information on the socioeconomics of the area is available in the Tres Rios RMP Final Environmental Affect Statement (BLM, 2013). The affected environment discussed here will focus on socioeconomics related to travel/tourism and outdoor recreation/mountain biking in the area.

All recreation activities provide socioeconomic value. The value may be as simple as increased quality of life for the participants. In addition, recreationists often spend money to recreate. Local recreationists pay for gas to reach a site and may buy equipment, purchase food and drink, and make other purchases locally. Non-local recreationists may do all of this, and pay for lodging, restaurants, guides and outfitters, and so forth. All these actions generate local economic activity. Expenditures by non-local recreationists are particularly important because they represent new income in the region. In Colorado, tourism and recreation are important contributors to the economy. Research done for the Colorado Tourism Office indicates that travelers (resident and non-resident travelers including overnight and day visits) in Colorado spent over \$19 billion in 2015 which supported over 160,000 jobs and \$5.5 billion in earnings

(Dean Runyan Associates 2016). Local and state tax receipts (excluding property tax) from tourism-generated spending increased from \$821 in 2004 to \$1,133 in 2015 in constant dollars (\$2015), an increase of 38 percent (Dean Runyan Associates 2016). It's important to note that these figures represent only direct effects of travelers visiting and do not include the indirect (local inter-industry purchases caused by the direct spending—for example a local restaurant purchasing goods from a local grocery store) and induced affects (re-spending of earnings by employees of affected industries) therefore underestimating the full effect of travel/tourism in Colorado. More specifically, recreation associated with BLM managed lands in Colorado supported 4,625 jobs and over \$182 million in labor income in fiscal year 2015 (DOI 2016). Additionally, visitation to BLM managed lands in Colorado provided over \$303 million in value added and close to \$543 million in economic output in fiscal year 2015 (DOI 2016).

There are numerous studies that have examined the economic effects on local communities associated with recreational trails and greenways. The economic affects most often studied were economic effects such as employment, income, and overall economic output associated with visitor/user expenditures as well as affects to property values. A study done on the economic effects associated with the Virginia Creeper Rail Trail in the State of Virginia estimated \$23,606 (in 2003 dollars) per 1,000 person trips in economic output and 0.4 jobs (full and part-time jobs) per 1,000 person trips for non-local day users whose primary purpose was using the Virginia Creeper Rail Trail (Bowker, Bergstrom and Gill 2007). The economic output increased to \$114,398 (in 2003 dollars) per 1,000 person trips and 2.1 jobs (full and part-time jobs) per 1,000 person trips for non-local overnight users whose primary purpose was using the Virginia Creeper Rail Trail (Bowker, Bergstrom and Gill 2007). A recent study by Mangum Economic Consulting, LLC (2014) estimated economic effects associated with enhancing the trail system at Pocahontas State Park (Virginia) in order to gain designation for Pocahontas State Park and the James River Park System as an International Mountain Bicycling Association (IMBA) Ride Center. This study estimated that the trail enhancements would provide approximately \$3.2 million in additional economic activity and 34 more jobs (full-time equivalents) (Mangum Economic Consulting, LLC 2014).

Additional results from studies in the western United States also indicate trails provide economic activity. A study of trails/trail systems in Teton County, Wyoming estimated trail related direct expenditures (bikes, bike parts/maintenance, trail/bike shoes, trail/bike packs, hiking equipment) by local users were \$545 on average per person per year (in 2010 dollars) and \$168 on average per non-local trail user per day (in 2010 dollars) and that the trail system as a whole influenced 194 jobs/employees (Kaliszewski 2011). The overall economic affect associated with the trail system in Teton County was \$18.1 million (in 2010 dollars) (Kaliszewski 2011). A similar study on affects associated with mountain bike tourism in Oakridge, Oregon estimated direct spending for day users ranged from \$20 to almost \$43 per person per day and for overnight trips expenditures ranged from almost \$48 to \$63 per person per day (dollar year not stated)(Meltzer 2014). Similar expenditures were also seen in a study of mountain biking in Montezuma County which estimated the average value of a single visitor (non-local, living outside of Montezuma County) to be approximately \$62 (dollar year not stated) (Sennett, Duke and Perlstein 2013).

Studies have also examined the potential effects of trails/trail systems and greenways to property values. Crompton (2004) compiled and synthesized studies pertaining to the effects of parks and

open spaces on residential property values. His review of the literature concluded that in most of the studies the empirical data indicated that parks and open spaces did increase the proximate property values. This was also the case for the few studies that looked at property values near larger parks, forests and open spaces in more rural locations (Crompton 2004). There are numerous factors that can influence whether property values are increased near parks and open spaces such as type of landscape and type of use. Studies indicate that proximate properties to natural area parks tend to have higher values than those near urban parks or specialty parks/facilities (Crompton 2004).

Crompton (2004) also identified the following three circumstances when affects would not be positive for proximate property values: poorly maintained parks; parks not easily visible from streets increasing opportunities for anti-social behavior; and when there was a lack of privacy on the property due to park users. Other potential adverse effects to property values could be attributed to increased vehicle congestion, noise, littering, and vandalism (Crompton 2004). A 1998 study examining crime on 372 rail-trails indicates a low occurrence of crime on rural rail-trails with 12 percent of responding rail-trails reporting incidents of graffiti and 25 percent reporting incidents of littering (Tracy and Morris 1998).

Dispersed recreation such as hunting and wildlife viewing also occurs in Montezuma County and expenditures associated with these activities also contribute to the local economy. Approximately \$3.0 billion was spent in Colorado for wildlife-related recreation in 2011 (DOI U.S. FWS and DOC U.S. Census Bureau 2014). In 2011, average annual expenditures for hunting in Colorado by a participant (spender) were \$1,463 and for wildlife watching it was \$836 (DOI U.S. FWS and DOC U.S. Census Bureau 2014, Tables 20 and 31).

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, states “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations...” Minority populations as defined by Council on Environmental Quality (CEQ) guidance under the National Environmental Policy Act (CEQ 1997) include individuals in the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. A minority population is identified where “(a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater...” (CEQ 1997). Additionally, “[a] minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds” (CEQ 1997). Low-income populations are determined by the U.S. Census Bureau based upon poverty thresholds developed every year.

U.S. Census Bureau data is used to determine whether the minority or low-income populations residing in the study area constitute an “environmental justice population” through meeting either of the following criteria:

- At least one-half of the population is of minority or low-income status; or

- The percentage of population that is of minority or low-income status is at least 10 percent higher than for the entire State of Colorado.

CEQ guidance does not provide specific criteria for determining low-income populations as it does for minority populations so for this management effort we will use the criteria for minority populations, which are discussed above, as the criteria for low-income populations. We identify low-income and minority population percentages that are “meaningfully greater” as at least 10 percent higher than for the entire State of Colorado.

Data for the identification of low-income is from the U.S. Census Bureau, Small Area Income and Poverty Estimates (SAIPE). The SAIPE program produces yearly single year poverty estimates for states, counties, and school districts and is considered the most accurate for these geographic scales, especially for areas with populations of 65,000 or less (U.S. Census Bureau 2016a). Minority populations are identified using the U.S. Census Population Estimates program which provides estimates for the resident population by age, sex, race, and Hispanic origin at the national, state and county scales. Total minority population refers to that part of the total population which is not classified as Non-Hispanic White Only by the U.S. Census Bureau. By using this definition of minority population, the percentage is inclusive of Hispanics and multiple race categories and any other minority single race categories. This definition is most inclusive of populations that may be considered as a minority population under EO 12898. Estimates from SAIPE and the Population Estimates program are used in federal funding allocations.

The SAIPE data for 2014 (the most recent) indicates that Montezuma County had 16.3 percent of residents (all ages) in poverty which is more than ten percent greater than the percent of residents (all ages) in Colorado that are in poverty (12.1 percent) indicating that Montezuma County meets the criteria for having an identified low-income environmental justice population (U.S. Census Bureau 2015). In regards to minorities, data indicates that in 2015 Montezuma County met the criteria of having an identified minority environmental justice population of American Indian/Alaskan Native (13.4 percent of the population compared to 1.6 percent for the State of Colorado) due to tribal reservations occurring in the southern portion of the county (U.S. Census Bureau 2016b). Several different types of outreach efforts occurred in order to prevent barriers for effective participation during the scoping period including using the local radio station and tribal consultation-see Section 1.6.1 for more details.

3.1.5. Recreation

Under the 2015 RMP, the BLM portion of Phil’s World is managed as part of the Cortez Special Recreation Management Area (SRMA) with an emphasis on providing opportunities for local hikers, runners, and mountain bikers to participate in human-powered recreation activities within a short commuting distance of town. Currently, the southern 1/3rd of the area has a developed single track trail system, originating on State lands under lease by the SWCCA. The area also includes Off-Highway Vehicle (OHV) trails, and two small OHV open play areas. The central 1/3rd of the area (north of the existing Ledges trail and south of County Road M) has a limited amount of designated OHV trails, but no designated single track trails. The northern 1/3rd of the area (north of County Road M) has no existing trails.

The existing single track trail system on BLM managed lands is open to all non-motorized methods of travel (foot, horse, and bicycle). However, due to the design of the trails (one-way travel, rolling, and predominantly non-technical in nature) which results in fast riding, and national recognition of the area for its mountain biking opportunities, the predominant use is by mountain bikers. This is largely to the exclusion of other users, particularly equestrian users.

Visitation to the trail system is nearly year round, dependent on weather conditions, due to the comparatively low elevation of the system in comparison to nearby trail systems. However, the majority of use occurs in the spring when upper elevation trails are still affected by snow or rain (See Figure 1: Visitor Use by Month). Use on busy weekend days during this time results in congestion at the trailhead parking area, and to some extent, along the trails themselves (though directional riding alleviates congestion to a large degree). Use in the mid- summer, and particularly mid –winter, drops off substantially due to high temperatures and snow, respectively.

Visitor use is spread evenly throughout the first four days of the work-week, with moderate increased use on Fridays, and the heaviest use on Saturdays and Sundays (See Figure 2, Visitor Use by Day of Week). An average weekday will see approximately 35 trail users, while the weekend hosts about 75-80 riders a day on average. Visitation, predictably, occurs almost exclusively during daylight hours, with the majority of use occurring between 10 a.m. and 5 p.m. each day (See Figure 3: Visitor Use by Time of Day). Based on an estimated average of 2 people/vehicle, approximately 38 vehicles access the trailhead on a typical weekend day (and 18 vehicles on a typical weekday).

Figure 1: Visitor Use by Month (October 2014-January 2016)

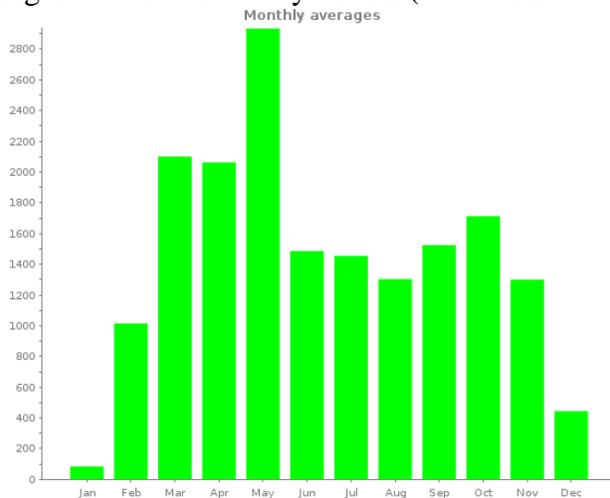


Figure 2: Visitor Use by Day of the Week (October 2014-January 2016)

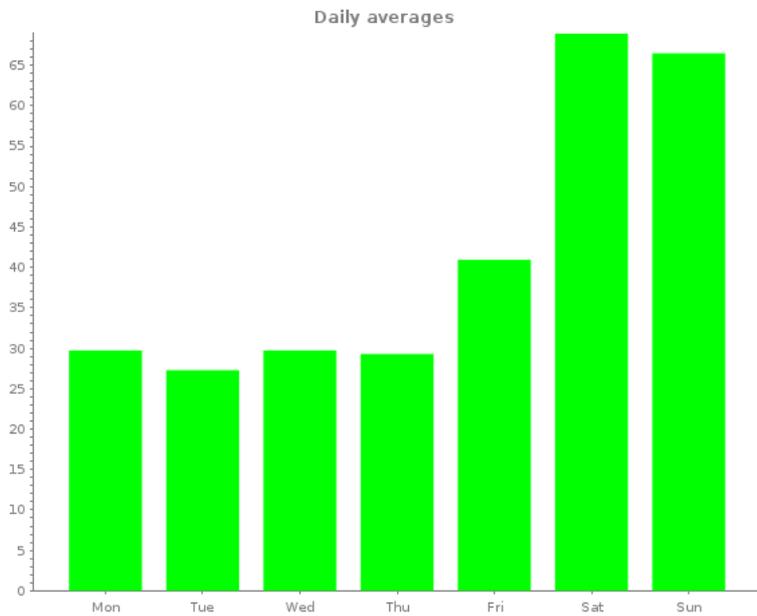
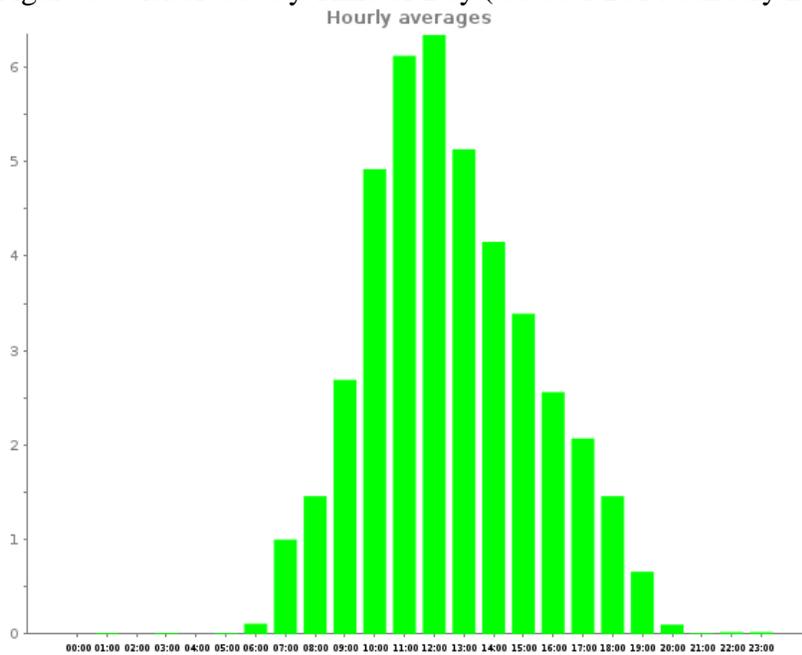


Figure 3: Visitor Use by Time of Day (October 2014-January 2016)



3.1.6. Visual Resources

The Phil’s World Area was inventoried for Visual Resources as part of the development of the 2014 TRFO RMP. The Visual Resource Inventory (VRI) process is broken down into three components (Scenic Quality, Sensitivity, and Distance Zones) in order to determine an overall

VRI Class for any given area. The VRI Class is then used as a baseline for analysis during the RMP process when setting Visual Resource Management (VRM) Classes. Ultimately it is the VRM Classes which set management prescriptions related to visual resources during project analysis. The resultant VRI for the Phil's World Area was Class III for the southern area (already developed with motorized and non-motorized trails), and VRI Class II for the northern area (encumbered with few existing trails). The prescribed VRM class for the entire BLM unit is Class III.

The project area is located in the Colorado Plateaus physiographic province, just west of the Southern Rocky Mountains province. The Phil's World area is typical of this region with high desert vegetation (pinyon-juniper stands intermixed with sagebrush meadows, cactus, and bunch grasses), rocky outcrops, and canyon features. The BLM managed unit is surrounded by widely spaced residential development and agricultural fields. Several (10-15) homes are located within a few hundred feet of the public land boundaries and are visible from discrete locations within the unit. However, for the most part the homes are screened by the pinyon-juniper forest.

The area is crossed by two maintained County Roads (L and M) and two paralleling overhead transmission lines. The southernmost portion of the unit contains 7 acres of OHV 'play areas', 12 miles of OHV trails, and over 20 miles of non-motorized single track trails. There are also a substantial number of trash dump sites across the unit ranging from pick-up load piles of rusty tin cans, to discarded furniture and appliances, to animal carcasses (deer, elk, and domestic animals). Overall the area maintains its natural appearance, however, as the dump sites are isolated and the trails weave amongst the vegetation and do not result in visible clearing except in the most disturbed portions of the OHV play areas. (See Photo 7: Existing Trail System)

The topographic variation across the unit provides for viewpoints along mesa-top and canyon edges and at rocky promontories. These openings afford panoramic views of the surrounding area, including Mesa Verde National Park, the La Plata and Abajo mountain ranges, and the Sleeping Ute Mountain.

Photo 7: Existing Trail System



(View from Lemonhead trail to SE. In view are Mesa Verde National Park (background), OHV trails (center frame, with an ATV on trail) and non-motorized single track trails. Photo taken 5/10/14 during 12-Hours of Mesa Verde Mountain Bike Race with 857 mountain bike riders.)

3.2. Alternative A-No Action

3.2.1. Cultural Resources

Direct and Indirect Effects

Under the No Action alternative, there would be no expansion of the current non-motorized trail system and no additional trail head parking areas in the central and northern portions of the analysis area. Management oversight in these parts of the analysis area would remain minimal.

Unauthorized trails are present in the central and northern portions of the analysis area. Casual use of these unauthorized trails would likely continue. Additional unauthorized trails could develop within the portions of the analysis area lacking designated trails, with no oversight or analysis of potential damage to cultural resources present in the analysis area.

Non-motorized trail development and travel through sites or immediately adjacent to sites has the potential to directly and indirectly affect National Register eligible and potentially eligible sites (historic properties). Unauthorized trails typically lack design features to mitigate drainage issues, soil erosion, and loss of vegetation. Over time, trail use can result in incised channels in the ground that change drainage patterns, destabilize soils, and lead to increased soil erosion. Incised channels can directly disturb or damage archaeological site features. Lack of

maintenance on unauthorized trails can lead to increased drainage and erosion issues. Vegetation can decrease and bare ground can increase within user-created trail corridors, increasing the risk of destabilized soils. Trail use in wet ground conditions can cause soil rutting, increasing the potential for soil drainage and erosion issues, as well as directly disturbing or damaging cultural resource deposits and features that may be present. These types of direct and indirect effects can displace or damage surface and subsurface artifacts and features, degrading site integrity and research potential.

The analysis area is part of the Cortez SRMA, and is managed primarily for mountain biking. Prior to the designation of the SRMA, there were no constraints on cross county (off trail) biking. With the designation of the SRMA, via the 2014 Tres Rios RMP, came the additional management prescription of limiting bikes to designated trails. This prescription should benefit cultural resources, as it would limit and discourage casual development and use of unauthorized trails, and the previous described affects to archaeological sites that accompany such activities. However, enforcement of this prescription will principally occur in the portion of the analysis area where the activity and development is concentrated (the existing signed trail system in the southern portion of the analysis area) offsetting the full benefit of the prescription.

