

**U.S. Department of the Interior
Bureau of Land Management
GRAND JUNCTION Field Office
2815 H ROAD
GRAND JUNCTION, CO 81506**

DOCUMENTATION OF LAND USE PLAN CONFORMANCE AND NEPA ADEQUACY

NUMBER: DOI-BLM-CO-130-2010-0027

PROJECT NAME: Bangs SRMA Implementation

PLANNING UNIT: Grand Junction Field Office

LEGAL DESCRIPTION: T1S R1W Sec 28, 29, 32, 33, 34, T12S, R100W S 7, 8, T12S, R101W S 23

APPLICANT: BLM

DESCRIPTION OF PROPOSED ACTION

The Bangs Canyon Special Recreation Management Area (SRMA) was created by the Grand Junction Resource Management Plan of 1987 and followed by the Bangs Canyon SRMA Management Plan completed in 1999 and Bangs Canyon Implementation EA signed in 2005. The implementation level EA created six distinct areas each containing its own management prescription.

The BLM proposes to construct 9.58 miles of new single-track trail while closing and rehabilitating 4.09 miles of existing single-track trail. The action described in this document will take place in Area 1 or the "Lunch Loop" area (see map Appendix A,) Area 2 - west of Little Park Road, Area 3 - south of Little Park Road, and Area 4 - east of Little Park Road. Creating sustainable trails to meet the demand for diverse trail opportunities is the primary objective in this area. Areas 1, 2, 3, and 4 provide a community-based, urban interface stacked loop trail system with a primary emphasis on hiking, running, and mountain biking trails. Trail density is relatively high to accommodate high demand. Trail design uses the area's natural topography to lessen the crowding effect of multiple trails in a small area. About 60,000, mostly local residents, visit the area each year. All users are required to stay on designated routes. All designated routes are signed.

Historically, most of the trails in these areas were user-created. Lack of design and maintenance has resulted in many trails that are susceptible to erosion and are unsustainable in the long term. Some of the trails leave public lands and trespass onto adjoining private lands.

After an evaluation of route sustainability, multiple routes that do not meet the "Criteria for the Placement of Trails" (Appendix B) have been identified to be closed, rerouted, or reworked to meet the criteria.

The following map id numbers correspond with the Planning Map (Attachment A). The following matrix describes proposed action for each trail segment and is followed with definitions of the proposed action. **Note: not all routes are currently flagged. Flagging colors will be updated as routes are flagged.**

Map ID	Description	Proposed Action	Construct. Mileage	Close/Rehab Mileage
1	Gunny Reroute	Construction & Closure/Rehab	0.35	0.29
2	Gunny Reroute north/west of Little Park Road	Construction & Closure/Rehab	0.36	0.51
4	Miramonte Valley	Construction & Closure/Rehab	0.66	0.29
6	Curt's Lane reroute on BLM and City property	Construction & Closure/Rehab	0.42	0.34
7	High Noon/Pucker Up bypass reroute	Construction & Closure/Rehab	0.09	0.06
8	Eagle's Tail reroutes – south	Construction & Closure/Rehab	0.17	0.13
9	Eagle's Wing Reroute – middle	Construction & Closure/Rehab	0.48	0.32
10	Eagle's Wing Reroute – south	Construction & Closure/Rehab	0.35	0.29
11	Eagle's Connector reroute	Construction & Closure/Rehab	0.48	0.33
12	Widowmaker base reroutes	Construction & Closure/Rehab	0.03	0.08
15	Andy's Reroute – east	Construction & Closure/Rehab	0.56	0.28
17	Ribbon-Old Gordon connector – south	Construction	0.55	0
14b	Andy's Reroute – BLM	Construction & Closure/Rehab	0.27	0.14
3B	Rough Canyon hiking trails	Construction	3.21	0
A	Tabeguache base area reroutes	Construction & Closure/Rehab	0.23	0.23
E1	Lower Tabeguache reroute	Construction & Closure/Rehab	0.22	0.11
Z	East Little Park TH loop	Construction & Closure/Rehab	1.42	0.69

Proposed Action Further Defined:

Construction: The construction process will include use of hand tools to create a tread width of roughly 18-30 inches with a disturbance corridor of no more than 48 inches. The surface will constitute a natural soil base of stones, stumps, and protruding roots to meet the difficulty level associated with the trail design objectives that match the predominant use and experience level of

users. Borrowed soils will be integrated in from within the disturbance corridor. In areas where rock work is necessary for armoring, materials will be derived from within the surveyed corridor –which is 50’ on either side of the center line of the proposed trail location.

