

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

**Environmental Assessment
for the
Bridgeport Access and Trailhead Development**

Grand Junction Field Office
2815 H Road
Grand Junction, Colorado 81506

DOI-BLM-CO-130-2010-0082-EA

April 2011



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CHAPTER 1

1.1 INTRODUCTION

This Environmental Assessment (EA) has been prepared to analyze actions associated with the construction of recreation and access facilities in the vicinity of Bridgeport, Colorado. The EA assists the BLM in project planning and ensuring compliance with the National Environmental Policy Act (NEPA), and in making a determination as to whether any “significant” impacts could result from the analyzed action. “Significance” is defined by NEPA and is found in regulation 40 CFR 1508.27. An EA provides evidence for determining whether to prepare an Environmental Impact Statement (EIS) or a statement of “Finding of No Significant Impacts” (FONSI). A Decision Record (DR), which includes a FONSI statement, is a document that briefly presents the reasons why implementation of the proposed action will not result in “significant” environmental impacts (effects) beyond those already addressed in Grand Junction Resource Management Plan (RMP), 1/1987. If the decision maker determines that this project has “significant” impacts following the analysis in the EA, then an EIS would be prepared for the project. If not, a DR may be signed for the EA approving the alternative selected.

The Dominguez-Escalante National Conservation Area encompasses 209,610 acres of BLM-managed land in Mesa, Delta and Montrose counties in western Colorado. Within the NCA, 66,280 acres make up the Dominguez Canyon Wilderness Area, which was part of the Dominguez Canyon Wilderness Study Area. A Comprehensive NCA management plan with a Draft and Final Environmental Impact Statement will be prepared for this area per the legislation requirements. Long known for their scenic value, these lands are popular for those wanting to see the spectacular canyon country of the Uncompahgre Plateau. Red-rock canyons and sandstone bluffs hold geological and paleontological resources spanning 1.7 billion to 245 million years respectively, as well as many cultural and historic sites. Ute Tribes today consider these pinyon-juniper covered lands an important connection to their ancestral past. The Escalante, Cottonwood, Little and Big Dominguez Creeks cascade through sandstone canyon walls that drain the eastern Uncompahgre Plateau.

The Bridgeport area is one of the primary access points into the NCA and Wilderness Area. Bridgeport Road is maintained by Mesa County and is usually graded several times a year. Recreational use of this area is high during spring and fall and low the rest of the year. The proposed project is located approximately 4 miles west of US Highway 50. This project proposes to augment the existing trailhead which is located at the end of Bridgeport road, and adjacent to Union Pacific Railroad property.

See Environmental Assessment CO-130-2004-029-EA which describes the history and background of the current public Bridgeport Bridge and the Decision Record and FONSI for the Dominguez Canyon Wilderness Study Area Wilderness Interim Management Plan and Environmental Assessment, signed August 5, 1986 which discusses in depth the history of the existing private bridge and access issues in the Bridgeport area. These documents are available at the Grand Junction Field Office.

NUMBER: CO-130-2010-0082

PROJECT NAME: **Bridgeport Access and Trailhead Development**

PLANNING UNIT : Grand Junction Field Office

APPLICANT: BLM
2815 H. Road
Grand Junction, CO 81506

1.2 PROJECT LOCATION AND LEGAL DESCRIPTION

Ute Meridian, Township 3 South, Range 2 East, Section 33, Township 14 South Range 98 West, 6th Prime Meridian, Sections 8 and 17

1.3 PURPOSE AND NEED

The purpose of the action is to provide safe, alternative access for hikers and horseback riders to Dominguez Canyon Wilderness. Action is needed because the current access route along the Union Pacific Railroad tracks creates a safety hazard to the recreating public based on the minimal amount of clearance between the track and the hillside, the absence of a barrier between the public and the trains, and the fact that long trains with hundreds of cars stop for several hours in places where people commonly cross the railroad tracks. These trains are not able to uncouple to allow people to pass; occasional reports have been received of people climbing between stopped train cars, creating an additional safety hazard. Additionally, the current parking area is insufficient to handle the volume of recreation users that access the Dominguez Wilderness.

1.4 PLAN CONFORMANCE REVIEW

The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Grand Junction Resource Management Plan (RMP)

Date Approved: January, 1987

Page or Decision Number: 2-20

Decision Language:

To ensure the continued availability of outdoor recreational 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.

In January 1997, the Colorado State Office of the BLM approved the Standards for Public Land Health and amended all RMPs in the State. Standards describe the conditions needed to sustain public land health and apply to all uses of public lands.

Standard 1: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes.

Standard 2: Riparian systems associated with both running and standing water function properly and have the ability to recover from major disturbance such as fire, severe grazing, or 100-year floods.

Standard 3: Healthy, productive plant and animal communities of native and other desirable species are maintained at viable population levels commensurate with the species and habitat's potential.

Standard 4: Special status, threatened and endangered species (federal and state), and other plants and animals officially designated by the BLM, and their habitats are maintained or enhanced by sustaining healthy, native plant and animal communities.

Standard 5: The water quality of all water bodies, including ground water where applicable, located on or influenced by BLM lands will achieve or exceed the Water Quality Standards established by the State of Colorado.

Because standards exist for each of these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

Policies for development and land use decisions are currently contained in the Grand Junction Resource Area (now referred to as the GJFO) Resource Management Plan (RMP) and Record of Decision (ROD), dated January 1987 (BLM, 1987). Management activities and development projects selected and approved must be in conformance with the RMP. According to the details summarized below, the BLM has determined that the proposed Bridgeport Access and Trailhead Development would comply with management objectives in the two BLM field offices (GJFO and UFO).

1.5 PUBLIC PARTICIPATION

1.5.1 Scoping, Consultation, and Coordination

NEPA regulations (40 CFR §1500-1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that require detailed analysis. Scoping was the primary mechanism used by the BLM to initially identify issues regarding the proposed Bridgeport Access and Trailhead Development.

Specifically, a public scoping meeting was held on June 16 from 5 to 7 p.m. at the Mesa County Administration Building's multi-purpose room at 544 Rood Avenue in downtown Grand Junction. Fourteen members of the public attended along with representatives from Union Pacific Railroad, Mesa County, and the Grand Junction Field Office. A public scoping period was open from 9 June, 2010 until 5 July, 2010 as well. Comments were solicited via the Grand Junction Field office website as well as print and television media. A total of 17 public comments were received.

Union Pacific Railroad (UPRR) and Mesa County in coordination with the Bureau of Land Management (BLM) contracted an engineering firm to produce an alternative analysis study of an existing grade crossing. The *Crossing Alternative Analysis, Technical Memorandum, Bridgeport Colorado* was prepared for Union Pacific, Mesa County, and the Bureau of Land Management by HDR Engineering, Inc.

Following the technical memorandum, a more detailed geotechnical report; *the Geotechnical Investigation Bridgeport Pedestrian Underpass* was produced by Huddleston-Berry Engineering and Testing for Mesa County to assure the technical feasibility of alternatives studied in the *Crossing Alternative Analysis, Technical Memorandum, Bridgeport Colorado* by HDR Engineering, Inc.

1.5.2 Summary of Comments

Seventeen public scoping comments were received: several comments expressed support for one or more alternatives. Equestrian users expressed their preference for a tunnel crossing the railroad tracks.

Several comments expressed the feeling that if this were a motorized trail, BLM would close it, so they did not support building a new trail for non-motorized use. These comments are addressed by the inclusion of the no action alternative.

Some comments suggested the railroad change their operations to eliminate the safety hazard, adding fencing, signage and crossing infrastructure at the current trail crossing, closing access at this location. The BLM has attempted to secure safe access along the tracks, but has been unsuccessful. Therefore, the purpose and need to provide safe alternative access arose.

One comment suggested closing the route for public access. This is not feasible because the public has become accustomed to using the access, and constant law enforcement presence would be required to maintain the closure.

One comment expressed reluctance to use a tunnel for fear that it may be a magnet for illegal use (squatting, drugs, toilet, etc.). These actions would not be authorized by BLM and we believe that lighting and constant public use would minimize this impact.

Some comments expressed concern about a tunnel filling with water, and the safety of a bridge, tunnel and trail designs. This EA analyzes the environmental impacts of a trail and

bridge or tunnel. The final design is not complete; however we will ensure the final design addresses all safety concerns.

1.6 DECISION TO BE MADE

The BLM will decide whether or not to construct any of the alternatives described by the Bridgeport Access and Trailhead Development, based on the analysis contained in this Environmental Assessment (EA). The BLM may choose to: a) accept the projects as proposed, b) accept the projects with modifications, or c) modify the proposed projects by incorporating reasonable alternatives. The finding associated with this EA may not constitute the final approval for the proposed action. It provides the BLM authorized officer with an analysis from which to base the final approval for the proposed developments.

CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

The purpose of this chapter is to provide information on the Proposed Action, alternatives to the proposed action, and the No Action Alternative. There are two alternatives analyzed in detail, the No Action and Proposed Action. Three other Alternatives were considered but not analyzed in detail.

2.2 ALTERNATIVES ANALYZED IN DETAIL

2.2.1 NO ACTION ALTERNATIVE

In this alternative, no new trailhead facilities, trails or railroad crossing structures would be constructed and no legal, safe public access would be created. The public would continue to access the area via this illegal, unsafe route.

2.2.2 PROPOSED ACTION

The BLM will analyze several action alternatives and all analyzed alternatives shall meet the following criteria:

Proposed Action (Alternative 3C2): Under this alternative, a new trail crossing the railroad tracks (either a bridge or a tunnel would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel). This option would be constructed to provide sufficient space for passage by horses and people. Where Threatened or Endangered plants are within 3 meters of trail, a physical barrier will be constructed.

Alternatives are described in detail below in section 2.3.1.

2.3 ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

<i>Alternatives Considered but Eliminated from Further Study</i>		
<i>New Crossing from other locations</i>	<i>Widening access at existing railroad crossing (Alternative 2)</i>	<i>Moving the existing gate farther down the tracks to permit vehicle access</i>
<p>Several other locations for an overpass (bridge) were examined, including a crossing from the existing parking lot (Alternative 1) and an additional location approximately midway between the existing parking lot and the bridge (Alternative 3B). These alternatives are not being carried forward for detailed study because of potential impacts to cultural resources (Alternative 3B) and designated critical habitat for federally listed endangered fish and it would have required removal of federally listed plants, as well as the substantial easement (up to ½ mile in length) that would need to be acquired from the private landowner to permit public access on private lands across the river.</p> <p>Because these lands are currently used for agriculture, the cost of this easement would be prohibitive and unnecessary, given the other options that exist on public lands.</p> <p>An alternative was discussed</p>	<p>The alternative was discussed of removing bedrock to create the additional required clearance for a trail and barrier along the existing crossing.</p> <p>This alternative was eliminated from detailed study because it did not resolve the safety concerns of pedestrians crossing two sets of tracks at the existing location, and because of the substantial earthwork (removal of approximately 11,700 cubic yards of material) that would be required.</p>	<p>Concerns over the existing boater takeout (lack of vehicle access farther upstream) are known to exist. It has been suggested that the existing gate be moved farther down the tracks.</p> <p>In addition to demand for additional parking in a location that is not large enough to permit it, this would create even more serious safety concerns by increasing congestion near the existing crossing and blocking people from departing in their vehicles when trains park across the existing crossing.</p> <p>This option was dropped from further study based on these concerns, and because it would not respond to the basic purpose and need of improving public and equestrian safety. Additional future work will be needed to remedy concerns over the boater takeout; however this work is beyond the scope of this analysis.</p>

<p>utilizing going beneath Deer Creek railroad bridge. As this does not remedy the need to distance users away from the railroad right-of-way it was not carried forward for analysis.</p>		
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Note: Numbers assigned to alternatives correspond to the "Crossing Alternative Analysis, Technical Memorandum, Bridgeport Colorado" prepared for Union Pacific, Mesa County, and the Bureau of Land Management by HDR Engineering, Inc.

2.3.1 ALTERNATIVES

Alternatives Considered in Detail
<p>Development of new crossing, trailhead, and trail</p>
<p>Three of the alternatives under consideration are conceptually similar, but would place key facilities at different locations or would employ a different type of design</p>
<p>Alternative 3A: Under this alternative, a new crossing would be constructed approximately ½ mile from the proposed parking lot location. An overpass (bridge) would be installed sufficient to permit passage by horses and people. The bridge facilities and ramp would require approximately 90 feet of space.</p>
<p>Alternative 3C1: Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an overpass (bridge). This option would be constructed to provide sufficient space for passage by horses and people.</p>
<p>Proposed Action (Alternative 3C2): Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel). This option would be constructed to provide sufficient space for passage by horses and people.</p>
<p>Actions common to all action Alternatives: The construction of a new parking area/trailhead/restroom facilities in an existing disturbed area (retired gravel pit) just east up the Bridgeport road from the existing parking lot, as well as construction of a new trail to take people from the new parking lot to the new crossing location (with the length of the trail varying according to crossing location).</p>
<p>Trail 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</p>

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 trail corridor.

Trails will be constructed with the BLM’s "Criteria for the Placement of Trails". (Appendix A)

Trailhead Construction: The project includes: a road based surfaced parking area for eight small truck trailer combinations, 26 single vehicle parking spots, a single vault toilet, site delineation fencing and parking barriers.

Site grading will occur while road base fill material will be added to a depth of 6-8 inches. No topsoil (surface soil approximately 4"-12" in depth, which supports such growth as vegetation and contains organic matter) will be used in fill. In preparation for excavation and embankments the area will be thoroughly cleared and stripped of vegetation and topsoil. Use of heavy equipment will be required.

In preparation for the CXT restroom installation, the area will be cleared of vegetative matter, brush, trees, stumps, roots, and loose rocks. The restroom site will be excavated to a depth of no more than 5 feet to accommodate the toilet vault.