The current unplanned, unauthorized trails within portions of the planning area adds potential for additional indirect affects to historic properties. Some of these trails pass through or close by archaeological sites. These trails, in combination with roads that provide motorized access to the planning area, can facilitate, via ease of access, the intentional vandalism and looting of cultural resources. Under the No Action alternative, intentional vandalism and looting of archaeological sites are more likely to occur in the portions of the planning area lacking planned, authorized, signed trails, as there is less risk of detection, due to an absence of more intensive recreation management and less recreational use.

The No Action alternative likely has more potential to affect historic properties than the action alternatives do. Use of the area will continue to occur under the No Action alternative. However, the use would be unmanaged, and any illegal trail development that results from casual use would be unplanned and may unintentionally affect archaeological sites. Illicit use, such as the theft of artifacts and vandalism of cultural resources, would be more likely to occur un-noticed as opposed to the action alternatives, which would result in an increased number of trail users, which act as a deterrent to theft.

Cumulative Effects

The Cumulative Impact Analysis Area for cultural resources is the Phil's World Recreation Management Zone. There are currently approximately 21 miles of designated, non-motorized single track trail (not including trails on the adjacent State land), and 14 miles of designated OHV trails in the area. There are two power lines that pass through the central portion of the unit (south of County Road L) as well. There are approximately 18,000 visitors who utilize the existing trail system and an unknown number of visitors who walk, hike, or ride horses cross country.

Some portions of the existing trail system are causing direct impacts to National Register eligible cultural resources. It is possible that throughout the existing trail system there are additional

National Register eligible cultural resources through which the trail system passes. The existing trail system represents a system of largely ‘user created trails’ which, for the most part, avoids cultural sites, though not as well as a system which is designed and planned from the beginning with cultural site avoidance as a core design feature. Under the No-Action Alternative, the majority of the Phil’s World area would not include a designed trail system.

Under the No Action Alternative, a signed, managed non-motorized trail system would only be present in the southern portion of the Cumulative Impact Analysis Area. The existing, signed, non-motorized trail system should benefit historic properties in the southern portion of the analysis area due to increased management of the associated recreation, and more management oversight. It should decrease the risk of inadvertent damage or disturbance of archaeological sites in the vicinity of the existing, signed trail system. It also entails identifying the full extent of direct impacts from the existing trail system on National Register eligible sites, and mitigating those impacts. As the No Action alternative involves the fewest miles of planned, signed trails in the planning area, and leaves a larger portion of the analysis area less intensively managed for non-motorized recreation, there should be less potential benefit for cultural resources than under the action alternatives. Under the No Action alternative, there should be more potential for vandalism and looting of cultural resources, and more potential for unauthorized user-created trails and parking areas to develop in the portions of the analysis area lacking a planned, signed trail system (central and northern portions of planning area). The road closures that occurred within the analysis area in 2008 should also reduce the risk of vandalism and looting of archaeological sites. Vehicular access to the OHV area that is present within the planning area, and legal and illegal OHV use within the analysis area, could offset some of the benefits of more intensive management of non-motorized recreation, as it allows for easy access into portions of the planning area and could facilitate site vandalism and looting.

Mitigation Measures and Residual Effects

N/A

3.2.2. Soils/Hydrology/Riparian

Direct and Indirect Effects

There would be no direct or indirect effects associated with the No Action alternative for hydrology or soils resources. No new trails would be constructed and watersheds would remain in their current condition.

Cumulative Effects

No new trails would be constructed and there would be no cumulative effects associated with the No Action alternative for hydrology or soils resources.

Mitigation Measures and Residual Effects

N/A

3.2.3. Wildlife

Direct and Indirect Effects

Under the No Action alternative no new recreation trails would be authorized by the BLM. This alternative, of the four, would have the least effect on wildlife species. Affects that are currently occurring are illegal dumping around cash canyon, a historic gravel pit, and rare instances of target shooting and ATV trails that get very little use throughout the season south of Road M near Cash Canyon.

1) How would New Mexico Meadow Jumping Mouse, listed as endangered under the Endangered Species Act, be affected?

The No Action alternative (Alternative A) would have “no effect” on NMMJM individuals or potential habitat. Currently, very little traffic occurs in areas that NMMJM could occupy within the project area. These areas would, for the foreseeable future, remain intact and undisturbed as a result of no action.

2) How would golden eagles be affected?

The one golden eagle nest that occurs within the project area in Cash Canyon would have no change in disturbance under the No Action alternative. Current disturbance levels, and expected disturbance levels under the No Action, are likely to continue to allow for adequate nesting disturbance levels. Under current disturbance levels the golden eagle territory has been active every year since it was discovered in 2010, and the nest was occupied every year except 2015 and 2016.

3) How would big game be affected?

Big game use would stay the same as a result of the No Action alternative. Uses that affect mule deer and elk in the project area are associated primarily with private land use rather than BLM uses. It is expected that the current undisturbed area is adequate to provide deer and elk with security during the winter. This area would also continue to provide quality transitional habitat for deer who winter further south, near Mesa Verde, for moving to and from summer ranges north on the San Juan National Forest.

Cumulative Effects

This alternative, the No Action, would not cumulatively affect wildlife species. The affects that are a result of this alternative represents baseline, and would not be additive to any existing or reasonably certain to occur future projects. For past, present and reasonably foreseeable impacts in the area see cumulative effects in section 3.3.3.

Mitigation Measures and Residual Effects

N/A

3.2.4. Socio-Economics

Direct and Indirect Effects

Under the No-Action alternative, no new trails would be built. Effects to socio-economics as described by issues brought forth during scoping would be as follows:

- 1) How would development of new trails affect the local (Montezuma County) economy including property values (both adjacent properties and local area properties)?

There would be no new trail development under this alternative and therefore no new direct or indirect effects to the local economy including property values. Affects from this action would not be disproportionately high or adverse to environmental justice populations.

- 2) How would development of new trails affect economics associated with other existing or potential uses of the project area (hunting, wildlife viewing)?

There would be no new trail development under this alternative and therefore no new direct or indirect effects to economics associated with other existing or potential uses of the project area. Affects from this action would not be disproportionately high or adverse to environmental justice populations.

Cumulative Effects

The cumulative effects analysis area for socio-economics for this project is Montezuma County. There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

Under the No-Action alternative, there would be no new trails and thus no cumulative effects as a result of this project. Affects would not be disproportionately high or adverse to environmental justice populations.

Mitigation Measures and Residual Effects

N/A

3.2.5. Recreation

Direct and Indirect Effects

Under the No-Action alternative, no new trails would be built. Effects to recreational use as described by issues brought forth during scoping would be as follows:

- 1) How would trail development and use affect dispersed use of the area by other recreational users (hikers, walkers, hunters)?

There would be no new trail development under this alternative. Hikers, walkers, hunters, and equestrian users could continue to use the area, though without the benefit of developed trails and signage. There would be no parking or trailheads to facilitate use by the general public, so access to the area would be expected to be dominated by area residents familiar with this BLM parcel. Hunters, who traditionally do not depend on trails for access to such a small parcel of Public Lands, would likely benefit the most from this alternative. However, mountain bike use

(the targeted activity for this portion of the SRMA) would be limited to the designated OHV trails in the area (as the 2014 TRFO RMP limits mountain bike use to designated trails).

2) How would trail development and use enhance existing (bicycle) riding opportunities (new terrain, views, challenge, social interactions, connectivity to communities)?

There would be no trail development, and therefore no enhancement of existing riding opportunities. While directional riding practices on the existing trails mean that on-trail social contacts are minimized, at least for trail users traveling at ‘average’ speeds, congestion at the only existing trailhead (at Highway 160) can result in over 100 contacts at the trailhead. Additionally, because all of the trail loops are accessed from this single trailhead, all riders must ride the same trails (such as Phil’s Loop and Coco Race) every time they ride before branching off to additional loops. This alternative would not address these issues.

3) How would trail development and use affect amount of trash on landscape?

There would be no trail development, and therefore no additional trash as a result of trail usage. However, the majority of the trash on the landscape, both as a result of dumping and day to day accumulation of litter, is not as a result of trail usage. The vast majority of trash on the landscape in this parcel is a result of illegal dumping (household trash), carcass disposal (from hunting and domestic animals), late night party debris (food wrappers, beverage bottles, and bonfires), and recreational shooting (appliances, cans and bottles, and shell casings). These sources of trash would be expected to continue under the No-Action alternative.

4) How would trail development and use affect existing motorized riding opportunities?

There would be no new non-motorized trail development under this alternative. The anticipated result would be additional congestion of the existing non-motorized trail system and potential for conflict at one of the many motorized/non-motorized trail intersections. Additionally, for bikers to find additional riding opportunities in the area, more non-motorized use of the designated OHV trails in the area could occur, resulting in user conflicts between motorized and non-motorized users.

5) How would trail development and use affect personal and community benefits associated with non-motorized trail use?

The Phil’s World parcel is situated close to three communities: Mancos, Cortez, and Dolores. As such, there are a myriad of personal and community benefits which arise from easy access to non-motorized trail systems. Personal benefits include improved health, improved development of skills and abilities, greater personal confidence, and an improved understanding of community dependence and effect on Public Lands and adjoining private lands. Community benefits include an enhanced outdoor-oriented lifestyle, increased economic activity, and an increased desirability of Cortez, Dolores, and Mancos as places to live, visit, or retire. While the existing trail system affords these benefits already, without the development of new trail opportunities across the remaining 2/3s of the Phil’s World unit, the ability for these benefits to continue to expand becomes limited. Future use and enjoyment of the parcel could go in one of two ways: 1) The area continues to see increased use and increased congestion which negatively affects the experience of the users, or 2) The lack of new opportunities, and/or the diminishment of existing opportunities due to overcrowding results in decreased use over time. In either case, the personal and community benefits become lost or diminished.

6) How would trail and trailhead development affect use by other non-motorized single track users (equestrian, hiking)?

There would be no new trail or trailhead development under this alternative. Hiking and equestrian use of any new trails would be expected to be limited due to the anticipated volume of mountain bike use. However, what use might have occurred on any new trails would not occur at all under this alternative. Cross country use by hikers and equestrian could continue, though as stated above, this use would also be expected to be confined primarily to local area residents.

7) How would trail development and use affect safety of users accessing the trail systems (access available away from highway 160, new access/egress along county roads).

There would be no new trail development. Therefore, access/egress along county roads L and M would be expected to remain unchanged. Access/Egress at Road 30.1 and Highway 160 would also remain unchanged.

8) How would trail development and use affect use of county roads?

There would not be any expected change to the use of Country Roads under this alternative.

Cumulative Effects

The cumulative effects analysis area for recreation for this project would be the Montezuma Triangle Recreation Management Area (RMA) of the Cortez SRMA. This area is comprised of four isolated Public Lands parcels between Mancos, Cortez, and Dolores and bound by Highways 160, 184, and 145. These units are all bound by a common management focus which is to provide for human powered (non-motorized) recreational opportunities within a short commuting distance of town. There are currently approximately 21 miles of designated, non-motorized single track trail (not including trails on the adjacent State land), and 14 miles of designated OHV trails in the SRMA. There are also approximately 9 miles of existing OHV and non-motorized trails at Summit/Aqueduct/Chutes and Ladders.

In preparation for Comprehensive Travel Management Planning, the town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities (and associated personal and community benefits) for trail based recreation easily accessible from local communities.

One lease parcel in the southern portion of Phil's World nominated for fluid mineral leasing was deferred in 2016 for further analysis.

Under the No-Action alternative, there would be no new trails and thus no cumulative effects as a result of this project.

Mitigation Measures and Residual Effects

N/A

3.2.6. Visual Resources

Direct and Indirect Effects

Under the No-Action alternative, no new trails would be built. Effects to visual resources as described by issues brought forth during scoping would be as follows:

- 1) How would trail and trailhead development and use affect the visual setting of the landscape?

There would be no changes to the visual setting of the landscape as no new trails or trailheads would be constructed.

Cumulative Effects

The cumulative effects analysis area for visual resources for this project would be the BLM managed portion of the Phil's World area. This analysis area would include the foreground, middle ground, and background of the visible landscape. Due to the isolated nature of the BLM managed lands in the area (relatively small blocks of BLM lands which are separated by private land), activities occurring in nearby Public Lands are not visible and thus not part of the cumulative analysis area for visual resources.

There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

Under the No-Action alternative, there would be no new trails and thus no cumulative affects to the visual characteristic landscape as a result of this project.

Mitigation Measures and Residual Effects

N/A

3.3. Alternative B-Proposed Action

3.3.1. Cultural Resources

Direct and Indirect Effects

- 1) How would cultural resources eligible for listing on the National Register of Historic Places be affected from non-motorized trail construction and use?

Under the Proposed Action, the current non-motorized trail system would be expanded to the central and northern portions of the analysis area. Non-motorized trail development and use through sites or immediately adjacent to sites has the potential to directly and indirectly affect National Register eligible and potentially eligible sites (historic properties). Trail construction, including trail design features such as water bars, and parking lot construction can damage site features and disturb buried cultural deposits, degrading site integrity and research potential. Over

time, trail use can result in incised channels in the ground that change drainage patterns, destabilize soils, and lead to increased soil erosion. Incised channels can directly disturb or damage archaeological site features. Vegetation can decrease and bare ground can increase within user-created trail corridors, increasing the risk of destabilized soils. Trail use in wet ground conditions can cause soil rutting, increasing the potential for soil drainage and erosion issues, as well as directly disturbing or damaging cultural resource deposits and features that may be present. Offsetting these potential effects, planned trails incorporate design features to mitigate drainage issues, soil erosion, and loss of vegetation. Authorized trails are also subject to periodic trail maintenance, which addresses issues such as drainage and soil erosion.

Under the Proposed Action, the current non-motorized trail system would be expanded and two additional trailhead parking areas would be created. The proposed trails and trailhead parking areas would affect six archaeological sites, all of which are not eligible for listing on the NRHP. The proposed trails and parking areas would avoid all National Register eligible and potentially eligible sites (Design Criteria #2), and there would be no direct effects to these sites. With the expansion of the current trail system, unauthorized trails would be less likely to develop within the analysis area, reducing the possibility of unplanned trails passing through historic properties. Design Criteria #17 would further ensure no user-created trails are created, or allowed to be present.

Some of the proposed trails would be located in the vicinity of archaeological sites. The risk of intentional vandalism and looting of historic properties in the portions of the analysis area currently lacking planned, authorized, signed trails would be reduced by a managed, signed trail system. The presence of more intensive recreation management and an expected corresponding increase in recreational use would increase the risk of detection of such activities, and act as a deterrent to such activities. From this perspective, the proposed action should benefit cultural resources more than the No Action Alternative. Alternative B should also provide more benefit to archaeological sites in comparison to Alternatives C and D, as those alternatives increase the portion of the planning areas without planned, managed, and signed trails due to an increased eagle nest buffer area.

An intense amount of mountain biking occurs in the portion of analysis area with an existing, signed trail system. The planning area conditions enable mountain biking for much of the calendar year. Mountain biking is typically a goal oriented recreational activity, resulting in a lesser propensity for mountain bikers to leave the trail, in comparison to other forms of non-motorized recreational activity. From this point of view, mountain bikers are unlikely to contribute to intentional or unintentional vandalism or looting of cultural resources. Archaeological site monitoring conducted in 2014 and 2015 supports this conclusion, as no recent incidences of vandalism or looting were noted in the sites that were monitored. The proposed trail system is also expected to also see intensive non-motorized use. As noted in the previous paragraph, such intensive use typically increases the risk of detection of cultural resource vandalism and looting, resulting in a decrease in such activities.

The proposed trails and parking areas should result in minimal additional visual disturbances within the analysis area. The vegetation and terrain in the analysis area obscures single track trails. As the proposed trails would be non-motorized, additional increases in auditory affects

would be negligible. The aspects of setting and feeling, which are important considerations for visual and auditory affects to sites, have not been identified as qualities that contribute to the eligibility any sites within the analysis area. Sites are present within the planning area for which setting and feeling could potentially contribute to site significance. However, the nature and scale of the proposed action would not notably increase auditory or visual affects to National Register eligible sites for which setting and feeling potentially contribute to their significance.

The Proposed Action represents a positive progression toward proactive recreational planning in the area which seeks to provide for recreational demand while implementing design criteria developed to protect cultural resources.

Cumulative Effects

As the Proposed Action would have no direct impact, and no or negligible indirect impacts to National Register eligible cultural resources, it would not add or contribute to any cumulative impacts.

Mitigation Measures and Residual Effects

If and when the proposed trails are open for public use, periodic monitoring of select historic properties adjacent to the proposed trails would occur once a year for three years following construction of the trails to ensure the design features are adequately protecting historic properties, and, if needed, implement additional site protection measures. Site monitoring would not affect any resources. Additional analysis or an additional decision may be needed should additional site protection measures be needed.

3.3.2. Soils/Hydrology/Riparian

Direct and Indirect Effects

1) How would streams and riparian vegetation be affected by proposed trail locations in canyon bottoms?

Streams have a risk of receiving sediment pollution in areas where trails are built on steep slopes where moderate-severe and severe erosion hazard soils exist which are adjacent to canyon bottoms. If a trail built in these areas also has a trail stream crossing, these areas could be conduits to transport sedimentation to the stream. Trails which have short stretches planned within these erosion risk areas and are near streams include Poquito Burrito, Canal, Highline, Schuster, Cash Money, Road N Connector, and Garfunkel trails.

The width of stream crossings required by new trails would vary depending on location. All stream crossings are planned to have small, low profile foot-bridges. The foot bridges are not anticipated to substantially affect streams or riparian, however the proposed design leaves them vulnerable to loss or damage. The damage could occur from annual peak flows in the spring if the bridges do not span the entire floodplain, or from high flows associated with flash flooding. Most floodplains in the bottom of tributary canyons occupy the entire canyon bottom and are

between 50-75 feet wide. In larger canyon bottoms of Simon Draw and Cash Canyon the floodplains vary in width and can be wider. Bridges are planned to have a span of only 10 feet to 20 feet.

The three major canyon streams within the analysis area all support well developed riparian vegetation. Several side tributaries to the major canyons also support continuous riparian vegetation and have perennial flow during winter-spring runoff and irrigation season. Trail construction through riparian vegetation would be infrequent and would require clearing vegetation only wide enough to allow riparian/stream trail crossings and are not anticipated to have substantial effects to the riparian complexes. (See Photos 8-9: Typical Riparian Vegetation)

Photos 8-9: Typical Riparian Vegetation



Photo - Dense willow riparian vegetation in a small unnamed tributary in the Phil's World analysis area. Stream flowing approximately 0.25 cfs on June 3, 2016.



