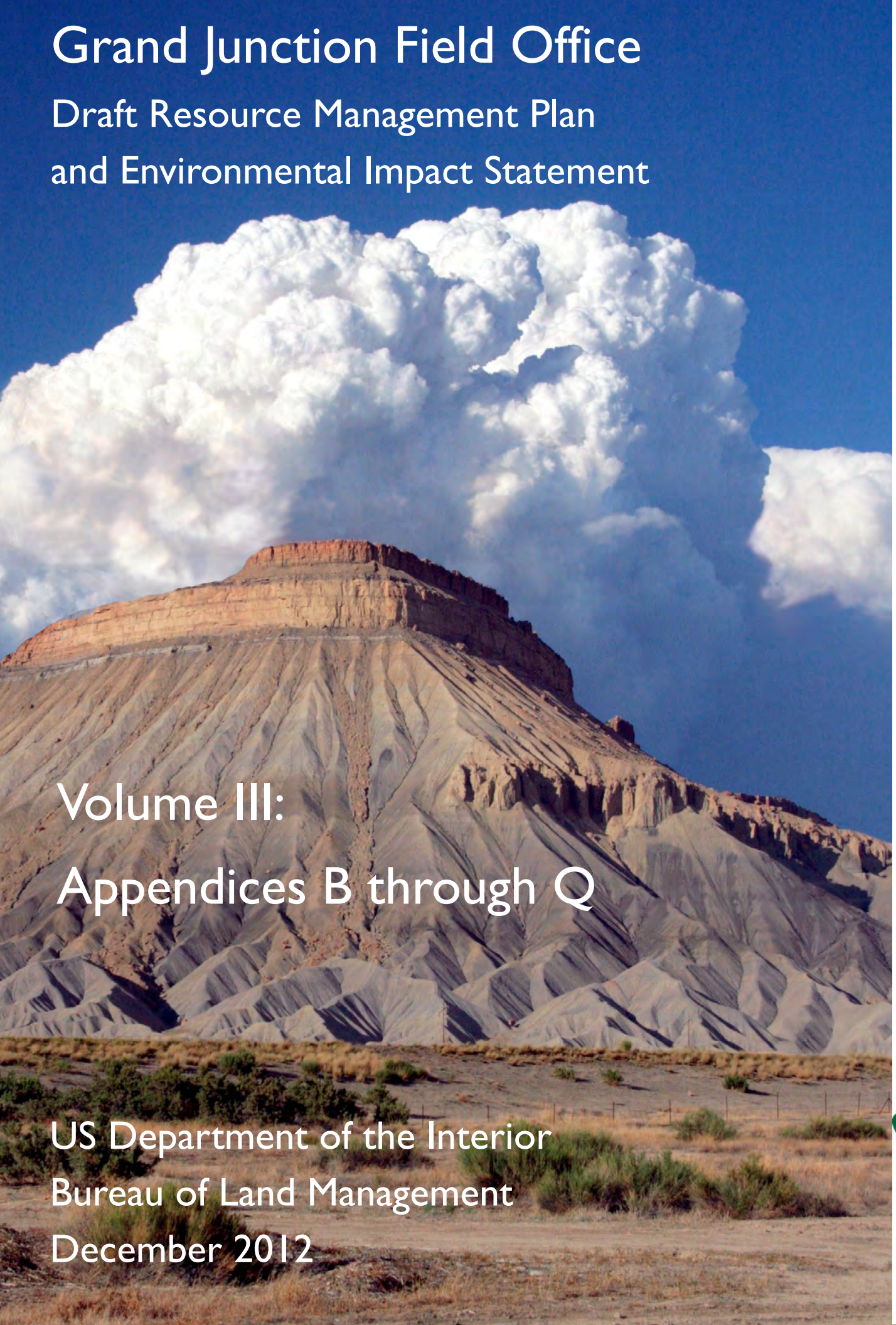
Grand Junction Field Office

Draft Resource Management Plan and Environmental Impact Statement



Volume III: Appendices B through Q

US Department of the Interior
Bureau of Land Management
December 2012

BLM

BLM Mission

To sustain the health, diversity, and productivity of America's public lands for the use and enjoyment of present and future generations.

BLM/CO/PL-12/004

Cover photo by Terry Bridgman, Range Technician, Grand Junction Field Office

LIST OF APPENDICES – VOLUME III

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ACEC	Area of Critical Environmental Concern
AML	Appropriate Management Level
AMP	Allotment Management Plan
ATV	all-terrain vehicle
AUM	animal unit-month
BEA	United States Department of Commerce, Bureau of Economic Analysis
BLM	United States Department of the Interior, Bureau of Land Management
BMP	best management practices
Bbbl/sqmi	billion barrels of oil per square mile
CEQ	Council on Environmental Quality
CCR	Colorado Code of Regulations
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
CIAA	Cumulative Impact Analysis Area
CMA	Cooperative Management Agreement
CNAP	Colorado Natural Areas Program
CNHP	Colorado Natural Heritage Program
COA	condition of approval
CPW	Colorado Parks and Wildlife
CSU	controlled surface use
CTTM	Comprehensive Trails and Travel Management
EA	environmental assessment
EDRR	Early Detection and Rapid Response
EIS	environmental impact statement
ESA	US Endangered Species Act of 1973
ERMA	extensive recreation management area
ESR	emergency stabilization and rehabilitation
FAR	functioning at risk
FAR-DOWN	functioning at risk downward trend
FAR-NA	functioning at risk no apparent trend
FAR-UP	functioning at risk upward trend
FLPMA	Federal Land Policy and Management Act of 1976
FLRMP	Forest Land and Resource Management Plan
FRCC	fire regime condition class
GIS	Geographic Information System
GJFO	Grand Junction Field Office
IMPLAN	Impact Analysis for Planning
IRMA	Intensive Recreation Management Area
K	soil eroidibilty potential factor
KPLA	Known Potash Leasing Area

ACRONYMS AND ABBREVIATIONS *(continued)*

	Full Phrase
LBCWHR	Little Book Cliffs Wild Horse Range
LED	Local Employment Dynamics
LN	Lease Notice
LPM	Land Parcel Model
Ma	million years before present
MOU	Memorandum of Understanding
NAICS	North American Industrial Classification System
NEPA	National Environmental Policy Act of 1969
NCA	National Conservation Area
NF	not functioning
NFRP	Normal Year Stabilization and Rehabilitation Plan
NOI	Notice of Intent
NPS	United States Department of the Interior, National Park Service
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NREL	National Renewable Energy Laboratory
NRHP	National Register of Historic Places
NSO	no surface occupancy
NWSRS	National Wild and Scenic Rivers System
OHV	off-highway vehicle
ONA	Outstanding Natural Area
ORV	outstandingly remarkable value
PFC	proper functioning condition
PFYC	Potential Fossil Yield Classification
PGH	preliminary general habitat
PPH	preliminary priority habitat
PPR	Parachute-Piceance-Roan
RAC	Resource Advisory Council
RMIS	Recreation Management Information System
RMZ	Recreation Management Zone
RMP	resource management plan
RNA	Research Natural Area
ROD	record of decision
ROS	recreation opportunity spectrum
ROW	right-of-way
RS	Revised Statute
RSC	recreation setting characteristic
SHPO	State Historic Preservation Officer
SIC	Standard Industrial Classification
SOP	Standard Operating Procedures
SMA	Special Management Area
SRMA	Special Recreation Management Area