Closure/Rehab: The basic closure/rehab process involves the following:

- Post “Closed for Restoration” signs where the old trail intersects existing trails. These signs are temporary and should be removed as soon as the old route is effectively naturalized.
- “Naturalize” the portion of the old trail that is visible from existing trails. This involves making the old route disappear from a visual perspective. Ideally, trail users will not be able to recognize that a route existed there. Naturalization techniques may include:
 - Re-contour trail tread surface using hand tools to match surrounding topography
 - Strategically place natural barriers – Rocks, logs/snags, transplanted vegetation that matches the surrounding landscape. These barriers should be placed so that they visually camouflage the old route – not lining up rocks or logs that create an obviously manmade barricade. The more “invisible” the old route is, the less likely people are to use it again.
 - In some instances we may use a technique called “pitting” which involves digging a small shallow (2-3”) pit and placing native seeds in the pit, then placing a small branch or shrub into or over the pit to provide “vertical cover” which enhances seedling success.
- Intensive naturalization will only be done on portions of the old route that are visible from existing trails. On trail segments out of view from other trails major erosion issues will be addressed by creating check dams and/or drainage diversions. Otherwise, these out-of-view sections will be left to naturalize on their own.

LAND USE PLAN (LUP) CONFORMANCE REVIEW: The proposed action is subject to the following plan:

Name of Plan: GRAND JUNCTION Resource Management Plan

Date Approved: JANUARY, 1987

The Proposed Action is in conformance with the RMP because it is specifically provided for in the following LUP decision(s):

Decision Language:

The Proposed Action is in conformance with the RMP, even though it is not specifically provided for, because it is clearly consistent with the following LUP decisions (objectives, terms, and conditions):

Decision Page/Number: 2-20, 2-34

Decision Language:

Recreation Resource Management

To ensure the continued availability of outdoor recreation opportunities which the public seeks and which are not readily available from other public or private entities.

To protect resources, meet legal requirements for visitor health and safety, and mitigate resource user conflicts.

Recreation (Area A-2: Emphasis on Recreation)

Designate and manage approximately 40,000 acres in the Bang's Canyon area as an intensive recreation management area (as part of the grand Valley Intensive Recreation Management Area) to maintain semi-primitive motorized and non-motorized recreation opportunities, scenic and natural values, and activities such as horseback riding, hiking, and trail-oriented off-road vehicle use.

REVIEW OF EXISTING NEPA DOCUMENTS:

List by name and date all existing NEPA documents that cover the Proposed Action.

Name of Document: Bangs Canyon Plan Implementation (CO-130-2004-018-EA)

Date Approved: 4/2006

Decision Page Number and Language: Decision Record and FONSI

Actions Common Across the entire BCMA (page 5)

13. All newly constructed trails will conform to the "Criteria for the Placement of Trails". Some existing designated trails will require reroutes or major maintenance to be brought up to this standard. Existing designated routes will remain open until reroutes, replacements, or reconstruction is complete.
14. The location of proposed trails as shown on the accompanying maps represent GPS (global positioning system) data from preliminary trail design and layout work. Site-specific cultural, T & E Species, and paleontological surveys will be conducted prior to surface disturbing activities. If resource conflicts are identified, minor relocation of the proposed actions may occur without additional analysis.

Area 1 (page 6):

- A. The trails and route network follow those described in Alternative I. Types of trails will include beginner to expert for hiking, biking and trail running; freeride/downhill biking trails; and instructional/biking trails.
- B. Area 1 will be retained in BLM ownership to be managed in cooperation with the City of Grand Junction. Area 1 trailhead (Monument Road) will be developed including the installation of sanitation facilities (including a dog waste program) in cooperation with the city of Grand Junction and/or other willing partners.

Area 4 (page 7):

- A. The Little Park Trailhead will serve non-motorized activities only. Motorized public access will not be allowed beyond Little Park trailhead. Motorized trails in the northern portion of Area4 have been rerouted or designated as non-motorized

routes. There will be no linkage between the non-motorized routes and the motorized routes in Area 4. Some motorized routes will be built in the southern portion of Area 4.

- B. Trail development as shown on Map 7 (Recreation Trail System), including the closure of routes as shown on Map 5 (RAPA/Alternative 5) with the exception of Area 4, item E, below. The motorized trail system will be based on primary access from the existing Bangs Canyon Trailhead and will occur in the southern portion of Area 4. These include a system of looped shared-use trails for ATVs, mountain bicycles, motorcycles, equestrians and hikers.
- C. Construct a connection from the Tabeguache Trail to the Gunny Loop and Ribbon Trails for hikers and mountain bikers.