Additional Design Features common to all action alternatives:

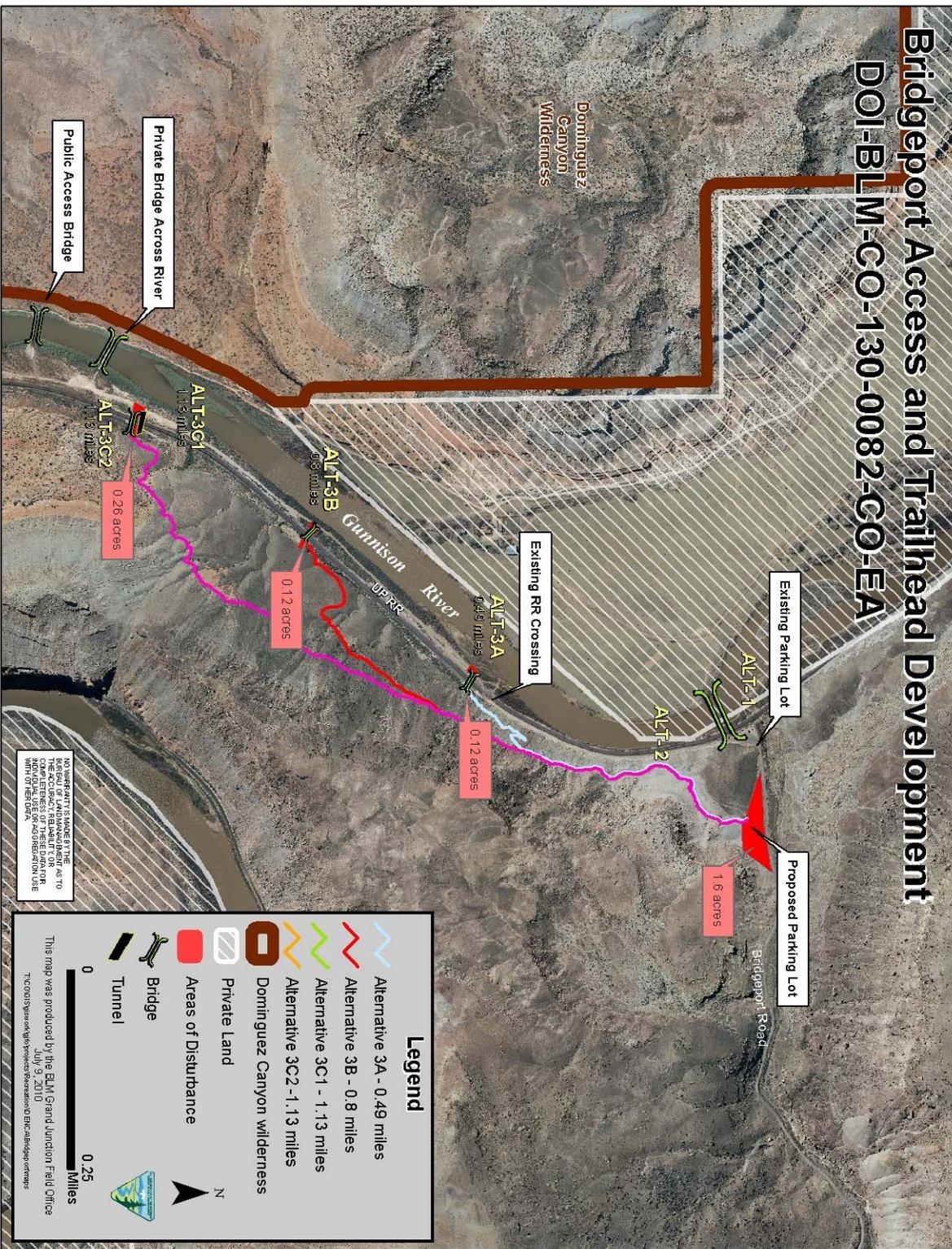
- No impacts to native riparian vegetation are proposed
- All constructed facilities will be designed (color, texture and line) to match the characteristic landscape in which the facility is constructed.
- If a tunnel is constructed, a soft surface would be installed inside the tunnel to decrease the noise created by horse hooves.
- The existing road next to the railroad tracks will remain open for administrative use.

Comparison of Alternatives:

Alternative	Parking Area (acres)	Trail Length (miles)	RR Crossing disturbance (acres)	Total Disturbance (acres)
No Action	0	0	0	0
3A	1.5	.49	.12	1.6927
3C1	1.5	1.13	.26	1.9268
3C2 (Proposed Action)	1.5	1.13	.26	1.9264

Bridgeport Access and Trailhead Development

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Legend

- Alternative 3A - 0.49 miles
- Alternative 3B - 0.8 miles
- Alternative 3C1 - 1.13 miles
- Alternative 3C2 - 1.13 miles
- Dominguez Canyon wilderness
- Private Land
- Areas of Disturbance
- Bridge
- Tunnel

This map was produced by the BLM Grand Junction Field Office
 July 9, 2010
 Technical Specialist: Project Management/Elizabeth/eperraps

CHAPTER 3 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter provides a description of the human and natural environmental resources that could be affected by the Proposed Action and Alternatives. This EA draws upon information compiled in the Grand Junction Resource Area RMP (BLM, 1987) and the Grand Resource Area RMP (BLM, 1985a).

Impacts to the following Resources and Resource Uses are not addressed because they were not identified as issues in scoping; and they are not present or no impacts are expected:

	Not Present	Present, No Impact
Areas of Critical Environmental Concern	X	
Cadastral Survey	X	
Forest Management	X	
Geology and Minerals		X
Law Enforcement	X	
Noise	X	
Range Management	X	
Socio-Economics	X	

3.2 AIR QUALITY

Air quality in the project area is typical of undeveloped regions in the western United States. No designated Class I airsheds are located within Mesa County. The closest Class I airsheds, at distances of 75+ air miles, are the Flat Tops and Maroon Bells Wilderness Areas, and the wilderness portion of Black Canyon National Park. In addition, the State of Colorado limits the incremental amount of SO₂ allowed in Dinosaur and Colorado National Monuments.

The primary sources of air pollutants in the region are fugitive dust from the desert surrounding the planning area, unpaved roads and streets, seasonal sanding for winter travel, motor vehicles, and wood-burning stove emissions. Seasonal wildfires throughout the western U. S. may also contribute to air pollutants and regional haze. The ambient pollutant levels are usually near or below measurable limits, except for high short-term increases in PM₁₀ levels (primarily wind-blown dust), ozone, and carbon monoxide. Within the Rocky Mountain region, occasional peak ozone levels are relatively high, but are of unknown origin. Elevated concentrations may be the result of long-range transport from urban areas, subsidence of stratospheric ozone or photochemical reactions with natural hydrocarbons. Occasional peak concentrations of CO and SO₂ may be found in the immediate vicinity of combustion equipment. Locations vulnerable to decreasing air quality include the immediate areas around mining and farm tilling, local population centers, and distant areas affected by long-range transportation of pollutants.

Representative monitoring of air quality in the general area indicates that the existing air quality is well within acceptable standards.

The EPA General Conformity regulations require that an analysis (as well as a possible formal conformity determination) be performed for federally sponsored or funded actions in non-attainment areas and in designated maintenance areas when the total direct and indirect net air pollutant emissions (or their precursors) exceed specified levels. Since the GJFO is not within a non-attainment or a maintenance area, the Clean Air Act conformity regulations do not apply.

3.3 CULTURAL RESOURCES

A literature review of the project area was conducted to provide background to develop management actions to protect cultural resources from both direct and indirect effects of the project. A Class III field inventory of the Area of Potential Effect (63.6 acres) as defined in the National Historic Preservation Act (NHPA) was conducted by Grand Junction BLM archaeologists in July and August 2010. The areas surveyed included the proposed parking area and possible locations of trail, and all alternative crossings. Five new sites (5ME17629.1, 5ME17630.1, 5ME17631.1, 5ME17632.1, 5ME17636) and four Isolated Finds (5ME17633, 5ME17637, 5ME17634, 5ME17635) were recorded during the survey. Two previously recorded sites were reevaluated and one site (5ME14350) was incorporated into 5ME14351 and the linear segment of the D&RG railroad was given the number of 5ME7351.18. There are a total of 7 sites and 4 isolated that were recorded by this inventory. Of those, five of these sites (5ME17629.1, 5ME17630.1, 5ME17631.1, 5ME17632.1, 5ME17636) are recommended **not eligible**, while the Bridgeport Siding (5ME14351) and the segment of the Denver and Rio Grande railroad (5ME7350.18) are recommended as **eligible** to the NRHP. Of the four Isolated Finds recorded during the survey, two were prehistoric (a core and a flake), one was historic (milled lumber, possible a cross arm to a telegraph line), and one was an unknown a pile of sandstone rocks and river cobble. All four Isolated Finds were determined at the field level to be **not eligible**.

The construction of a railroad crossing and trail would allow continued access to Big and Little Dominguez Canyon – areas known for high concentrations of monitored cultural resources.

3.4 ENVIRONMENTAL JUSTICE

The requirements for environmental justice review were established by Executive Order 12898 (February 11, 1994). That order declared that each Federal agency is to identify “disproportionately high and adverse human health or environment effects of its programs, policies, and activities on minority populations and low income populations.”

According to Census 2000, the only minority population of note in the impact area is the Hispanic community of Mesa County. Persons describing themselves as Hispanic or Latino represented 10.0 percent of the population, considerably less than the Colorado state figure for

the same group, 17.1 percent. Blacks, American Indians, Asians and Pacific Islanders each accounted for less than one percent of the population, below the comparable state figure in all cases. The census counted 7.0 percent of the Mesa County population as living in families with incomes below the poverty line, compared to 6.2 percent for the entire state. Both minority and low income populations are dispersed throughout the county.

3.5 FLOODPLAINS

Mesa County Government provides maps of designated floodplains for Mesa County. Review of these maps did not show a designated floodplain for the project area. However the U.S. Fish and Wildlife Service has identified parts of the project area as 100 year floodplain and designated critical habitat for the endangered Colorado River fishes. Current conditions and impacts to the floodplains and designated critical habitat are analyzed in the Special Status Species sections of this EA.

3.6 INVASIVE, NON-NATIVE SPECIES

This area was inventoried for noxious weeds during the 2000 field season, and the Bridgeport area has been a site for numerous weed treatments by BLM crews since the survey date. The predominant weed of the area, especially along the river, is Russian knapweed. Abundant stands of knapweed occur all along the stretch from the proposed parking lot to the existing pedestrian bridge. Most of the BLM treatments have been in the bridge area and on the west side of the river to the mouth of Dominguez canyon. The amount of knapweed has been greatly reduced in this area. Additionally, contract crews have routinely treated the knapweed along the Bridgeport road from Hwy 50 to the parking lot area. Knapweed numbers have been significantly reduced here as well.

3.7 MIGRATORY BIRDS

The action area consists primarily of the desert saltbush habitat type with Cliff and Riparian habitat along the Gunnison River. Birds of Conservation Concern (USFWS 2008) for whom habitat exists within the action area include bald eagle, brewers sparrow, burrowing owl, ferruginous hawk, golden eagle, and prairie falcon. The action area contains large amounts of cheatgrass within the desert saltbush habitat type this invasive species negatively impacts the quality of wildlife habitat, including migratory bird habitat.

3.8 NATIVE AMERICAN RELIGIOUS CONCERNS

Previous consultation occurred for the Bridgeport Bridge project in 2004. At that time, project notification letters were sent to the three tribes that traditionally used the project area, the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and Uintah & Ouray Tribal Business Committee in March 2004. The Southern Ute Indian Tribe provided the only response and indicated that there are no known impacts to areas that are sensitive to the tribe in regards to

the proposed bridge work. They did ask to be notified in the event of inadvertent discoveries of sites, artifacts, or human remains.

Additionally, General project consultation has been conducted with tribes who traditionally used the GJFO area: the Southern Ute Indian Tribe, Ute Mountain Ute Tribe, and Ute Indian Tribe of the Uintah & Ouray Reservation. Concerns identified included eradication of sage, impacts to medicinal plants, and general modern intervention in the natural processes. The Ute have a generalized concept of spiritual significance that is not easily transferred to Western models or definitions. As such the BLM recognizes that they have identified sites that are of concern because of their association with Ute occupation of the area as part of their traditional lands. No traditional cultural properties, natural resources, or properties of a type previously identified as being of interest to local tribes, were found during the cultural resources inventory of the project area or identified by previous consultation.

3.9 SPECIAL STATUS SPECIES

The Gunnison River, is designated critical habitat for the federally endangered Colorado Pikeminnow and Razorback sucker. The Gunnison river also contains three BLM sensitive fish species; Bluehead sucker, Flannelmouth Sucker and Roundtail chub. The BLM sensitive Long Nosed Leopard lizard, Midget Faded Rattlesnake, and Northern Leopard Frog are likely to occur on the action area. The Gunnison river provides potential habitat for the federal candidate Yellow Billed Cuckoo, wintering range for Bald Eagles (BLM sensitive) and breeding and foraging habitat for Peregrine Falcons (BLM sensitive). The action area also contains habitat for the Ferruginous Hawk (BLM sensitive), White faced ibis (BLM sensitive) and Burrowing Owl (BLM sensitive). The action area is outside the range of Gunnison and Greater Sage grouse. The action area is considered to be the eastern most range of the Desert Bighorn sheep (BLM sensitive) population in the Dominguez area, though sheep are very rarely observed on the eastern side of the Gunnison river where the action is proposed. The BLM sensitive White-tailed prairie dog is known to occur in the area though no active towns were observed in the immediate area during surveys conducted in the summer of 2010. The BLM sensitive Big free-tailed bat, Fringed Myotis, and Townsends Big-eared bats are likely to occur on the allotment.

The Federally Threatened Colorado hookless cactus has been documented in the Proposed Project area. An intensive survey was completed June 27, 2010. Survey results indicate that 23 different occurrences, totaling 68 individuals were found along the 1.13 miles of proposed trail. No cacti were found in the newly proposed trailhead/parking location. All trail alignments brought forth for analysis were surveyed.

3.10 PUBLIC HEALTH AND SAFETY (INCLUDING WASTES, HAZARDOUS OR SOLID)

The purpose and need for action is to provide safe access. Currently users walk close to the railroad tracks, and cross the tracks, sometimes crawling between cars. This creates a safety

hazard. Hazardous and solid wastes are not a part of the natural environment but could be introduced through implementation of the proposed action.

3.11 WATER QUALITY, SURFACE AND GROUND

The proposed action is situated entirely within Water Quality Control Division (WQCD) stream segments 2, 4a, and 6 of the Lower Gunnison River Basin. Water quality stream segment 2 of the Lower Gunnison River basin is defined as “Mainstem of the Gunnison River from a point immediately above the confluence with the Uncompahgre River to the confluence with the Colorado River”. Beneficial use classifications for stream segment 2 are aquatic life warm 1, recreation E, water supply, and agriculture (CDPHE-WQCC 2010a).

Stream segment 4a is defined as “All tributaries to the Gunnison River, including all wetlands which are not on national forest lands from the outlet of Crystal Reservoir to the confluence with the Colorado River, except for specific listings in the North Fork and Uncompahgre River subbasins and Segments 3, 4b, 4c, 5 through 10, 12 and 13.” Beneficial use classifications for stream segment 4a are aquatic life warm 2, Recreation N, water supply, and agriculture (CDPHE-WQCC 2010a).