ACRONYMS AND ABBREVIATIONS *(continued)*

	Full Phrase
SRP	Special Recreation Permit
TL	timing limitation
TMDL	Total Maximum Daily Load
US	United States
US BOR	United States Department of the Interior, Bureau of Reclamation
US DOE	United States Department of Energy
US DOI	United States Department of the Interior
US EPA	United States Environmental Protection Agency
US Forest Service	United States Department of Agriculture, Forest Service
USC	United States Code
USDA	United States Department of Agriculture
USGS	United States Geological Survey
USFWS	United States Department of the Interior, Fish and Wildlife Service
VRI	visual resource inventory
VRM	visual resource management
WSA	Wilderness Study Area
WSR	Wild and Scenic River
WUI	Wildland-Urban Interface

Appendix B

Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

TABLE OF CONTENTS

Chapter Page

TABLES

Page

This page intentionally left blank.

APPENDIX B
STIPULATIONS APPLICABLE TO FLUID MINERAL LEASING AND OTHER SURFACE-DISTURBING ACTIVITIES

This appendix lists by alternative the stipulations for fluid mineral leasing (e.g., oil, gas, and geothermal) referred to throughout this Draft RMP and EIS. These stipulations would also apply, where appropriate, to all surface-disturbing activities (and occupancy) associated with land use authorizations, permits, and leases issued on BLM lands. The stipulations would not apply to activities and uses where they are contrary to laws, regulations, or specific program guidance. The intent of these stipulations is to consistently mitigate impacts by applying the same stipulation to all land use authorizations across the board. It is BLM's intent to incorporate the same level of restrictions, to the extent practicable, on agency proposed projects.

Stipulations also apply to fluid mineral leasing on lands overlying federal mineral estate, which includes federal mineral estate underlying BLM lands, privately owned lands, and state-owned lands. As such, federal mineral estate acres are greater than BLM surface acres. Within the planning area, the BLM administers 1,061,400 acres of surface estate and 169,800 acres of split-estate (i.e., where the surface rights are in private ownership and the rights to development of the mineral resources are publicly held and managed by the federal government (BLM). The BLM will coordinate with the surface owner when applying stipulations on split-estate at the leasing phase. Stipulations may also be applied to land managed by other federal agencies at the leasing stage and whenever activities are proposed to affect the surface based on coordination with the agency. Acreages in this appendix reflect federal mineral estate overlain by BLM, private, and state-owned land. Acreages for stipulations are calculated based on current information and may be adjusted in the future through plan maintenance as conditions warrant.

Data from GIS have been used in developing acreage calculations and for generating many of the figures in Appendix A. Calculations are dependent upon the quality and availability of data and most calculations in this RMP are rounded to the nearest one hundred acres. Given the scale of the analysis, the compatibility constraints between datasets, and lack of data for some resources, all calculations are approximate and serve for comparison and analytic purposes only. Likewise, the figures in Appendix A are provided for illustrative purposes and subject to the limitations discussed above. BLM may receive additional GIS data; therefore, acreages may be recalculated and revised at a later date.

Surface-disturbing activities are those that normally result in more than negligible (i.e., immeasurable, not readily noticeable) disturbance to vegetation and soils on public lands and accelerate the natural erosive process.

Surface disturbances could require reclamation and normally involve use and/or occupancy of the surface, causing disturbance to soils and vegetation. They include, but are not limited to: the use of mechanized earth-moving equipment; truck-mounted drilling and geophysical exploration equipment off designated routes; off-road vehicle travel in areas designated as limited or closed to off road vehicle use; construction of facilities such oil and gas wells and/or pads; major recreation sites; new trail construction; and use of pyrotechnics and explosives. Surface disturbance is not normally caused by casual-use activities. Activities that are not normally considered surface disturbing include, but are not limited to: livestock grazing, cross country hiking, minimum impact filming, vehicular travel on designated routes, and minimum impact emergency response activities such as construction of fire line using hand tools as a tactic for suppression and management of unplanned fire. Even where stipulations prohibit surface disturbing activities, some surface disturbing activities may be allowed under exceptions from stipulations through the process described under **Section B.2.1**. (Example 1: A livestock fence proposed in an area covered by NSO-38 for Wildlife Emphasis Areas may be excepted from the stipulation if it can be shown that the project will have negligible impacts to wildlife through appropriate mitigation; or example 2: A natural gas well pad proposed in an area covered by CSU-8 for Old Growth Forests and Woodlands may be excepted from the stipulation if it can be shown that the project would have negligible impacts on old growth forests and woodlands through appropriate mitigation.)

The BLM has the discretion to modify surface operations to change or add specific mitigation measures when supported by environmental analysis. All mitigation/conservation measures not already required as stipulations would be analyzed in a site-specific NEPA document, and be incorporated, as appropriate, into conditions of approval of the permit, plan of development, and/or other use authorizations.

B.1 DESCRIPTION OF STIPULATIONS

Tables B-1 through **B-4** summarize the stipulations, and **Tables B-5** through **B-8** provide details of the stipulations and protected resources including exceptions, modifications, and waivers by alternative. Three types of stipulations could be applied to fluid mineral leasing or to land use authorizations, except for those authorized under the realty program: 1) NSO or other no surface-disturbing activities; 2) CSU; and 3) TL. ROW authorizations are governed by avoidance and exclusion area restrictions. ROW avoidance areas may have corresponding stipulations, as specifically noted in **Tables B-1** through **B-3** and **Tables B-5** through **B-7**. In these cases, denoted as NSO-X (ROWA), CSU-X (ROWA) or TL-X (ROWA), the surface area covered by the stipulation is considered a ROW avoidance area. Where stipulations are noted as *Partial ROWA*, only a portion of the area covered by the stipulation is a ROW avoidance area. See the glossary for descriptions of ROW avoidance and ROW exclusion.

Lease stipulations and lease notices would be applied to all new leases. On existing leases, the BLM would seek voluntary compliance or would develop Conditions of Approval for Applications for Permit to Drill to achieve resource objectives of the RMP (see BLM's Land Use Planning Handbook H-1601-1 at Appendix C, part H), when determined reasonable and consistent with valid existing rights.[1]

Stipulations identified in Alternative A, current management, were developed in the 1987 GJFO RMP (BLM 1987) and are annotated as "existing" in italics in the "stipulations number" column of **Tables B-1** through **B-4** and **B-5** through **B-8**.

B.1.1 No Surface Occupancy (NSO) or Other Surface-disturbing Activities

Use or occupancy of the land surface for fluid mineral exploration or development and other surface-disturbing activities (as defined above) is prohibited to protect identified resource values. In Alternative A, NSO stipulations apply only to fluid mineral exploration or development. Refer to **Tables B-1** and **B-5**. Acreages are provided in these tables for mapped stipulations.