Photo - Cottonwood and willow riparian vegetation present throughout a larger unnamed tributary to Simon Draw. Stream flowing approximately 1-3 cfs on June 3, 2016.

2) Would trails built on steep slopes and sensitive soils result in increased erosion?

Approximately 10 miles of trail are proposed to be built on steep slopes with moderate-severe to severe erosion hazard soils. Alternative B has the highest number of miles (10.1 miles) of new trail proposed for high erosion hazard soils compared to Alternative C (9.2 miles) and Alternative D (8.2 miles). Most soils in the analysis area have low strength and when located on steep side slopes they are not stable, and prone to erosion if disturbed. The three soil units with the highest erosion hazards for trail construction are summarized in Table 3: Soil Units with High Erosion Hazard, below.

Building trail on high erosion hazard soils greatly increases the likelihood that trail surfaces may erode, become entrenched, and may ultimately concentrate runoff further accelerating down cutting. Constructing trails in high erosion hazard soils, especially where erosion occurs near streams and washes also increases the risk of sediment pollution entering water. Building trails on soils that have a high erosion hazard could also increase either the cost of construction or the

cost and frequency of required monitoring and trail maintenance (See Photo 10: Canyon Features). A field review was conducted on existing Phils World trails built on the same high erosion hazard soils as proposed for the new trails in Alternative B. Severe erosion was not found on the existing trail system (Ledges, Rib Cage) which could indicate the NRCS soil survey hazard ratings are very conservative, and with careful trail construction practices and the implementation of mitigation, erosion and trail down-cutting could be minimized or reduced. Trails proposed for construction on relatively flat mesa tops are expected to be stable and have few erosion issues.

Table 3. Soil units with the highest erosion hazard for trail construction (NRCS Cortez Soil Survey, 2001) and the miles of trail proposed for construction within the units, Alternative B.

Soil Unit	Soil Unit Number	Hazard of Erosion on Trails	Hazard of Erosion Off Trails	Trail in Soil Unit (miles)
Pulpit Loam 6-12% Slopes	95	Severe	Slight	1.16
Romberg-Crosscan 6-25% Slopes	109	Moderate- Severe	Moderate	4.15
Romberg-Crosscan 25-80% Slopes	110	Severe	Severe to Very Severe	4.77

Photo 10: Canyon Features



Photo - Romberg-Crosscan Soils 25%-80% Slopes are present on both sides of this unnamed canyon tributary to Simon Draw.

Table 4. The length of trail in moderate-severe and severe soil erosion hazard for trail construction by trail name, Alternative B.

Alternative B Trail Name	Trail in Moderate-Severe to Severe Hazard Soils Units (miles)
Highline	2.1
Canal	1.4
Schuster	1.2
Garfunkel	1
Cash-Money	0.7
Eyrie	0.6
Poquito Burrito	0.6
Road N Connector Trail	0.5
Carly	0.4
Paul	0.4
Le Bon	0.3
Aquila	0.3
Talon	0.2

Cumulative Effects

The existing Phil’s World trails in general are built on soils which do not have severe erosive soil survey ratings. As a result, the existing trails have few erosion problems. However, some existing trails are located on soils with a moderate-severe or severe hazard ratings. Ledges and the Rib Cage, are examples of trails with some sections located, in part, on severe hazard soils. On a limited field inspection of the existing trails located on these severe hazard soils, large areas of problematic erosion were not found, which may indicate the NRCS soils hazard ratings for trials construction are very conservative. Considering comparisons with the condition of existing Phil’s World trails on severe hazard soils, Alternative B may have a moderate potential to create detectible effects to erosive soils located on canyon side-walls both in the short and long term. The risk of impacting water quality is low to moderate and associated mostly with localized areas of stream crossings. Cumulatively, when all of the trails are considered, approximately 10 miles of new trail are planned to be built on slopes with high severity erosion potential in areas that are currently undeveloped and are relatively stable. Erosion potential could be a continuous problem and require substantial and frequent maintenance to keep trails to standard and fix erosion problems. However, implementation of mitigation measures could be effective in reducing the risk of erosion and the need for long-term maintenance. Site specific mitigation measures have not yet been identified and could not be assessed for this analysis.

There is a low risk that sedimentation could accumulate in channels over the long-term within the analysis area because annual peak flows should be sufficient to move sediment downstream. Increased sedimentation and erosion has a low-moderate risk of effecting existing water

infrastructure maintenance because reservoirs and ditches just downstream of the trail system on BLM and on private lands may fill more quickly with sediment. The Highline Ditch and Burk Ditch traverse the analysis area below and among the proposed trails of Alternative B. Reese WW Ditch Extension and Hover Ditch are just downstream of the trail system on Simon Draw. Old Kaniga Ditch and an unnamed reservoir are just downstream of the trail system on Stinking Springs Canyon. This water development infrastructure could be affected by increased erosion and sedimentation from the cumulative effects of the trail system sections built on highly erosive soils.

Mitigation Measures and Residual Effects

N/A

3.3.3. Wildlife

Direct and Indirect Effects

Under alternative B there would be a total of 26.5 miles of trail added to the Phil's World trail system. This alternative would have the most effect on wildlife species when compared with all other alternatives. Alternative B increases recreational trails in the area by approximately 91% . Big game and New Mexico Meadow Jumping Mouse would experience habitat degradation when compared to the no action. However, the difference in disturbance between this alternative and the other action alternatives would not be substantive. Golden eagles, conversely, would be affected to a greater degree by Alternative B than by any other alternative.

1) How would New Mexico Meadow Jumping Mouse, listed as endangered under the Endangered Species Act, be affected?

Affects to Habitat

Potential habitat occurs on sections of trail north of Road M. Affects to potential habitat and individuals would be limited to two drainage crossings. The two crossings would consist of bridges that span the water and as much of the herbaceous vegetation as possible, and a trail on either side of the bridge through upland shrub vegetation.

As a result of Alternative B vegetation would be removed in two locations that would affect NMMJM totaling less than 0.1 acres. No other vegetation removal is expected as a result of the proposed action or use of the trails. There are 11 acres of habitat on BLM land and another 35 acres on private land that could provide habitat. Vegetation removal under this alternative would be small in scale when compared to known threats to NMMJM such as grazing, campgrounds and bank trails as a result of fishing, and should have little effect on NMMJM activities if the site is, or ever becomes, active.

Construction of the trail and subsequent trail use has the potential to disturb NMMJM. NMMJM are only active from May to September each year. This period would be avoided while constructing trails within riparian areas. Disturbance as a result of trail building is not likely to occur because individuals would be hibernating at this time.

After trail construction is complete, use by hikers and mountain bikers would likely disturb NMMJM, if they are present. Disturbance is likely to occur only during active periods, from

May to September each year; a period when temperatures are hot and trails have considerably less traffic than cooler periods in the spring and fall. Additionally, NMMJM are primarily nocturnal, so the vast majority of activities should occur when they are not active, further decreasing the likelihood of disturbance. Activities that do coincide with NMMJM activity would be largely localized to new trails and habitat adjacent to trails should not be disturbed.

2) How would golden eagles be affected?

Alternative B has the greatest likelihood to disturb the golden eagle nest site in Cash Canyon when compared to alternatives A, C and D. Construction of the trails would have little effect on the nest, as any building activities would occur outside of the breeding season within ½ mile. Conversely, the subsequent use of the trails by users has the potential to greatly disturb individuals within the territory as a result of several sections of the trail being within ½ mile of the active nest.

Active golden eagle nests are frequently buffered by ½ mile to prevent disturbance from management activities (Affected environment). Selection of Alternative B would result in the construction of 4.8 miles of trail and one parking lot within ½ mile of the golden eagle nest. The proximity of these features, and their associated users, has the potential to disturb nesting golden eagles. Several segments of the trail are within ¼ mile of the nest that has been most active for the last 6 years, and 0.21 miles of two alternative nests. Users on these segments would likely disturb nesting eagles. Additionally, under this alternative a parking lot would be placed within ½ mile of the nest, concentrating disturbance by congregating people and vehicles. Under this alternative mountain bikers, hikers, and vehicles are likely to disturb the active golden eagle nest in Cash Canyon and disturbance could result in less success within the territory.

In addition to how close the trails are to the active Cash Canyon nest, an increase in users coincides with critical Golden Eagle nesting periods. Users start to use the Phil's World in February after the snow begins to melt. In March and April the number of monthly average visitors increases and was approximately 2,000 in 2015(see figure 1, section 3.1.5). In May the user rate again increased and was 2,800 in 2015. The next year, in May 2016, Phil's World hosted 6,000 visitors (3,500 mountain bikers and 2,400 hikers; figure 4). Nest initiation and courtship would coincide with the earliest spring use in February. Use in March, April and May would coincide with incubation and early development of hatched chicks, a critical period. Disturbance during incubation and nestling periods is particularly concerning to the success of Golden Eagles. If the female is pushed off of the nest, even for short period during incubation, her clutch could be lost. After incubation just after the young have hatched, disturbance from mountain biking and hiking could result in young being fed less often, decreasing the likelihood that a nest would successfully fledge young.

Disturbance to the nest under this alternative, to some degree, is mitigated due to topographic features. No part of the trails or parking lot that are located within ½ mile of the nest are directly visible from the nest under this alternative. However, adults and young are regularly observed above the nest in trees on both sides of the canyon. From these locations, the parking lot and the Aquila trail near the adjacent canyon rim would not be blocked by topographic features. Instead both would be in direct view to adults or young fledglings that perch above the nest (Google Earth Pro View Shed Analysis tool).

Disturbance to nest sites can have less of an effect on nesting pairs if eagles have other nesting opportunities in the area. Adequate habitat for nesting eagles is not abundant in the area because of how shallow the canyons are in much of the area.

Conclusion

The expected user rate in these areas would likely disturb eagles. Golden eagles experience a greater degree of disturbance by minor activities at a distance of ¼ mile (400m) than disturbances at a distance of ½ mile. Eagles that experience disturbance at their nest sites reproduce less, feed their young less and may abandon their territory if disruption is persistent. It is difficult to predict exactly how the eagles at Cash Canyon would respond to Alternative B. However, management recommendations suggest not allowing disturbance within ½ mile of an active eagle nest. Given the number of users, the type of use (mountain biking and hiking), the timing of use and the proximity of use, this alternative has the greatest likelihood of disturbing the Cash Canyon Golden Eagle.

3) How would big game be affected?

Affects to big game would primarily occur as a result of trail use from December 1 to May 1 each year in winter range. Alternatives B, C and D would be similar in their affects to deer and elk as trail mileages only differ slightly between each alternative. All action alternatives would result in decreased habitat effectiveness in winter range in the Phil's World area.

Twenty six miles of trail would be constructed in big game winter range areas if alternative B is selected. All proposed trails in new areas would decrease habitat effectiveness.

Trail use by mountain bikers and hikers has a disruptive influence within approximately 100m of a trail (Taylor and Knight, 2003). When buffered, the trail would decrease habitat effectiveness over approximately 1,382 acres. This is in addition to 1,391 acres of existing disturbance (discussed further in cumulative effects section below). The overall effect of the loss of 1,382 acres, in context of the total area of big game winter range, is relatively small. Elk and mule deer winter ranges, within the TRFO, cover 212,814 and 1,551,040 acres respectively. However, losses to habitat happen cumulatively and development within winter range (discussed further cumulative effects section), particularly in mule deer winter range, have decreased the amount of adequate winter refuge.

Areas where new trail construction is expected to occur would largely remain intact when user rates are low, in December and January. When use increases as the snow melts, affects will increase and habitat effectiveness would decrease. As a result of disturbances some animals may avoid areas when user rates are high. For deer and elk that do not avoid areas, their body condition could be negatively affected due to repeated startling and increased movement. Increases in animal movement increase stress and decrease survival rates.

Problematic for deer specifically is that nearby areas previously considered critical and severe winter range, on BLM and State Land Trust land, have lost habitat effectiveness as a result of the

existing trail network. The result is that some deer have likely been displaced, pushing individuals and groups onto larger pieces of private land and BLM areas where trails would be constructed under this alternative.

This alternative would not be detrimental to deer and elk populations in our area. However, it will decrease habitat effectiveness over approximately 1,391 acres for both species.

Cumulative Effects

New Mexico Meadow Jumping Mouse

There are few cumulative effects to NMMJM habitat and individuals within the Phil's World area and in areas outside of Phil's World that are connected to habitats impacted by the project. The analysis area for NMMJM will be all potential habitats within the project area and all connected habitats on private land.

Trespass livestock occasionally enter the area and may degrade habitat in the Phil's World area. However, this is rare and the proposed action would increase reporting of trespass animals and lead to a decrease in disturbance to NMMJM habitat. Conversely, private lands connected to BLM lands in the Phil's World area are regularly grazed impacting the vast majority of available NMMJM habitat in the area. In good rain years, the habitat is in relatively good shape when grazed. However, during drought years grazing on private land and trespass grazing on BLM land decreased riparian vegetation to the point that it no longer provides adequate habitat for NMMJM.

The NMMJM habitat riparian system is fed by nearby irrigation systems. Continued drought could decrease water in the system, degrading habitat. This effect would be detrimental in itself, with or without a trail crossing.

The proposed action would only remove 0.1 acres of NMMJM habitat and would likely not disturb individuals. Cumulatively, the Phil's World trail additions would be additive to current trail disturbances by less than one acre.

Golden Eagles

Roads, motorized recreation, recreational shooting, and nearby housing developments cumulatively effect the Cash Canyon Golden Eagle nest. A residential community is located north of the most recent active nests. Areas west of the nests, particularly an old gravel pit, are regularly used for illegal dumping and recreational shooting. ATV trails that are rarely used occur near the nest within the ½ mile buffer (trail use is so infrequent, some trails are becoming overgrown).

The Cash Canyon eagle nests currently experiences some disturbance in addition to the proposed action. However, current levels of disturbance seem to be tolerated. Further disturbance, caused by Alternative B, may decrease productivity of the site or cause avoidance.

Big Game

Deer and elk occupy large areas, and therefore are susceptible to incremental disturbance over large geographic areas that occur on multiple land jurisdictions. The proposed action is small in the context of the landscape that deer and elk occupy. However, on a larger scale, and particularly in winter range, in urban and rural areas, many minor disturbances may lead to large decreases in habitat effectiveness. The proposed action would contribute to the continued degradation of the greater landscape for both species.

Cumulatively, big game in winter range surrounding the project area are most affected by residential development, roads and highways and, increasingly, recreation. Cumulative affects addressed in this analysis are current residential and rural development in Cortez, Dolores and Mancos, current roads and highways, and current and future recreational development within winter range in Montezuma County.

Roads, Trails and Subdivision

To determine the effects of the road network in Montezuma County on deer and elk an analysis was completed to determine which habitats are relatively undisturbed by road activity. Roads were buffered 200m (Rost 1979, Sawyer et al. 2005) and erased from winter range of both deer and elk. Two hundred meters was used because it represents an area where there is a high likelihood of disturbance by motorized traffic and it accounts for areas that may experience disturbance but are not close enough to a road to be avoided completely. Analysis further eliminated all private parcels that were 35 acres or less - elk select for parcels larger than 50 acres and against parcels that are less than 9 acres (Wait and McNally 2004). Thirty five acres was used as a weighted median, favoring larger sized parcels as refuge. The remaining areas were then stratified by ownership. This analysis is not intended to be a perfect model of disturbance, rather a landscape scale assessment of habitats that are likely degraded. Actual disturbance may vary by vegetation, topography and road traffic numbers. (See Table 5: Security Area by Ownership for Mule Deer and Elk Winter Range)

Table 5: Security Area by Ownership for Mule Deer and Elk Winter Range

Security Area by Ownership in Deer (D-29) and Elk (E-24) Winter Range						
Ownership	D-29	D-29 Security Areas	% of Habitat Disturbed D-29	E-24	E-24 Security Areas	% of Habitat Disturbed E-24
Private Land	216,318	139,760	35.39%	375,070	271,764	27.54%
BLM	51,261	47,158	8.00%	458,926	400,833	12.66%
NPS	3,286	2,866	12.78%	227	145	36.12%
FS	16,536	10,441	36.86%	205,486	156,014	24.08%
CPW	439	264	39.89%	16,991	13,665	19.58%
State	5,620	4,560	18.86%	11,197	10,000	10.69%
Winter Range Total	295,912	206,881	30.09%	1,158,269	933,436	19.41%

A major ownership comparison of mule deer and elk winter range in management units E-24 and D-29. Numbers for security areas were calculated by subtracting areas within 200m of roads, 100m of trails and all parcels under 35 acres from Total Winter Range Areas.

In addition to current disturbance, the proposed action would add 1,382 acres of disturbance to the landscape, or an increase of less than 1% for deer and a fraction of 1% for elk. On BLM lands alone, disturbance would increase by almost 2% for deer and less than 1% for elk.

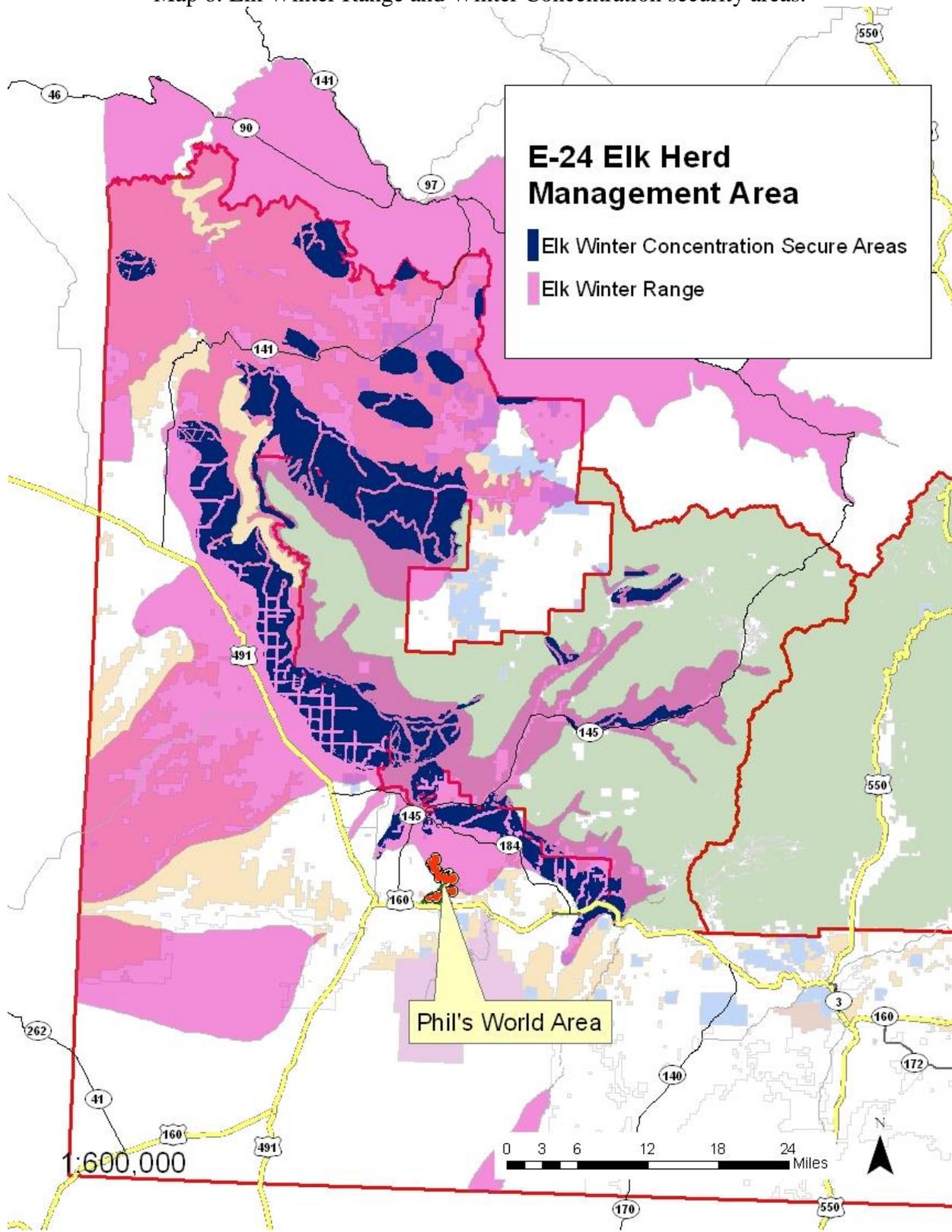
Additional Affects

Tres Rios Field Office RMP (BLM, 2015) identifies three more parcels in the area east of Phil's World and west of Mancos as a Special Recreation Management area, with the intent on developing trail systems in each area. To mitigate further trail development the RMP designated winter timing restrictions on further trail development in these areas from December 1 - April 30, further mitigating effects on wintering big game.