Stream segment 6 is defined as “Mainstem of Roubideau Creek from Potter Creek to the Gunnison River; mainstem of Escalante Creek from the boundary of national forest lands to the Gunnison River; mainstem of Little Dominguez from the boundary of national forest lands to Big Dominguez Creek; mainstem of Big Dominguez from boundary of national forest lands to the Gunnison River; mainstem East Creek from the source to Gunnison River” (CDPHE-WQCC 2010a). Table 1 further outlines numeric standards for physical, biological, inorganic, and metals within segment 2, 4a, and 6.

Table 1:	Classification	Numeric Standards			TEMPORARY MODIFICATIONS AND QUALIFIERS
Stream Segment		Physical and Biological	Inorganic (mg/l)	Metals (ug/l)	
COGULG02	Aq Life Warm 1 Recreation E Water Supply Agriculture	D.O.=6.0 mg/l D.O.(sp)=7.0 mg/l pH=6.5-9.0 E.Coli=126/100ml	NH ₃ (ac/ch)=TVS Cl ₂ (ac)=0.019 Cl ₂ (ch)=0.011 CN=.005 S=0.002 B=0.75 NO ₂ =0.05 NO ₃ =10 Cl=250 SO ₄ =480	As(ac)=340 As(ch)=0.02(Trec) Cd(ac)=TVS(tr) Cd(ch)=TVS CrIII(ac)=50(Trec) CrVI(ac/ch)=TVS Cu(ac/ch)=TVS Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ac/ch)=TVS Mn(ch)=WS(dis) Hg(ch)=0.01(Tot) Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac)=TVS Ag(ch)=TVS(tr) Zn(ac/ch)=TVS	Temporary Modification: Se(ch)=8.4 Expiration date of 12/31/2012.

COGULG04a	Aq Life Warm 2 Recreation N Water Supply Agriculture	D.O.=5.0 mg/l pH=6.5-9.0 E.Coli=630/100ml	NH ₃ (ac/ch)=TVS Cl ₂ (ac)=0.019 Cl ₂ (ch)=0.011 CN=.005 S=0.002 B=0.75 NO ₂ =0.5 NO ₃ =10 Cl=250 SO ₄ =WS	As(ac)=340 As(ch)=0.02- 10(Trec) Cd(ac/ch)=TVS CrIII(ac/ch)=TVS CrVI(ac/ch)=TVS Cu(ac/ch)=TVS Fe(ch)=WS(dis) Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ch)=WS(dis) Mn(ac/ch)=TVS Hg(ch)=0.01(Tot) Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac)=TVS Ag(ch)=TVS Zn(ac/ch)=TVS	Temporary Modifications: NH ₃ (ac)=TVS(old) NH ₃ (ch)=0.02 (type i) Expiration date of 12/31/2011 Se(ch)=existing ambient quality. Expiration date of 12/31/2012.
COGULG06	Aq Life Cold 1 Recreation E Agriculture	D.O.=6.0 mg/l D.O.(sp)=7.0 mg/l pH=6.5-9.0 E.Coli=126/100ml	NH ₃ (ac/ch)=TVS Cl ₂ (ac)=0.019 Cl ₂ (ch)=0.011 CN=.005 S=0.002 B=0.75 NO ₂ =0.05 NO ₃ =100	As(ac)=340 As(ch)=7.6(Trec) Cd(ac)=TVS(tr) Cd(ch)=TVS CrIII(ac/ch)=TVS CrVI(ac/ch)=TVS Cu(ac/ch)=TVS Fe(ch)=1000(Trec) Pb(ac/ch)=TVS Mn(ac/ch)=TVS Hg(ch)=0.01(Tot) Ni(ac/ch)=TVS Se(ac/ch)=TVS Ag(ac)=TVS Ag(ch)=TVS(tr) U(ac)/(ch) = TVS Zn(ac/ch)=TVS	S=0.002 B=0.75 NO ₂ =0.05 NO ₃ =100

Table data from CDPHE-WQCC 2010a

The CDPHE —Integrated Water Quality Monitoring and Assessment Report-2010 update to the 2008 305(b) Report was reviewed to determine the current status of assessment and determination of water quality within the project area. The Colorado Integrated Reporting Category (IR) value assigned to the segments 2 and 4a in the —Status of Water Quality in Colorado – 2008 document was 5; this value was not modified in the 2010 update. Stream segment 2 was fully supporting agriculture, water supply, and primary contact recreation. However, segment 2 was not supporting aquatic life cold 1. Stream Segment 4a was fully supporting primary contact recreation but not agriculture, aquatic life warm 2, or water supply. The Roubideau, Escalante, Little Dominguez, Big Dominguez, and East Creek watershed assessment unit (segment 6) was reported to have water quality that was fully supporting of all use classifications. Thus, The Colorado Integrated Reporting Category (IR) value assigned to this assessment unit in the —Status of Water Quality in Colorado – 2008 document was 1; this value was not modified in the 2010 update. In Colorado, the majority of the assessed surface water bodies fall into IR Categories 1, 2, and 3. Category 1 indicates waters attaining water quality standards. Colorado has elected to place segments where not all uses have been assessed in IR Category 2. In some cases, a complete assessment of all uses cannot be completed do to the lack of data, but the data that is available indicates that at least some of the uses that were assessed are fully supporting. IR Category 3 indicates that insufficient data is available to determine whether or not the classified uses are being attained. Category 4 indicates waters which are not supporting a standard for 1 or more classified uses, but a TMDL is not needed. IR Category 5 indicates that available data and/or information indicate that at least one classified use is not being supported or is threatened, and a TMDL is needed. Segments must be placed in Category 5 when, based on existing and readily available data and/or information,

technology-based effluent limitations required by the Clean Water Act (CWA), more stringent effluent limitations, and other pollution control requirements are not sufficient to implement an applicable water quality standard and a TMDL is needed. This category constitutes the Section 303(d) list of waters impaired by a pollutant (CDPHE-WQCC. 2010c).

The 2010 CDPHE-WQCC Regulation No. 93 Section 303d List of Impaired Waters and Monitoring and Evaluation List, was reviewed to determine if Lower Gunnison River stream segments 2 and 6 were listed. Stream segment 2 was identified on both lists, segment 4a on the 303(d) list, and segment 6 was not listed. All portions of Lower Gunnison River stream segment 2 and 4a are selenium impaired and listed as high priority. All portions of the Lower Gunnison River stream segment 2 are also potentially impaired due to sediment, thus identified on the States Monitoring and Evaluation list (CDPHE-WQCC. 2010b). Studies conducted by the United States Geological Survey (USGS) and the National Irrigation Water Quality Program (NIWQP) indicated primary source areas for selenium in the Colorado River near the Colorado/Utah State line to be the eastern side of the Uncompahgre Valley, and the western one-half of the Grand Valley, where extensive irrigation is located on Mancos Shale.

Groundwater Quality: A review of the USGS Groundwater Atlas of the Colorado indicates no major sedimentary rock or Mountainous Region Aquifers are present at this location. The primary source of groundwater is contained within shallow, localized, alluvial/colluvial deposits adjacent to stream courses. Alluvial ground water, although relatively insignificant in terms of total volume withdrawn (surface water is primary source), is important for irrigation, public and domestic water supply, and livestock uses. The alluvium of the Gunnison River basin consists of clay, silt, sand, gravel, and cobbles. Alluvial deposits are very thin or nonexistent in the canyon areas of the main stem of the Gunnison River and tributaries. In the lower Gunnison River basin, the thickness of alluvium is rarely greater than 200 feet and generally less than 100 feet. Well depths along the Gunnison River range from less than 10 feet to greater than 150 feet below ground surface. The Division of Water Resources well permit database contains records for approximately 1,844 wells that have been completed in the Gunnison River alluvium. Over 90 percent of these wells are completed at depths less than 100 feet below ground surface, with a mean depth of 49 feet (Topper et al., 2003).

The Colorado Decision Support System (CDSS Map Viewer. 2010) was accessed to determine project proximity to water wells. No water wells are located within one mile of the proposed action.

Groundwater quality in the alluvial aquifers of the Gunnison Basin is generally suitable for agriculture, domestic, and industrial purposes. A summary of the hydraulic characteristics and water quality for the Gunnison River alluvial aquifers is displayed in table 3. Depth to groundwater was measured to be 11.5 feet below ground surface based on bore-hole information collected in April 2010 by Huddleston-Berry Engineering & Testing, LLC (Huddleston-Berry 2010).

Table 3:	Gunnison River Basin
Aquifer characteristics	Comprised of clay, silt, sand, gravel, and cobbles.
Primary uses	Domestic, including public supplies; agricultural
Water levels	1-118 feet
Well data	1,844 completed wells 90% <100 feet deep mean depth = 49 feet
Yield	0.5-1,800 gpm 90% yield <33 gpm mean = 32 gpm
Water quality	Typically very good with most TDS below the secondary drinking water standard of 500 mg/L. Localized areas of high radon or iron concentrations.

Table data from Topper et al., 2003

Finding on Standard 5: Stream segments 2 and 4a are currently listed on the State’s 303(d) List for selenium impairments and are not meeting standard 5. Selenium impairments at this site are attributed to irrigation of Mancos shale soils upstream on the eastern side of the Uncompahgre Valley.

Stream segment 6 is currently meeting Public Land Health Standard 5.

3.12 WETLANDS & RIPARIAN ZONES

The project area contains two riparian areas, Deer Creek and the Gunnison River. Deer Creek is tributary to the Gunnison River and is on the north side of the project, mostly associated with the proposed parking area. Primary riparian vegetation includes inland saltgrass (Distichlis stricta), tamarisk (Tamarix ramosissima) and scattered Fremont Cottonwood (Populus fremontii). The channels are stable and this stream would be rated as Properly Functioning. The Gunnison River borders the west side of the project area and would be associated with railroad crossings and the trails. Common riparian species of the Gunnison River include Fremont and narrow leaf cottonwoods (Populus Fremontii and angustifolia), coyote willow (Salix exigua), Reed (Fragmites australis), Reed grass (Calamagrostis scopulorum and Canadensis), Cattails (Typha latifolia), skunkbush (Rhus trilobata), poison ivy (Toxicodendron redbergii), Russian Knapweed (Centurea repens), Russian Olive (Elaeagnus angustifolia) and several sedge and rush species (Carex spp. and Juncus spp.). The stream type is a C-3 or C-4 depending on the substrate type. This type of channel does have moderate sinuosity which causes for bank erosion on the outside corners. The Gunnison River does have some constriction as a result of the railroad grade, but this is relatively stable. Because of flow regulation the result of several reservoirs upstream decreasing spring flood events cottonwood reproduction has been limited. Many of the cottonwood galleries contain only old trees with very limited recruitment of seedlings. Within the immediate project area the only impact to riparian habitat is the unimproved boat launch immediately west of the current railroad crossing. A visit to this site in 2007 found reedgrass and Baltic rush to be stabilizing the site. The Gunnison River is considered Properly Functioning.

Riparian areas within the project area meet the public land health standard 2 for riparian health.

3.13 WILDERNESS

Approximately 4,500 visitors enter the Dominguez Canyon Wilderness from the mouth of Dominguez Canyon. The project area is adjacent to the mouth of Dominguez Canyon and provides pedestrian and equestrian access to the Wilderness area. No ground disturbing actions are proposed within the Wilderness area.

3.14 SOILS

Natural Resource Conservation Service has classified the soils within the project area as a Rock outcrop-Belsaw Complex, 25 to 65 percent slopes, extremely bouldery. This soil complex is found at elevations of 5,800 to 8,000 feet (1,768 to 2,438 meters), with a mean annual precipitation: 10 to 13 inches (254 to 330 millimeters), with mean annual air temperature: 46 to 52 degrees F. (8.0 to 11.0 degrees C.) and frost-free period: 100 to 135 days. The Map Unit Composition is rock outcrop: 55 percent, Biedsaw and similar soils: 30 percent and minor components: 15 percent.

Other characteristics of this soil association are: Slowest permeability: .06 to 0.2 in/hr (slow). Available water capacity: About 8.5 inches (moderate). Shrink-swell potential: About 7.5 percent (high). Flooding hazard: None. Runoff class: Very high. Ecological site for this complex is unspecified.

The Bureau of Land Management (BLM) conducted Land Health Assessments within the proposed project area in 2007 and 2009. Results from this assessment indicate soils in the project area are meeting public land health standard 1.

3.15 VEGETATION

Natural Resource Conservation Service has classified the Ecological complex as unspecified. Vegetation on site is primarily a mix of shrubs and grasses with scattered Utah Juniper. Predominate species in the project area include; shadscale, four-wing saltbush, sagebrush rabbitbrush, cheatgrass, Indian ricegrass, needle-and-thread grass and a variety of forbs. Vegetation cover on site would not exceed 20%. On the abandoned gravel pit vegetation consists of cheatgrass and rabbit brush.

3.16 WILDLIFE, AQUATIC

In addition to the aquatic species listed under special status species the Gunnison River contains several non-native fish species. Other amphibians likely to occur in the area include bullfrog, woodhouse toad, and tiger salamander.

3.17 WILDLIFE, TERRESTRIAL

The action area includes Pronghorn Antelope overall range and the pronghorn antelope herd in this area is declining in numbers. Other terrestrial species common to the area include black bear, mountain lion, coyote, and a variety of small mammals, reptiles, and resident birds.

3.18 ACCESS

The project area is accessed via Mesa County Road 39.50 (Bridgeport Road). Bridgeport trailhead is the public terminus of Mesa County Road 39.50. Presently, the Dominguez Wilderness is accessed from the Bridgeport trailhead by recreating pedestrians and equestrians via Union Pacific's railroad easement and private crossing. This easement and associated private railroad grade crossing is for the sole use and control of Union Pacific Railroad and no legal public access persists.

3.19 FIRE

This area historically is in low wildfire occurrence due to lack of continuous fuels. Potential wildfires fires could move into riparian corridor.

3.20 FUELS MANAGEMENT

No fuels treatments have been completed or are currently planned for this area.

3.21 HYDROLOGY AND WATER RIGHTS

The proposed trailhead/parking area, trail, and overpass/underpass directly affect Lower Deer Creek and the Gunnison River near the historic town of Bridgeport, CO. The proposed trailhead/parking area is located approximately 200 feet east of Deer Creek. Lower Deer Creek is a seasonal tributary to the Gunnison River near Bridgeport, CO. The Gunnison River is a perennial tributary to the Colorado River near Grand Junction, CO. Onsite evaluation of Deer Creek near the proposed project area indicated a moderate gradient, low width to depth ratio, deeply incised, erosive system (G Rosgen Stream Type) with limited riparian development. The "G" or "gully" stream type is an entrenched, narrow and deep, step/pool channel with low to moderate sinuosity. "G" stream types have very high bank erosion rates and a high sediment supply (Rosgen 1996).