The NSO/No Surface-disturbing Activities stipulation, a major constraint, includes stipulations that may have been worded as "No Surface Use/Occupancy," "No Surface Disturbance," "Conditional NSO," "ground-disturbing activity," and "Surface Disturbance or Surface Occupancy Restriction (by location)."

[1] See also 43 CFR 1610.5-3(b): "…the Field Manager shall take appropriate measures, subject to valid existing rights, to make operations and activities under existing permits, contracts, cooperative agreements or other instruments for occupancy and use, conform to the approved plan or amendment within a reasonable period of time."

Areas identified as NSO/No Surface-disturbing Activities are open to fluid mineral leasing, but surface-disturbing activities cannot be conducted on the surface of the land unless an exception, waiver, or modification is granted (Section B.2). Access to fluid mineral deposits would require directional drilling from outside the boundaries of the NSO/No Surface-disturbing Activities areas.

An NSO/No Surface-disturbing Activities stipulation cannot be applied to operations conducted under the 1872 Mining Law unless the lands have been withdrawn from mineral entry and the operator has no valid and existing mining claims. A withdrawal is not considered a land use planning decision because it must be approved by the Secretary of Interior. Therefore, unless withdrawn from mineral entry with no pre-existing mining claims, areas identified as NSO/No Surface-disturbing Activities are open to operations conducted under the mining laws, and subject only to TL and CSU stipulations that are consistent with the rights granted under the mining laws. Where only an NSO stipulation exists, and no equivalent CSU or TL stipulations applies to operations conducted under the mining laws, the NSO stipulation would be applied as a CSU stipulation (i.e., the surface-disturbing activity could be shifted more than 200 meters [656 feet] to protect the specified resource or value if consistent with the rights granted under the mining laws).

B.1.2 Controlled Surface Use (CSU)

CSU is a category of moderate constraint stipulations that allows some use and occupancy of public land while protecting identified resources or values. A CSU stipulation allows the BLM to require special operational constraints, or the surface-disturbing activity can be shifted more than 200 meters (656 feet) to protect the specified resource or value. Refer to **Tables B-2** and **B-6**. Acreages are provided in these tables for mapped stipulations.

B.1.3 Timing Limitations (TL)

Areas identified for TL, a moderate constraint, are closed to fluid mineral exploration and development, surface-disturbing activities, and intensive human activity during identified time frames. This stipulation does not apply to operation and basic maintenance activities, including associated vehicle travel, unless otherwise specified. Construction, drilling, completions, and other operations considered to be intensive in nature are not allowed. Intensive maintenance and routine or scheduled workovers on wells is not permitted. Administrative activities are allowed at the discretion of the Authorized Officer. Refer to **Tables B-3** and **B-7**. Acreages are provided in these tables for mapped stipulations.

B.1.4 Lease Notice (LN)

A LN provides more-detailed information concerning limitations that already exist in law, lease terms, regulations, or operational orders. An LN also addresses special items that lessees should consider when planning operations but does not impose additional restrictions. Lease Notices apply only to leasable

minerals (e.g., oil, gas, geothermal) and not to other types of leases, such as livestock grazing. Refer to **Tables B-4** and **B-8**.

B.1.5 Condition of Approval (COA)

Conditions of Approval are enforceable conditions or provisions (requirements) under which an Application for Permit to Drill is approved.

B.1.6 Mitigation and Monitoring

Stipulations are designed to provide resource-specific protections. Permit holders shall be responsible for the monitoring and reporting deemed necessary to document and maintain mandated protective measures. Also, the BLM retains the right to modify the operations of all surface and other disturbance activities caused by the presence of humans and to require additional specific or specialized mitigation following the submission of a detailed plan of development or other project proposal, a monitoring report, and an environmental analysis of such.

B.2 EXCEPTIONS, MODIFICATIONS, AND WAIVERS

Stipulations could be excepted, modified, or waived by the Authorized Officer. An exception exempts the holder of the land use authorization document from the stipulation on a one-time basis. A modification changes the language or provisions of a surface stipulation, either temporarily or permanently. A waiver permanently exempts the surface stipulation.

B.2.1 Exception, Modification, or Waiver Process

An exception, modification, or waiver may be granted at the discretion of the Authorized Officer if any of the standard exception, modification, or waiver criteria (**Section B.2.2**, **B.2.3**, **B.2.4**) are met; or if any of the exception, modification, or waiver criteria specific to the stipulation (**Tables B-5, B-6, B-7**) are met. In order to implement an action that would not normally be allowed because of a stipulation, the proponent must submit a request in writing for an exception, modification, or waiver. The request shall detail which exception, modification, or waiver criteria are met. When requested concurrently with an application, the exception, modification, or waiver is considered as part of the project proposal in RMP and NEPA compliance review. For separate requests, the request is considered as a unique action and is analyzed and documented individually for RMP and NEPA compliance. The Authorized Officer will make the final determination whether to grant an exception, modification, or waiver to stipulations. When use of heavy equipment is necessary for emergency response activities such as wildland fire suppression, management of unplanned fire, and emergency stabilization, the standard exception would be approved verbally by the BLM authorized officer as delegated (e.g., Incident Commander in coordination with Resource Advisor).

B.2.2 Standard Exception

The standard exception applies to all NSO/No Surface-disturbing Activities, CSUs, and TLs, even though the standard exception is not included in the

"exception" portion of **Tables B-5** through **B-7**. An exception may be granted by the Authorized Officer if it can be demonstrated that the surface-disturbing activity:

1. would not cause adverse impacts or would have negligible impacts to the resource or resource use that the stipulation was designated to protect; or
2. would improve the protected resource or resource use as defined by RMP objectives, standards, or conditions in the stipulation (e.g., fuels treatment that improves forbs in key wildlife habitat, or trail construction for resource protection in an ACEC or elsewhere);
3. is necessary to meet health and safety objectives such as fire suppression or fire emergency stabilization and rehabilitation; or
4. is necessary to protect federal mineral estate.

In situations where a surface-disturbing activity is excepted, the activity could be subject to additional conditions of approval, reclamation measures, or BMPs. Measures required would be based on the nature and extent of resource values potentially affected by the surface-disturbing activity. Excepted surface-disturbing activities/lease stipulations are granted on a one-time case-by-case basis and will not necessarily constitute subsequent approvals.

B.2.3 Standard Modification

A 30-day public notice and comment period is required before modification of a stipulation.

B.2.4 Standard Waiver

No permanent exemptions or waivers are authorized unless the areas mapped as possessing the attributes are field verified by BLM staff to lack those attributes.

B.3 STANDARD TERMS AND CONDITIONS FOR FLUID MINERAL LEASING

Oil and gas development is subject to standard terms and conditions of the lease. Onshore Oil and Gas Order No. 1 (Onshore Oil and Gas Operations; Federal and Indian Oil and Gas Leases; Approval of Operations) regulations (43 CFR 3160) give the BLM the ability to relocate proposed operations up to 200 meters (656 feet) and prohibit surface-disturbing operations for a period not to exceed 60 days.