Name of Document: Bangs Canyon Management Plan

Date Approved: 8/1999

Decision Page Number and Language:

Management Objectives (page 5)

Objectives of the planned management actions are to:

- 1. Provide semi-primitive motorized, mechanized, non-motorized recreation opportunities, scenic and natural values, and activities such as horseback riding, hiking, trail running, mountain bike riding and trail oriented OHVs (motorcycles, ATVs and jeeps).
- 4. Protect natural resources by utilizing accepted ecosystem management principles, to include; range values, wildlife habitat, scenic, cultural, forestry, recreational, sensitive plant and animal habitats, soils, watersheds.

NEPA ADEQUACY CRITERIA:

- 1. Is the Proposed Action substantially the same action and at the site specifically analyzed in an existing document? **Yes:** The proposed action has been analyzed in the referenced Bangs Implementation EA (CO-130-2004-018-EA) with the exception of site specific cultural, T & E species and paleontological clearances of each proposed trail corridor.
- 2. Was a reasonable range of alternatives to the Proposed Action analyzed in the existing NEPA document(s), and does that range and analysis appropriately consider current environmental concerns, interests, and resource values? **Yes:** CO-130-2004-018-EA provided a broad range of alternatives that were analyzed within the current context of environmental concerns, interests and resource values.
- 3. Does the information or circumstances upon which the existing NEPA document(s) are based remain valid and germane to the Proposed Action? Is the analysis still valid in light of new studies or resource assessment information? **Yes:** The analysis is still valid within the parameters of the current proposal.
- 4. Does the methodology and analytical approach used in the existing NEPA document(s) continue to be appropriate for the Proposed Action? **Yes:** The methodology and analytical approach used in CO-130-2004-018-EA continues to be appropriate for the proposed action.

5. Are the direct and indirect impacts of the Proposed Action unchanged from those identified in the existing NEPA document? **Yes:** CO-130-2004-018-EA thoroughly reviewed the many specific potential environmental impacts to the affected environment. The direct and indirect impacts of the proposed action are substantially unchanged from those identified.

6. Are the cumulative impacts that would result from implementation of the Proposed Action unchanged from those analyzed in the existing NEPA document(s)? **Yes:** The cumulative impacts that would result from the construction, relocation and closure of trails in Bangs Areas 1 and 4 will remain substantially unchanged from those analyzed in the current referenced NEPA document.

7. Is the public involvement and interagency review associated with the existing NEPA document(s) adequate for the Proposed Action? **Yes:** Full public review occurred during the RMP, Bangs Canyon Management Plan and Bangs Implementation EA.

INTERDISCIPLINARY REVIEW: Identify those team members conducting or participating in the NEPA analysis and preparation of this work sheet (by name and title).

<u>Name</u>	<u>Title</u>	<u>Review Completed</u>
Alan Kraus	HazMat Coordinator	1/26/2010
Anna Lincoln	Ecologist	2/1/2010
Heidi Plank	Wildlife Biologist	4/29/2010
Nate Dieterich	Hydrologist	6/15/2010
Alissa Leavitt-Reynolds	Archaeologist	9/8/2010

REMARKS:

Cultural Resources: Affected Environment:

A records search of the general project area, and a Class III inventory of the Area of Potential Effect (APE), as defined in the National Historic Preservation Act (NHPA), was completed in April 2010 by BLM Grand Junction Field Office (GJFO) archaeologists and archaeological technicians (BLM CRIR 1010-05).

These surveys included the proposed action for trail segments 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 15, 17, 14a, 14b, A, E1, and Z. The entire lengths of the proposed new routes and the proposed closures were inventoried. Conditions of the existing cultural environment are incorporated by the above references. There was one recorded site that occur along the proposed trails (5ME14270) which was reevaluated by these inventories. In addition, 7 sites (5ME17610, 5ME17611, 5ME17613, 5ME17615, 5ME17616, 5ME17621 and 5ME17622) and 7 isolated finds (5ME17612, 5ME17614, 5ME17619, 5ME17620, 5ME17623, 5ME17624, 5ME17625) were newly recorded during the inventories. A total of 15 resources are present in the APE. Of these, seven have been evaluated as potentially eligible (needs data) or eligible for the inclusion on the National Register of Historic Places (NRHP) (5ME14270, 5ME17610, 5ME17611, 5ME17613, 5ME17615, 5ME17616, and 5ME17621). One site, 5ME17622 is evaluated as not-eligible for inclusion to the NRHP. Segments of trail that have survey pending may require

rerouting to protect sensitive resources (trail 3B) The project inventory and evaluation is in compliance with the NHPA, the Colorado State Protocol Agreement, and other federal law, regulation, policy, and guidelines regarding cultural resources.