The Gunnison River near the proposed project site is a deeply entrenched, structurally controlled, meandering system typical of the F Rosgen Stream Type. "F" stream types are deeply incised in valleys of relatively low elevational relief, containing highly weathered rock and/or erodible materials. The "F" stream systems are characterized by very high channel width/depth ratios at the bankfull stage, and bedroom features occurring as a moderated riffle/pool sequence. "F" stream channels can develop very high bank erosion rates, lateral extension rates, significant bar deposition and accelerated channel aggradation and/or

degradation while providing for very high sediment supply and storage capacities (Rosgen 1996).

Both Little and Big Dominguez Creeks will be indirectly affected by the proposed action through increased visitation to the newly established D-ENCA. Little and Big Dominguez flow together to form Dominguez Creek which is a perennial tributary to the Gunnison River upstream of Bridgeport. Little and Big Dominguez Creeks represent a variety of Rosgen stream types from their sources to the confluence with the Gunnison River.

Water Rights will not be impacted by implementation of the proposed action or no-Action alternative. Water will not be diverted or consumed through implementation of the proposed action.

3.22 PALEONTOLOGY

The surface geology of the project area is composed of geologic units ranging in age from Quaternary back to the Jurassic (present back to around 200 million years ago). From oldest to youngest these rock units include the Wingate, Kayenta, Entrada, Wanakah, Morrison, Burro Canyon, and Dakota Formations and Quaternary alluvium. Of these geologic units the Morrison Formation has the most potential to yield scientifically important vertebrate dinosaur fossils and is rated by the BLM as a class 4-5 using the Potential Fossil Yield Classification System (PFYC). The other geologic units also have potential to yield vertebrate or invertebrate fossils, but to a lesser degree. A review of the paleontologic database showed the project area to not have any known paleontologic sites surveyed or recorded. A paleontologic survey of proposed disturbances in the Morrison Formation was completed on July 20, 2010 by BLM geologist/paleontology coordinator, Scott Gerwe, and no vertebrate fossils or trace fossils were found.

3.23 REALTY AUTHORIZATIONS

The Master Title Plats and LR2000 database indicate the following authorized realty actions within the project area:

- COC-36786 – access road right-of-way – Mika Ag. Corporation
- COC-40209 – power line right-of-way – Grand Valley Rural Power
- COC-02579 – telephone line right-of-way – CenturyTel of Eagle
- COC-93947 – railroad right-of-way – Union Pacific Railroad
- PL COC-73765 – Dominguez-Escalante NCA withdrawal

3.24 RECREATION

The Bridgeport trailhead serves as the primary access point to the mouth of Dominguez Canyon and the Dominguez Wilderness Area by non Gunnison River users such as day-hikers, equestrians and overnight backpackers. Presently, recreation users are required to walk adjacent to and at times within the Union Pacific railroad easement as it is presently the only access to the public bridge which crosses the Gunnison River. This route is also shared by full

size vehicles belonging to Mika Agriculture and Union Pacific RR personnel. The current route is often less than 10 feet from the active rail line and several times a day trains pass through the area and occasionally are routes to temporality “park” at a siding to allow other trains to pass essentially blocking all access to the trail during those times. In 2009 approximately 7,500 visitors accessed the mouth of Dominguez Canyon at this location, and this figure has remained stable for the last three years of data collection.

Along with the hiking and equestrian visitors, the mouth of Dominguez Canyon and the wilderness are accessed by rafters, canoeists, and kayakers from the Gunnison River. Approximately 4,000 visitors use the river annually. Dominguez Canyon is often a destination of river users. Day-use boaters stop at the mouth of Dominguez Canyon for day hikes into the wilderness, and overnight river users camp along the bench adjacent to the mouth of Dominguez canyon.

Although a recreation opportunity spectrum classification has not been formally completed for this area, it would likely be on the rural to urban end of the spectrum due to the proximity to the railroad and ancillary facilities. The recreation experience at present is not unlike that of traversing any rail yard facility as it contains many modifications such as power lines, communication structures for the trains, several sidings and stockpiled rail maintenance equipment.

The current trail hiking/equestrian access along the railroad tracks is unsafe for people and animals due to the proximity to the railroad tracks and the potential to be stranded on the river side of the railroad tracks when trains stop at this location.

3.25 TRANSPORTATION

Bridgeport trailhead is the public terminus of Mesa County Road 39.50. Presently, the mouth of Dominguez Canyon is accessed from the Bridgeport trailhead by recreating pedestrians and equestrians via Union Pacific’s railroad easement and private railroad crossing. The nature of public access along the railroad easement is uncertain. The BLM and the Union Pacific Railroad have been working cooperatively to better define public access in the area. A locked gate is located on the south side of the existing parking lot, inhibiting all full size public travel but allows for use by Union Pacific personnel and Mika Agriculture, a privately owned ranch on the west side of the Gunnison River. From the trailhead south, the route is shared between full size vehicles, hikers and equestrians.

3.26 VISUAL

The project area has been identified as visual resource management class II. The objective of VRM class II is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of

form, line, color, and texture found in the predominant natural features of the characteristic landscape.

The characteristic landscape is defined by deep, rugged, meandering canyon steep slopes, banded sandstone cliffs, conspicuous rock outcrops; blocky, and jumbled boulder-strewn slopes. The texture can be described as salmon-colored sandstone cliff bands with high vertical relief and considerable contrast in color. The sinuous (meandering) river is a dominant feature. The landscape can be described as enclosed.

CHAPTER4

ENVIRONMENTAL CONSEQUENCES AND PROTECTIVE MEASURES

4.1 INTRODUCTION

This chapter evaluates the environmental impacts of implementing each Alternative discussed in Chapter 2 and determines the potential for significant impacts to each resource.

4.2 AIR QUALITY

4.2.1 No Action

No adverse environmental impacts to air quality will occur as a result of the no-action alternative.

4.2.2 All Action Alternatives

No lasting impacts to air quality are anticipated with successful implementation of the proposed action. Short term localized reductions in air quality may be associated with fugitive dust production during construction activities. Fugitive dust (PM₁₀) levels would return to near baseline conditions within a few hours following construction activities.

4.3 CULTURAL RESOURCES

4.3.1 No Action

(Direct/Indirect & Cumulative effects) Selection of the No Action Alternative would continue management under the current conditions allowing deterioration of cultural resources through benign neglect.

4.3.2 Action Alternatives

All of the action alternatives involve construction of a new parking lot and trail head consisting of 1.5 acres of disturbance centered around an area that has been previously disturbed. This

construction does not have the potential to impact cultural resources in previously disturbed areas.

Alternative 3A: Under this alternative, a new crossing would be constructed approximately ½ mile from the proposed parking lot location. An overpass (bridge) would be installed sufficient to permit passage by horses and people. Total surface disturbance for the trail and bridge would be .17 acres. This alternative has the least potential to impact cultural resources as no significant resources were located in the survey for this alternative.

Alternative 3C1: Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an overpass (bridge). This option would be constructed to provide sufficient space for passage by horses and people. Total surface disturbance for the trail and bridge would be .42 acres. This construction would impact two significant cultural resources: 5ME7351.18, the historic narrow gauge railroad grade and 5ME14351, the historic Bridgeport Siding. In this alternative, formal consultation with the Colorado Office of Archaeology and Historic Preservation (SHPO) would be concluded prior to construction and would likely result in mitigation, likely including archaeological monitoring, testing, data recovery, and possibly interpretation of historic sites in the project area, to offset the damage done to the significant cultural resources.

Proposed Action (Alternative 3C2): Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel). This option would be constructed to provide sufficient space for passage by horses and people. Total surface disturbance for the trail and tunnel would be .42 acres. This construction would impact two significant cultural resources: 5ME7351.18, the historic narrow gauge railroad grade and 5ME14351, the historic Bridgeport Siding. In this alternative, formal consultation with the Colorado Office of Archaeology and Historic Preservation (SHPO) would be concluded prior to construction and would likely result in mitigation, likely including archaeological monitoring, testing, data recovery, and possibly interpretation of historic sites in the project area, to offset the damage done to the significant cultural resources.

(Direct/Indirect & Cumulative effects)

The table below addresses the direct effect of the proposed railroad crossings on historic properties for either action alternative 3C1 or 3C2, and indicates the BLM’s recommendation of eligibility, and proposed mitigation to any contributing component of an eligible Historical Property. Recommendations were developed in consultation with SHPO and formal consultation will be concluded prior to construction.

	NRHP	Criterion 36CFR60.4	Action / Mitigation
5ME14419	Not Eligible	none	(Privately Owned Existing Bridge)
5ME7351.18	Eligible	“a”, “b”	Impacted – Prior to construction will require archival research and Detailed Mapping or

			Level 2 recordation.
5ME14351 Bridgeport RR Station & Trolley Ferry	Eligible	“a”, “b”, and “d”	<ul style="list-style-type: none"> • Will be impacted and prior to construction will likely include some or all of the following mitigation: • Archival Research & Detailed Mapping. • Testing and/or Data recovery at areas of surface disturbance • Construction monitoring. • Interpretive signing for cultural resources & Bridgeport history at bridge access.
5ME17629.1	Not eligible	none	No Further work
5ME17630.1	Not eligible	none	No Further work
5ME17631.1	Not eligible	none	No Further work
5ME17632.1	Not eligible	none	No Further work
5ME17636	Not eligible	none	No Further work

The indirect and cumulative impacts from continued recreation access via this trail to Little and Big Dominguez from any action alternatives are difficult to assess. Vandalism to the most visible sites has been documented during initial site recordings and recent monitoring in August 2010. Often vandalism to sites is attributed to vehicle access and lack of interpretive education. The proposed action addresses both of these issues to the benefit of cultural resources. There is a correlation between visibility from the trail and vandalism. As recreation use increases in the canyon it is likely that visitor impacts, especially unintentional erosion from foot traffic or unauthorized collection of artifacts from both recorded and unrecorded sites, will continue to deteriorate these resources.

4.3.3 Protective/Mitigation Measures: In addition to the mitigation that will be determined prior to construction through official consultation with SHPO on the impacted significant cultural resources 5ME7351.18 and 5ME14351, the following stipulations should protect any unknown cultural resources in the project area:

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. Within five working days the AO will determine the actions that will likely have to be completed 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)).

A standard Education/Discovery stipulation for cultural resource protection should be attached to the Decision Record. The BLM project proponent and Union Pacific Railroad and their subcontractors are responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts.

Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the BLM and Union Pacific Railroad project proponents and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh).

4.4 ENVIRONMENTAL JUSTICE

4.4.1 All alternatives (including no action)

The socioeconomic impacts of public land management are not large relative to the basic social and economic resources of Mesa County. Additionally, the minority and low-income populations of the county are small relative to state-wide averages and such populations are dispersed throughout the county. Therefore, no minority or low-income populations would suffer disproportionately high and adverse effects as a result of any of the alternatives.

4.5 FLOODPLAINS

The U.S. Fish and Wildlife Service has identified parts of the project area as 100 year floodplain and designated critical habitat for the endangered Colorado River fishes. Impacts to the floodplains and designated critical habitat are analyzed in the Special Status Species section of this chapter.

4.6 INVASIVE, NON-NATIVE SPECIES

4.6.1 No Action

Under this alternative, there would be more exposure to knapweed infestations that are likely not to be treated (adjacent to RR ROW and in dense tamarisk), than would be through any of the other alternatives.

4.6.2 All Action Alternatives

The best option from a weed perspective is to terminate the trail and new crossing closest to the bridge (3C-1). This reduces the amount of knapweed the public would walk or ride through if the crossing is further downstream. However the area from the existing bridge to the confluence of Dominguez Canyon is under maintenance by BLM treatment crews, and further treatment would occur as a part of the routine field office weeds program if new development caused increased infestations.

4.7 MIGRATORY BIRDS

4.7.1 No Action

Under the no action alternative no trail or trailhead construction would occur, the current trailhead and trail would remain in use. Public use of the trail and trailhead would be expected to increase over time which may displace individual nesting migratory birds.

4.7.2 Action Alternatives

All of the action alternatives involve construction of a new parking lot and trail head consisting of 1.5 acres of disturbance centered around an area that has been previously disturbed. This construction has the potential to impact migratory birds if nesting sites are disturbed during the nesting season.

Alternative 3A: Under this alternative, a new crossing would be constructed approximately ½ mile from the proposed parking lot location. An overpass (bridge) would be installed sufficient to permit passage by horses and people. Total surface disturbance for the trail and bridge would be .17 acres. This construction has the potential to impact migratory birds if nesting sites are disturbed during the nesting season. The proposed bridge and trail would be within 1/3 of a mile of cliff nesting habitat for Golden Eagles and peregrine falcons, there are no records of these species nesting within half a mile of the proposed alignment however the last surveys were conducted in the early 1990's. Construction activities may impact nesting peregrine falcons and golden eagles if construction occurs during the breeding season for these species (Jan 1 to July 15 for golden eagles and March 15 to July 31 for peregrine falcon). Pedestrian traffic on a bridge over the rail road tracks is likely to impact cliff nesting raptors to a greater extent than the current trail alignment as the current trail is buffered by the riparian vegetation alongside the river and the bridge would effectively place recreationists above the tree line.

Alternative 3C1: Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an overpass (bridge). This option would be constructed to provide sufficient space for passage by horses and people. Total surface disturbance for the trail and bridge would be .42 acres. This construction has the potential to impact migratory birds if nesting sites are disturbed during the nesting season. The proposed bridge and trail would be within 1/10 of a mile of cliff nesting habitat for Golden Eagles and peregrine falcons, there are no records of these species nesting within half a mile of the proposed alignment however the last surveys were conducted in the early 1990's. Construction activities may impact nesting peregrine falcons and golden eagles if construction occurs during the breeding season for these species (Jan 1 to July 15 for golden eagles and March 15 to July 31 for peregrine falcon). Pedestrian traffic on a bridge over the rail road tracks is likely to impact cliff nesting raptors to a greater

extent than the current trail alignment as the current trail is buffered by the riparian vegetation alongside the river and the bridge would effectively place recreationists above the tree line.