Table B-1
Summary of No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
	Water Resources				
NSO-1 *(ROWA)*	Major River Corridors		•	•	•
NSO-2 *(ROWA)*	Streams/Springs Possessing Lotic Riparian Characteristics		•	•	
NSO-3	Definable Streams			•	
NSO-4 *(ROWA)*	Lentic Riparian Areas (including springs, seeps, and fens)		•	•	
NSO-1 (BLM 1987)	No Surface Occupancy (Grand Junction municipal watershed)	•			
NSO-5	Palisade and Grand Junction Municipal Watersheds		•		
NSO-6 *(ROWA)*	Palisade and Grand Junction Municipal Watersheds, Collbran and Mesa/Powderhorn Source Water Protection Areas, and Jerry Creek Watershed			•	
NSO-7	Water Intake Zone 3			•	
	Soils and Geology				
NSO-1 (ROWA) (Exhibit GJ-1AB) (BLM 1987)	No Surface Occupancy (Soils in the Baxter/Douglas Slump Area)	•			
NSO-1(ROWA) (Exhibit GJ-1AA) (BLM 1987)	No Surface Occupancy (Soils in the Plateau Area)	•			
NSO-8 *(ROWA)*	Fragile Soils (Slump Areas)		•		
NSO-9 *(ROWA)*	Fragile Soils			•	
NSO-3 (BLM 1987)	Steep Slopes	•			
NSO-10 *(ROWA)*	Steep Slopes Greater than or Equal to 40 Percent		•	•	•
	Vegetation				
NSO-2 *(ROWA)*	Streams/Springs Possessing Lotic Riparian Characteristics		•	•	
NSO-4 *(ROWA)*	Lentic Riparian Areas (including springs, seeps, and fens)		•	•	
	Special Status Species				
NSO-11 *(ROWA)*	Conservation Populations of Cutthroat Trout				•
NSO-1 *(ROWA)*	Major River Corridors		•	•	•
NSO-2 *(ROWA)*	Streams/Springs Possessing Lotic Riparian Characteristics		•	•	
NSO-1 (Partial ROWA) (BLM 1987)	No Surface Occupancy (ACECs: Badger Wash, Pyramid Rock, and Unaweep Seep)	•			
NSO-12 *(Partial ROWA)*	ACECs (Atwell Gulch, Badger Wash, Pyramid Rock, South Shale Ridge, and Unaweep Seep)		•	•	•
NSO-13 *(ROWA)*	Current and Historically Occupied Habitat of Threatened, Endangered, Proposed, and Candidate Species		•	•	
NSO-14 *(ROWA)*	Currently Occupied Habitat of Threatened, Endangered, Proposed, and Candidate Species				•

Table B-1
Summary of No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
NSO-15 *(ROWA)*	BLM Sensitive Plant Species' Occupied Habitat			•	
NSO-16 *(ROWA)*	Osprey Nest Sites			•	
NSO-17 *(ROWA)*	Ferruginous Hawk Nest Sites			•	
NSO-18 *(ROWA)*	Red-tailed Hawk Nest Sites			•	
NSO-19 *(ROWA)*	Swainson's Hawk Nest Sites			•	
NSO-20 *(ROWA)*	Peregrine Falcon Nest Sites			•	
NSO-21 *(ROWA)*	Prairie Falcon Nest Sites			•	
NSO-22 *(ROWA)*	Other Raptor Species (accipiters, falcons [except kestrel], buteos, and owls)			•	
NSO-23 *(ROWA)*	Golden Eagle Nest Sites		•	•	•
NSO-24 *(ROWA)*	Bald Eagle Nest Sites		•	•	•
NSO-25 *(ROWA)*	Sage-grouse Leks, Nesting, and Early Brood-rearing Habitat (4 miles)		•	•	
NSO-26 *(ROWA)*	Canyon Treefrog, Midget Faded Rattlesnake, Northern Leopard Frog, Great Basin Spadefoot, Boreal Toad (no buffer)		•		•
NSO-27 *(ROWA)*	Canyon Treefrog, Midget Faded Rattlesnake, Northern Leopard Frog, Great Basin Spadefoot, Boreal Toad (0.5-mile)			•	
NSO-28 *(ROWA)*	Special Status Bat Species' Roost Sites and Winter Hibernacula		•	•	
NSO-29 *(ROWA)*	Active Kit Fox Dens		•	•	
NSO-30 *(ROWA)*	Occupied Prairie Dog Towns (no buffer)		•		
NSO-31 *(ROWA)*	Occupied Prairie Dog Towns (46 meters)			•	
	Fish and Wildlife				
NSO-32 *(ROWA)*	Research Sites		•	•	•
NSO-12 *(Partial ROWA)*	ACECs (Atwell Gulch, Colorado River Riparian, Glade Park-Pinyon Mesa, Indian Creek, The Palisade, Prairie Canyon, Roan and Carr Creeks, Rough Canyon, Sinbad Valley, and South Shale Ridge)		•	•	•
NSO-1 (Exhibit GJ-1DE) (BLM 1987)	No Surface Occupancy (Wildlife Habitat in Rough Canyon)	•			
NSO-1 (ROWA) (BLM 1987)	No Surface Occupancy (State Wildlife Areas)	•			
NSO-33	Jerry Creek Reservoir, Plateau Creek, and Horsethief Canyon State Wildlife Areas, and Highline and Vega State Parks		•		
NSO-1 (Exhibit GJ-1DC) (BLM 1987)	No Surface Occupancy (Elk Calving Sites)	•			
NSO-34 *(ROWA)*	Elk Production Area		•	•	•
NSO-35 *(Partial ROWA)*	Wildlife Emphasis Areas		•	•	
	Wild Horses				
NSO-36 *(ROWA)*	Little Book Cliffs Wild Horse Range		•	•	

Table B-1
Summary of No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
	Cultural Resources				
NSO-37 *(ROWA Alternatives B and C)*	Allocation to Conservation Use Category		•	•	•
NSO-38 *(ROWA Alternatives B and C)*	Allocation to Traditional Use Category		•	•	•
NSO-1 (BLM 1987)	No Surface Occupancy (Cultural Resources)	•			
NSO-39 *(ROWA Alternatives B and C)*	Cultural Resources (Indian Creek)		•	•	•
	Visual Resources				
NSO-1 (BLM 1987)	No Surface Occupancy (Visual Resources)	•			
NSO-40	VRM (Class I and the Goblins)		•	•	•
	Lands Managed for Wilderness Characteristics outside WSAs				
NSO-41	Lands Managed for Wilderness Characteristics outside WSAs		•	•	
	Recreation and Visitor Services				
NSO-1 (ROWA) (BLM 1987)	No Surface Occupancy (Recreational Resources at The Palisade ONA, established recreation sites, Island Acres, Vega State Recreation Area, Highline Reservoir Recreation Area, Rough Canyon ACEC, Hunter/Garvey backcountry, Granite Creek Canyons/Cliffs, Bangs Canyon, Dolores River, and Gunnison River)	•			
NSO-42 *(Partial ROWA)*	Special Recreation Management Areas		•	•	•
	Fluid Minerals (Oil and Gas and Geothermal Resources)				
NSO-1 (BLM 1987)	No Surface Occupancy (State Wildlife Areas)	•			
NSO-33	Jerry Creek Reservoir, Plateau Creek, and Horsethief Canyon State Wildlife Areas, and Highline and Vega State Parks		•		
	ACECs				
NSO-1 (Partial ROWA) (BLM 1987) **NSO-12** *(Partial ROWA)*	ACECs	•	•	•	•
	Wilderness Study Areas				
NSO-43	Wilderness Study Areas	•	•	•	•
	Wild and Scenic Rivers				
NSO-44 *(ROWA)*	WSR Study Segments Classified as Wild			•	