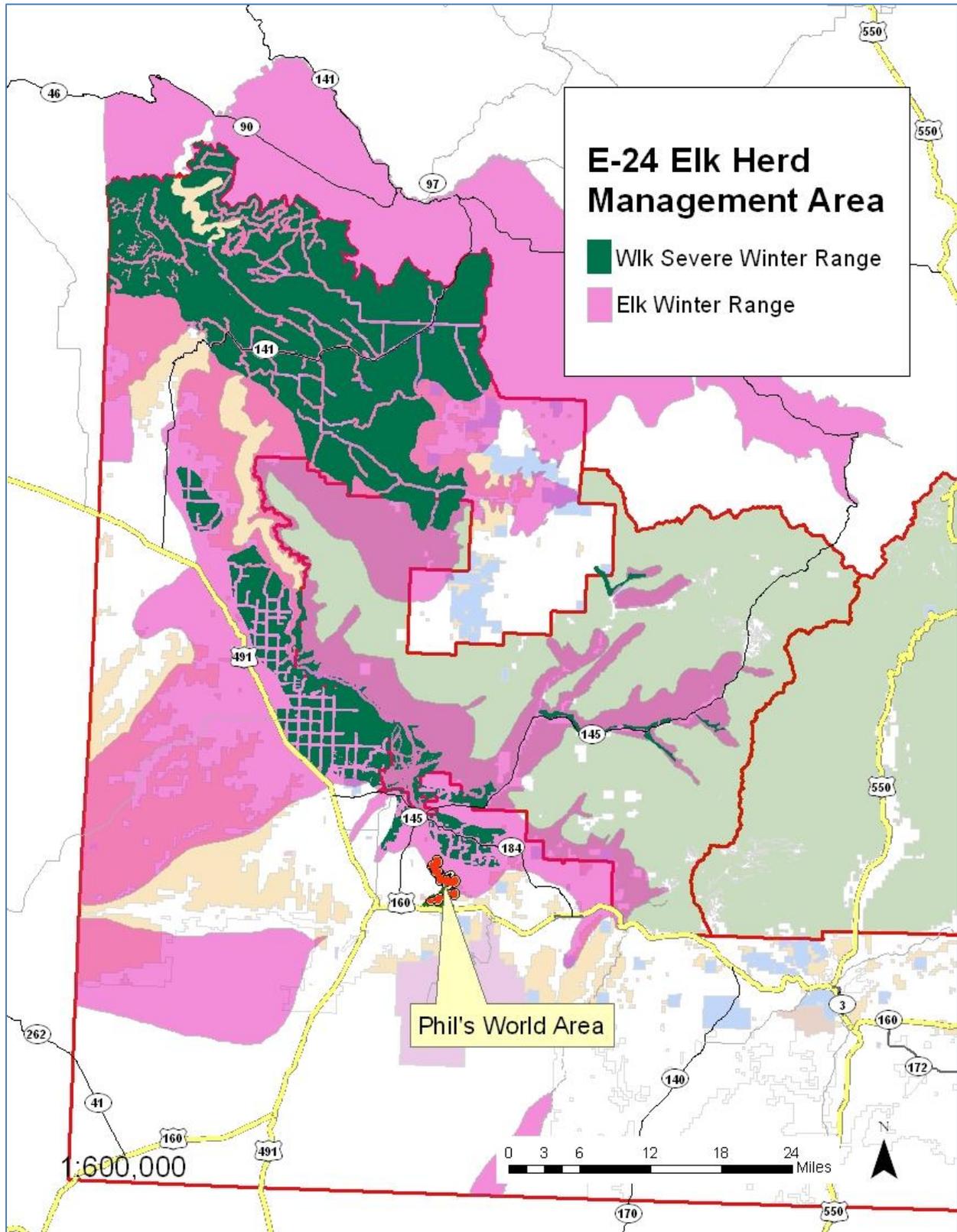
For elk, the McPhee Overlook trail, Sage Hen trail and portions of the Boggy Draw trail systems have also been constructed in winter range on Forest Service lands. The McPhee overlook trail is currently being constructed and has a winter timing restriction on Forest Service lands from December 1 - April 30 annually, to mitigate affects to wintering elk. The Sage Hen trail system, conversely, has no timing restriction during the winter and would disturb approximately 920 acres.

For mule deer, the Colorado Department of Natural Resources has identified the Paths to Mesa Verde Project as part of Colorado's "16 priority trails, trail segments, and trail gaps in 2016" (<https://cdnr.us/#/cothebeautiful>). This project is in the early phases of development, but is expected to occur in an approximately 11 mile corridor between Mancos and Cortez, Colorado.

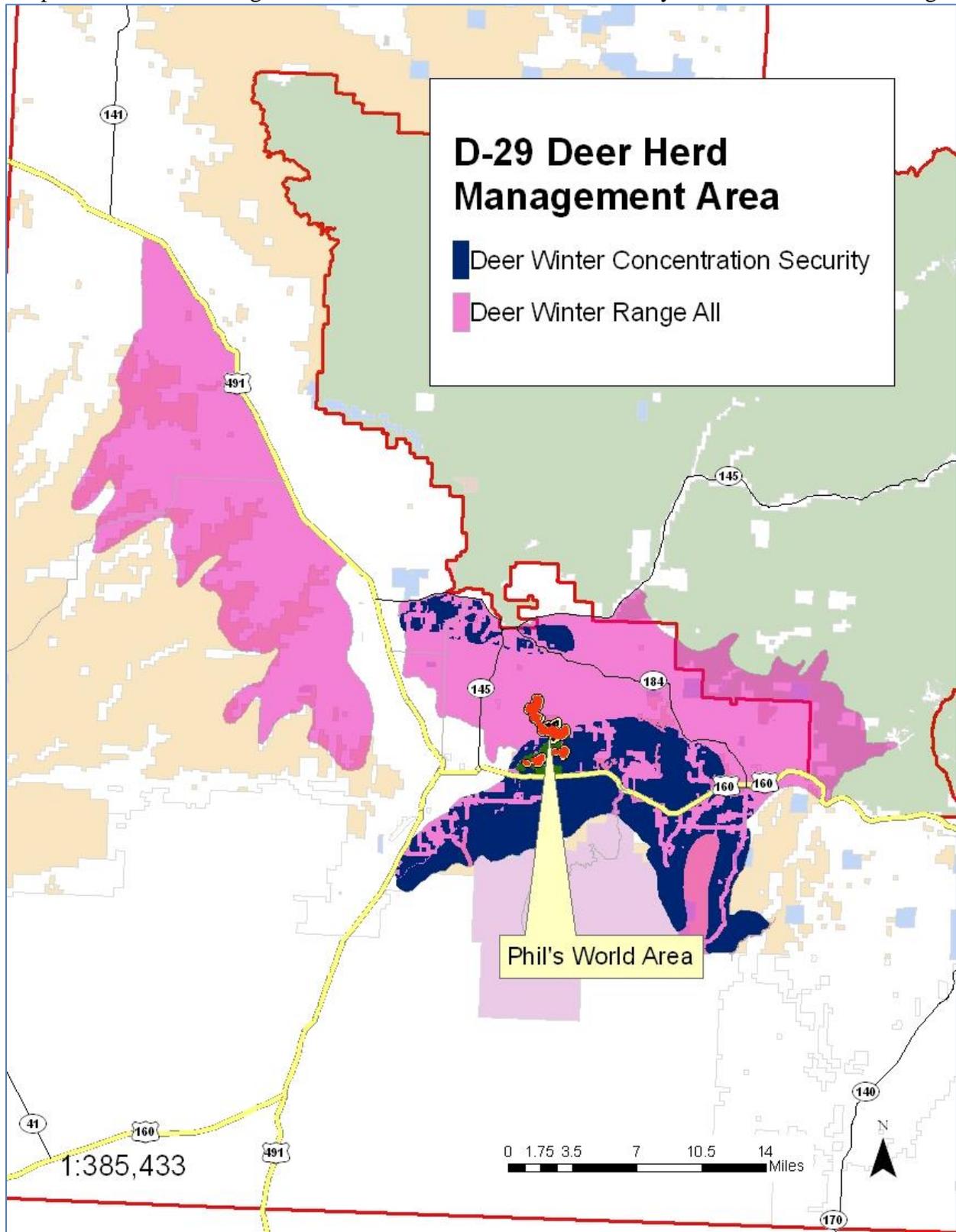
Map 6: Elk Winter Range and Winter Concentration security areas.



Map 7: Elk Winter Range and Severe Winter Range



Map 8: Deer Winter Range and Deer Winter Concentration Security Areas. Severe winter range



Conclusion

Although disturbance levels are relatively low on BLM lands when compared with other jurisdictions (Table 5), their importance is magnified by the general fragmentation of habitat over the landscape (Maps 6-8) and expected increase of development over time on private lands as populations continue to grow. Additionally, many private lands may vary in habitat quality for deer and elk. Some areas may have all of the necessary components to provide habitat while others may lack one or all parts necessary to provide forage, space and cover. The proposed action's disturbance to winter range would further degrade deer and elk winter habitat cumulatively with a litany of other disturbances. When considered within the context of many other disturbances on the landscape, recent declines in mule deer populations and the likelihood of further private land development, areas that are undisturbed, like the proposed action area prior to development, would become increasingly important as development continues.

Mitigation Measures and Residual Effects

3.3.4. Socio-Economics

Direct and Indirect Effects

Under the Proposed Action alternative, 2 new trailheads and approximately 26.5 miles of new single-track non-motorized trails would be constructed. Effects to socio-economics as described by issues brought forth during scoping would be as follows:

- 1) How would development of new trails affect the local (Montezuma County) economy including property values (both adjacent properties and local area properties)?

It is anticipated that the new trails and trailheads would increase economic activity in the local area due to increased visitation by both locals and non-locals. Quantifying the economic affects is difficult since the magnitude of the direct and indirect effects would be greatly dependent upon the amount of increased use/visitation which is unknown. Increases in economic activity would likely be driven by increases in non-local visitation and increased length of stay in the area by non-locals, due to the associated lodging and meal expenditures.

Increased vehicle use is anticipated along Roads L and M where parking areas/trailheads would be provided as well as along Roads N and 30.2 due to access trails into the Simon Draw trails (see Recreation section issues 7 and 8 for more information). While there is the potential for increased traffic use and congestion to adversely affect adjacent property values, it is anticipated that the increase in trails may increase property values in the area although it is difficult to determine to what extent.

Affects from this action would not be disproportionately high or adverse to low-income populations. Potential affects to Tribes are discussed under the Cultural Resources section.

2) How would development of new trails affect economics associated with other existing or potential uses of the project area (hunting, wildlife viewing)?

Economic activity associated with other potential uses of the project area, such as hunting or wildlife viewing, may be affected. It is difficult to determine to what extent since hunters choosing not to hunt in the project area may hunt on other public lands in the area. Affects from this action would not be disproportionately high or adverse to low-income populations. Potential affects to Tribes are discussed under the Cultural Resources section.

Cumulative Effects

The cumulative effects analysis area for socio-economics for this project is Montezuma County. There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is under 'deferral'.

The town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities for trail based recreation easily accessible from local communities.

Under the Proposed Action alternative, there would be new trails and increased use by both locals and non-locals increasing local economic activity. Cumulative affects would not be disproportionately high or adverse to low-income populations. Potential cumulative affects to Tribes are discussed under the Cultural Resources section.

Mitigation Measures and Residual Effects

N/A

3.3.5. Recreation

Direct and Indirect Effects

Under the Proposed Action alternative, two new trailheads and approximately 26.5 miles of new single-track non-motorized trails would be constructed. Effects to recreational use as described by issues brought forth during scoping would be as follows:

1) How would trail development and use affect dispersed use of the area by other recreational users (hikers, walkers, hunters)?

Non-motorized trail users of all types would have the opportunity to benefit from the development of approximately 26.5 miles of single track trails in the northern portion of Phil's World. The stacked loop system, located close to local communities, would form loop opportunities of varying length and challenge, and provide spectacular views of the region. The

shortest loops, accessed directly from the new trailheads, would provide opportunities for hikes and rides after work or during lunch breaks while the longer loops would provide for longer 'weekend excursions'. The two new trailheads would provide for easier access into the Cash Canyon, Highline, and Simon Draw areas. However, the expected volume of use of these trails by mountain bikers would effectively limit the opportunities for other trail users. This would be especially true for equestrian users because mountain bike use (which is both fast and quiet) is particularly prone to 'spooking' horses.

The two recreational user groups most likely negatively affected by new trail development and improved access to the area would be hunters and hikers/walkers who already use the area in a dispersed nature (not using trails). Hunters, who traditionally would not have needed to worry about others in the area when preparing to fire their weapons would now have to be constantly vigilant. Additionally, increased recreational use of the area may result in the dispersal of big game and decreased hunting success. Hikers/walkers who currently access the area and are able to enjoy a feeling of 'having the area all to themselves' would lose this opportunity over the majority of the area. This opportunity would still be available in the 250+ acre area surrounding the golden eagle nest where trails would not be developed for at least as long as the nest remains active.

2) How would trail development and use enhance existing (bicycle) riding opportunities (new terrain, views, challenge, social interactions, connectivity to communities)?

The development of new trails under this Proposed Action would provide a wide array of new (mountain) bicycle riding opportunities. In general, the stacked loop system, located close to local communities, would form loop opportunities of varying length and challenge, and provide spectacular views of the region. The shortest loops, accessed directly from the new trailheads, would provide riding opportunities after work or during lunch breaks while the longer loops would provide for longer 'weekend excursions'. The two new trailheads would provide access into the Cash Canyon, Highline, and Simon Draw areas, as well as connectivity to the existing trail system and easier access to existing loops like Ledges and Stinky Springs.

Of particular benefit would be the connection created between the very northern portion of Phil's World (Garfunkel Trail in the Simon Draw Area) to the very southern portion of Phil's World (trails located on the State Land such as Hippy House and Trust Loop). This connectivity could allow for bicyclists to ride from Dolores to Cortez primarily on single track trails, if and when access off of Road 30.2 is perfected (the northern access to the Garfunkel Trail). The Road N access trail would also provide similar connectivity and could connect directly to County Road N without the need to cross through private property (per county road data).

The proposed trails would add variety to the existing trail in several ways. Currently, beginning riders (or those not looking for challenge) are largely limited to riding the Hippy House and

Trust Loops. Under this alternative, trails such as Canal, Highline, Eyrie, Talon, Aquila, Carly, Paul and Schuster would be accessible from new trailheads and would not require navigating technically challenging trail segments to reach them. For riders seeking challenge similar to that found on Ledges, Stinky Springs, and the Elbow, the new loops in the Simon Draw area and the Poquito Burrito trail would broaden their range of opportunities. The Cash Canyon Area and Simon Draw Area trail systems would provide canyon rim riding that is currently only found along a portion of the Stinky Springs trail.

The development of two new trailheads and their associated trails would help alleviate the congestion experienced at the Highway 160 trailhead. Currently, with only one trailhead, all use gets funneled through the same trail segments before riders are able to choose to ride the outer loops such as Lemonhead, Ledges, Stinking Springs, and 2-More. While directional riding practices on the existing trails mean that on-trail social contacts are minimized, at least for trail users traveling at ‘average’ speeds, congestion at the Highway 160 trailhead can result in over 100 contacts at the trailhead. The addition of two new trailheads located off of County Roads L and M would provide more variety and reduce social contacts both on the trails and at the trailhead.

These new access points and additional trails would also allow for use of the Phil’s World area by trail users during events such as the 12 Hours of Mesa Verde. Currently, the 12 Hours of Mesa Verde (an annual mountain bike race attracting approximately 850 each Mother’s Day weekend) effectively shuts the area down to other users. With new access points and new trails, events like the 12 Hours could be hosted in the future and use of the area by non-event related recreational users could continue unabated.

Two of the new proposed trails (Short N Sweet, and Tiny Dancer) would ensure that the existing trail system would remain intact in the event that private land owners currently amenable to trails crossing their lands change their stance (or the land is sold, or otherwise developed). This would help ensure the longevity of the overall trail system at Phil’s World and the associated personal, social, and environmental benefits.

3) How would trail development and use affect amount of trash on landscape?

The majority of the trash on the landscape, both as a result of dumping and day to day accumulation of litter, is not as a result of trail usage. The vast majority of trash on the landscape in this parcel is a result of illegal dumping (household trash), carcass disposal (from hunting and domestic animals), late night party debris (food wrappers, beverage bottles, and bonfires), and recreational shooting (appliances, cans and bottles, and shell casings). The presence of trail users, particularly the density of mountain bike trail users as evidenced on existing trails in the area, would be expected to result in an overall reduction of trash on the

landscape due to organized clean-up efforts and ‘informal oversight’ (ie, more eyes on the ground to dissuade illegal dumping activities).

4) How would trail development and use affect existing motorized riding opportunities?

Under the Proposed Action, there would be approximately 26.5 miles of new non-motorized single track trail construction. There are no proposed motorized trails, and no proposed closure of existing motorized trails. As such, there are no anticipated affects to existing motorized riding opportunities as a result of this proposal.