Proposed Action (Alternative 3C2): Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel). This option would be constructed to provide sufficient space for passage by horses and people. Total surface disturbance for the trail and tunnel would be .42 acres. This construction has the potential to impact migratory birds if nesting sites are disturbed during the nesting season. The proposed bridge and tunnel would be within 1/10 of a mile of cliff nesting habitat for golden eagles and peregrine falcons, there are no records of these species nesting within half a mile of the proposed alignment however the last surveys were conducted in the early 1990's. Construction activities may impact nesting peregrine falcons and golden eagles if construction occurs during the breeding season for these species (Jan 1 to July 15 for golden eagles and March 15 to July 31 for peregrine falcon). Use of a tunnel under the train tracks rather than a bridge over the train tracks is likely to have a lesser impact on cliff nesting raptors than the bridge construction because the trail will be within line of sight of the cliffs and potential nesting habitat for a shorter length.

4.7.3 Protective/Mitigation Measures:

To avoid impacts to nesting migratory birds clearing of vegetation that provides potential nesting habitat for migratory songbirds should not occur between May 15 and July 15.

If construction is to occur between January 1 and July 31 surveys should be conducted to determine if cliff nesting raptors occupy the area and if raptor nests are found appropriate timing limitations and distance buffers should be applied to ensure construction activities do not cause nest failure.

4.8 NATIVE AMERICAN RELIGIOUS CONCERNS

4.8.1 No Action

(Direct/Indirect & Cumulative effects) Under the no action alternative no trail or trailhead construction would occur, the current trailhead and road next to the train tracks would remain in use.

4.8.2 Proposed Action

(Direct/Indirect & Cumulative effects) The Ute have a generalized concept of spiritual significance that is not easily transferred to Western models or definitions. As such the BLM recognizes that they have identified sites that are of concern because of their association with Ute occupation of the area as part of their traditional lands. Tribal representatives have consulted with the BLM Field Office on similar projects and provided instructions for the protection of culturally sensitive sites should any be discovered during construction. If new information is provided by Native Americans during the EA process, additional or edited terms

and conditions for mitigation may have to be negotiated or enforced, such as those listed below in Section 4.8.3. No additional Native American consultation occurred for this project.

4.8.3 Protective/Mitigation Measures: To protect the cultural setting of the area, no rock should be removed from the north side of the Bridgeport road. Any rock needed should be hauled from offsite.

The proposed alternative would not limit access if any if there were traditional or religious uses that are not known to the agency. Additionally, the following mitigation may have to be negotiated or enforced if new information was made known to the agency:

- If new information is brought forward any site-specific Native American mitigation measures suggested during notification/consultation would be considered during the implementation of the Proposed Action.
- Strict adherence to the confidentiality of information concerning the nature and location of archeological resources would be required of the BLM, Union Pacific Railroad and their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh).
- Inadvertent Discovery: The NHPA, as amended, requires that if newly discovered cultural resources are identified during the Proposed Action implementation, work in that area must stop and the BLM Authorized Officer notified immediately (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)).
- On private lands, laws for Historic, Prehistoric, and Archaeological Resources, and for unmarked Human Graves (CRS 24-80-401 and CRS 24-80-1301) would be adhered to by the BLM, Union Pacific Railroad and their subcontractors. These state statutes require that the federal Authorizing Officer be notified immediately of any historic or prehistoric finds or human grave. The find must be protected until the authorizing officer indicates the action may proceed.

4.9 SPECIAL STATUS SPECIES

4.9.1 No Action

Under the No Action alternative no impacts to Special Status Species would occur. The access trail would continue to be along the railroad tracks in an extremely disturbed area. A new trail, and railroad crossing would not be constructed and no fragmentation of occupied Colorado hookless cactus (CHC) would take place. Additionally, no new construction in the designated critical habitat for the Colorado Pikeminnow and Razorback sucker would occur.

4.9.2 Action Alternatives

All of the action alternatives involve construction of a new parking lot and trail head consisting of 1.6 acres of disturbance centered on an area that has been previously disturbed. Special status species that may occur in the area of the parking lot include the long-nosed leopard lizard, and midget faded rattlesnake, impacts to these species are unlikely as the immediate parking lot area does not contain typical habitat for these species. This construction will have no effect on special status species as none occur in the area of the parking lot and trailhead.

Alternative 3A: Under this alternative, a new crossing would be constructed approximately ½ mile from the proposed parking lot location. An overpass (bridge) would be installed sufficient to permit passage by horses and people. The bridge facilities and ramp would require approximately 90 feet of space.

Plants: No Special Status plant Species were recorded along the main trail leading to the Alternative 3A alignment. This alternative would have no effect on the Colorado hookless cactus. No protective/mitigation measures would be required for rare plants under this alternative, as no impacts are anticipated.

Wildlife: Direct impacts to the Colorado Pikeminnow and Razorback sucker are not expected, however the footer of the pedestrian bridge on the northwest side of the rail road tracks will be constructed within the 100 year floodplain of the Gunnison River, designated critical habitat for these species. Impacts to these species would only be expected if the construction of this bridge footer altered the natural flow regime of the Gunnison River during a flood event. The 100 year floodplain of the Gunnison river has already been altered by the construction of the rail road grade, additional impacts to the floodplain as a result of this action are expected to be insignificant and discountable. Impacts to the BLM sensitive Bluehead sucker, flannelmouth sucker and roundtail chub would be similar to those discussed above for the federally listed fish species. Displacement of individual long-nosed leopard lizards, Midget faded rattlesnakes, and northern leopard frogs, desert bighorn sheep and sensitive bats may occur as a result of trail construction however these impacts are expected to be minimal and mortality of individuals is not expected as a result of this action. No active white tailed prairie dog towns occur in the area therefore the prairie dog dependent burrowing owl is not expected to occur in the area and no impacts to these two species are anticipated. No potential breeding, foraging or roosting habitat for the yellow billed cuckoo, white faced ibis, and bald eagle will be directly impacted by the action, though individuals may be temporarily displaced these impacts are expected to be minimal and mortality of individuals is not expected as a result of this action. Impacts to Ferruginous hawk are not expected as the species has not been observed in the area and the action is not expected to impact typical breeding habitat for the species. Impacts to Peregrine Falcons are discussed under the migratory birds section above.

Alternative 3C1: Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet)

for an overpass (bridge). This option would be constructed to provide sufficient space for passage by horses and people.

Plants: Three separate Colorado hookless cactus (CHC) occurrences (17 individual cacti) were recorded along this alignment. The closest cactus is within 16 meters of the trail, and the remaining 16 were greater than 20 meters from the proposed alignment. This alternative has the potential to affect the CHC, however adverse affects would not be anticipated. Informal consultation with USFWS may be necessary under this alternative. While direct effects are unlikely, the closest cacti may be indirectly affected by weed spread associated with the proposed trail, dust emissions, erosion, and sedimentation impacts. However, properly constructed and maintained trails would minimize effects.

Wildlife: Direct impacts to the Colorado Pikeminnow and Razorback sucker are not expected, however the footer of the pedestrian bridge on the northwest side of the rail road tracks will be constructed within the 100 year floodplain of the Gunnison river, designated critical habitat for these species. Impacts to these species would only be expected if the construction of this bridge footer altered the natural flow regime of the Gunnison river during a flood event. The 100 year floodplain of the Gunnison river has already been altered by the construction of the rail road grade, additional impacts to the floodplain as a result of this action are expected to be insignificant and discountable. Impacts to the BLM sensitive Bluehead sucker, flannelmouth sucker and roundtail chub would be similar to those discussed above for the federally listed fish species. Displacement of individual long-nosed leopard lizards, Midget faded rattlesnakes, and northern leopard frogs, desert bighorn sheep and sensitive bats may occur as a result of trail construction however these impacts are expected to be minimal and mortality of individuals is not expected as a result of this action. No active white tailed prairie dog towns occur in the area therefore the prairie dog dependent burrowing owl is not expected to occur in the area and no impacts to these two species are anticipated. No potential breeding, foraging or roosting habitat for the yellow billed cuckoo, white faced ibis, and bald eagle will be directly impacted by the action, though individuals may be temporarily displaced these impacts are expected to be minimal and mortality of individuals is not expected as a result of this action. Impacts to Ferruginous hawk are not expected as the species has not been observed in the area and the action is not expected to impact typical breeding habitat for the species. Impacts to Peregrine Falcons are discussed under the migratory birds section above.

Proposed Action (Alternative 3C2): Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel). This option would be constructed to provide sufficient space for passage by horses and people.

Plants: Surveys indicate that the Alternative 3C2 alignment is within 20 meters of 34 CHC, and that twelve of the 34 CHC are within 5 meters of the proposed trail alignment. Under this alternative adverse impacts would be anticipated, and Section 7 formal consultation would be necessary with USFWS. Due to the close proximity of the cacti direct impacts are possible. Impacts include but are not limited to: trampling, dust accumulation leading to reduced photosynthesis, interference with pollination/pollinators, weed spread contributing to habitat

degradation, increased sedimentation, and an alteration of hydrology. Indirect effects include competition from weedy species, and if trails are not properly built or maintained continued erosion and sedimentation.

Formal consultation with USFWS has been completed for Alternative 3C2. On November 4, 2010 BLM submitted a Biological Assessment to USFWS (ES/GJ-6-CO-11-F-003; TAILS 65413-2011-F-0043). Formal consultation was completed on March 15, 2011 when BLM received the Biological Opinion concurring with the determination of “May Affect, Likely to Adversely Affect”. BLM and USFWS have determined that the identified impacts associated with the proposed action (Alternative 3C) can be minimized to an acceptable level through the implementation of the conservation measures (4.10.3) identified in the BA and BO.

Wildlife: Direct impacts to the Colorado Pikeminnow and Razorback sucker could occur if during flood events fish are entrapped in the pedestrian tunnel under the rail road tracks, given that the rarity of the species in the river and the rarity of flood events on the Gunnison river (which is dammed upstream of this location) the likelihood of this occurring is expected to be discountable. In addition the tunnel on the northwest side of the rail road tracks will be constructed within the 100 year floodplain of the Gunnison River which is designated critical habitat for these species. Impacts to the critical habitat of the species would only be expected if the construction of this tunnel altered the natural flow regime of the Gunnison river during a flood event. The 100 year floodplain of the Gunnison River has already been altered by the construction of the rail road grade, additional impacts to the floodplain as a result of this action are expected to be insignificant and discountable. Impacts to the BLM sensitive Bluehead sucker, flannelmouth sucker and roundtail chub would be similar to those discussed above for the federally listed fish species. Displacement of individual long-nosed leopard lizards, Midget faded rattlesnakes, and northern leopard frogs, desert bighorn sheep and sensitive bats may occur as a result of trail construction however these impacts are expected to be minimal and mortality of individuals is not expected as a result of this action. No active white tailed prairie dog towns occur in the area therefore the prairie dog dependent burrowing owl is not expected to occur in the area and no impacts to these two species are anticipated. No potential breeding, foraging or roosting habitat for the yellow billed cuckoo, white faced ibis, and bald eagle will be directly impacted by the action, though individuals may be temporarily displaced these impacts are expected to be minimal and mortality of individuals is not expected as a result of this action. Impacts to Ferruginous hawk are not expected as the species has not been observed in the area and the action is not expected to impact typical breeding habitat for the species. Impacts to Peregrine Falcons are discussed under the migratory birds section above.

Finding on Standard 4: Implementation of the alternative 3C2 will not result in direct impacts to Colorado hookless cactus and we do not anticipate adverse effects to designated critical habitat for the endangered fishes. Impacts to other special status species are expected to be insignificant as described above. Therefore this action will not significantly impair the ability of the project area to meet Standard 4 for Special Status Species.

4.9.3 Protective/Mitigation Measures:

Conservation measures from the BA/BO for Alternative 3C2 are:

- Fencing or barriers (rocks, etc.) will be placed along the trail where the trail is in close proximity to Colorado hookless cactus plants to deter users from leaving the trail.
- Invasive/noxious weeds present in the parking and trailhead area will be treated and disturbed areas will be reseeded with a mix of appropriate native seed after construction is completed. Weeds are scarce along the newly proposed trail and it is not anticipated that chemical treatments will be needed in this area. By treating these weeds in the parking and trailhead area, propagule pressure will be reduced along the trail.
- In addition to initial reclamation efforts, this area will be added to the system for periodic surveys and treatment of noxious weeds by the GJFO weeds staff. Chemical treatments will be sensitive to the presence of Colorado hookless cacti. Specifically, herbicide treatments would comply with the U.S. Environmental Protection Agency label directions and follow BLM procedures outlined in BLM Handbook H-9011-1 (*Chemical Pest Control*) and BLM Manual Sections 1112 (*Safety*), 9011 (*Chemical Pest Control*), and 9015 (*Integrated Weed Management*) and meet or exceed State label standards. Herbicide applications would adhere to all State and Federal pesticide laws.
- Trail width will be no more than 48 inches wide (generally 18-30in) and the proposed trail will be open to hikers and horseback riders only. Dust resulting from these activities is expected to be minimal.
- Recorded CHC adjacent to the trail will be located prior to project construction, and any newly discovered cactus will be avoided. The trail alignment will be checked for cactus prior to construction to ensure avoidance.
- Consideration will be given to downslope effects on CHC plants during construction. If trail building techniques do not adequately address those concerns, the BLM will consider using silt fences or similar barriers to eliminate or reduce sedimentation effects.
- A BLM staff member or designee familiar with CHC will be on-site during construction to ensure avoidance of CHC plants.
- As with other weed treatments in the GJFO, herbicide application would be conducted according to guidelines and conservation measures outlined in BLM's Integrated Weed Management Plan (BLM 2010), and in accordance with the BO (TAILS 65413-2010-I-0138) for that project, issued July 27, 2010. Conservation measures from that consultation (buffers, herbicide type restrictions, application method restrictions, etc.) are hereby incorporated by reference. Any weed

treatment activities not covered by the previously mentioned BO would be subject to further consultation under Section 7 consultation.

- Trail construction will be timed to avoid the flowering period (April-May, Spackman et al. 1997) of CHC to avoid disruption of pollinators.

4.10 PUBLIC HEALTH AND SAFETY (INCLUDING WASTES, HAZARDOUS OR SOLID)

4.10.1 No Action

Safety hazards will continue to exist so the purpose and need for action would not be met. There would be no waste associated with No Action.

4.10.2 All Action Alternatives

All action alternatives would improve safety by providing alternate access. A tunnel could be safer for equestrian users than a bridge; however equestrian users will be crossing the river on a bridge anyway, so another bridge would not appreciably increase a safety hazard. A tunnel could fill with water, or could be used for illegal activity such as squatting, drug use, etc. These impacts are expected to be minimal because we will design the tunnel to be well lit, to not accumulate water, and continual public use and the remoteness of the area (far from urban center) will make the area unattractive for illegal activity.

Hazardous wastes could be introduced to the environment through any construction activity involving mechanized equipment. This could be in the form of spilled fuel and/or lubricants. The proximity to the Colorado River could have negative consequences if the spill was not promptly cleaned up or a spill was of large enough volume.