Table B-1
Summary of No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
	National Trails				
NSO-45 *(ROWA)*	Old Spanish National Historic Trail (200 meters)		•		
NSO-46 *(ROWA)*	Old Spanish National Historic Trail (0.5-mile)			•	
NSO-47 *(ROWA)*	Old Spanish National Historic Trail (50 meters)				•

[1]Details of these stipulations are provided in Table B-5, No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities.
[2]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-2
Summary of Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number *(Existing/***New)**[2]	Protected Resource	Alternative			
		A	B	C	D
	Water Resources				
CSU-1 *(ROWA)*	Major River Corridors		•	•	
CSU-7 (ROWA) (BLM 1987)	Perennial Streams Water Quality	•			
CSU-2 *(ROWA)*	Hydrologic Features/Riparian		•	•	•
CSU-3 *(ROWA)*	Definable Streams		•		
CSU-6 (BLM 1987)	Watersheds	•			
CSU-4 *(ROWA)*	Collbran and Mesa/Powderhorn Source Water Protection Areas, and Jerry Creek Watershed		•		•
	Soils and Geology				
CSU-5 *(ROWA)*	Fragile Soils		•		
CSU-6 *(ROWA)*	Mapped Mancos Shale and Saline Soils		•	•	•
CSU-7	Natural Slopes		•	•	
	Vegetation				
CSU-8 *(ROWA)*	Old Growth Forests and Woodlands		•	•	•
	Special Status Species				
CSU-9 *(ROWA)*	BLM Sensitive Plant Species Occupied Habitat		•		
CSU-10 *(ROWA)*	Wildlife Habitat		•	•	
CSU-1 *(ROWA)*	Major River Corridors		•	•	
CSU-11 *(ROWA)*	Significant Plant Communities (200 meters)		•	•	
CSU-12 *(ROWA)*	Significant Plant Communities (no buffer)				•
CSU-13 *(ROWA)*	Osprey Nest Sites		•		•
CSU-14 *(ROWA)*	Ferruginous Hawk Nest Sites		•		•
CSU-15 *(ROWA)*	Red-tailed Hawk Nest Sites		•		•
CSU-16 *(ROWA)*	Swainson's Hawk Nest Sites		•		•
CSU-17 *(ROWA)*	Peregrine Falcon Nest Sites		•		•
CSU-18 *(ROWA)*	Prairie Falcon Nest Sites		•		•
CSU-19 *(ROWA)*	Other Raptor Species (accipiters, falcons [except kestrel], buteos, and owls)		•		•
CSU-20 *(ROWA)*	Sage-grouse Nesting and Early Brood-rearing Habitat				•
CSU-21 *(ROWA)*	Special Status Bat Species' Roost Sites and Winter Hibernacula				•
CSU-22 *(ROWA)*	Kit Fox Dens				•
CSU-23 *(ROWA)*	Occupied Prairie Dog Towns				•
	Fish and Wildlife				
CSU-1 *(ROWA)*	Major River Corridors		•	•	
CSU-10 *(ROWA)*	Wildlife Habitat		•	•	
CSU-24 *(ROWA)*	Deer and Elk Migration and Movement Corridors		•	•	
CSU-25	Wildlife Emphasis Areas		•	•	•

Table B-2
Summary of Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number *(Existing/***New)**[2]	Protected Resource	Alternative			
		A	**B**	**C**	**D**
	Wild Horses				
CSU-2 (Exhibit GJ-2FA) (BLM 1987)	Scenic and Natural Values (Little Book Cliffs Wild Horse Area)	•			
CSU-26	Little Book Cliffs Wild Horse Range				•
	Cultural Resources				
CSU-27 *(ROWA Alternatives B and C)*	Allocation to Scientific Use Category		•	•	•
CSU-28 *(ROWA Alternatives B and C)*	Allocation to Public Use Category		•	•	•
CSU-29 *(ROWA)*	Sub-surface Inventory		•	•	•
CSU-5 (ROWA) (BLM 1987)	Known Cultural Resource Values	•			
	Visual Resources				
CSU-30 *(ROWA)*	VRM Class II		•	•	•
CSU-2 (BLM 1987)	Scenic and Natural Values (Bangs Benches, the Book Cliffs, established BLM recreation sites, Grand Mesa Slopes, Granite Creek Benches, Gunnison River corridor, highway corridors, Hunter/Garvey, Little Book Cliffs Wild Horse Area, Sinbad Valley, South Shale Ridge, and Unaweep Valley)	•			
	Recreation and Visitor Services				
CSU-2 (BLM 1987)	Scenic and Natural Values (recreation resources at Bangs Benches, Granite Creek Benches, Hunter/Garvey Benches, and Lower Gunnison River)	•			
CSU-31 *(ROWA)*	Recreation		•	•	•
CSU-32	Special Recreation Management Areas		•	•	•
	Lands and Realty				
CSU-33	Disposal Tracts		•		•
	Coal				
CSU-34 (*CSU CO-25*)	Federally Leased Coal		•	•	•
	Wild and Scenic Rivers				
CSU-35 *(ROWA)*	WSR Study Segments Classified as Scenic and Recreational		•	•	
	National Trails				
CSU-36	Old Spanish National Historic Trail			•	
	National and BLM Byways				
CSU-37	Scenic Byways (0.5-mile)		•	•	
CSU-38	Scenic Byways (0.25-mile)				•