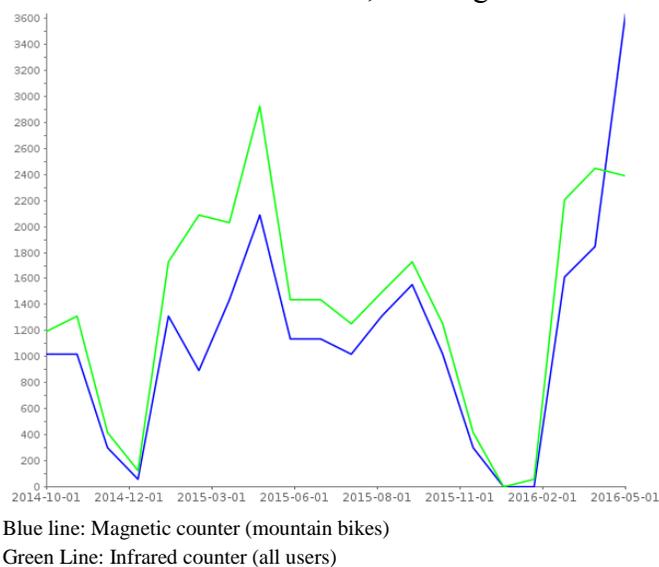
5) How would trail development and use affect personal and community benefits associated with non-motorized trail use?

The Phil’s World parcel is situated close to three communities: Mancos, Cortez, and Dolores. As such, there are a myriad of personal and community benefits which arise from easy access to non-motorized trail systems. Personal benefits include improved health, improved development of skills and abilities, greater personal confidence, and an improved understanding of community dependence and effect on Public Lands and adjoining private lands. Social/community benefits include an enhanced outdoor-oriented lifestyle, increased economic activity, and an increased desirability of Cortez, Dolores, and Mancos as places to live, visit, or retire. While the existing trail system affords these benefits already, the development of new trail opportunities across the remaining 2/3s of the Phil’s World unit would result in the expansion of these benefits. Trail users who might tire of ‘riding the same trails over and over again’ would have new and varied opportunities. Trail users seeking new viewsheds, challenges, or diversity would have more terrain available to meet their needs. Finally, the development of new access points would be expected to reduce some the issues associated with current trailhead congestion and result in more visitors attaining the benefits they seek from the trail system.

6) How would trail and trailhead development affect use by other non-motorized single track users (equestrian, hiking)?

Hiking and (and particularly) equestrian use of any new trails would be expected to be limited due to the anticipated volume of mountain bike use. However, trail counter data on the existing trail system indicates that a measurable amount of non-bike related use does occur at Phil’s World and this use would be expected to transfer onto any newly developed trails as well. (See Figure 4: Mt Bike Use vs. All Users, Existing Phil’s World Trail System)

Figure 4: Mt Bike Use vs. All Users, Existing Phil's World Trail System



7) How would trail development and use affect safety of users accessing the trail systems (access available away from highway 160, new access/egress along county roads)?

The only existing access/trailhead for the Phil's World area is located on a parcel of State land, accessed via Road 30.1 just north of the Montezuma County Fairgrounds. The turnoff to Road 30.1 is along Highway 160 and does not have a turning lane from either direction. The intersection of 30.1 and Highway 160 is at the end of a merging lane for westbound traffic exiting the fairgrounds and is unsigned (there is no sign indicating that Phil's World is accessed by Road 30.1). The speed limit is 65 mph.

Under the Proposed Action, there would be two new parking area/trailheads developed: one each along County Roads L and M. The trailhead along County Road M would be located in an abandoned and partially reclaimed dump site, utilizing an existing access road that is currently gated to allow only OHV and non-motorized access. The access road is located along a small straightaway with approximately 350 feet to the nearest curve to the south, and 1050 feet to the nearest curve to the north. The trailhead along County Road L would be located east of a slight bend in the road and would require re-opening a closed road for use as an access road to the trailhead. This closed road intersects Road L at a slight bend, with approximately 3,200 feet to the nearest curve to the south, and 2,100 feet to the nearest curve to the north.

Both of these County roads are unpaved, improved, 2-lane gravel roads. The speed limit is 40 mph. On CR L there are 9 access/egress points within 1 mile of the BLM managed lands to the

west, and 20 to the east. On CR M there are 17 access/egress points within 1 mile of the BLM managed lands to the west, and 9 to the east.

The maintenance of these roads, enforcement of speed limits, and the approval of access/egress points, falls under the jurisdiction of Montezuma County. Any development of new access/egress points (trailheads) by the BLM would be done in conjunction with Montezuma County and would be subject to any required approval/permitting processes. The availability of two new trailhead access points which are located along County Roads rather than Highway 160 would be expected to improve the safety of those seeking to access trails in the Phil's World area.

8) How would trail development and use affect use of county roads?

While the safety and management of county roads does not fall under the jurisdiction of the BLM, it would be expected that development of these new access points would result in an increase in traffic along County Roads L, M, and N (all 'Green' county roads maintained by Montezuma County). If and/or when access along the 'Red' County Road 30.2, and through willing private property ownership is perfected, the same would be true along that route as well.

Roads L and M are 'through' 2-lane roads approximately 25 feet wide, while roads N and 30.2 are dead-end roads, approximately 15 feet wide. The majority of increased vehicle use anticipated as a result of the Proposed Action would be along Roads L and M, where parking areas/trailheads would be provided. Roads N and 30.2 would also likely receive some additional vehicle traffic, and possible parking along the edges of the road, as a result of the proposed access trails into the Simon Draw trails.

According to Montezuma County Traffic Counts from 2007-2012, on average 373 vehicles/day use Road L (east of Road 29) and 299 vehicles/day use Road M (west of Road 31) (Montezuma County, 2007-2012). For purposes of estimating use on Roads L and M, the following assumptions are made: 1) While some additive use of the trail system can be expected as a result of both 'natural growth' and from any new trail development, having a second or third trailhead option would not result in 2-3x the existing use levels. Rather, use would be expected to disperse across the available trailheads; 2) Use at the existing trailhead would represent the largest percentage of total trailhead use due to user familiarity and proximity to Highway 160. Based on these assumptions, and the estimated use of the current trailhead (18 veh/day on weekdays and 38 veh/day on weekends), use of these roads may increase by 3-7%. See Table 6: Estimated County Road Use, Proposed Action)

Table 6: Estimated County Road Use, Proposed Action

	2007-2012 Avg veh/day	Estimated Increase in Use (veh/day), Alt B	Estimated % Change, Alt B
Road L (E of Rd 29)	373	10-20	+ 3-5%
Road M (W of Rd 31)	299	10-20	+3-7%

Cumulative Effects

The cumulative effects analysis area for recreation for this project would be the Montezuma Triangle Recreation Management Area (RMA) of the Cortez SRMA. This area is comprised of four isolated Public Lands parcels between Mancos, Cortez, and Dolores and bound by Highways 160, 184, and 145. These units are all bound by a common management focus which is to provide for human powered (non-motorized) recreational opportunities within a short commuting distance of town. There are currently approximately 21 miles of designated, non-motorized single track trail, and 14 miles of designated OHV trails in the SRMA (not including trails on the adjacent State land). There are also approximately 9 miles of existing OHV and non-motorized trails at Summit/Aqueduct/Chutes and Ladders.

In preparation for Comprehensive Travel Management Planning, the town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities (and associated personal and community benefits) for trail based recreation easily accessible from local communities.

There is one parcel in the southern portion of Phil’s World which has been nominated for fluid mineral leasing consideration. Affect to recreational use of the area as a result of fluid mineral development could range anywhere from minimal to substantial dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under ‘deferral’.

The Proposed Action would add approximately 26.5 miles of new designated non-motorized single track trails to the SRMA. These would be in addition to the 21 (non-State land) miles of single track trails already available within the SRMA. The cumulative effect to recreational trail users is an overall increase in the length and diversity of trail opportunities available within easy commuting distance of Dolores, Cortez, and Mancos.

Mitigation Measures and Residual Effects

N/A

3.3.6. Visual Resources

Direct and Indirect Effects

Under the Proposed-Action alternative, approximately 26.5 miles of new single track trail and two new trailheads would be built. Effects to visual resources as described by issues brought forth during scoping would be as follows:

1) How would trail and trailhead development and use affect the visual setting of the landscape?

The development of 26.5 miles of single track trail in the northern portion of Phil's World would result in weak contrasts to the vegetative element of the characteristic landscape. Design features such as minimizing vegetative removal and soil disturbance would make the new trails nearly impossible to see from any likely viewing points, including overlook points along the proposed trails themselves. The varied topography and dense pinyon-juniper over-story prevalent throughout the unit would screen the effects of both trail construction and usage. The most evident visual contrasts would be expected to occur where trails traverse steep canyon walls such as in Cash Canyon, Simon Draw, and Stinking Springs. In these locations, linear breaks in the vegetation would be visible. These affects would not be visible from likely viewing points such as county roads or residential development.

Two new trailheads would be constructed under this alternative. The trailhead south of Road L would result in vegetative clearing and minor recontouring of approximately .5 acres. These affects would result in a moderate contrast to the vegetative element of the characteristic landscape, though it's siting (superior to the County road) and the residual vegetation screening would keep it out of the viewshed of travelers along Road L. Construction of boundary fencing, width restrictors at trail access points, and trailhead related facilities would introduce weak structural contrasts the characteristic landscape. This trailhead would not be visible from any residential developments. The access road into this trailhead would take advantage of a pre-existing disturbance (an old road cut) and would result in weak contrasts to the vegetative element of the characteristic landscape.

The trailhead proposed along Road M would be sited to take advantage of a pre-existing disturbance: a partially reclaimed dumpsite. The partial reclamation of this site has left an opening in the native pinyon-juniper vegetation of approximately 3 acres. The access road is also pre-existing and would only require the opening of a gate that currently restricts full size vehicle access into the clearing. Construction of boundary fencing, width restrictors at trail access points, and trailhead related facilities would introduce weak structural contrasts the characteristic landscape. This trailhead would not be visible from any residential developments.

All of the developments proposed under this alternative would be consistent with the management objectives of this VRM Class III area.

Cumulative Effects

The cumulative effects analysis area for visual resources for this project would be the BLM managed portion of the Phil's World area. This analysis area would include the foreground, middleground, and background of the visible landscape. Due to the isolated nature of the BLM managed lands in the area (relatively small blocks of BLM lands which are separated by private land), activities occurring in nearby Public Lands are not visible and thus not part of the cumulative analysis area for visual resources.

There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

The limited scope of the weak to moderate contrasts associated with this alternative would not result in any cumulative affects to the visual characteristic landscape which would be incompatible with the VRM Class III objectives for this area.

Mitigation Measures and Residual Effects

N/A

3.4. Alternative C

3.4.1. Cultural Resources

Direct and Indirect Effects

1) How would cultural resources eligible for listing on the National Register of Historic Places be affected from non-motorized trail construction and use?

Under Alternative C, the existing non-motorized trail system would be expanded to the central and northern portions of the analysis area. Non-motorized trail development and use through sites or immediately adjacent to sites use has the potential to directly and indirectly affect National Register eligible and potentially eligible sites (historic properties). Trail construction, including trail design features such as water bars, and parking lot construction can damage site features and disturb buried cultural deposits, degrading site integrity and research potential. Over time, trail use can result in incised channels in the ground that change drainage patterns, destabilize soils, and lead to increased soil erosion. Incised channels can directly disturb or damage archaeological site features. Vegetation can decrease and bare ground can increase within user-created trail corridors, increasing the risk of destabilized soils. Trail use in wet ground conditions can cause soil rutting, increasing the potential for soil drainage and erosion issues, as well as directly disturbing or damaging cultural resource deposits and features that may be present. Offsetting these potential effects, planned trails incorporate design features to mitigate drainage issues, soil erosion, and loss of vegetation. Authorized trails are also subject to periodic trail maintenance, which addresses issues such as drainage and soil erosion.

Under this alternative, the current non-motorized trail system would be expanded and two additional trailhead parking areas would be created. The trails and trailhead parking areas would affect four archaeological sites, all of which are not eligible for listing on the NRHP. The proposed trails and parking areas would avoid all National Register eligible and potentially eligible sites (Design Criteria #2), and there would be no direct effects to these sites. With the expansion of the current trail system, unauthorized trails would be less likely to develop within the analysis area, reducing the possibility of unplanned trails passing through historic properties. Design Criteria #17 would further ensure no user-created trails are created, or allowed to be present.

Some of the trails would be located in the vicinity of archaeological sites. The risk of intentional vandalism and looting of historic properties in the portions of the analysis area currently lacking planned, authorized, signed trails would be reduced by a managed, signed trail system. The presence of more intensive recreation management and an expected corresponding increase in recreational use would increase the risk of detection of such activities, and act as a deterrent to such activities. From this perspective, Alternative C should benefit cultural resources slightly less than Alternative B, as Alternative C increases the portion of the planning area without planned, managed, signed trails due to an increased eagle nest buffer area. However, Alternative C should have a greater benefit than the No Action Alternative as well as Alternative D (both of which involve less intensive management of larger portions of the planning area than Alt. C).

An intense amount of mountain biking occurs in the portion of analysis area with an existing, signed trail system. The planning area conditions enable mountain biking for much of the calendar year. Mountain biking tends to be a goal oriented recreational activity, resulting in a lesser propensity for mountain bikers to leave the trail, in comparison to other forms of non-motorized recreational activity. From this point of view, mountain bikers are unlikely to contribute to intentional or unintentional vandalism or looting of cultural resources. Archaeological site monitoring conducted in 2014 and 2015 supports this conclusion, as no recent incidences of vandalism or looting were noted in the sites that were monitored. The trail system analyzed under Alternative C is also expected to also see intensive non-motorized use. As noted in the previous paragraph, such intensive use typically increases the risk of detection of cultural resource vandalism and looting, resulting in a decrease in such activities.

The proposed trails and parking areas should result in minimal additional visual disturbances within the analysis area. The vegetation and terrain in the analysis area obscures single track trails. As the proposed trails would be non-motorized, additional increases in auditory affects would be negligible. The aspects of setting and feeling, which are important considerations for visual and auditory affects to sites, have not been identified as qualities that contribute to the eligibility any sites within the analysis area. Sites are present within the planning area for which setting and feeling could potentially contribute to site significance. However, the nature and scale of Alternative C would not notably increase auditory or visual affects to National Register eligible sites for which setting and feeling potentially contribute to their significance. As Alternative C involves less miles of proposed trail than Alternative B, visual and auditory affects would be slightly less overall for Alternative C in comparison to Alternative B.

Alternative C represents a positive progression toward proactive recreational planning in the area which seeks to provide for recreational demand while implementing design criteria developed to protect cultural resources.

Cumulative Effects

As the Proposed Action would have no direct impact, and no or negligible indirect impacts to National Register eligible cultural resources, it would not add or contribute to any cumulative impacts.

Mitigation Measures and Residual Effects

If and when new trails are open for public use, periodic monitoring of select historic properties adjacent to the proposed trails will occur once a year for three years following construction of the trails to ensure the design features are adequately protecting historic properties, and, if needed, implement additional site protection measures. Site monitoring would not affect any resources. Additional analysis or an additional decision may be needed should additional site protection measures be needed.

3.4.2. Soils/Hydrology/Riparian

Direct and Indirect Effects

1) How would streams and riparian vegetation be affected by proposed trail locations in canyon bottoms?

Streams have a risk of receiving sediment pollution in areas where trails are built on steep slopes where moderate-severe and severe erosion hazard soils exist which are adjacent to canyon bottoms. If a trail built in these areas also has a trail stream crossing, these areas could be conduits to transport sedimentation to the stream. Trails which have short stretches planned within these erosion risk areas and are near streams include Poquito Burrito, Canal, Highline, Road N Connector, Schuster, Cash-Money, and Garfunkel trails.

The width of stream crossings required by new trails would vary depending on location. All stream crossings are planned to have small, low profile foot-bridges. The foot bridges are not anticipated to substantially affect streams or riparian, however the proposed design leaves them vulnerable to loss or damage. The damage could occur from annual peak flows in the spring if the bridges do not span the entire floodplain, or from high flows associated with flash flooding. Most floodplains in the bottom of tributary canyons occupy the entire canyon bottom and are between 50-75 feet wide. In larger canyon bottoms of Simon Draw and Cash Canyon the floodplains vary in width and can be wider. Bridges are planned to be only 10 to 20 feet in length.

The three major canyon streams within the analysis area all support well developed riparian vegetation. Several side tributaries to the major canyons also support continuous riparian vegetation and have perennial flow during the irrigation season. Trail construction through riparian vegetation would be infrequent and would require clearing vegetation only wide enough

to allow riparian/stream trail crossings and are not anticipated to have substantial effects to the riparian complexes.

2) Would trails built on steep slopes and sensitive soils result in increased erosion?

Approximately 9.2 miles of trail are proposed to be built on steep slopes with moderate-severe to severe erosion hazard soils. Alternative C has the intermediate number of miles (9.2 miles) of new trail proposed for high erosion hazard soils compared to Alternative B (10.1 miles) and Alternative D (8.2 miles). Most soils in the analysis area have low strength and on steep side slopes they are not stable, and very prone to erosion. The three soil units with the highest erosion hazards for trail construction are summarized in Table 7 below.

Building trail on high erosion hazard soils greatly increases the likelihood that trail surfaces may erode, become entrenched, and may ultimately concentrate runoff further accelerating down cutting. Constructing trails in high erosion hazard soils, especially where erosion occurs near streams and washes also increases the risk of sediment pollution entering water. Building trails on soils that have a high erosion hazard could also increase either the cost of construction or the cost and frequency of required monitoring and trail maintenance. A field review was conducted on existing Phil’s World trails built on the same high erosion hazard soils as proposed for the new trails in Alternative C. Severe erosion was not found on the existing trail system (Ledges, Rib Cage) which could indicate the NRCS soil survey hazard ratings are very conservative, and with careful trail construction practices and the implementation of mitigation, erosion and trail down-cutting could be minimized or reduced. Trails proposed for construction on relatively flat mesa tops are expected to be stable and have few erosion issues.

Table 7. Soil units with the highest erosion hazard for trail construction (NRCS Cortez Soil Survey, 2001) and the miles of trail proposed for construction within the units, Alternative C.

Soil Unit	Soil Unit Number	Hazard of Erosion on Trails	Hazard of Erosion Off Trails	Trail in Soil Unit (miles)
Pulpit Loam 6-12% Slopes	95	Severe	Slight	1.16
Romberg-Crossscan 6-25% Slopes	109	Moderate-Severe	Moderate	3.83
Romberg-Crossscan 25-80% Slopes	110	Severe	Severe to Very Severe	4.18

Table 8. The length of trail in moderate-severe and severe soil erosion hazard for trail construction by trail name, Alternative C.