4.10.3 Protective/Mitigation Measures:

Vehicle fueling and maintenance should be conducted at least 100 feet away from the river. Fuel storage next to the river should be discouraged. If it is necessary, fuel tanks should be located within a lined, containment structure. This could be an artificial container or an earthen berm with a synthetic liner. The containment vessel should be of sufficient size to hold 110% of the total volume of liquids stored within. Any spills of any size should be reported immediately to the BLM Authorized Officer.

4.11 WATER QUALITY, SURFACE AND GROUND

4.11.1 No Action

No environmental impacts would result from the no-action alternative.

4.11.1 Action Alternatives

Impacts Common to All Action Alternatives: Under all alternatives BLM would construct a new Trail head comprised of a road based surface parking area for eight small truck trailer combinations, 26 single vehicle parking spots, a single vault toilet, site delineation fencing and parking barriers. As a result of the proposed action, erosion potential from the project area will be elevated during construction activities as soils will be striped of stabilizing vegetation, woody debris, and large rock. Decreased soil stabilization increases potential downstream sedimentation and mineral properties of affected soils can elevate surface water contaminants to levels exceeding numeric standards. Development of the proposed parking area will decrease soil permeability and infiltration rates from natural conditions elevating potential erosion off site and stormwater contamination. Sediment production and stormwater impacts from the proposed trailhead will be mitigated through implementation of standard BMPs outlined in BLM's State approved Stormwater Management Plan.

A vault-pit toilet at the trail head will contain human waste preventing contamination of seasonally saturated alluvial deposits. During construction, spills of fuels and/or lubricants if left unmitigated may infiltrate alluvial deposits contaminating near-stream alluvial groundwater and eventually surface water in the Gunnison River.

Indirect Impacts Common to all Action Alternatives: Improved access to the newly established D-ENCA will increase recreational use in the area leading to potential water quality degradation in stream segments 2 and 6 of the Lower Gunnison River Basin. Increased visitation to the Big/Little Dominguez Watersheds may result in elevated disturbance in riparian areas by both people and horses. Proper functioning riparian areas are essential to maintaining stream channel and bank stability as well as to filter non-point sources of pollution (e.g. sediment) from upland areas. In areas where riparian communities are degraded due to trampling, grazing, firewood collection, human wastes accumulation, etc... water quality can be compromised. Indirectly, increased visitation to the newly established D-ENCA is anticipated to result in all of the above potential environmental impacts to water quality. The severity of these potential impacts will depend largely on the volume of visitation, and site specific conditions near areas of disturbance (e.g. slope, soil type, drainage area, etc...).

Alternative 3A: This alternative represents the least amount of new surface disturbance (1.6927 acres) and shortest trail length (792 feet) among all alternatives. Direct impacts associated with Alternative 3A include elevated erosion potential from the disturbed areas (792 feet of new trail and 0.12 acres associated with construction of the overpass) project area during construction, reclamation, and maintenance activities as soils will be striped of stabilizing vegetation, woody debris, and large rock. Decreased soil stabilization increases potential downstream sedimentation and mineral properties of affected soils can elevate surface water contaminants to levels exceeding numeric standards. Salt and sediment yield are dependent upon storm period, landform type, and the soluble mineral content of the geologic formation. The absence of adequate drainage from disturbed areas would likely exacerbate any existing erosion problems in the area further contributing to water quality degradation.

However, sediment production from the proposed trail will be mitigated through implementation of BMPs associated with trail BLM trail construction/maintenance standards and Stormwater Management Plan. New construction will be located entirely in upland settings in areas identified as meeting criteria for trail sustainability. Furthermore, maintenance of the proposed trail will reduce the erosion potential from the project area by restoring natural drainage patterns in upland environments and limiting recreational activities to sustainable routes.

Alternative 3C1: This alternative represents the greatest amount of new surface disturbance (1.9268 acres) and longest trail length (1817 feet) among all alternatives. Direct impacts associated with Alternative 3C1 include elevated erosion potential from the disturbed areas (1817 feet of new trail and 0.26 acres associated with construction of the overpass) project area during construction, reclamation, and maintenance activities as soils will be stripped of stabilizing vegetation, woody debris, and large rock. Decreased soil stabilization increases potential downstream sedimentation and mineral properties of affected soils can elevate surface water contaminants to levels exceeding numeric standards. Salt and sediment yield are dependent upon storm period, landform type, and the soluble mineral content of the geologic formation. The absence of adequate drainage from disturbed areas would likely exacerbate any existing erosion problems in the area further contributing to water quality degradation. However, sediment production from the proposed trail will be mitigated through implementation of BMPs associated with trail BLM trail construction/maintenance standards and Stormwater Management Plan. New construction will be located entirely in upland settings in areas identified as meeting criteria for trail sustainability. Additionally, new trail construction will be adequately buffered from perennial water sources by the existing railroad grade (limiting non-point source contributions to the Gunnison River). Furthermore, maintenance of the proposed trail will reduce the erosion potential from the project area by restoring natural drainage patterns in upland environments and limiting recreational activities to sustainable routes.

Alternative 3C2: This alternative represents the second greatest amount of new surface disturbance (1.9264 acres) and second longest trail length (1813 feet) among all alternatives. Direct impacts associated with Alternative 3C2 include elevated erosion potential from the disturbed areas (1813 feet of new trail and 0.26 acres associated with construction of the underpass) project area during construction, reclamation, and maintenance activities as soils will be stripped of stabilizing vegetation, woody debris, and large rock. Decreased soil stabilization increases potential downstream sedimentation and mineral properties of affected soils can elevate surface water contaminants to levels exceeding numeric standards. Salt and sediment yield are dependent upon storm period, landform type, and the soluble mineral content of the geologic formation. The absence of adequate drainage from disturbed areas would likely exacerbate any existing erosion problems in the area further contributing to water quality degradation. However, sediment production from the proposed trail will be mitigated through implementation of BMPs associated with trail BLM trail construction/maintenance standards and Stormwater Management Plan. New trail construction will be located entirely in upland settings in areas identified as meeting criteria for trail sustainability. Additionally, new

trail construction will be adequately buffered from perennial water sources by the existing railroad grade (limiting non-point source contributions to the Gunnison River). Furthermore, maintenance of the proposed trail will reduce the erosion potential from the project area by restoring natural drainage patterns in upland environments and limiting recreational activities to sustainable routes.

It is anticipated that the completion depth of the proposed underpass will sit below water table elevations within alluvial deposits of the Gunnison River. In this case the proposed underpass may serve as a conduit for contaminants to enter alluvial groundwater (much like an uncapped well). Potential sources include leaks or spills of fuels, lubricants, or coolants associated with construction equipment, animal/human waste (fecal coliform), unauthorized dumping, etc... Furthermore, seasonal flooding of the proposed underpass (May-June) would likely coincide with the highest volume of recreational use increasing potential for contamination.

Finding on Standard 5: Implementation of the proposed action or alternatives will not result in elevated selenium concentrations to segment 2 or 4a. Therefore, the proposed action will not alter the current finding.

Stream segment 6 is currently meeting Public Land Health Standard 5. Water quality in this stream segment will continue to meet Standard 5 until re-assessed.

4.11.3 Protective/Mitigation Measures:

1. The operator shall implement appropriate BMPs outlined in their State approved SWMP to successfully mitigate-point source pollution associated with surface disturbing activities exceeding 1 acre in size and to control drainage from and around the constructed parking area.
2. Vault pit toilets shall be maintained in functional condition to avoid overflow and potential contamination of water resources.
3. Mitigation measures outlined in the Hazardous Materials portion of this document shall be adhered to.

4.12 WETLANDS & RIPARIAN ZONES

4.12.1 No Action

There would be no impacts to riparian habitat.

Riparian habitat would continue to meet land health standard 2.

4.12.2 All Action Alternatives

Parking area: The parking area would be constructed to the south of the existing road. During construction it is likely that there will be some disturbance of the road allowing disturbed

material to fall or erode off the fill side of the hill. This material is not expected to reach riparian vegetation or the stream bank. If material was to reach the riparian area it is expected that the riparian vegetation would filter and incorporate these materials into the riparian area. With proper engineering (grading) of the parking lot, drainage would be managed and runoff access points to Deer creek would be stabilized.

Trails: Under all alternatives trail proper construction is expected to prevent concentration of runoff and prevent erosion of the trail surface. No impacts to riparian habitat are expected.

Bridge Construction: Actual construction would be outside of the riparian corridor so no damage to riparian vegetation or stream banks is expected. During construction of the bridges or underpasses there would be disturbance of vegetation and soils with an increase of localized erosion expected. Material resulting from this erosion is expected to be filtered and incorporated into the stream banks by the riparian vegetation along the Gunnison River.

Riparian habitat would continue to meet land health standard 2.

4.13 WILDERNESS

4.13.1 No Action

There would be no impact to wilderness, access would continue on current trail.

4.13.2 All Action Alternatives

The project area is adjacent to the Dominguez Canyon Wilderness Area and provides pedestrian and equestrian access to the Wilderness area. Since there would be no ground disturbing actions in the wilderness area, there would be no direct impacts to the wilderness from the proposed action. The proposed improvements could have an indirect impact on wilderness values if visitation increases as a result of a safer, more natural access. Since it is unknown whether an increase in visitation would occur, or if an increase does occur, what the extent of the increase would be, the level of impact is unknown.

4.13.3 Protective/Mitigation Measures

1. The BLM should monitor visitor use numbers in the wilderness to determine whether the proposed action results in an increase in use inside the wilderness.
2. As part of the Dominguez-Escalante National Conservation Area resource management planning process, the BLM should evaluate appropriate visitor use levels in the wilderness.

4.14 SOILS

4.14.1 No Action

There would be no changes from current conditions.

4.14.2 All Action Alternatives

The maximum disturbance would be 1.92 acres of which 1.5 acres would be the parking lot. Construction of the parking lot would not change the character of the soils on site as they are currently in a disturbed condition. On the trails there would be disturbance of vegetation and soils which would increase erosion over current levels. Proper construction of the trails is expected to provide proper drainage and prevent water from running along the trail, limiting erosion. Maintenance of the trail would further prevent erosion.

Finding on Standard 1: Implementation of the proposed action or alternatives will not result in alter the current finding.

4.14.3 Protective/Mitigation Measures:

See Water quality.

4.15 VEGETATION

4.15.1 No Action

There would be no changes from current conditions.

4.15.2 All Action Alternatives

Under the proposed action vegetation would be removed by construction of the parking lot, trails and railroad crossings. On the parking lot cheatgrass would be removed and base material would be spread to provide a stable surface. On the trail system shrubs and grasses would be removed as a result of construction activities. This would include removal of native shrubs, grasses and forbs and cheatgrass a non-native species. The crossings would require removal of primarily non-native species mostly cheatgrass.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial):

Impacts to vegetation will be limited and are not expected to change the currently functioning classification of the land health standard for vegetation communities.

4.16 WILDLIFE, AQUATIC

4.16.1 No Action

Under the No Action alternative no impacts to aquatic wildlife would occur.

4.16.2 All Action Alternatives

All of the action alternatives involve construction of a new parking lot and trail head consisting of 1.5 acres of disturbance centered around an area that has been previously disturbed. Habitat for aquatic wildlife does not occur in therefore no impacts to aquatic wildlife will occur as a result of the trailhead and parking lot construction.

Alternative 3A: Under this alternative, a new crossing would be constructed approximately ½ mile from the proposed parking lot location. An overpass (bridge) would be installed sufficient to permit passage by horses and people. Direct impacts to the aquatic wildlife are not expected, however the footer of the pedestrian bridge on the northwest side of the rail road tracks will be constructed within the floodplain of the Gunnison river, impacts to aquatic wildlife would only be expected if the construction of this bridge footer altered the natural flow regime of the Gunnison river during a flood event. The floodplain of the Gunnison river has already been altered by the construction of the rail road grade, additional impacts to the floodplain and aquatic wildlife as a result of this action are expected to be insignificant and discountable.

Alternative 3C1: Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an overpass (bridge). Direct impacts to the aquatic wildlife are not expected, however the footer of the pedestrian bridge on the northwest side of the rail road tracks will be constructed within the floodplain of the Gunnison river, impacts to aquatic wildlife would only be expected if the construction of this bridge footer altered the natural flow regime of the Gunnison river during a flood event. The floodplain of the Gunnison river has already been altered by the construction of the rail road grade, additional impacts to the floodplain and aquatic wildlife as a result of this action are expected to be insignificant and discountable.

Proposed Action (Alternative 3C2): Under this alternative, the new crossing would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel). This option would be constructed to provide sufficient space for passage by horses and people. Direct impacts to aquatic wildlife could occur if during flood events fish are entrapped in the pedestrian tunnel under the rail road tracks, given that the rarity of flood events on the Gunnison river (which is dammed upstream of this location) this would be a very rare occurrence. In addition the tunnel on the northwest side of the rail road tracks will be constructed within the floodplain of the Gunnison river. Impacts to aquatic wildlife would only be expected if the construction of this tunnel altered the natural flow regime of the Gunnison river during a flood event. The floodplain of the Gunnison river has already been altered by the construction of the rail road grade, additional impacts to the floodplain as a result of this action are expected to be insignificant and discountable.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): The proposed action will have no effect on the areas ability to meet land health standard 3 for aquatic wildlife

4.17 WILDLIFE, TERRESTRIAL

4.17.1 No Action

Under the No Action alternative no impacts to terrestrial wildlife would occur.

4.17.2 All Action Alternatives

The action of constructing a new trail, trailhead, parking lot and bridge or tunnel is not expected to significantly impact terrestrial wildlife or their habitat. Terrestrial wildlife are more likely to be impacted by disturbance from the long term recreational use of the area than the construction and rerouting of the trail, the action is not expected to change recreational use in the area which is likely to continue to increase.

Finding on the Public Land Health Standard 3 for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): The proposed action will not affect the areas ability to meet Public Land Health Standard 3 for terrestrial wildlife.

4.18 ACCESS

4.18.1 No Action

If no action is taken, the current access will remain coincident with Union Pacific's easement. Non-motorized, non-mechanized public access would continue along the railroad tracks. The BLM would continue to work with the Union Pacific to better define public access in the area.

4.18.2 All Action Alternatives

Under all action alternatives BLM would construct a new trailhead parking area for eight small truck trailer combinations, 26 single vehicle parking spots and a single vault toilet and a new pedestrian/equestrian trail and public railroad grade separation. As a result of the proposed action, public access would continue and the safety issues associated with the railroad would improve. No change in the access profile will occur to Union Pacific and Mika Agriculture as a result of this action.