[1]Details of these stipulations are provided in Table B-6, Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities.
[2]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-3
Summary of Timing Limitation (TL) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
	Special Status Species				
TL-1 *(ROWA)*	Sport and Native Fish (brown, brook, rainbow, and cutthroat trout; bluehead and flannelmouth sucker; roundtail chub; mountain whitefish; Paiute and mottled sculpin; and speckled dace)		•	•	
TL-2 *(ROWA)*	Occupied Cutthroat Trout Waters				•
TL-3 *(ROWA)*	Migratory Bird Habitat		•	•	
TL-4 *(ROWA)*	Birds of Conservation Concern's Habitat				•
TL-5 *(ROWA)*	Osprey Nests		•	•	•
TL-6 *(ROWA)*	Ferruginous Hawk Nests		•	•	•
TL-7 *(ROWA)*	Red-tailed Hawk Nests		•	•	•
TL-8 *(ROWA)*	Swainson's Hawk Nest Sites		•	•	•
TL-14 (ROWA) (Exhibit GJ-14EB) (BLM 1987)	Threatened and Endangered Seasonal Habitat (Peregrine Falcon Habitat)	•			
TL-9 *(ROWA)*	Peregrine and Prairie Falcon Nest Sites		•	•	•
TL-10 *(ROWA)*	Goshawk Nest Sites		•	•	•
TL-11 *(ROWA)*	Burrowing Owl Burrows and Nest Sites		•	•	•
TL-12 *(ROWA)*	Other Raptor Species (accipiters, falcons [except kestrel], buteos, and owls)		•	•	•
TL-13 *(ROWA)*	Golden Eagle Nest Sites		•	•	•
TL-14 (ROWA) (Exhibit GJ-14EA) (BLM 1987)	Threatened and Endangered Seasonal Habitat (Bald Eagle Habitat)	•			
TL-14 *(ROWA)*	Bald Eagle Nest Sites		•	•	•
TL-15 *(ROWA)*	Bald Eagle Winter Roost		•	•	•
TL-16 *(ROWA)*	Occupied Sage-grouse Winter Habitat		•	•	
TL-17 *(ROWA)*	Sage-grouse Leks (4 miles)		•		
TL-18 *(ROWA)*	Sage-grouse Leks, Nesting, and Early Brood-rearing Habitat (0.6-mile)				•
TL-19 *(ROWA)*	Occupied Prairie Dog Towns				•
	Fish and Wildlife				
TL-1 *(ROWA)*	Sport and Native Fish (brown, brook, rainbow, and cutthroat trout; bluehead and flannelmouth sucker; roundtail chub; mountain whitefish; Paiute and mottled sculpin; and speckled dace)		•	•	
TL-2 *(ROWA)*	Occupied Cutthroat Trout Waters				•
TL-12 (ROWA) (BLM 1987)	Deer and Elk Winter Range	•			
TL-20 *(ROWA)*	Big Game Winter Range		•	•	•

Table B-3
Summary of Timing Limitation (TL) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
TL-9 (ROWA) (BLM 1987)	Bighorn Seasonal Stipulation	•			
TL-4 (ROWA) (BLM 1987)	Elk Calving Area	•			
TL-21 *(ROWA)*	Big Game Production Areas		•	•	
TL-22 *(ROWA)*	Pronghorn Wintering Habitat		•	•	•
	Wild Horses				
TL-10 (ROWA) (BLM 1987)	Wild Horse Winter Range	•			
TL-11 (ROWA) (BLM 1987)	Wild Horse Foaling Area	•			•
TL-23 *(ROWA)*					

[1]Details of these stipulations are provided in Table B-7, Timing Limitation (TL) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities.
[2]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-4
Summary of Lease Notices (LN)
Applicable to Fluid Mineral Leasing[1]

Stipulation Number (*Existing*/**New**)[2]	Protected Resource	Alternative			
		A	B	C	D
	Water Resources				
LN-17	Palisade Municipal Watershed	•			
LN-1	Source Water Protection Areas		•		
LN-2	Municipal Watersheds and Source Water Protection Areas				•
	Special Status Species				
LN-13	Threatened and Endangered Species Habitat	•			
LN-3	Biological Inventories		•	•	•
LN-15/**LN-4**	Colorado Hookless Cactus (Formerly Uinta Basin Hookless Cactus)	•	•	•	•
	Fish and Wildlife				
LN-3	Biological Inventories		•	•	•
LN-5	Working in Wildlife Habitat		•	•	
	Paleontological Resources				
LN-6	Class 4 and 5 Paleontological Areas	•	•	•	•
	Lands and Realty				
LN-16/ **LN-7**	Powderhorn Ski Area	•	•		•

[1]Details of these stipulations are provided in Table B-8, Lease Notices (LN) and Additional Required Conditions of Approval Applicable to Fluid Mineral Leasing.
[2]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Water Resources				
NSO-1 *(ROWA)* **Major River Corridors.** 11,800 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within stream channels, stream banks, and the area 0.25-mile either side of the ordinary high-water mark (bank-full stage) or within 100 meters (328 feet) of the 100-year floodplain (whichever area is greatest) of the Colorado, Gunnison, and Dolores Rivers. **PURPOSE:** To protect these riverine and adjacent areas that provide: a) special status fish and wildlife species habitat: b) important riparian values: c) water quality/filtering values: d) waterfowl and shorebird production values: e) valuable amphibian habitat: and f) high scenic and recreation values of the three major rivers (Colorado, Gunnison, and Dolores). **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows (note: both actions must be met for exception to be granted): • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. Design and construction for a 100-year flood event along strait and stable stream reaches would be required; and • Section 7 consultation with USFWS on threatened or endangered species and/or their critical habitat has been completed. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is required to minimize potential deterioration of water quality, high scenic and recreation values, maintain natural hydrologic function and condition of stream channels, banks, floodplains, and riparian communities, and preserve wildlife habitat including designated critical habitat for federally listed fish species. The buffers are sized to accommodate the rivers' larger floodplains and wider riparian zones.		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-2 *(ROWA)* **Streams/ Springs Possessing Lotic Riparian Characteristics.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the ordinary high-water mark (bank-full stage). Where the riparian corridor width is greater than 100 meters (328 feet) from bank-full, prohibit surface occupancy and surface-disturbing activities within the riparian zone. **PURPOSE:** To protect water quality and aquatic values and prevent channel degradation, as riparian corridors/flood-prone areas are lands adjacent to waterbodies where activities on land are likely to affect water quality. **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Necessary site restoration and management as dictated by initial analysis or later evaluation/monitoring. • Essential stream crossings associated with linear transportation, and utility crossings. • Professional engineered design and construction for a 100-year flood event along strait and stable stream reaches. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to maintain the natural hydrologic function and condition of mountain and rangeland stream systems. Properly functioning stream channels, stream banks, and floodplains (including the riparian zone) transport and store sediment at a rate which is in balance with each system's typical flow regime. Any alteration of this system can create an imbalance between sediment supply and flow, resulting in accelerated erosion, decreased water quality, and degraded habitat conditions and for special status aquatic wildlife. This stipulation is also essential to protect fish bearing streams in the GJFO.		•	•	
NSO-3 **Definable Streams.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 30 meters (98 feet) from the edge of the ordinary high-water mark (bank-full stage).			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	PURPOSE: To protect water quality and aquatic values and prevent channel degradation. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because any alteration of properly functioning stream channels, stream banks, and floodplains (including the xeririparian zone) can create an imbalance between sediment supply and stream discharge resulting in accelerated erosion and decreased water quality.				
NSO-4 *(ROWA)* **Lentic Riparian Areas (including springs, seeps, and fens).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone. **PURPOSE:** To protect water quality and aquatic values and prevent channel degradation. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because surface disturbance within the minimum 100-meter buffer may impair proper function and condition of springs, seeps, and fens. Source areas (for springs, seeps, and fens) are delicate and susceptible to any alteration of natural flow patterns, soil infiltration rates, or drainages within the contributing watershed. Changes to these variables may dewater lentic riparian areas, greatly impairing the system's ability to properly function.		•	•	
NSO-1 (BLM 1987) **No Surface Occupancy (Grand Junction**	**STIPULATION:** No occupancy or other activities will be allowed in the Grand Junction municipal watershed on the following portions of this lease: <LEGAL_DESCRIPTIONS> **PURPOSE:** To protect municipal watersheds providing domestic water. **EXCEPTION:** Exceptions, which are subject to CSU (site-	•			