The potential for sites in Bangs Area 1 and 4 is high. Open campsites and lithic scatters have archaeological features that could be adversely affected by the surface disturbing trail construction and closure treatment and important resources will be lost if mitigations are not followed.

Environmental Consequences/Mitigation:

Cumulative effects on cultural resources in the Bangs Canyon Special Recreation Area will continue to gradually degrade the overall cultural values in the area. As more trails are opened in the area the indirect effects to all cultural resources will likely include increased illegal collection, excavation, and vandalism. Vandalism in the form of earthen mountain bike ramps created on significant cultural resource sites has been documented in the area and is expected to continue with the increase in mountain bike, hiking and equestrian access. For this specific project, the BLM will require that the following mitigations are followed to ensure that significant cultural resources are not directly affected by the proposed action.

- The new construction and proposed closures of 2, 4, 6, 11, 17, and 3B must be rerouted by BLM cultural staff and trail designers to avoid resource damage. Contractors and their crews must follow the flagging laid out by the cultural resources staff and work with the BLM trail designers to construct the trail sustainably.
- A standard Education/Discovery stipulation for cultural resource protection should be communicated to the contractors, volunteers, and employees working on the project. The BLM project lead is responsible for informing all persons who are associated with the project operations of the importance of protecting cultural resources and that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts.
- Inadvertent Discovery: The NHPA, as amended, requires that if newly discovered historic or archaeological materials or other cultural resources are identified during the Proposed Action implementation, work in that area must stop and the BLM Authorized Officer (AO) must be notified immediately. The AO will inform the operator as to the mitigation measures the operator will likely have to undertake before the site can be used (assuming in place preservation is not necessary) (36 CFR 800.13).
- The Native American Graves Protection and Repatriation Act (NAGPRA) requires that if inadvertent discovery of Native American Remains or Objects occurs, any activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice be made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)).
- Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the BLM and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh).

Native American Religious Concerns:Affected Environment:

There is no known evidence that suggests the project area holds special significance for Native Americans, or is actively used to maintain any traditional practices. The project would not alter or limit any access if there were traditional uses that are not known to the agency.

Environmental Consequences/Mitigation:

No traditional cultural properties, unique natural resources, or properties of a type previously identified as being of interest to local tribes, were identified during the cultural resources inventory of the project area. No Native American Indian consultation was conducted for the proposed project.

Special Status Species: Biologic surveys will be required for the proposed trail work. Survey results will determine whether rerouting of the trail will be necessary. Records indicate that the Grand Junction milkvetch may occur within the action area. Any plants found will be avoided and provided with a buffer area between the trail and plant to insure plant protection. Peregrine Falcon, Golden Eagles and Canyon treefrogs are known to occur in the area, and four sensitive bat species, milk snakes, and midget faded rattlesnakes are likely to occur in the project area. No nesting or roosting sites of any of the above-listed wildlife species would be destroyed by the proposed project. Any Peregrine or Golden Eagle nesting sites located during surveys will be buffered to avoid disturbance during the breeding season. Canyon treefrogs currently exist in areas with social trails. Improvement of these trails is likely to affect some individual canyon treefrogs through increased disturbance and collection of individuals; however impacts to the species are not expected to be significant. Individual midget faded rattlesnakes and milk snakes could be impacted by the construction of the proposed trail, however these impacts are unlikely to occur and would not occur on a scale large enough to impact species populations.

Water Quality/Hydrology: Best management practices (BMPs) identified in the BLMs Storm Water Pollution Prevention Plan (SWPPP) shall be implemented throughout trail construction, maintenance, and reclamation to reduced erosion and maintain watershed health. BLM shall post signs near proposed construction areas identifying BLMs SWPPP number (COR10CA9F) and the location where the SWPPP can be found (BLM Grand Junction Field Office, 2815 H Road, Grand Junction, CO 81506). BLM shall have a pre-construction meeting with volunteers/contractors to explain BLM house rules (e.g. trash disposal, where to refuel (away from streams), disturbing the minimal amount of vegetation possible, BMPs/Stormwater practices, what to do if cultural artifacts are discovered, etc...).

Paleontological Resources: Paleontological surveys must be completed for all trail segments to be constructed on top of the Morrison Formation (a map has been provided to recreation staff). These surveys will need to be contracted to meet the specified time frame for construction. The GIS database for known paleontological sites was reviewed to see if any proposed trail segments need to be rerouted or adjusted to avoid damaging known sites. There are no known paleo sites within the proposed new trail alignments.