4.19 FIRE

4.19.1 No Action

No environmental impacts would result from the no-action alternative

4.19.2 All Action Alternatives

The proposed action has potential to reduce human caused fires by relocating human use further away from the thicker more fire prone riparian fuels. Newly constructed trail in could also serve as a fire break and access for future wildfires in this area aiding in there control.

4.20 FUELS MANAGEMENT

4.20.1 No Action

No environmental impacts would result from the no-action alternative

4.20.2 All Action Alternatives

All alternatives that reduce the fuel bed of cheat grass in the retired gravel pit that will become the parking lot would reduce fire hazard.

4.21 HYDROLOGY AND WATER RIGHTS

4.21.1 No Action

No environmental impacts would result from the no-action alternative.

4.21.2 Proposed Action

Impacts Common to All Alternatives: Under all alternatives BLM would construct a new Trail head comprised of a road based surface parking area for eight small truck trailer combinations, 26 single vehicle parking spots, a single vault toilet, site delineation fencing and parking barriers. As a result of the proposed action, erosion potential from the project area will be elevated during construction activities as soils will be stripped of stabilizing vegetation, woody debris, and large rock. Decreased soil stabilization increases potential downstream erosion and sedimentation altering natural flow patterns and leading to stream channel instability. However, new construction will be located entirely in upland settings in areas identified as meeting criteria for trail sustainability. Additionally, new trail construction will be adequately buffered from perennial water sources by the existing railroad grade (limiting non-point source contributions to the Gunnison River). Furthermore, maintenance of the proposed trail will reduce the erosion potential from the project area by restoring natural drainage patterns in upland environments and limiting recreational activities to sustainable routes. Impacts to proper hydrologic function and condition associated with new surface disturbance are negligible for all alternatives.

Indirect Impacts Common to all Alternatives: Improved access to the newly established D-ENCA may increase visitation to the Big/Little Dominguez Watersheds elevating disturbance in riparian areas by both people and horses. Proper functioning riparian areas are essential to maintaining stream channel and bank stability as well as to filter non-point sources of pollution (e.g. sediment) from upland areas. In areas where riparian communities are degraded due to trampling, grazing, firewood collection, human wastes accumulation, etc... stream morphologic function and condition can be compromised. The severity of these potential impacts will depend largely on the volume of visitation, and site specific conditions near areas of disturbance (e.g. slope, soil type, drainage area, etc...).

Alternative 3A: This alternative represents the least amount of new surface disturbance (1.6927 acres) and shortest trail length (792 feet) among all alternatives. However, access to the existing foot bridge would require continued utilization of the existing two-track which bisects the flood prone area and riparian zone of the Gunnison River. Direct impacts associated with surface disturbance are common to all alternatives and described above. Potential indirect impacts to the Gunnison River flood plain specific to alternative 3A include increased potential alteration of proper function/condition of the Gunnison River riparian zone (e.g. increased fire potential, dispersed camping, pioneered trails, etc...). Loss of proper functioning flood plains and riparian zones can lead to excessive erosion and channel destabilization.

Alternative 3C1: This alternative represents the greatest amount of new surface disturbance (1.9268 acres) and longest trail length (1817 feet) among all alternatives. Direct and indirect impacts associated with surface disturbance are common to all alternatives and described above. Alternative 3C1 would expose less of the Gunnison River floodplain to foot/horse travel reducing potential alteration to floodplain function and condition when compared to alternative 3A.

Alternative 3C2: This alternative represents the second greatest amount of new surface disturbance (1.9264 acres) and second longest trail length (1813 feet) among all alternatives. Construction of the underpass is not anticipated to alter proper function and condition of the Gunnison River floodplain. However, seasonal flooding should be anticipated which may result in establishment of trespass routes across the rail road tracks. Alternative 3C2 would expose less of the Gunnison River floodplain to foot/horse travel reducing potential alteration of floodplain function and condition when compared to alternative 3A.

4.22 PALEONTOLOGY

4.22.1 No Action

There would be no impacts to fossil resources.

4.22.2 All Action Alternatives

Construction activities have the potential to disturb unknown paleontological resources either directly with tools, or indirectly by recreationists using the trails after construction is completed. A paleontological survey was completed on July 20, 2010 by the GJFO BLM geologist/paleontology coordinator and no vertebrate fossil resources were found within the proposed trail, parking lot or bridge alignments where the surface geology is composed of the Morrison Formation. The BLM paleontology resource site database was also reviewed for the project area and no sites have been recorded.

4.22.3 Protective/Mitigation Measures:

If any fossil resources are discovered during construction activities, work in the immediate area must cease while the BLM geologist/paleontology coordinator is contacted to investigate the discovery. Work may continue in other parts of the project area.

4.23 REALTY AUTHORIZATIONS

4.23.1 No Action

There would be no impacts to existing realty authorizations.

4.23.2 Proposed Action

Provided that the BLM obtains agreements with the existing right-of-way holders prior to construction, the proposed action would not conflict with any of the existing realty authorizations.

4.23.3 Protective/Mitigation Measures:

The BLM should notify the right-of-way holders in the project area prior to surface disturbance or construction activities and obtain an agreement with the right-of-way holders to assure that no damage to an existing right-of-way or authorized facility will occur.

4.24 RECREATION

4.24.1 No Action

If no action is taken, the current access will remain coincident with Union Pacific's easement. Non-motorized, non-mechanized public access would continue along the railroad tracks. The BLM would continue to work with the Union Pacific to better define public access in the area. The existing public safety issue of pedestrian and equestrian traffic adjacent to the railroad tracks would continue. Public traffic would continue to travel in close proximity to and cross the track. Hikers would continue to climb through parked trains when the crossing is blocked.

4.24.2 Action Alternatives

Impacts Common to All Alternatives: Under all action alternatives BLM would construct a new trailhead parking area for eight small truck trailer combinations, 26 single vehicle parking spots and a single vault toilet and a new pedestrian/equestrian trail and public railroad grade separation. Under all action alternatives, public access would continue and the safety issues associated with the railroad would improve. In all action alternatives a crossing (either a bridge or an underpass) would be constructed which would reduce the safety hazard of hikers climbing through parked trains.

The availability of additional parking and increased visibility of the new National Conservation Area may generate increased public use of the project area but as visitation has been steady for the years following the construction of the public bridge across the Gunnison River that trend could be expected to continue in the near future. The proposed improvements could have an indirect impact on recreation at the mouth of Dominguez Canyon and in the Dominguez Canyon Wilderness Area if visitation increases as a result of a safer, more natural access. Since it is unknown whether an increase in visitation would occur, or if an increase does occur, what the extent of the increase would be, the level of impact is unknown.

Alternative 3A: The trail in this alternative will climb from the new parking area, traverse south cross slope for less than one half mile, descend via switchbacks to a point where the trail will tie in with a new above railroad grade crossing structure, cross over the railroad tracks and further descend to Mesa County Road 39.50. The public will then travel 39.50, which passes through an area adjacent to the railroad track which resembles a small maintenance area (storage for materials and occasionally equipment used for railroad maintenance operations). The result of this is a much less pleasurable experience as one is still traversing through an industrial like area adjacent to the rail road tracks on a route that is shared by other full-size motorized users. Under this alternative, the public would travel along the railroad tracks the longest distance.

Alternative 3C1 & 3C2:

Trail: The proposed trail in this location is approximately 1.13 miles in length and on average is approximately 500 feet away from the railroad tracks throughout this length. By separating the proposed trail and tracks visually, and spatially, the users of the trail will not be in direct contact with the railroad and its facilities shifting the recreation experience to one of a more front-country experience from a rural/urban industrial character which is more appropriate for this setting. Additionally, the spatial separation decrease the likelihood that people, stock or domesticated pets will desire to enter the easement or cross the railroad tracks by shortcutting the trail. Given the choice, recreationists may remain on a well constructed trail rather than traverse needlessly across rough terrain where the crossing outcome is uncertain. The trail alignment for both of these alternatives would reduce the safety issue of public travel along the tracks more than in Alternative 3A because the public would remain separated from the railroad tracks for the longest distance. The Union Pacific Railroad supports both these alternatives over Alternative 3A because of the increased safety of separating the public from the railroad tracks for the longest distance.

Above Grade Crossing: The bridge design would be similar to that of the current public Gunnison River Bridge which will allow for hikers to walk and require equestrian users to dismount their stock and lead them across. It has been noted by equestrians that the exposed nature of the bridge and the potential of a train going beneath the bridge while a horse is crossing may spook the horse which is a dangerous situation for the animal as well as anyone on the bridge at the time. The aforementioned situation will be impossible to fully mitigate as the BLM does not control the flow of train traffic. A bridge too, due to its visually obvious appearance as an industrial intrusion, is generally more appropriate in a more rural to urban setting than that of a front-country setting.

Below Grade Crossing: The tunnel (or below grade crossing) would be constructed to the same basic clearance specifications to that of the bridge – where hikers could walk through the underpass and equestrians would need to dismount. However, the darkness of the tunnel and loudness of hooves on a hard trail surface (poured concrete pad) may also spook or scare a horse also leading to a potentially hazardous situation; this could be minimized by the proposed soft surface. A tunnel, although clearly a man-made structure, would not be an obvious affront to the setting character.

4.24.3 Protective/Mitigation Measures

1. The BLM should monitor visitor use numbers at the mouth of Dominguez Canyon to determine whether the proposed action results in an increase in use.
2. As part of the Dominguez-Escalante National Conservation Area resource management planning process, the BLM should evaluate appropriate visitor use levels in area around the mouth of Dominguez Canyon.

4.25 TRANSPORTATION

4.25.1 No Action

If no action is taken, the current access will remain coincident with Union Pacific's easement. Non-motorized, non-mechanized public access would continue along the railroad tracks. The BLM would continue to work with the Union Pacific to better define public access in the area.

4.25.2 Action Alternatives

Impacts Common to All Alternatives Under all action alternatives BLM would construct a new trailhead parking area for eight small truck trailer combinations, 26 single vehicle parking spots and a single vault toilet and a new pedestrian/equestrian trail and public railroad grade separation. As a result of the proposed action access will be safe and provide for a legal public crossing of the Union Pacific rail line. The availability of additional parking and increased visibility of the project area may generate increased public use of Mesa County Road 30.5

requiring additional surface maintenance to occur on the road. All alternatives require the owner of the grade crossing structure to maintain the structure so long as the access is open to public use.

Alternative 3A: Under this alternative, the public would continue to share Mesa County Road 39.50 with full size motorized vehicles which is not generally the best option due to the unpredictability of stock and other domesticated pets around vehicles.

Alternative 3C/3C2: The maximum separation for the longest physical distance between recreation users and other road users and train would be most advantageous. This alternative does require the trail owner to periodically maintain the trails tread.

4.26 VISUAL

4.26.1 No Action

If no action is taken, no impacts to the characteristic landscape will occur. VRM class II objectives will be met.

4.26.2 Action Alternatives

Impacts Common to All Alternatives: The parking area and associated structures (parking stops and site barriers, restroom facility and information kiosks) will introduce some straight line features which are not found in the characteristic landscape. The level of color and texture contrast will be noticeable but not dominate the view of the casual observer.

Alternative 3A: This alternative will introduce strong linear features (such as the bridge and abutments) not found in the characteristic landscape. The trail connecting to the bridge generally follows natural contours until it is necessary to construct switchbacks to descend. This feature will be visible from a KOP which is along the Gunnison River; however, this feature will be substantially visually overridden by the very strong linear and color features associated with the railroad track and county road.

Alternative 3C1: Impacts are similar to that of 3A above.

Alternative 3C2: This alternative will create very little in the way of visual intrusion to the casual observer as most of the ground disturbance will be adjacent to or beneath the existing rail road tracks.

CHAPTER 5

5.1 CUMULATIVE IMPACTS SUMMARY:

5.1 INTRODUCTION

NEPA requires federal agencies to consider the cumulative effects of proposals under their review. Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations 40 CFR §1508.7 as "...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency...or person undertakes such other actions." These actions include current and projected area development or management activities, and authorizations on public lands; land use trends; and applicable industrial/infrastructure components. Although the individual impacts of each separate project might not be significant, the additive effects of multiple projects could be.

The CEQ guidance states: "It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful. For cumulative effects analysis to help the decision-maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to affected parties" (CEQ, 1997).

The geographic and temporal limitations the BLM has placed on its analysis are consistent with CEQ's guidance (CEQ, 1997) which states that "cumulative effects result from spatial (geographic) and temporal (time) crowding of environmental perturbations." With regard to the spatial, or geographic limitations, the CEQ states that the "cumulative effects analyses should be conducted on the scale of human communities, landscapes, watersheds, or airsheds" using the concept of "project impact zone" or more simply put, the area that might be affected by the proposed action.

This chapter evaluates the cumulative effects of the Proposed Action with past, present, and reasonably foreseeable actions in the geographic setting of the Proposed Action. Within each of the evaluated actions, the resources that may be cumulatively affected are discussed. In addition, because the DOE's uranium leasing program analysis area is located south of the Whirlwind Mine, a summary of the cumulative analysis in the Uranium Leasing Program Final Programmatic EA (DOE, 2007) is provided.

5.2 PAST ACTIONS IN THE PROJECT AREA

Past actions include: livestock grazing, recreation and related development, farming and irrigation, railroad development, a former town site, and vehicle travel.

5.3 PRESENT AND REASONABLY FORESEEABLE ACTIONS

Present and reasonably foreseeable actions include: ongoing livestock grazing, recreation and related development, farming and irrigation, railroad development, a former town site, and vehicle travel.

A Comprehensive NCA management plan with a Draft and Final Environmental Impact Statement will be prepared for this area per legislative requirements described in the Omnibus Public Lands Act of 2009.

5.4 CONCLUSIONS

This project will facilitate safer public access to Dominguez Canyon. Combined with the construction of the public bridge across the Gunnison River, the project would improve access to the mouth of Dominguez Canyon and the Dominguez Canyon Wilderness. Monitoring of visitor use at the bridge and inside the wilderness has shown an increase in both areas following the bridge construction. It is not known whether improvements to the access trail would result in further increases. Continued visitor use monitoring and making capacity determinations in the Comprehensive NCA management plan are expected to resolve the potential indirect impacts to recreation and wilderness resources.

There are no direct impacts to listed species associated with this project, and impacts to designated critical habitat are not adverse, therefore this project in combination with the PPRF actions is not expected to rise to the level of significance.

Design features and mitigation measures associated with construction of the trail, trailhead, and crossing are expected to minimize impacts to soils, vegetation, water, and other natural resources; when combined with impacts of the PPRF, these impacts remain insignificant.