Alternative C Trail Name	Trail in Moderate-Severe to Severe Hazard Soils Units (miles)
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Highline	2.1
Canal	1.4
Schuster	1.2
Garfunkel	1.0
Cash-Money	0.7
Poquito Burrito	0.6
Road N Connector Trail	0.5
Carly	0.4
Paul	0.4
Le Bon	0.3
Talon	0.2

Cumulative Effects

The existing Phil's World trails in general are built on soils which do not have severe erosive soil survey ratings. As a result, the existing trails have few erosion problems. However, some existing trails are located on soils with a moderate-severe or severe hazard ratings. Ledges & Rib Cage, are examples of trails with some sections located, in part, on severe hazard soils. On a limited field inspection of the existing trails located on these severe hazard soils, large areas of problematic erosion were not found, which may indicate the NRCS soils hazard ratings for trials construction are very conservative. In comparison, considering comparisons with the condition of existing Phil's World trails on severe hazard soils, Alternative C may have a moderate potential to create detectible effects to erosive soils located on canyon side-walls both in the short and long term. The risk of impacting water quality is low to moderate and associated mostly with localized areas of stream crossings. Cumulatively, when all of the trails are considered, approximately 9.2 miles of new trail are planned to be built on slopes with high severity erosion potential in areas that are currently undeveloped and are relatively stable. Erosion potential could be a continuous problem and require substantial and frequent maintenance to keep trails to standard and fix erosion problems. However, implementation of mitigation measures could be effective in reducing the risk of erosion and the need for long-term maintenance. Site specific mitigation measures have not yet been identified and could not be assessed for this analysis.

There is a low risk that sedimentation could accumulate in channels over the long-term within the analysis area because annual peak flows should be sufficient to move sediment downstream. Increased sedimentation and erosion has a low-moderate risk of effecting existing water infrastructure maintenance because reservoirs and ditches just downstream of the trail system on BLM and on private lands may fill more quickly with sediment. The Highline Ditch and Burk Ditch traverse the analysis area below and among the proposed trails of Alternative C. Reese WW Ditch Extension and Hover Ditch are just downstream of the trail system on Simon Draw. Old Kaniga Ditch and an unnamed reservoir are just downstream of the trail system on Stinking Springs Canyon. This water development infrastructure could be affected by increased erosion and sedimentation from the cumulative effects of the trail system sections built on highly erosive soils.

Mitigation Measures and Residual Effects

N/A

3.4.3. Wildlife

Direct and Indirect Effects

Alternative C would result in a 72% increase of trails from the existing trail network. This alternative would greatly reduce user impacts on the Golden Eagle territory in Cash Canyon, when compared with alternative B. Impacts to potential New Mexico meadow jumping mouse habitat and big game species will largely be the same as Alternative B.

1) How would New Mexico Meadow Jumping Mouse, listed as endangered under the Endangered Species Act, be affected?

Affects to New Mexico Meadow Jumping mouse are the same as alternative B. Both of the riparian site crossings would remain the same under this alternative.

2) How would golden eagles be affected?

This alternative would reduce affects to golden eagles when compared with alternative B. No parking lots and 1.3 miles of trail would occur within ½ mile of the active eagle nest. When compared with alternative B this is a 72% reduction in disturbance within the ½ mile nest buffer. The closest trail would be approximately 0.42 miles from the active nest. Additionally, no parking lot or trail would be visible from perches above the nest within ½ mile of perches above the nest with the exception of a small segments that connect trails on road L and M. Fewer disturbances would lead to increased likelihood of the eagle not abandoning the territory and an increased likelihood of successful reproduction. Trails would still be within a ½ mile of the nest in some areas, however, they would be removed from the canyon rim where they have a greater potential to disturb adults that may be perched around the nest.

Short loops would still be available to riders under this alternative from county roads M and L and use would probably be greater near the nest than in other areas as a result. Use would still occur at the same time as alternative B, during the nesting season. However, affects to the nest would be limited to the greatest extent possible while still allowing for a connection of north and south portions of the trails.

3) How would big game be affected?

Affects to deer and elk would be similar in Alternative C as they were in Alternative B. There would be a slight reduction in acreage disturbed, to 1,175 acres (Alt. C) from 1,382 acres. When considering that deer and elk are landscape species, Alternative C would still remove a large portion of undisturbed winter range from the landscape, decreasing the winter carrying capacity of the area.

Cumulative Effects

New Mexico Meadow Jumping mouse

New Mexico meadow jumping mouse cumulative effects for this alternative would be the same as Alternative B.

Golden Eagle

Golden eagle cumulative effects for this alternative would be the same as Alternative B. This alternative, however, would have a 72% reduction in trail miles within the ½ mile of the Cash Canyon nest and have no trail within 0.42 miles.

Big Game

Big game cumulative effects for this alternative would be the same as Alternative B.
Mitigation Measures and Residual Effects

Mitigation Measures and Residual Effects

N/A

3.4.4. Socio-Economics

Direct and Indirect Effects

Under Alternative C, 2 new trailheads and approximately 21.5 miles of new single-track non-motorized trails would be constructed. Effects to socio-economics as described by issues brought forth during scoping would be as follows:

- 1) How would development of new trails affect the local (Montezuma County) economy including property values (both adjacent properties and local area properties)?

It is anticipated that the new trails and trailheads would increase economic activity in the local area due to increased visitation by both locals and non-locals. Quantifying the economic affects is difficult since the magnitude of the direct and indirect effects would be greatly dependent upon the amount of increased use/visitation which is unknown. Increases in economic activity would likely be driven by increases in non-local visitation and increased length of stay in the area by non-locals, due to the associated lodging and meal expenditures.

Increased vehicle use is anticipated along Roads L and M where parking areas/trailheads would be provided as well as along Roads N and 30.2 due to access trails into the Simon Draw trails (see Recreation section issues 7 and 8 for more information). While there is the potential for increased traffic use and congestion to adversely affect adjacent property values, it is anticipated that the increase in trails may increase property values in the area although it is difficult to determine to what extent.

Affects from this action would not be disproportionately high or adverse to low-income populations. Potential affects to Tribes are discussed under the Cultural Resources section.

Key Difference from Proposed Action: There would be minimal differences between these alternatives.

2) How would development of new trails affect economics associated with other existing or potential uses of the project area (hunting, wildlife viewing)?

Economic activity associated with other potential uses of the project area, such as hunting or wildlife viewing, may be affected. It is difficult to determine to what extent since hunters choosing not to hunt in the project area may hunt on other public lands in the area. Affects from this action would not be disproportionately high or adverse to low-income populations. Potential affects to Tribes are discussed under the Cultural Resources section.

Key Difference from Proposed Action: There would be minimal differences between these alternatives.

Cumulative Effects

The cumulative effects analysis area for socio-economics for this project is Montezuma County. There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

The town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities for trail based recreation easily accessible from local communities.

Under Alternative C, there would be new trails and increased use by both locals and non-locals increasing local economic activity. Cumulative affects would not be disproportionately high or adverse to low-income populations. Potential cumulative affects to Tribes are discussed under the Cultural Resources section.

Mitigation Measures and Residual Effects

N/A

3.4.5. Recreation

Direct and Indirect Effects

Under Alternative C, two new trailheads and approximately 21.5 miles of new single-track non-motorized trails would be constructed. Effects to recreational use as described by issues brought forth during scoping would be as follows:

- 1) How would trail development and use affect dispersed use of the area by other recreational users (hikers, walkers, hunters)?

Non-motorized trail users of all types would have the opportunity to benefit from the development of approximately 21.5 miles of single track trails in the northern portion of Phil's World. The stacked loop system, located close to local communities, would form loop opportunities of varying length and challenge, and provide spectacular views of the region. The shortest loops, accessed directly from the new trailheads, would provide opportunities for hikes and rides after work or during lunch breaks while the longer loops would provide for longer 'weekend excursions'. The two new trailheads would provide for easier access into the Cash Canyon, Highline, and Simon Draw areas. However, the expected volume of use of these trails by mountain bikers would effectively limit the opportunities for other trail users. This would be especially true for equestrian users because mountain bike use (which is both fast and quiet) is particularly prone to 'spooking' horses.

The two recreational user groups most likely negatively affected by new trail development and improved access to the area would be hunters and hikers/walkers who already use the area in a dispersed nature (not using trails). Hunters, who traditionally would not have needed to worry about others in the area when preparing to fire their weapons would now have to be constantly vigilant. Additionally, increased recreational use of the area may result in the dispersal of big game and decreased hunting success. Hikers/walkers who currently access the area and are able to enjoy a feeling of 'having the area all to themselves' would lose this opportunity over the majority of the area. This opportunity would still be available in the 350+ acre area surrounding the golden eagle nest where trails would not be developed for at least as long as the nest remains active.

Key Difference from Proposed Action: The buffer around the golden eagle nest would be approximately 100 acres larger under this alternative, leaving more of the Cash Canyon area available for off trail hiking and hunting use. This would also result in the loss of two of the Cash Canyon area loop trails: Eyrie and Aquila.

2) How would trail development and use enhance existing (bicycle) riding opportunities (new terrain, views, challenge, social interactions, connectivity to communities)?

The development of new trails under this alternative would provide a wide array of new (mountain) bicycle riding opportunities. In general, the stacked loop system, located close to local communities, would form loop opportunities of varying length and challenge, and provide spectacular views of the region. The shortest loops, accessed directly from the new trailheads, would provide riding opportunities after work or during lunch breaks while the longer loops would provide for longer 'weekend excursions'. The two new trailheads would provide access into the Cash Canyon, Highline, and Simon Draw areas, as well as connectivity to the existing trail system and easier access to existing loops like Ledges and Stinky Springs.

Of particular benefit would be the connection created between the very northern portion of Phil's World (Garfunkel Trail in the Simon Draw Area) to the very southern portion of Phil's World (trails located on the State Land such as Hippy House and Trust Loop). This connectivity could allow for bicyclists to ride from Dolores to Cortez primarily on single track trails, if and when access off of Road 30.2 is perfected (the northern access to the Garfunkel Trail). The Road N access trail would also provide similar connectivity and could connect directly to County Road N without the need to cross through private property.

The proposed trails under this alternative would add variety to the existing trail in several ways. Currently, beginning riders (or those not looking for challenge) are largely limited to riding the Hippy House and Trust Loops. Under this alternative, trails such as Canal, Highline, Talon and Carly would be accessible from new trailheads and would not require navigating technically challenging trail segments to reach them. For riders seeking challenge similar to that found on Ledges, Stinky Springs, and the Elbow, the new loop in the Simon Draw area and the Poquito Burrito trail would broaden their range of opportunities. The Simon Draw Area trail system would provide canyon rim riding that is currently only found along a portion of the Stinky Springs trail.

The development of two new trailheads and their associated trails would help alleviate the congestion experienced at the Highway 160 trailhead. Currently, with only one trailhead, all use gets funneled through the same trail segments before riders are able to choose to ride the outer loops such as Lemonhead, Ledges, Stinking Springs, and 2-More. While directional riding practices on the existing trails mean that on-trail social contacts are minimized, at least for trail users traveling at 'average' speeds, congestion at the Highway 160 trailhead can result in over 100 contacts at the trailhead. The addition of two new trailheads located off of County Roads L and M would provide more variety and reduce social contacts both on the trails and at the trailhead.

These new access points and additional trails would also allow for use of the Phil's World area by trail users during events such as the 12 Hours of Mesa Verde. Currently, the 12 Hours of Mesa Verde (an annual mountain bike race attracting approximately 850 each Mother's Day weekend) effectively shuts the area down to other users. With new access points and new trails, events like the 12 Hours could be hosted in the future and use of the area by non-event related recreational users could continue unabated.

Two of the proposed trails, (Short N Sweet, and Tiny Dancer) would ensure that the existing trail system would remain intact in the event that private land owners currently amenable to trails crossing their lands change their stance (or the land is sold, or otherwise developed). This would help ensure the longevity of the overall trail system at Phil's World and the associated personal, social, and environmental benefits.

Key Difference from Proposed Action: Two of the three Cash Canyon loops are not included under this alternative (Eyrie and Aquila). This results in a loss of canyon rim riding and reduces the remaining trail, Talon, to more of a connecting link between the Simon Draw and Highline areas.

3) How would trail development and use affect amount of trash on landscape?

The majority of the trash on the landscape, both as a result of dumping and day to day accumulation of litter, is not as a result of trail usage. The vast majority of trash on the landscape in this parcel is a result of illegal dumping (household trash), carcass disposal (from hunting and domestic animals), late night party debris (food wrappers, beverage bottles, and bonfires), and recreational shooting (appliances, cans and bottles, and shell casings). The presence of trail users, particularly the density of mountain bike trail users as evidenced on existing trails in the area, would be expected to result in an overall reduction of trash on the landscape due to organized clean-up efforts and 'informal oversight' (ie, more eyes on the ground to dissuade illegal dumping activities).

Key Difference from Proposed Action: There would be minimal differences between these alternatives.

4) How would trail development and use affect existing motorized riding opportunities?

Under Alternative C, there would be approximately 21.5 miles of new non-motorized single track trail construction. There are no proposed motorized trails, and no proposed closure of existing motorized trails. As such, there is not anticipated affects to existing motorized riding opportunities as a result of this proposal.

Key Difference from Proposed Action: There would be no differences between these alternatives.

5) How would trail development and use affect personal and community benefits associated with non-motorized trail use?

The Phil's World parcel is situated close to three communities: Mancos, Cortez, and Dolores. As such, there are a myriad of personal and community benefits which arise from easy access to non-motorized trail systems. Personal benefits include improved health, improved development of skills and abilities, greater personal confidence, and an improved understanding of community dependence and affect on Public Lands and adjoining private lands. Social/community benefits include an enhanced outdoor-oriented lifestyle, increased economic activity, and an increased desirability of Cortez, Dolores, and Mancos as places to live, visit, or retire. While the existing trail system affords these benefits already, the development of new trail opportunities across the majority of the remaining Phil's World unit would result in the expansion of these benefits. Trail

users who might tire of ‘riding the same trails over and over again’ would have new and varied opportunities. Trail users seeking new viewsheds, challenges, or diversity would have more terrain available to meet their needs. Finally, the development of new access points would be expected to reduce some the issues associated with current trailhead congestion and result in more visitors attaining the benefits they seek from the trail system.

Key Difference from Proposed Action: Two of the three Cash Canyon loops are not included under this alternative (Eyrie and Aquila). The attractiveness of the overall trail system to mountain bikers, in comparison to the proposed action, may result in slightly fewer people using the new trails and thus a slight reduction in the attainment of benefits.

6) How would trail and trailhead development affect use by other non-motorized single track users (equestrian, hiking)?

Hiking and (and particularly) equestrian use of any new trails would be expected to be limited due to the anticipated volume of mountain bike use. However, trail counter data on the existing trail system indicates that a measurable amount of non-bike related use does occur at Phil’s World and this use would be expected to transfer onto any newly developed trails as well. (See Figure 4: Mt Bike Use vs. All Users, Existing Phil’s World Trail System)

Key Difference from Proposed Action: Two of the three Cash Canyon loops are not included under this alternative (Eyrie and Aquila). They would likely be the most attractive trails for hikers/walkers looking for trail opportunities close to town because of their canyon views, length, close proximity to the Road M trailhead, and gentle grades.

7) How would trail development and use affect safety of users accessing the trail systems (access available away from highway 160, new access/egress along county roads)?

The only existing access/trailhead for the Phil’s World area is located on a parcel of State land, accessed via Road 30.1 just north of the Montezuma County Fairgrounds. The turnoff to Road 30.1 is along Highway 160 and does not have a turning lane from either direction. The intersection of 30.1 and Highway 160 is at the end of a merging lane for westbound traffic exiting the fairgrounds and is unsigned (there is no sign indicating that Phil’s World is accessed by Road 30.1). The speed limit is 65 mph.

Under Alternative C, there would be two new parking area/trailheads developed: one each along County Roads L and M. The trailhead along County Road M would be located on the southeast side of the road in about dead center between two slight bends in the road with approximately 350 feet to the nearest curve in either direction. The trailhead along County Road L would be located east of a slight bend in the road and would require re-opening a closed road for use as an access road to the trailhead. This closed road intersects Road L at a slight bend, with

approximately 3,200 feet to the nearest curve to the south, and 2,100 feet to the nearest curve to the north.

Both of these County roads are unpaved, improved, 2-lane gravel roads. The speed limit is 40 mph. On CR L there are 9 access/egress points within 1 mile of the BLM managed lands to the west, and 20 to the east. On CR M there are 17 access/egress points within 1 mile of the BLM managed lands to the west, and 9 to the east.

The maintenance of these roads, enforcement of speed limits, and the approval of access/egress points, falls under the jurisdiction of Montezuma County. Any development of new access/egress points (trailheads) by the BLM would be done in conjunction with Montezuma County and would be subject to any required approval/permitting processes. The availability of two new trailhead accesses points which are located along County Roads rather than Highway 160 would be expected to improve the safety of those seeking to access trails in the Phil's World area.

Key Difference from Proposed Action: The trailhead for Road M would stay on the south side of the county road but would move to the west approximately .2 miles. Safety considerations would be essentially the same as under the Proposed Action,

8) How would trail development and use affect use of county roads?

While the safety and management of county roads does not fall under the jurisdiction of the BLM, it would be expected that development of these new access points would result in an increase in traffic along County Roads L, M, and N (all 'Green' county roads maintained by Montezuma County). If and/or when access along the 'Red' County Road 30.2, and through willing private property ownership, is perfected, the same would be true along that route as well.

Roads L and M are 'through' 2-lane roads approximately 25 feet wide, while roads N and 30.2 are dead-end roads, approximately 15 feet wide. The majority of increased vehicle use anticipated as a result of the Proposed Action would be along Roads L and M, where parking areas/trailheads would be provided. Roads N and 30.2 would also likely receive some additional vehicle traffic, and possible parking along the edges of the road, as a result of the proposed access trails into the Simon Draw trails.

According to Montezuma County Traffic Counts from 2007-2012, on average 373 vehicles/day use Road L (east of Road 29) and 299 vehicles/day use Road M (west of Road 31) (Montezuma County, 2007-2012). For purposes of estimating use on Roads L and M, the following assumptions are made: 1) While some additive use of the trail system can be expected as a result of both 'natural growth' and from any new trail development, having a second or third trailhead option would not result in 2-3x the existing use levels. Rather, use would be expected to

disperse across the available trailheads; 2) Use at the existing trailhead would represent the largest percentage of total trailhead use due to user familiarity and proximity to Highway 160; 3) With a reduction in the volume of trails between road L and M (as compared to the Proposed Action) there would be some reduction in volume of trail-based traffic anticipated on these roads under Alternative C. Based on these assumptions, and the estimated use of the current trailhead (18 veh/day on weekdays and 38 veh/day on weekends), use of these roads may increase by 2-6%. (See Table 6: Estimated County Road Use, Proposed Action)

See Table 9: Estimated County Road Use, Proposed Action)

	2007-2012 Avg veh/day	Estimated Increase in Use (veh/day), Alt C	Estimated % Change, Alt C
Road L (E of Rd 29)	373	8-18	+ 2-5%
Road M (W of Rd 31)	299	8-18	+3-6%

Key Difference from Proposed Action: Two of the three Cash Canyon loops are not included under this alternative (Eyrie and Aquila). As a result, the Road L trailhead may receive less traffic than under the Proposed Action.