NAME OF PREPARER: Michelle Bailey

NAME OF ENVIRONMENTAL COORDINATOR: Collin Ewing

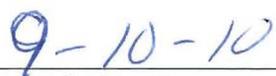
DATE: 9/8/10

CONCLUSION
Bangs SRMA Implementation Plan
DOI-BLM-CO-130-2010-0027-DNA
BLM Grand Junction Field Office

Based on the review documented above, I conclude that this proposal conforms to the land use plan and that the NEPA documentation previously prepared fully covers the Proposed Action and constitutes BLM's compliance with the requirements of NEPA.

SIGNATURE OF RESPONSIBLE OFFICIAL:

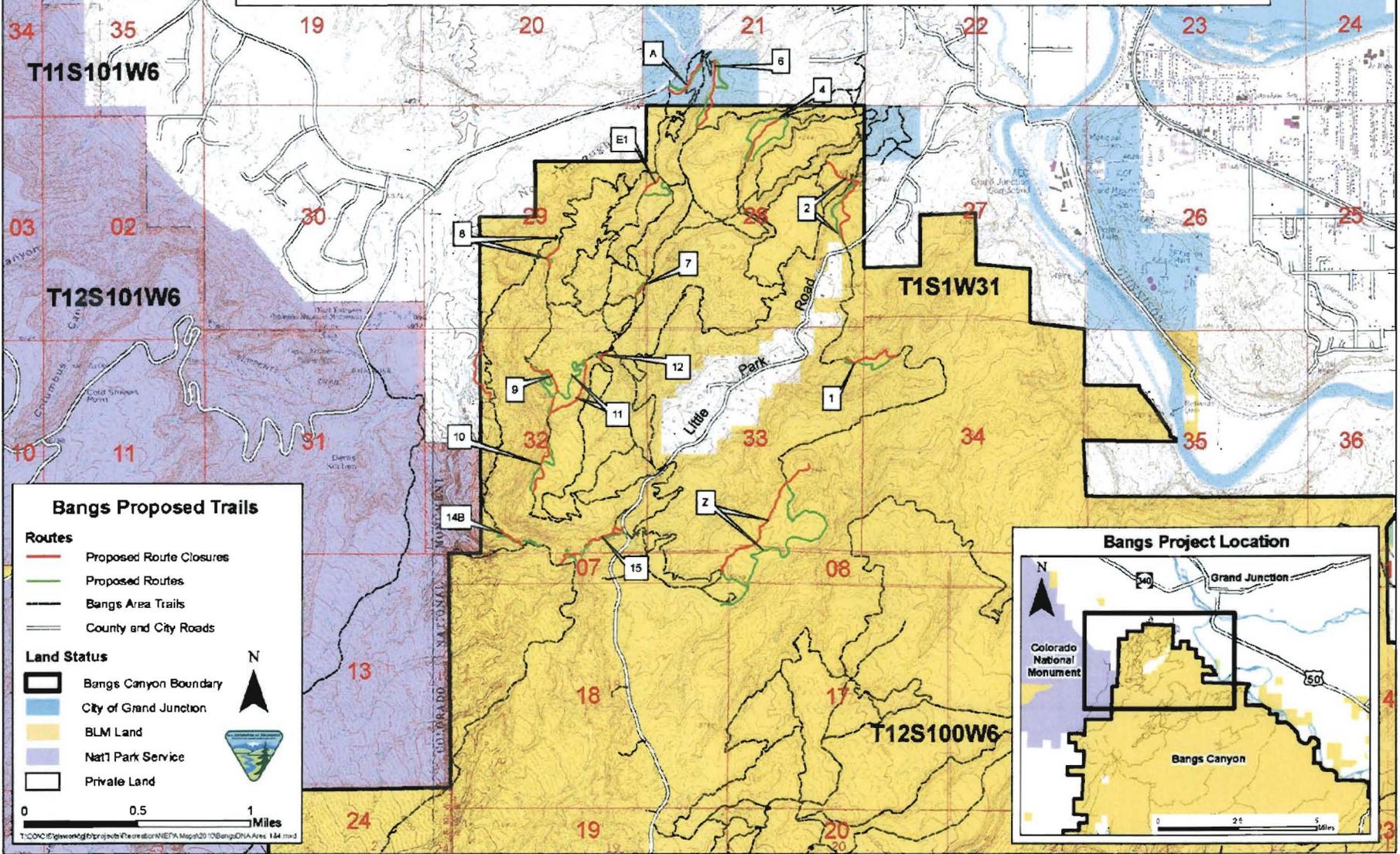

GRAND JUNCTION, Field Manager


DATE SIGNED:

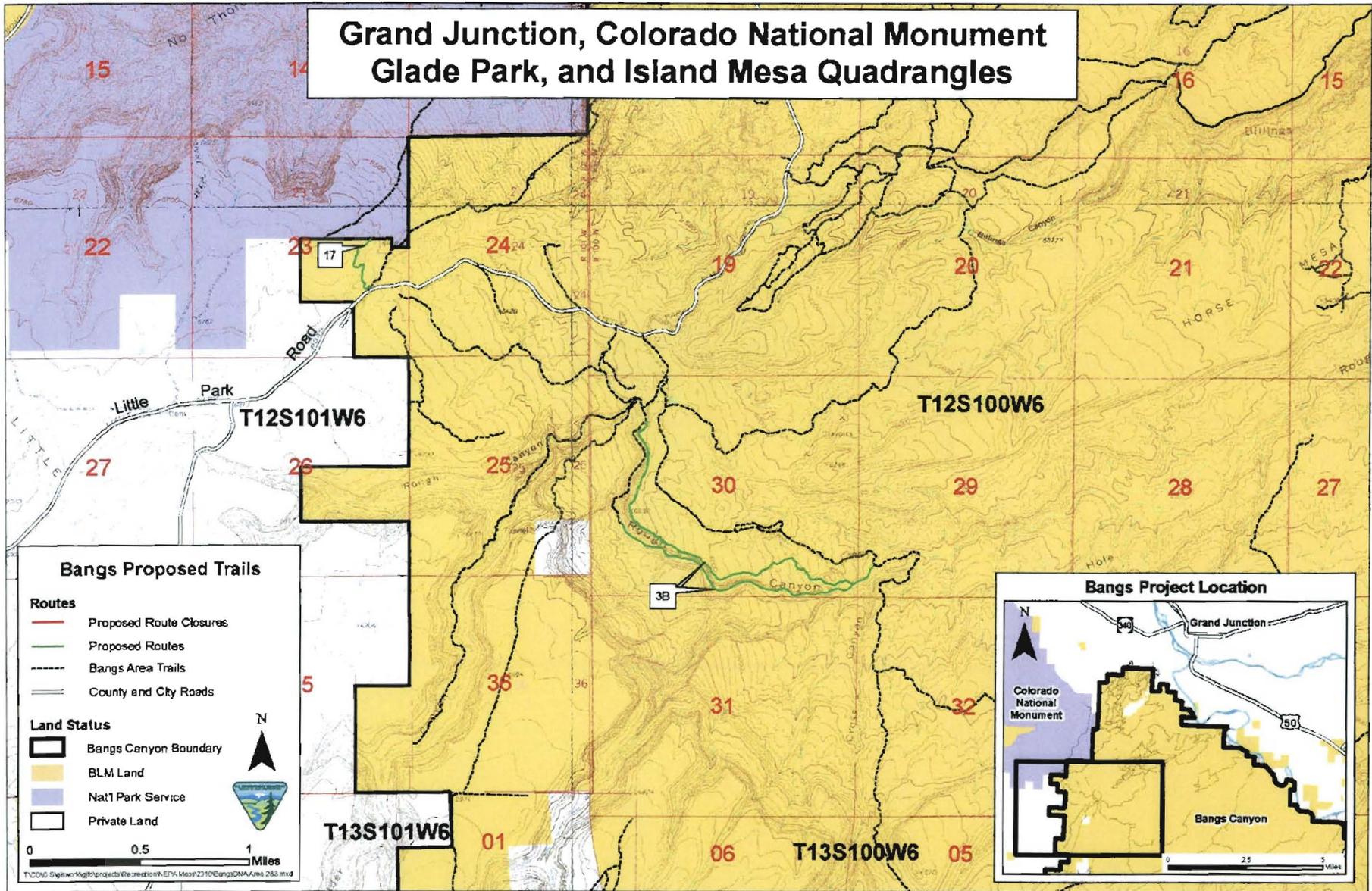
Note: The signed Conclusion on this worksheet is part of an interim step in the BLM's internal decision process and does not constitute an appealable decision.