Impacts will occur to the Bridgeport town site at the proposed crossing. These impacts will be limited to the crossing location; however construction of the railroad has had impacts to these resources as well. The BLM will work with SHPO throughout the process to minimize impacts and recover information from the resources impacted in accordance with the National Historic Preservation Act. Therefore, these impacts, when combined with the PPRF action, will not be significant.

CHAPTER 6

REFERENCES

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CHAPTER 7 CONSULTATION AND COORDINATION

7.1 List of Preparers and Participants

Union Pacific Railroad

Mesa County Road and Bridge Department

US Fish and Wildlife Service

INTERDISCIPLINARY REVIEW

NAME	TITLE	AREA OF RESPONSIBILITY
Christina Stark	Natural Resource Specialist	Realty Authorizations,
Julia Christiansen	Natural Resource Specialist	O&G Permitting, Surface Management
Alissa Leavitt-Reynolds	Archaeologist	Cultural Resources, Native American Religious Concerns
Chris Ham	Recreation Program Manager	Recreation, VRM, Wilderness, ACECs, NCA, Transportation and Access, Air Quality, Environmental Justice, Prime & Unique Farmlands,
Jim Dollerschell	Range Management Specialist	Range, Wild Horse & Burro Act
David "Scott" Gerwe	Geologist	Geology, Paleontology
Alan Kraus	Hazard Materials Specialist	Hazardous Materials
Robin Lacy	Realty Specialist	Land Status/Realty Authorizations
Heidi Plank	Wildlife Biologist	Migratory Bird Treaty Act, T&E Species, Terrestrial & Aquatic Wildlife
Anna Lincoln	Ecologist	Range, Land Health Assessment, T&E Plant Species
Bob Fowler	Range Management Specialist	Vegetation, Range, Riparian, Floodplains
Collin Ewing	Environmental Coordinator	Environmental Coordinator
Nate Dieterich	Hydrologist	Water Quality, Hydrology, Water Rights
Jacob Martin	Natural Resource Specialist	Range, Forestry
Mark Taber	Range Management Specialist	Invasive, Non-Native Species (Weeds)
Doug Paul	Natural Resource Specialist	Fire Ecology, Fuels Management
Verlene Butts	Land Law Examiner	Rights-of Way, Realty Authorizations

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
GRAND JUNCTION FIELD OFFICE
FINDING OF NO SIGNIFICANT IMPACT

Bridgeport Access and Trailhead Development
DOI-BLM-CO-130 2010-0082-EA

Based on the analysis of potential environmental impacts contained in the attached environmental assessment, and considering the significance criteria in 40 CFR 1508.27, I have determined that the Proposed Action (Alternative 3C2) will not have a significant effect on the human environment. An environmental impact statement is therefore not required.

BACKGROUND

The purpose of the action is to provide safe, alternative access for hikers and horseback riders to Dominguez Canyon Wilderness.

The Bureau of Land Management prepared an Environmental Assessment which analyzed the effects of multiple alternatives to meet the purpose and need for action. The EA considered a range of 4 alternatives in detail. The EA identified alternative 3C2 as a Proposed Action.

The proposed action includes the construction of a new parking area/trailhead/restroom facilities in an existing disturbed area (retired gravel pit) just east up the Bridgeport road from the existing parking lot, as well as construction of a new trail to take people from the new parking lot to the new crossing location. The new crossing (either a bridge or a tunnel) would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel).

Intensity

I have considered the potential intensity/severity of the impacts anticipated from the Bridgeport Access and Trailhead Development Project (including mitigation measures) decision relative to each of the ten areas suggested for consideration by the CEQ. With regard to each:

- 1. Impacts that may be both beneficial and adverse.** This project may have minor short term impacts to soils, vegetation, and special status species; however these impacts are disclosed and are not significant. This project will have a long term net benefit for public safety
- 2. The degree to which the proposed action affects public health and safety.** The proposed action is designed to benefit public health and safety.
- 3. Unique characteristics of the geographic area such as proximity of historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.**

There are no impacts to riparian vegetation, parklands, prime farmlands, wetlands, water supplies or wild and scenic rivers within the project area. The project will impact the historic Bridgeport town site, and a monitoring plan is in place in coordination with the SHPO.

4. *The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

The impacts of recreation trails are generally well known and documented in the academic and practicing communities. Therefore the environmental effects are not likely to be controversial.

5. *The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.*

Recreation developments have a long history in the region and pose no unique or unknown risks.

6. *The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*

This decision is like one of many that have previously been made and will continue to be made by BLM responsible officials regarding recreation on public lands. The decision is within the scope of the Resource Management Plan and is not expected to establish a precedent for future actions. The decision does not represent a decision in principle about a future consideration.

7. *Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

There are no significant cumulative effects on the environment, either when combined with the effects created by past and concurrent projects, or when combined with the effects from natural changes taking place in the environment or from reasonably foreseeable future projects.

8. *The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources.* This project would impact two significant cultural resources: the historic narrow gauge railroad grade and the historic Bridgeport Siding. Formal consultation with the Colorado Office of Archaeology and Historic Preservation (SHPO) would be concluded prior to construction and would likely result in mitigation, likely including archaeological monitoring, testing, data recovery, and possibly interpretation of historic sites in the project area, to offset the damage done to the significant cultural resources.

The monitoring plan included in the EA was developed in consultation with SHPO and formal consultation will be concluded prior to construction.

9. *The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.* Consultation with the U.S. Fish and Wildlife Service has been completed. The proposed action may affect, is not likely to adversely affect designated critical habitat for the endangered Colorado River fishes; and is not likely to jeopardize the continued existence of the Colorado hookless cactus. No direct adverse impacts to listed species are anticipated.

10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment. This decision complies with other Federal, State, or local laws and requirements imposed for the protection of the environment.

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the information contained in the EA, and all other information available to me, it is my determination that: 1) the implementation of the Proposed Action or alternatives will not have significant environmental impacts beyond those already addressed in the "Record of Decision and Resource Management Plan," January 1987, 2) the Proposed Action is in conformance with the Resource Management Plan; and (3) the Proposed Action does not constitute a major federal action having a significant effect on the human environment. Therefore, an environmental impact statement or a supplement to the existing environmental impact statement is not necessary and will not be prepared.

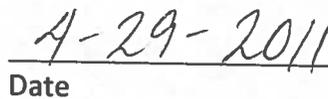
This finding is based on my consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR '1508.27), both with regard to the context and to the intensity of the impacts described in the EA.



Manager

Dominguez-Escalante

National Conservation Area



Date

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
GRAND JUNCTION FIELD OFFICE

DECISION RECORD

Bridgeport Access and Trailhead Development

DOI-BLM-CO-130 2010-0082-EA

DECISION: It is my decision to authorize the Proposed Action as described in the attached EA. The proposed action includes the construction of a new parking area/trailhead/restroom facilities in an existing disturbed area (retired gravel pit) just east up the Bridgeport road from the existing parking lot, as well as construction of a new trail to take people from the new parking lot to the new crossing location. The new crossing (either a bridge or a tunnel) would be located just north of the existing public access bridge across the river; this site would permit enough clearance (70 feet) for an underpass (tunnel).

Implementation will include all of the Mitigation Measures included as appendix A of this Decision record.

A public scoping meeting was held and fourteen members of the public attended along with representatives from Union Pacific Railroad, Mesa County, and the Grand Junction Field Office. A public scoping period was open from 9 June, 2010 until 5 July, 2010 as well. Comments were solicited via the Grand Junction Field office website as well as print and television media. A total of 17 public comments were received and addressed in the EA.

We have coordinated with the county and the railroad throughout the development of the EA. A Preliminary EA was distributed to the county and the railroad.

RATIONALE: This project is important for the safety of visitors to the Bridgeport trail. I chose the route alignment in the proposed action because it will provide the most improvement in public safety issues associated with the public traveling along and crossing the Union Pacific Railroad tracks.

This office prepared an EA for this action and based on that EA I have found that there will be no significant impacts to the human environment. Additionally consultation with the U.S. Fish and Wildlife Service was completed and this route alignment will not jeopardize the continued existence of any listed species or adversely affect designated critical habitat. Monitoring of impacts to cultural resources will be implemented and consultation with SHPO will be conducted throughout the implementation of the project.

PROTEST/APPEALS: This decision shall take effect immediately upon the date it is signed by the Authorized Officer, and shall remain in effect while any appeal is pending unless the Interior Board of Land Appeals issues a stay (43 CFR 2801.10(b)). Any appeal of this decision must follow the procedures set forth in 43 CFR Part 4. Within 30 days of the decision, a notice of appeal must be filed in the office of the Authorized Officer at Grand Junction Field Office, 2815 H Road, Grand Junction, Colorado, 81506. If a statement of reasons for the appeal is not included with the notice, it must be filed with the Interior Board of Land Appeals, Office of Hearings and

Appeals, U.S. Department of the Interior, 801 North Quincy St., Suite 300, Arlington, VA 22203 within 30 days after the notice of appeal is filed with the Authorized Officer.

NAME OF ENVIRONMENTAL COORDINATOR: Collin Ewing

DATE: 4/29/11

SIGNATURE OF AUTHORIZED OFFICIAL:



Manager

Dominguez-Escalante

National Conservation Area

DATE SIGNED:

APPENDICES:

- A) Mitigation Measures
- B) Criteria for the Placement of Trails
- C) Map

MITIGATION MEASURES

1. In addition to the mitigation that will be determined prior to construction through official consultation with SHPO on the impacted significant cultural resources 5ME7351.18 and 5ME14351, the following stipulations should protect any unknown cultural resources in the project area:
 - 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. Within five working days the AO will determine the actions that will likely have to be completed 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)).
 - The BLM and Union Pacific Railroad and their subcontractors are responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts.
 - Strict adherence to the confidentiality of information concerning the nature and location of archeological resources is required of the BLM and Union Pacific Railroad project proponents and all of their subcontractors (Archaeological Resource Protection Act, 16 U.S.C. 470hh).
2. To protect the cultural setting of the area, no rock will be removed from the north side of the Bridgeport road. Any rock needed will be hauled from offsite
3. The project will not limit access if any if there are traditional or religious uses that are not known to the agency. Additionally, the following mitigation may have to be negotiated or enforced if new information is made known to the agency:
 - If new information is brought forward any site-specific Native American mitigation measures suggested during notification/consultation would be considered during the implementation of the Proposed Action.
 - 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)).
 - On private lands, laws for Historic, Prehistoric, and Archaeological Resources, and for unmarked Human Graves (CRS 24-80-401 and CRS 24-80-1301) will be adhered to by the BLM, Union Pacific Railroad and their subcontractors. These state statutes require that the federal Authorizing Officer be notified immediately of any historic or prehistoric finds or human grave. The find must be protected until the authorizing officer indicates the action may proceed.
4. To avoid impacts to nesting migratory birds clearing of vegetation that provides potential nesting habitat for migratory songbirds will not occur between May 15 and July 15.

5. If construction is to occur between January 1 and July 31 surveys will be conducted to determine if cliff nesting raptors occupy the area and if raptor nests are found appropriate timing limitations and distance buffers will be applied to ensure construction activities do not cause nest failure.
6. Conservation measures from the BA/BO for Alternative 3C2 are:
 - Fencing or barriers (rocks, etc.) will be placed along the trail where the trail is in close proximity to Colorado hookless cactus plants to deter users from leaving the trail.
 - Invasive/noxious weeds present in the parking and trailhead area will be treated and disturbed areas will be reseeded with a mix of appropriate native seed after construction is completed. Weeds are scarce along the newly proposed trail and it is not anticipated that chemical treatments will be needed in this area. By treating these weeds in the parking and trailhead area, propagule pressure will be reduced along the trail.
 - In addition to initial reclamation efforts, this area will be added to the system for periodic surveys and treatment of noxious weeds by the GJFO weeds staff. Chemical treatments will be sensitive to the presence of Colorado hookless cacti. Specifically, herbicide treatments would comply with the U.S. Environmental Protection Agency label directions and follow BLM procedures outlined in BLM Handbook H-9011-1 (*Chemical Pest Control*) and BLM Manual Sections 1112 (*Safety*), 9011 (*Chemical Pest Control*), and 9015 (*Integrated Weed Management*) and meet or exceed State label standards. Herbicide applications would adhere to all State and Federal pesticide laws.
 - Trail width will be no more than 48 inches wide (generally 18-30in) and the proposed trail will be open to hikers and horseback riders only. Dust resulting from these activities is expected to be minimal.
 - Recorded CHC adjacent to the trail will be located prior to project construction, and any newly discovered cactus will be avoided. The trail alignment will be checked for cactus prior to construction to ensure avoidance.
 - Consideration will be given to downslope effects on CHC plants during construction. If trail building techniques do not adequately address those concerns, the BLM will consider using silt fences or similar barriers to eliminate or reduce sedimentation effects.
 - A BLM staff member or designee familiar with CHC will be on-site during construction to ensure avoidance of CHC plants.
 - As with other weed treatments in the GJFO, herbicide application would be conducted according to guidelines and conservation measures outlined in BLM's Integrated Weed Management Plan (BLM 2010), and in accordance with the BO (TAILS 65413-2010-I-0138) for that project, issued July 27, 2010. Conservation measures from that consultation (buffers, herbicide type restrictions, application method restrictions, etc.) are hereby incorporated by reference. Any weed treatment activities not covered by the previously mentioned BO would be subject to further consultation under Section 7 consultation.
 - Trail construction will be timed to avoid the flowering period (April-May, Spackman et al. 1997) of CHC to avoid disruption of pollinators.
7. Vehicle fueling and maintenance will be conducted at least 100 feet away from the river. Fuel storage next to the river will not be discouraged. If it is necessary, fuel tanks will be located within a lined, containment structure. This could be an artificial container or an earthen berm with a synthetic liner. The containment vessel will be of sufficient size to hold 110% of the total volume of liquids stored within. Any spills of any size will be reported immediately to the BLM Authorized Officer.

- 8.** The BLM shall implement appropriate BMPs to successfully mitigate-point source pollution associated with surface disturbing activities exceeding 1 acre in size and to control drainage from and around the constructed parking area.
- 9.** Vault pit toilets shall be maintained in functional condition to avoid overflow and potential contamination of water resources.
- 10.** Continue monitoring visitor use numbers at the public bridge and inside the Dominguez Canyon Wilderness
- 11.** Determine appropriate visitor use levels for the area around the mouth of Dominguez Canyon and in the Dominguez Canyon Wilderness Areas as part of the Dominguez-Escalante NCA Resource Management Plan.

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

CRITERIA FOR THE PLACEMENT OF TRAILS

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 water falls, 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.

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Appendix C