Cumulative Effects

The cumulative effects analysis area for recreation for this project would be the Montezuma Triangle Recreation Management Area (RMA) of the Cortez SRMA. This area is comprised of four isolated Public Lands parcels between Mancos, Cortez, and Dolores and bound by Highways 160, 184, and 145. These units are all bound by a common management focus which is to provide for human powered (non-motorized) recreational opportunities within a short commuting distance of town. There are currently approximately 21 miles of designated, non-motorized single track trail, and 14 miles of designated OHV trails in the SRMA (not including trails on the adjacent State land). There are also approximately 9 miles of existing OHV and non-motorized trails at Summit/Aqueduct/Chutes and Ladders.

In preparation for Comprehensive Travel Management Planning, the town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities (and associated personal and community benefits) for trail based recreation easily accessible from local communities.

There is one parcel in the southern portion of Phil's World which have been nominated for fluid mineral leasing consideration. Affect to recreational use of the area as a result of fluid mineral development could range anywhere from minimal to substantial dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

Alternative C would add approximately 21.5 miles of new designated non-motorized single track trails to the SRMA. These would be in addition to the 21 (non-State land) miles of single track trails already available within the SRMA. The cumulative affect to recreational trail users is an overall increase in the length and diversity of trail opportunities available within easy commuting distance of Dolores, Cortez, and Mancos.

Mitigation Measures and Residual Effects

N/A

3.4.6. Visual Resources

Direct and Indirect Effects

Under Alternative C, approximately 21.5 miles of new single track trail and two new trailheads would be built. Effects to visual resources as described by issues brought forth during scoping would be as follows:

- 1) How would trail and trailhead development and use affect the visual setting of the landscape?

The development of 21.5 miles of single track trail in the northern portion of Phil's World would result in weak contrasts to the vegetative element of the characteristic landscape. Design features such as minimizing vegetative removal and soil disturbance would make the new trails nearly impossible to see from any likely viewing points, including overlook points along the proposed trails themselves. The varied topography and dense pinyon-juniper over-story prevalent throughout the unit would screen the affects of both trail construction and usage. The most evident visual contrasts would be expected to occur where trails traverse steep canyon walls such as in Cash Canyon, Simon Draw, and Stinking Springs. In these locations, linear breaks in the vegetation would be visible. These affects would not be visible from likely viewing points such as county roads or residential development.

Two new trailheads would be constructed under this alternative. The trailhead south of Road L would result in vegetative clearing and minor re-contouring of approximately .5 acres. These affects would result in a moderate contrast to the vegetative element of the characteristic landscape, though it's siting (superior to the County road) and the residual vegetation screening would keep it out of the viewshed of travelers along Road L. Construction of boundary fencing, width restrictors at trail access points, and trailhead related facilities would introduce weak structural contrasts the characteristic landscape. This trailhead would not be visible from any

residential developments. The access road into this trailhead would take advantage of a pre-existing disturbance (an old road cut) and would result in weak contrasts to the vegetative element of the characteristic landscape.

The trailhead proposed along Road M would be located near the western edge of the BLM parcel, on the south side of the road. This location would require vegetative clearing and minor re-contouring of approximately .5 acres. These affects would result in a moderate contrast to the vegetative element of the characteristic landscape, though residual vegetation screening would partially obscure its visibility to travelers along Road L. Construction of boundary fencing, width restrictors at trail access points, and trailhead related facilities would introduce weak structural contrasts the characteristic landscape. This trailhead would not be visible from any residential developments.

All of the developments proposed under this alternative would be consistent with the management objectives of this VRM Class III area.

Key Difference from Proposed Action: The location of the parking area/trailhead off of Road M is located further away from the golden eagle nest under this alternative. As a result, the previously disturbed dump site area is not utilized and a new area would be cleared of native vegetation for the trailhead.

Cumulative Effects

The cumulative effects analysis area for visual resources for this project would be the BLM managed portion of the Phil's World area. This analysis area would include the foreground, middleground, and background of the visible landscape. Due to the isolated nature of the BLM managed lands in the area (relatively small blocks of BLM lands which are separated by private land), activities occurring in nearby Public Lands are not visible and thus not part of the cumulative analysis area for visual resources.

There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

The limited scope of the weak to moderate contrasts associated with this alternative would not result in any cumulative affects to the visual characteristic landscape which would be incompatible with the VRM Class III objectives for this area.

Mitigation Measures and Residual Effects

N/A

3.5. Alternative D

3.5.1. Cultural Resources

Direct and Indirect Effects

- 1) How would cultural resources eligible for listing on the National Register of Historic Places be affected from non-motorized trail construction and use?

Under the Alternative D, the existing non-motorized trail system would be expanded to the central and northern portions of the analysis area. Non-motorized trail development and use through sites or immediately adjacent to sites use has the potential to directly and indirectly affect National Register eligible and potentially eligible sites (historic properties). Trail construction, including trail design features such as water bars, and parking lot construction can damage site features and disturb buried cultural deposits, degrading site integrity and research potential. Over time, trail use can result in incised channels in the ground that change drainage patterns, destabilize soils, and lead to increased soil erosion. Incised channels can directly disturb or damage archaeological site features. Vegetation can decrease and bare ground can increase within user-created trail corridors, increasing the risk of destabilized soils. Trail use in wet ground conditions can cause soil rutting, increasing the potential for soil drainage and erosion issues, as well as directly disturbing or damaging cultural resource deposits and features that may be present. Offsetting these potential effects, planned trails incorporate design features to mitigate drainage issues, soil erosion, and loss of vegetation. Authorized trails are also subject to periodic trail maintenance, which addresses issues such as drainage and soil erosion.

Under Alternative D, the current non-motorized trail system would be expanded and two additional trailhead parking areas would be created. The trails and trailhead parking areas would affect four archaeological sites, all of which are not eligible for listing on the NRHP. The trails and parking areas would avoid all National Register eligible and potentially eligible sites (Design Criteria #2), and there would be no direct effects to these sites. With the expansion of the current trail system, unauthorized trails would be less likely to develop within the analysis area, reducing the possibility of unplanned trails passing through historic properties. Design Criteria #17 would further ensure no user-created trails are created, or allowed to be present.

Some of the trails would be located in the vicinity of archaeological sites. The risk of intentional vandalism and looting of historic properties in the portions of the analysis area currently lacking planned, authorized, signed trails would be reduced by a managed, signed trail system. The presence of more intensive recreation management and an expected corresponding increase in recreational use would increase the risk of detection of such activities, and act as a deterrent to such activities. Alternative D should benefit cultural resources slightly less than Alternatives B and C, as Alternative D increases the portion of the planning area without planned, managed, signed trails because it includes the largest eagle nest buffer area. However, Alternative D should have a greater benefit than the No Action Alternative as it involves less intensive management of larger portions of the planning area than Alt. D.

An intense amount of mountain biking occurs in the portion of analysis area with an existing, signed trail system. The planning area conditions enable mountain biking for much of the calendar year. Mountain biking tends to be a goal oriented recreational activity, resulting in a

lesser propensity for mountain bikers to leave the trail, in comparison to other forms of non-motorized recreational activity. From this point of view, mountain bikers are unlikely to contribute to intentional or unintentional vandalism or looting of cultural resources. Archaeological site monitoring conducted in 2014 and 2015 supports this conclusion, as no recent incidences of vandalism or looting were noted in the sites that were monitored. The trail system analyzed under Alternative D is also expected to also see intensive non-motorized use. As noted in the previous paragraph, such intensive use typically increases the risk of detection of cultural resource vandalism and looting, resulting in a decrease in such activities.

The proposed trails and parking areas should result in minimal additional visual disturbances within the analysis area. The vegetation and terrain in the analysis area obscures single track trails. As the proposed trails would be non-motorized, additional increases in auditory affects would be negligible. The aspects of setting and feeling, which are important considerations for visual and auditory affects to sites, have not been identified as qualities that contribute to the eligibility any sites within the analysis area. Sites are present within the planning area for which setting and feeling could potentially contribute to site significance. However, the nature and scale of Alternative D would not notably increase auditory or visual affects to National Register eligible sites for which setting and feeling potentially contribute to their significance. As Alternative D involves less miles of proposed trail than Alternatives B and C, visual and auditory affects would be slightly less overall for Alternative D in comparison to Alternatives B and C.

Alternative D represents a positive progression toward proactive recreational planning in the area which seeks to provide for recreational demand while implementing design criteria developed to protect cultural resources.

Cumulative Effects

As the Proposed Action would have no direct impact, and no or negligible indirect impacts to National Register eligible cultural resources, it would not add or contribute to any cumulative impacts.

Mitigation Measures and Residual Effects

If and when new trails are open for public use, periodic monitoring of select historic properties adjacent to the proposed trails would occur once a year for three years following construction of the trails to ensure the design features are adequately protecting historic properties, and, if needed, implement additional site protection measures. Site monitoring would not affect any resources. Additional analysis or an additional decision may be needed should additional site protection measures be needed.

3.5.2. Soils/Hydrology/Riparian

Direct and Indirect Effects

1) How would streams and riparian vegetation be affected by proposed trail locations in canyon bottoms?

Streams have a risk of receiving sediment pollution in areas where trails are built on steep slopes where moderate-severe and severe erosion hazard soils exist which are adjacent to canyon bottoms. If a trail built in these areas also has a trail stream crossing, these areas could be conduits to transport sedimentation to the stream. Trails which have short stretches planned within these erosion risk areas and are near streams include Poquito Burrito, Canal, Highline, Road N Connector and Garfunkel trails.

The width of stream crossings required by new trails will vary depending on location. All stream crossings are planned to have small, low profile foot-bridges. The foot bridges are not anticipated to substantially affect streams or riparian, however the proposed design leaves them vulnerable to loss or damage. The damage could occur from annual peak flows in the spring if the bridges do not span the entire floodplain, or from extreme peak flows associated with flash flooding. Most floodplains in the bottom of tributary canyons occupy the entire canyon bottom and are between 50-75 feet wide. In larger canyon bottoms of Simon Draw and Cash Canyon the floodplains vary in width and can be wider.

The three major canyon streams within the analysis area all support well developed riparian vegetation. Several side tributaries to the major canyons also support continuous riparian vegetation and have perennial flow during the irrigation season. Trail construction through riparian vegetation would be infrequent and would require clearing vegetation only wide enough to allow riparian/stream trail crossings and are not anticipated to have substantial effects to the riparian complexes.

2) Would trails built on steep slopes and sensitive soils result in increased erosion?

Approximately 8.22 miles of trail are proposed to be built on steep slopes with moderate-severe to severe erosion hazard soils. Alternative D has the lowest number of miles (8.22 miles) of new trail proposed for high erosion hazard soils compared to Alternative B (10 miles) and Alternative C (9.2 miles). Most soils in the analysis area have low strength and on steep side slopes they are not stable and very prone to erosion. The three soil units with the highest erosion hazards for trail construction are summarized in Table 10 below.

Building trail on high erosion hazard soils greatly increases the likelihood that trail surfaces may become entrenched will ultimately concentrate runoff further accelerating down cutting. Constructing trails in high erosion hazard soils, especially where erosion occurs near streams and washes also increases the risk of sediment pollution entering water. Finally, building trails on soils that have a high erosion hazard could greatly increase either the cost of construction or the cost and frequency of monitoring and trail maintenance. A field review was conducted on existing Phil's World trails built on the same high erosion hazard soils as proposed for the new trails in Alternative D. Severe erosion was not found on the existing trail system (Ledges, Rib Cage) which could indicate the NRCS soil survey hazard ratings are very conservative, and with

Careful trail construction practices and the implementation of mitigation, erosion and trail down-cutting could be minimized or reduced.

Table 10. Soil units with the highest erosion hazard for trail construction (NRCS Cortez Soil Survey, 2001) and the miles of trail proposed for construction within the units, Alternative D.

Soil Unit	Hazard of Erosion on Trails	Hazard of Erosion Off Trails	Trail in Soil Unit (miles)
Pulpit Loam 6-12% Slopes	Severe	Slight	1.1
Romberg-Crosscan 6-25% Slopes	Moderate-Severe	Moderate	3.15
Romberg-Crosscan 25-80% Slopes	Severe	Severe to Very Severe	3.92

Table 11. The length of trail in moderate-severe and severe soil erosion hazard for trail construction by Alternative D trail name.

Alternative D Trail Name	Trail in Moderate-Severe to Severe Hazard Soils Units (miles)
Highline	2.1
Canal	1.4
Schuster	1.2
Garfunkel	1
Poquito Burrito	0.6
Road N Connector Trail	0.5
Carly	0.4
Paul	0.3
Le Bon	0.3

Cumulative Effects

The existing Phil's World trails in general are built on soils which do not have severe erosive soil survey ratings. As a result, the existing trails have few erosion problems. However, some existing trails are located on soils with a moderate-severe or severe hazard ratings. Ledges and Rib Cage are examples of trails with some sections located, in part, on severe hazard soils. On a limited field inspection of the existing trails located on these severe hazard soils, large areas of problematic erosion were not found, which may indicate the NRCS soils hazard ratings for trails construction are very conservative. In comparison, Considering comparisons with the condition of existing Phil's World trails on severe hazard soils, Alternative D may have a moderate potential to create detectable effects to erosive soils located on canyon side-walls both in the

short and long term. The risk of impacting water quality is low to moderate and associated mostly with localized areas of stream crossings. Cumulatively, when all of the trails are considered, approximately 8.2 miles of new trail are planned to be built on slopes with high severity erosion potential in areas that are currently undeveloped and are relatively stable. Erosion potential could be a continuous problem and require substantial and frequent maintenance to keep trails to standard and fix erosion problems. However, implementation of mitigation measures could be effective in reducing the risk of erosion and the need for long-term maintenance. Site specific mitigation measures have not yet been identified and could not be assessed for this analysis.

There is a low risk that sedimentation could accumulate in channels over the long-term within the analysis area because annual peak flows should be sufficient to move sediment downstream. Increased sedimentation and erosion has a low-moderate risk of effecting existing water infrastructure maintenance because reservoirs and ditches just downstream of the trail system on BLM and on private lands may fill more quickly with sediment. The Highline Ditch and Burk Ditch traverse the analysis area below and among the proposed trails of Alternative D. Reese WW Ditch Extension and Hover Ditch are just downstream of the trail system on Simon Draw. Old Kaniga Ditch and an unnamed reservoir are just downstream of the trail system on Stinking Springs Canyon. This water development infrastructure could be affected by increased erosion and sedimentation from the cumulative effects of the trail system sections built on highly erosive soils.

Mitigation Measures and Residual Effects

N/A

3.5.3. Wildlife

Direct and Indirect Effects

Alternative D would have the least impact on wildlife species when compared with all other action alternatives. There would be a 63% increase in trail miles within the Phil's World trail system. Big game would see a reduction in trail disturbance, one patch of NMMJM habitat would be disturbed instead of two, and there would be no additional disturbances within the ½ mile of the Cash Canyon Golden Eagle nest.

1) How would alternative D affect New Mexico Meadow Jumping Mouse Potential Habitat?

Affects to New Mexico meadow jumping mouse would differ in this alternative from alternatives A, B and C. No connection through cash canyon would occur as a result of this alternative, unlike alternatives B and C, decreasing impacts to the trail. The upper part of Simon draw would still have a crossing and would result in very minor impacts to potential habitat, but an increase in disturbance when compared to the No Action alternative. Given that the habitat near the Simon Draw crossing is bordered by slick rock and pinyon juniper with a very small amount of riparian vegetation, a crossing at just this location would have much less of an impact than the additional crossing at Cash Canyon.

2) How would alternative D affect Golden Eagles?

Based on the best scientific information available, this alternative would be the least disruptive to the Cash Canyon golden eagle territory. Zero miles of trail and no parking lots would occur within ½ mile of the active eagle nest. This action alternative would give the nesting eagles the best opportunity to have security in their territory, reproduce without disturbance, and be the most attentive to their young.

Some disturbance may still occur to eagles that are perched around the nest as a result of this alternative. However, they would increase disturbance very little when compared to the No Action alternative. All disturbances would be at or beyond existing disturbances.

3) How would alternative D affect Big Game?

Affects as a result of implementing Alternative D would be very similar to affects from Alternatives B and C. There would be 1,041 acres of disturbance, a reduction of 341 acres and 134 from Alternatives B and C respectively. However, disturbance to big game would largely be the same as Alternatives B and C, impacting a large area of winter habitat.

Cumulative Effects

New Mexico Meadow Jumping Mouse

New Mexico meadow jumping mouse cumulative effects for this alternative would be the same as Alternative B.

Golden Eagle

Golden eagle cumulative effects for this alternative would be the same as Alternative B. This alternative, however, has the least amount of disturbance to eagles and would contribute least to cumulative impacts.

Big Game

Big game cumulative effects for this alternative would be the same as Alternative B.

Mitigation Measures and Residual Effects

3.5.4. Socio-Economics

Direct and Indirect Effects

Under Alternative D, 2 new trailheads and approximately 18.5 miles of new single-track non-motorized trails would be constructed. Effects to socio-economics as described by issues brought forth during scoping would be as follows:

- 1) How would development of new trails affect the local (Montezuma County) economy including property values (both adjacent properties and local area properties)?

It is anticipated that the new trails and trailheads would increase economic activity in the local area due to increased visitation by both locals and non-locals. Quantifying the economic affects

is difficult since the magnitude of the direct and indirect effects would be greatly dependent upon the amount of increased use/visitation which is unknown. Increases in economic activity would likely be driven by increases in non-local visitation and increased length of stay in the area by non-locals, due to the associated lodging and meal expenditures.

Increased vehicle use is anticipated along Roads L and M where parking areas/trailheads would be provided as well as along Roads N and 30.2 due to access trails into the Simon Draw trails (see Recreation section issues 7 and 8 for more information). While there is the potential for increased traffic use and congestion to adversely affect adjacent property values, it is anticipated that the increase in trails may increase property values in the area although it is difficult to determine to what extent.

Affects from this action would not be disproportionately high or adverse to low-income populations. Potential affects to Tribes are discussed under the Cultural Resources section.

Key Difference from Proposed Action: There would be minimal differences between these alternatives.

2) How would development of new trails affect economics associated with other existing or potential uses of the project area (hunting, wildlife viewing)?

Economic activity associated with other potential uses of the project area, such as hunting or wildlife viewing, may be affected. It is difficult to determine to what extent since hunters choosing not to hunt in the project area may hunt on other public lands in the area. Affects from this action would not be disproportionately high or adverse to low-income populations. Potential affects to Tribes are discussed under the Cultural Resources section.

Key Difference from Proposed Action: There would be minimal differences between these alternatives.