Attachment A: Map
Attachment B: Criteria for Placement of Trails and Project Mitigation

Grand Junction and Colorado National Monument Quadrangles



Grand Junction, Colorado National Monument Glade Park, and Island Mesa Quadrangles



**Bureau of Land Management
Grand Junction Field Office**

**CRITERIA FOR THE PLACEMENT OF TRAILS
AND PROJECT MITIGATION**

The following criteria are used to determine suitable locations for new trails and trail reroutes within the Grand Junction Field Office management area. This document utilizes terminology from the “Recommended Standardized Trail Terminology for Use in Colorado.” (COTI 2005)

These criteria are to be followed as guidelines. Not all of the criteria can be met on every segment of every trail. Their purpose is to help create sustainable, low maintenance trails that provide quality recreation experiences based on predetermined trail management objectives (TMOs). Specialty trails requiring higher maintenance may be allowed in appropriate locations.

- 1. Know and understand trail management objectives.** TMO’s provide the framework for what the trail will look like, who will be using the trail, and how the trail will be managed. Different TMO’s may allow different applications of the criteria below.
- 2. Create loops and avoid dead end trails.** All trails should begin and end at a trailhead or another trail. A well-planned stacked loop trail system offers recreationists a variety of trail options. Easier, shorter loops are arranged close to the trailhead, with longer, more challenging loops extending further beyond the trailhead. Occasionally, destination trails to a point of interest will require an out and back trail, but only if they cannot be reasonably incorporated into a loop.
- 3. Identify control points and use them to guide trail design and layout.** Control points are specific places or features that influence where the trail goes. Basic control points include the beginning and end of the trail, property boundaries, intersections, drainage crossings, locations for turns, and other trails.

Positive control points are places where you want users to visit, including scenic overlooks, historic sites, waterfalls, rock outcroppings, lakes, rivers and other natural features or points of interest. If the trail does not incorporate these features, users will likely create unsustainable social trails to get to them.

Negative control points are places you want users to avoid, such as low-lying wet areas, flat ground, extremely steep cross slopes or cliffs, unstable soils, environmentally sensitive areas, sensitive archaeological sites, safety hazards, and private property.

Knowing these control points provides a design framework. Try to connect the positive control points while avoiding the negative control points.

- 4. Use cross slope and avoid flat ground whenever possible.** The trail tread should generally run perpendicular to the cross slope and should utilize frequent grade reversals. This is the best

way to keep water off the trail. Use curvilinear design principles to create a trail that follows the natural contours of the topography, sheds water, blends with the surrounding terrain, and provides fun recreation opportunities.

The following grade guidelines will help determine appropriate tread locations.

- **The Half Rule:** “A trail’s grade shouldn’t exceed half the grade of the hillside or sideslope (cross slope) that the trail traverses. If the grade does exceed half the sideslope, it’s considered a fall-line trail. Water will flow down a fall-line trail rather than run across it. For example, if you’re building across a hillside with a cross slope of 20 percent, the trail-tread grade should not exceed 10 percent.” (IMBA 2004) Steeper cross slopes allow more flexibility for sustainable tread grades while flat or low angle cross slopes can be problematic. There is an upper limit to this rule. Sustaining a 24 percent tread grade, even on a 50 percent cross slope is unlikely. Additionally, trail segments may break this rule on durable tread surfaces such as solid rock.
- **The Ten Percent Average Guideline:** The average trail grade over the length of the trail should be 10 percent or less for greatest sustainability. Short sections of the trail may exceed this, but the overall grade should remain at 10 percent or less.
- **Maximum Sustainable Grade:** This is the upper grade limit for those short trail segments that push the limits of the previous two guidelines. It is determined by a site-specific analysis based on TMO’s, environmental conditions, and observations of existing trails – what’s working, and what’s not?
- **Grade Reversals:** Frequent changes in the direction of tread grade (gentle up and down undulations) will ensure that water is forced off the trail at frequent intervals.

5. Locate trails in stable soils. Avoid clays, deep loam and soils that do not drain rapidly. Consider season of use and type of use. A trail on a south aspect will have greater usability and sustainability for winter use. The capabilities of motorized vehicles to function in wet/muddy conditions make it imperative to avoid unstable or poorly drained soils. Trails that are less likely to be used when wet may be located in less-desirable soils if necessary. In western Colorado’s arid environment, the best soil conditions for trails are those with high rock content. Utilize slick rock for trail tread when possible. Sand is acceptable in dry washes, but otherwise avoid sand.

6. Drainage crossings are key control points and should be selected carefully. Consider both the trail’s impact on the drainage (erosion and sedimentation), and the drainage’s impact on the trail (changing tread surface, water channeling onto trail). The trail should descend into and climb out of the drainage to prevent water from flowing down the trail. Avoid long or steep entries into drainages. Design grade reversals into the trail on each side of the approach to minimize water and sediment entering from the trail. Look for drainage crossings on rock.