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
Municipal Watershed). 1,400 acres	specific relocation) stipulations, are as follows: • New trail construction resulting in a disturbance corridor less than or equal to 48 inches wide open to nonmotorized use. Trials would be constructed per BLM minimum design standards. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).				
NSO-5 **No Surface Occupancy (Palisade and Grand Junction Municipal Watersheds).** *BLM surface/ federal minerals:* 900 acres *Private or State surface/federal minerals:* 8,300 acres	**STIPULATION:** Prohibit surface occupancy and other surface-disturbing activities in the Palisade and Grand Junction municipal watersheds. **PURPOSE:** To protect municipal watersheds providing drinking water to local communities. **EXCEPTION:** Exceptions would require professionally engineered design and construction for a 100-year flood event along strait and stable stream reaches. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to reduce potential for groundwater contamination and/or dewatering of municipal sources.		•		
NSO-6 (ROWA) **No Surface Occupancy (Palisade and Grand Junction Municipal Watersheds, Collbran and Mesa/ Powderhorn Source Water Protection Areas, and**	**STIPULATION:** Prohibit surface occupancy and other activities in the Palisade and Grand Junction municipal watersheds, Collbran and Mesa/Powderhorn source water protection areas, and Jerry Creek watershed. **PURPOSE:** To protect municipal watersheds providing drinking water to local communities. **EXCEPTION:** Exceptions would require professionally engineered design and construction for a 100-year flood event along strait and stable stream reaches. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to reduce			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
Jerry Creek Watershed). *BLM surface/ federal minerals:* 34,700 acres *Private or State surface/federal minerals*: 27,600 acres	potential for groundwater contamination and/or dewatering of domestic and municipal sources.				
NSO-7 **Water Intake Zone 3.** 3,100 acres	**STIPULATION:** Prohibit surface occupancy and other surface-disturbing activities within state identified sensitivity zone 3. In cases where this zone could not be determined through analytic calculations, zone 3 will be defined as a 2.5-mile radius around the intake or be based on professional interpretation of geology, topography, and location of municipal wells. The boundary of zone 3 is subject to change based on increased knowledge of groundwater hydrology in these areas. **PURPOSE:** To protect municipal water. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to reduce potential for groundwater contamination and/or dewatering of domestic and municipal sources.			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Soils and Geology				
NSO-1 (ROWA) (Exhibit GJ-1AB) (BLM 1987) **No Surface Occupancy (Soils in the Baxter/Douglas Slump Area).** 53,100 acres	**STIPULATION:** No occupancy or other activities will be allowed on the following portions of this lease: <LEGAL_DESCRIPTIONS> **PURPOSE:** To protect soils in the Baxter/Douglas slump area. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified.	•			
NSO-1 (ROWA) (Exhibit GJ-1AA) (BLM 1987) **No Surface Occupancy (Soils in the Plateau Area).** 900 acres	**STIPULATION:** No occupancy or other activities will be allowed on the following portions of this lease: <LEGAL_DESCRIPTIONS> **PURPOSE:** To protect soils in the Plateau area. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change, or if the lease can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified. If this stipulation is waived or reduced in scope, any of the other attached stipulations (if any) may impact operations on this lease.	•			
NSO-8 *(ROWA)* **Fragile Soils (Slump Areas).** 54,500 acres *Private or state surface/federal minerals:* 3,100 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities on the Baxter/Douglas Pass Slump Area and the Plateau Creek Slump Area. **PURPOSE:** To maintain site stability, site productivity, prevent excessive soil erosion and sediment transport, and increase reclamation potential from sensitive areas. **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Essential future actions in which implementation of a professionally engineered design, construction, maintenance,		•		

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. • Temporary actions associated with solid mineral exploration (e.g., access roads, exploratory bore holes less than or equal to 8 inches in diameter) in which the reclamation process will be initiated a maximum of 1 calendar year from the beginning of construction will be allowed on a case-by-case basis at the discretion of the BLM Authorized Officer. Construction activities will be limited to dry season conditions and subject to site-specific mitigation based on soil characteristics. Temporary status of exploration actions may be extended up to a maximum of 3 years (from initial construction) given monitoring results/onsite inspection indicate soil-stabilizing techniques and drainages structures are functional and adequate to protect soil and watershed health. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because accelerated erosion from fragile soils in the GJFO is a major contributor of nonpoint source pollution in rivers and streams. The 25-meter buffer is necessary to adequately protect fragile soils from stormwater runoff and other impacts associated with surface-disturbing actions.				
NSO-9 *(ROWA)* **Fragile Soils.** *BLM surface/ federal minerals:* 481,600 acres *Private or state surface/federal minerals:* 20,700 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum of 25 meters (82 feet) of fragile soils (distance may be extended based on site-specific conditions). Onsite evaluation of site-specific soil characteristics may be conducted by BLM or a qualified third party to verify Natural Resource Conservation Service soil mapping unit descriptions are appropriate to the site. These evaluations would be conducted at the discretion of the BLM SWA specialist. **PURPOSE:** To maintain site stability, site productivity, prevent excessive soil erosion and sediment transport, and increase			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	reclamation potential. **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. • Temporary actions associated with solid mineral exploration (e.g., access roads, exploratory bore holes less than or equal to 8 inches in diameter) in which the reclamation process will be initiated a maximum of 1 calendar year from the beginning of construction will be allowed on a case-by-case basis at the discretion of the BLM Authorized Officer. Construction activities will be limited to dry season conditions and subject to site-specific mitigation based on soil characteristics. Temporary status of exploration actions may be extended up to a maximum of 3 years (from initial construction) given monitoring results/onsite inspection indicate soil-stabilizing techniques and drainages structures are functional and adequate to protect soil and watershed health. • Stipulation does not apply to OHV open areas. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because accelerated erosion from fragile soils in the GJFO is a major contributor of nonpoint source pollution in rivers and streams. The 25-meter buffer is necessary to adequately protect fragile soils from stormwater runoff and other impacts associated with surface-disturbing actions.				
NSO-3 *(BLM 1987)* **Steep Slopes.** 318,200 acres	**STIPULATION:** The following portions of the lease include land with greater than 40 percent slopes: <LEGAL_DESCRIPTIONS>. In order to avoid or mitigate unacceptable impacts to soil, water, and vegetation resources on these lands, special design practices may be necessary and	•			