Cumulative Effects

The cumulative effects analysis area for socio-economics for this project is Montezuma County. There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

The town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities for trail based recreation easily accessible from local communities.

Under the Proposed Action alternative, there would be new trails and increased use by both locals and non-locals increasing local economic activity. Cumulative affects would not be disproportionately high or adverse to low-income populations. Potential cumulative affects to Tribes are discussed under the Cultural Resources section.

Mitigation Measures and Residual Effects

N/A

3.5.5. Recreation

Direct and Indirect Effects

Under Alternative D, two new trailheads and approximately 18 miles of new single-track non-motorized trails would be constructed. Effects to recreational use as described by issues brought forth during scoping would be as follows:

1) How would trail development and use affect dispersed use of the area by other recreational users (hikers, walkers, hunters)?

Non-motorized trail users of all types would have the opportunity to benefit from the development of approximately 18 miles of single track trails in the northern portion of Phil's World. The stacked loop system, located close to local communities, would form loop opportunities of varying length and challenge, and provide spectacular views of the region. The shortest loops, accessed directly from the new trailheads, would provide opportunities for hikes and rides after work or during lunch breaks while the longer loops would provide for longer 'weekend excursions'. The two new trailheads would provide for easier access into the Simon Draw and Highline areas. However, the expected volume of use of these trails by mountain bikers would effectively limit the opportunities for other trail users. This would be especially true for equestrian users because mountain bike use (which is both fast and quiet) is particularly prone to 'spooking' horses.

The two recreational user groups most likely negatively affected by new trail development and improved access to the area would be hunters and hikers/walkers who already use the area in a dispersed nature (not using trails). Hunters, who traditionally would not have needed to worry about others in the area when preparing to fire their weapons would now have to be constantly vigilant. Additionally, increased recreational use of the area may result in the dispersal of big game and decreased hunting success. Hikers/walkers who currently access the area and are able to enjoy a feeling of 'having the area all to themselves' would lose this opportunity over the majority of the area. This opportunity would still be available in the 400 acre area surrounding the golden eagle nest where trails would not be developed for at least as long as the nest remains active.

Key Difference from Proposed Action: The buffer around the golden eagle nest would be approximately 150 acres larger under this Alternative (as compared to the Proposed Action),

leaving the entire Cash Canyon area available for off trail hiking and hunting use. This would also result in the loss of all of the Cash Canyon area trails.

2) How would trail development and use enhance existing (bicycle) riding opportunities (new terrain, views, challenge, social interactions, connectivity to communities)?

The development of new trails under this alternative would provide a wide array of new (mountain) bicycle riding opportunities. In general, the stacked loop system, located close to local communities, would form loop opportunities of varying length and challenge, and provide spectacular views of the region. The shortest loops, accessed directly from the new trailheads, would provide riding opportunities after work or during lunch breaks while the longer loops would provide for longer ‘weekend excursions’. The two new trailheads would provide new trail access into the Simon Draw areas, as a northern access into the existing trail system.

The proposed trails under this alternative would add variety to the existing trail in several ways. Currently, beginning riders (or those not looking for challenge) are largely limited to riding the Hippy House and Trust Loops. Under this alternative, trails such as Canal, Highline, and Carly would be accessible from new trailheads and would not require navigating technically challenging trail segments to reach them. For riders seeking challenge similar to that found on Ledges, Stinky Springs, and the Elbow, the new loop in the Simon Draw area and the Poquito Burrito trail would broaden their range of opportunities. The Simon Draw Area trail system would provide canyon rim riding that is currently only found along a portion of the Stinky Springs trail.

The development of two new trailheads and their associated trails would help alleviate the congestion experienced at the Highway 160 trailhead. Currently, with only one trailhead, all use gets funneled through the same trail segments before riders are able to choose to ride the outer loops such as Lemonhead, Ledges, Stinking Springs, and 2-More. While directional riding practices on the existing trails mean that on-trail social contacts are minimized, at least for trail users traveling at ‘average’ speeds, congestion at the Highway 160 trailhead can result in over 100 contacts at the trailhead. The addition of two new trailheads located off of County Roads L and M would provide more variety and reduce social contacts both on the trails and at the trailhead.

These new access points and additional trails would also allow for use of the Phil’s World area by trail users during events such as the 12 Hours of Mesa Verde. Currently, the 12 Hours of Mesa Verde (an annual mountain bike race attracting approximately 850 each Mother’s Day weekend) effectively shuts the area down to other users. With new access points and new trails, events like the 12 Hours could be hosted in the future and use of the area by non-event related recreational users could continue unabated.

Two of the proposed trails (Short N Sweet, and Tiny Dancer) would ensure that the existing trail system would remain intact in the event that private land owners currently amenable to trails crossing their lands change their stance (or the land is sold, or otherwise developed). This would help ensure the longevity of the overall trail system at Phil's World and the associated personal, social, and environmental benefits.

Key Difference from Proposed Action: All of the Cash Canyon area trails would be eliminated from development under this alternative. This results in a loss of canyon rim riding, and, more importantly, eliminates the connectivity of the trail system considered under the Proposed Action. Under this alternative, there would be two disconnected trail systems at Phil's World: The Simon Draw Area, and the trails south of Road L.

3) How would trail development and use affect amount of trash on landscape?

The majority of the trash on the landscape, both as a result of dumping and day to day accumulation of litter, is not as a result of trail usage. The vast majority of trash on the landscape in this parcel is a result of illegal dumping (household trash), carcass disposal (from hunting and domestic animals), late night party debris (food wrappers, beverage bottles, and bonfires), and recreational shooting (appliances, cans and bottles, and shell casings). The presence of trail users, particularly the density of mountain bike trail users as evidenced on existing trails in the area, would be expected to result in an overall reduction of trash on the landscape due to organized clean-up efforts and 'informal oversight' (ie, more eyes on the ground to dissuade illegal dumping activities).

Key Difference from Proposed Action: There would a much larger area unencumbered by developed trails and the associated intensive management oversight and 'additional eyes on the ground'. This would likely result in continued trash dumping in the Cash Canyon area.

4) How would trail development and use affect existing motorized riding opportunities?

Under Alternative D, there would be approximately 20 miles of new non-motorized single track trail construction. There are no proposed motorized trails, and no proposed closure of existing motorized trails. As such, there are no anticipated affects to existing motorized riding opportunities as a result of this proposal.

Key Difference from Proposed Action: There would be no differences between these alternatives.

5) How would trail development and use affect personal and community benefits associated with non-motorized trail use?

The Phil's World parcel is situated close to three communities: Mancos, Cortez, and Dolores. As such, there are a myriad of personal and community benefits which arise from easy access to

non-motorized trail systems. Personal benefits include improved health, improved development of skills and abilities, greater personal confidence, and an improved understanding of community dependence and affect on Public Lands and adjoining private lands. Social/community benefits include an enhanced outdoor-oriented lifestyle, increased economic activity, and an increased desirability of Cortez, Dolores, and Mancos as places to live, visit, or retire. While the existing trail system affords these benefits already, the development of new trail opportunities across the majority of the remaining Phil's World unit would result in the expansion of these benefits. Trail users who might tire of 'riding the same trails over and over again' would have new and varied opportunities. Trail users seeking new viewsheds, challenges, or diversity would have more terrain available to meet their needs. Finally, the development of new access points would be expected to reduce some the issues associated with current trailhead congestion and result in more visitors attaining the benefits they seek from the trail system.

Key Difference from Proposed Action: The Cash Canyon trails are not included under this alternative, nor is the overall connectivity of the trail system maintained. The attractiveness of the overall trail system to mountain bikers, in comparison to the Proposed Action, may result in fewer people using the new trails and thus a reduction in the attainment of benefits.

6) How would trail and trailhead development affect use by other non-motorized single track users (equestrian, hiking)?

Hiking and (and particularly) equestrian use of any new trails would be expected to be limited due to the anticipated volume of mountain bike use. However, trail counter data on the existing trail system indicates that a measurable amount of non-bike related use does occur at Phil's World, and this use would be expected to transfer onto any newly developed trails as well. (See Figure 4: Mt Bike Use vs. All Users, Existing Phil's World Trail System)

Key Difference from Proposed Action: Under this alternative, there would be no trails in the Cash Canyon area, and no direct trail connection between the Simon Draw area and the rest of the Phil's World trail system. Without a direct trail connection between the trails south of Road L and those north of Road M, it is possible that mountain bike use in the Simon Draw area may be less intensive, comparatively, and therefore slightly more attractive for hiking and equestrian use.

7) How would trail development and use affect safety of users accessing the trail systems (access available away from highway 160, new access/egress along county roads)?

The only existing access/trailhead for the Phil's World area is located on a parcel of State land, accessed via Road 30.1 just north of the Montezuma County Fairgrounds. The turnoff to Road 30.1 is along Highway 160 and does not have a turning lane from either direction. The intersection of 30.1 and Highway 160 is at the end of a merging lane for westbound traffic

exiting the fairgrounds and is unsigned (there is no sign indicating that Phil's World is accessed by Road 30.1). The speed limit is 65 mph.

Under Alternative D, there would be two new parking area/trailheads developed: one each along County Roads L and M. The trailhead along County Road M would be located on the northwest side of the road in about dead center between two slight bends in the road with approximately 350 feet to the nearest curve in either direction. The trailhead along County Road L would be located east of a slight bend in the road and would require re-opening a closed road for use as an access road to the trailhead. This closed road intersects Road L at a slight bend, with approximately 3,200 feet to the nearest curve to the south, and 2,100 feet to the nearest curve to the north.

Both of these County roads are unpaved, improved, 2-lane gravel roads. The speed limit is 40 mph. On CR L there are 9 access/egress points within 1 mile of the BLM managed lands to the west, and 20 to the east. On CR M there are 17 access/egress points within 1 mile of the BLM managed lands to the west, and 9 to the east.

The maintenance of these roads, enforcement of speed limits, and the approval of access/egress points, falls under the jurisdiction of Montezuma County. Any development of new access/egress points (trailheads) by the BLM would be done in conjunction with Montezuma County and would be subject to any required approval/permitting processes. The availability of two new trailhead accesses points which are located along County Roads rather than Highway 160 would be expected to improve the safety of those seeking to access trails in the Phil's World area.

Key Difference from Proposed Action: The trailhead for Road M would move to the north side of the county road and to the west approximately .2 miles. There would be no trail development to the south of Road M, so there would be no bicycle traffic crossing this County road.

8) How would trail development and use affect use of county roads?

While the safety and management of county roads does not fall under the jurisdiction of the BLM, it would be expected that development of these new access points would result in an increase in traffic along County Roads L, M, and N (all 'Green' county roads maintained by Montezuma County). If and/or when access along the 'Red' County Road 30.2, and through willing private property ownership, is perfected, the same would be true along that route as well.

Roads L and M are 'through' 2-lane roads approximately 25 feet wide, while roads N and 30.2 are dead-end roads, approximately 15 feet wide. The majority of increased vehicle use anticipated as a result of the Proposed Action would be along Roads L and M, where parking areas/trailheads would be provided. Roads N and 30.2 would also likely receive some additional

vehicle traffic, and possible parking along the edges of the road, as a result of the proposed connector trails into the Simon Draw trails.

According to Montezuma County Traffic Counts from 2007-2012 , on average 373 vehicles/day use Road L (east of Road 29) and 299 vehicles/day use Road M (west of Road 31) (Montezuma County, 2007-2012). For purposes of estimating use on Roads L and M, the following assumptions are made: 1) While some additive use of the trail system can be expected as a result of both ‘natural growth’ and from any new trail development , having a second or third trailhead option would not result in 2-3x the existing use levels. Rather, use would be expected to disperse across the available trailheads; 2) Use at the existing trailhead would represent the largest percentage of total trailhead use due to user familiarity and proximity to Highway 160; 3) With a reduction in the volume of trails between road L and M (as compared to both the Proposed Action and Alternative C) there would be some reduction in volume of trail-based traffic anticipated on these roads under Alternative D. Based on these assumptions, and the estimated use of the current trailhead (18 veh/day on weekdays and 38 veh/day on weekends), use of these roads may increase by 2-5%. (See Table 12: Estimated County Road Use, Alternative D)

See Table 12: Estimated County Road Use, Alternative D

	2007-2012 Avg veh/day	Estimated Increase in Use (veh/day), Alt D	Estimated % Change, Alt D
Road L (E of Rd 29)	373	6-15	+ 2-4%
Road M (W of Rd 31)	299	6-15	+2-5%

Key Difference from Proposed Action: Under this alternative, there would be no trails in the Cash Canyon area, and no direct trail connection between the Simon Draw area and the rest of the Phil’s World trail system. Without a direct trail connection between the trails south of Road L and those north of Road M, it is possible that mountain bike use in the Simon Draw area may be less intensive, comparatively, and therefore somewhat less additive use to roads L, M, N, and 30.2

Cumulative Effects

The cumulative effects analysis area for recreation for this project would be the Montezuma Triangle Recreation Management Area (RMA) of the Cortez SRMA. This area is comprised of four isolated Public Lands parcels between Mancos, Cortez, and Dolores and bound by Highways 160, 184, and 145. These units are all bound by a common management focus which is to provide for human powered (non-motorized) recreational opportunities within a short

commuting distance of town. There are currently approximately 21 miles of designated, non-motorized single track trail, and 14 miles of designated OHV trails in the SRMA (not including trails on the adjacent State land). There are also approximately 9 miles of existing OHV and non-motorized trails at Summit/Aqueduct/Chutes and Ladders.

In preparation for Comprehensive Travel Management Planning, the town of Mancos has been working on a trail proposal for the Aqueduct parcel just northwest of Mancos. In general, this proposal does not identify specific trail alignments, though it does recommend the development of non-motorized trail systems, a parking area/trailhead at the old Mancos town dumpsite at County Road 39, and the installation of signage. Development of new non-motorized trails in this parcel would result in increased opportunities (and associated personal and community benefits) for trail based recreation easily accessible from local communities.

There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Affect to recreational use of the area as a result of fluid mineral development could range anywhere from minimal to substantial dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under 'deferral'.

Alternative D would add approximately 20 miles of new designated non-motorized single track trails to the SRMA. These would be in addition to the 21 (non-State land) miles of single track trails already available within the SRMA. The cumulative affect to recreational trail users is an overall increase in the length and diversity of trail opportunities available within easy commuting distance of Dolores, Cortez, and Mancos.

Mitigation Measures and Residual Effects

N/A

3.5.6. Visual Resources

Direct and Indirect Effects

Under Alternative D, approximately 18 miles of new single track trail and two new trailheads would be built. Effects to visual resources as described by issues brought forth during scoping would be as follows:

- 1) How would trail and trailhead development and use affect the visual setting of the landscape?

The development of 18 miles of single track trail in the northern portion of Phil's World would result in weak contrasts to the vegetative element of the characteristic landscape. Design features such as minimizing vegetative removal and soil disturbance would make the new trails nearly impossible to see from any likely viewing points, including overlook points along the proposed trails themselves. The varied topography and dense pinyon-juniper over-story prevalent throughout the unit would screen the affects of both trail construction and usage. The most evident visual contrasts would be expected to occur where trails traverse steep canyon walls such as in Simon Draw and Stinking Springs. In these locations, linear breaks in the vegetation

would be visible. These affects would not be visible from likely viewing points such as county roads or residential development.

Two new trailheads would be constructed under this alternative. The trailhead south of Road L would result in vegetative clearing and minor re-contouring of approximately .5 acres. These affects would result in a moderate contrast to the vegetative element of the characteristic landscape, though it's siting (superior to the County road) and the residual vegetation screening would keep it out of the viewshed of travelers along Road L. Construction of boundary fencing, width restrictors at trail access points, and trailhead related facilities would introduce weak structural contrasts the characteristic landscape. This trailhead would not be visible from any residential developments. The access road into this trailhead would take advantage of a pre-existing disturbance (an old road cut) and would result in weak contrasts to the vegetative element of the characteristic landscape.

The trailhead proposed along Road M would be located near the western edge of the BLM parcel, on the north side of the road. This location would require minor vegetative clearing re-contouring of approximately .5 acres. These affects would result in a weak contrast to the vegetative element of the characteristic landscape. Due to the overall lack of vegetation at this site, there would be little to no screening from Road M and the parking area would be evident to those traveling this road. Construction of boundary fencing, width restrictors at trail access points, and trailhead related facilities would introduce weak structural contrasts the characteristic landscape. This trailhead would not be visible from any residential developments.

All of the developments proposed under this alternative would be consistent with the management objectives of this VRM Class III area.

Key Difference from Proposed Action: The location of the parking area/trailhead off of Road M is located further away from the golden eagle nest under this alternative. As a result, the previously disturbed dump site area is not utilized and a new area would be cleared of native vegetation for the trailhead. Due the sparsity of vegetation at this site, there would be little to no screening from Road M and the parking area would be evident to those traveling this road.

Cumulative Effects

The cumulative effects analysis area for visual resources for this project would be the BLM managed portion of the Phil's World area. This analysis area would include the foreground, middleground, and background of the visible landscape. Due to the isolated nature of the BLM managed lands in the area (relatively small blocks of BLM lands which are separated by private land), activities occurring in nearby Public Lands are not visible and thus not part of the cumulative analysis area for visual resources.

There is one parcel in the southern portion of Phil's World which has been nominated for fluid mineral leasing consideration. Contrast to the characteristic landscape as a result of fluid mineral

development could range anywhere from weak to strong dependent on siting, access road development, pad size, reclamation efforts, visual resource related design features, and pad density. However, at this time, the parcel is currently under ‘deferral’.

The limited scope of the weak to moderate contrasts associated with this alternative would not result in any cumulative affects to the visual characteristic landscape which would be incompatible with the VRM Class III objectives for this area.

Mitigation Measures and Residual Effects

N/A

4. SUPPORTING INFORMATION

4.1. Tribes, Individuals, Organizations, or Agencies Consulted

Table 13 contains a list of tribes, individuals, organizations, and agencies invited

Table 13. Tribes, Individuals, Organizations, and Agencies Invited

Name	Tribe, Organization, or Agency	Attended On-Site
Terry Ireland	Informal Conversation	No

4.2. List of Preparers

Name	Title	Responsible for the Following Section(s) of this Document
Michael Schmidt	Wildlife Biologist	Wildlife: Migratory Birds, Special Status Animal Species, Threatened & Endangered Animal Species, Terrestrial Wildlife Riparian
Mike Jensen	Range Management Specialist	Invasive Species/Noxious Weeds, Vegetation
Jeffrey Christenson	Supervisory Outdoor Recreation Planner	Recreation, Visual Resources,
Bruce Bourcy	Archeology	Cultural Resources, Native American Religious and other concerns
Lindsey Eoff	AFM/ NEPA Coordinator	NEPA Compliance
Kelly Palmer	Hydrologist	Soils, Hydrology
Martin Hensley, Jessica Montag	Economist	Socio-Economics

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APPENDIX A. [APPENDICES]

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