7. Dry washes can be excellent travel ways. They are well defined, contain noise, and are periodically resurfaced by flowing water. As long as the wash does not support riparian vegetation and has no major safety problems, like waterfalls, they are well suited to be part of a recreational trail system.

8. Avoid switchbacks. Switchbacks are difficult, time-consuming, and expensive to construct, and require regular maintenance. Users often cut them, causing avoidable impacts. Utilizing curvilinear design principles eliminates the need for most switchbacks. Climbing turns are easier to construct and maintain and utilize natural terrain features (benches, knolls, rock outcrops) to change the direction of a trail.

9. Avoid ridge tops. Ridge tops are often primary transportation corridors for wildlife, and were often used by Native Americans as travel routes. Noise from ridge top trails is broadcast over a wide area. Locate trails on side hills, off ridge tops, using ridges and watersheds as natural sound barriers to isolate noise.

10. Use vegetation and other natural features to conceal the trail and absorb noise. This can be difficult in a desert environment. Try to minimize the visual impact of the trail by following natural transitions in vegetation or soil type. A trail near the base of a sideslope or on rimrock is usually less visible than a mid-slope trail. Denser vegetation will hide a trail, lessen noise transmission, and can dissipate the energy of falling raindrops on the bare soil of the trail tread.

11. Carefully design intersections to avoid safety problems. When locating a bicycle or motorized vehicle trail be aware of sighting distance and sight lines. Collisions can be avoided if riders can see each other. Avoid four way intersections. Offsetting the cross traffic helps reduce speeds and reduces the risk of collisions.

Sources:

Off Highway Motorcycle and ATV Trails: Wernex, 2nd edition, American Motorcycle Assoc. 1994

Off Highway Vehicle Trail and Road Grading Equipment, Vachowski, Maier, USDA Forest Service Missoula Technology and Development Center 1998 Doc# 7E72A49

Mountain Bike Trails: Techniques for design, construction and Maintenance, McCoy Stoner, USDA Forest Service, Missoula Technology and Development Center

Recommended Standardized Trail Terminology for Use in Colorado, Colorado Outdoor Training Initiative (COTI). 2005

Tractor Techniques for Trailbed restoration, Hamilton, USDA Forest Service 1994

Trails 2000, Lockwood USDA Forest Service 1994

Trail Construction and Maintenance Handbook, Hesselbarth, Vachowski, USDA Forest Service (4E42A25-Trail Notebook) 2004

Trail Solutions, IMBA's Guide to Building Sweet Singletrack, International Mountain Bicycling Association (IMBA) 2004.

USDA Forest Service Travel Management Handbook, FS 2309.18

Project Specific Mitigation for DOI-BLM-CO-130-2010-0027-DNA

- 1) For this specific project, the BLM will require that the following mitigations are followed to ensure that significant cultural resources are not directly affected by the proposed action.
 - a) The new construction and proposed closures of 2, 4, 6, 11, 17, and 3B must be rerouted by BLM cultural staff and trail designers to avoid resource damage. Contractors and their crews must follow the flagging laid out by the cultural resources staff and work with the BLM trail designers to construct the trail sustainably.
 - b) A standard Education/Discovery stipulation for cultural resource protection should be communicated to the contractors, volunteers, and employees working on the project. The BLM project lead is responsible for informing all persons who are associated with the project operations of the importance of protecting cultural resources and that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts.
 - c) Inadvertent Discovery: The NHPA, as amended, requires that if newly discovered historic or archaeological materials or other cultural resources are identified during the Proposed Action implementation, work in that area must stop and the BLM Authorized Officer (AO) must be notified immediately. The AO will inform the operator as to the mitigation measures the operator will likely have to undertake before the site can be used (assuming in place preservation is not necessary) (36 CFR 800.13).
 - d) The Native American Graves Protection and Repatriation Act (NAGPRA) requires that if inadvertent discovery of Native American Remains or Objects occurs, any activity must cease in the area of discovery, a reasonable effort made to protect the item(s) discovered, and immediate notice be made to the BLM Authorized Officer, as well as the appropriate Native American group(s) (IV.C.2). Notice may be followed by a 30-day delay (NAGPRA Section 3(d)).
 - e) Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the BLM and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh).
- 2) BLM shall post signs near proposed construction areas identifying BLMs SWPPP number (COR10CA9F) and the location where the SWPPP can be found (BLM Grand Junction Field Office, 2815 H Road, Grand Junction, CO 81506).
- 3) BLM shall have a pre-construction meeting with volunteers/contractors to explain BLM house rules (e.g. trash disposal, where to refuel (away from streams), disturbing the minimal amount of vegetation possible, BMPs/Stormwater practices