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	higher than normal costs may result. Where impacts cannot be mitigated to satisfaction of the BLM Authorized Officer, no surface-disturbing activities shall be allowed. **PURPOSE:** To maintain site stability, site productivity, prevent excessive soil erosion and sediment transport, and increase reclamation potential. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change, or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified.				
NSO-10 *(ROWA)* **Steep Slopes Greater than or Equal to 40 Percent.** *BLM surface/ federal minerals:* 347,700 acres *Private or State surface/federal minerals*: 28,800 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities on slopes greater than or equal to 40 percent to maintain site stability. **PURPOSE:** To maintain site stability, minimize erosion, and increase reclamation potential of disturbed areas. **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Above-ground electrical transmission lines. • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. • Alternatives B and D only: Temporary actions associated with coal exploration (e.g., access roads, exploratory bore holes less than or equal to 8 inches in diameter) in which the reclamation process will be initiated a maximum of 1 calendar year from the beginning of construction will be allowed on a case-by-case basis at the discretion of the Authorized Officer. Construction activities will be limited to dry season conditions and subject to site-specific mitigation. Temporary status of exploration actions may be extended up to a maximum of 3 years (from initial construction) given	•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	monitoring results/onsite inspection indicate soil-stabilizing techniques and drainages structures are functional and adequate to protect soil and watershed health. • Alternatives B and D only: Surface disturbance necessary for development of federally leased coal (e.g., mine portals, roads and pads associated with vent holes, methane capture, etc.). Professionally engineered design, construction, maintenance, and reclamation would be required to mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because accelerated erosion from soils on steep slopes in the GJFO can be a major contributor of nonpoint source pollution in rivers and streams.				
	Vegetation				
NSO-2 *(ROWA)* **Streams/ Springs Possessing Lotic Riparian Characteristics.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the ordinary high-water mark (bank-full stage). Where the riparian corridor width is greater than 100 meters (328 feet) from bank-full, prohibit surface occupancy and surface-disturbing activities within the riparian zone. **PURPOSE:** To protect water quality and aquatic values and prevent channel degradation, as riparian corridors/flood-prone areas are lands adjacent to waterbodies where activities on land are likely to affect water quality. **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Necessary site restoration and management as dictated by initial analysis or later evaluation/monitoring. • Essential stream crossings associated with linear transportation, and utility crossings.		•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	MODIFICATION: Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to maintain the natural hydrologic function and condition of mountain and rangeland stream systems. Properly functioning stream channels, stream banks, and floodplains (including the riparian zone) transport and store sediment at a rate which is in balance with each system's typical flow regime. Any alteration of this system can create an imbalance between sediment supply and flow, resulting in accelerated erosion, decreased water quality, and degraded habitat conditions and for special status aquatic wildlife. This stipulation is also essential to protect fish bearing streams in the GJFO.				
NSO-4 *(ROWA)* **Lentic Riparian Areas (including springs, seeps, and fens).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the riparian zone. **PURPOSE:** To protect water quality and aquatic values and prevent channel degradation. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because surface disturbance within the minimum 100-meter buffer may impair proper function and condition of springs, seeps, and fens. Source areas (for springs, seeps, and fens) are delicate and susceptible to any alteration of natural flow patterns, soil infiltration rates, or drainages within the contributing watershed. Changes to these variables may dewater lentic riparian areas, greatly impairing the system's ability to properly function.		•	•	
	Special Status Species				
NSO-11 *(ROWA)* **Conservation Populations of Cutthroat**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 100 meters (328 feet) from edge of ordinary high-water mark (bank-full stage) of streams containing genetically pure populations of cutthroat trout. Where the riparian corridor width is greater than 100 meters (328 feet)				•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
Trout. 3,600 acres	from stream edge, prohibit surface occupancy and surface-disturbing activities within the riparian zone. **PURPOSE:** To protect conservation and core conservation populations of cutthroat trout. **EXCEPTION:** Standard exceptions apply (Section B.2). In addition, in-channel restoration or enhancement work designed to improve stream habitat conditions, riparian plantings, and temporary disturbances of less than 0.1 acre where BMPs are applied. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** Streams with conservation and core conservation populations of cutthroat trout are of the highest priority to BLM, USFWS, and CPW. The 100-meter buffer adequately protects fish habitat values because many of the perennial streams are within narrow canyons and steep slopes so the 100-meter buffer covers most of the key habitat for protecting these species.				
NSO-1 *(ROWA)* **Major River Corridors.** 11,800 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within stream channels, stream banks, and the area 0.25-mile either side of the ordinary high-water mark (bank-full stage) or within 100 meters (328 feet) of the 100-year floodplain (whichever area is greatest) of the Colorado, Gunnison, and Dolores Rivers. **PURPOSE:** To protect these riverine and adjacent areas that provide: a) special status fish and wildlife species habitat: b) important riparian values: c) water quality/filtering values: d) waterfowl and shorebird production values: e) valuable amphibian habitat: and f) high scenic and recreation values of the three major rivers (Colorado, Gunnison, and Dolores). **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent	•	•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	practicable all potential resource damage associated with the proposed action; and • Section 7 consultation with USFWS on threatened or endangered species and/or their critical habitat has been completed. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is required to minimize potential deterioration of water quality, high scenic and recreation values, maintain natural hydrologic function and condition of stream channels, banks, floodplains, and riparian communities, and preserve wildlife habitat including designated critical habitat for federally listed fish species. The buffers are sized to accommodate the rivers' larger floodplains and wider riparian zones.				
NSO-2 *(ROWA)* **Streams/ Springs Possessing Lotic Riparian Characteristics.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a minimum distance of 100 meters (328 feet) from the edge of the ordinary high-water mark (bank-full stage). Where the riparian corridor width is greater than 100 meters (328 feet) from bank-full, prohibit surface occupancy and surface-disturbing activities within the riparian zone. **PURPOSE:** To protect water quality and aquatic values and prevent channel degradation, as riparian corridors/flood-prone areas are lands adjacent to waterbodies where activities on land are likely to affect water quality. **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Necessary site restoration and management as dictated by initial analysis or later evaluation/monitoring. • Essential stream crossings associated with linear transportation, and utility crossings. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to maintain the natural hydrologic function and condition of mountain and		•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	rangeland stream systems. Properly functioning stream channels, stream banks, and floodplains (including the riparian zone) transport and store sediment at a rate which is in balance with each system's typical flow regime. Any alteration of this system can create an imbalance between sediment supply and flow, resulting in accelerated erosion, decreased water quality, and degraded habitat conditions and for special status aquatic wildlife. This stipulation is also essential to protect fish bearing streams in the GJFO.				
NSO-1 (Partial ROWA) (BLM 1987) **No Surface Occupancy (ACECs: Badger Wash, Pyramid Rock, Unaweep Seep).** 1,400 acres	**STIPULATION:** Prohibit surface occupancy in the following areas: • Hydrologic and sensitive plants study area in Badger Wash ACEC (700 acres) *(Exhibit GJ-1BA)*; • Pyramid Rock State Natural Area (500 acres) *(Exhibit GJ-1EF)*; and • Unaweep Seep State Natural Area and Research Natural Area (200 acres) *(Exhibit GJ-1EG)*. **PURPOSE:** Badger Wash ACEC: To protect sensitive plants. Pyramid Rock: To protect known threatened, proposed, candidate, and sensitive plant species. Unaweep Seep: To protect sensitive plants. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).	•			
NSO-12 *(Partial ROWA)* **ACECs.** *Alternative B:* 34,600 acres *Alternative C:* 38,200 acres *Alternative D:*	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in the following ACECs to protect threatened, proposed, candidate, and sensitive species: <u>Alternative B:</u> • Atwell Gulch (2,900 acres); • Badger Wash (2,200 acres); • Pyramid Rock (1,300 acres); • South Shale Ridge (28,200 acres); and		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
3,600 acres	• Unaweep Seep (85 acres). Alternative C: • Atwell Gulch (6,100 acres); • Badger Wash (2,200 acres); • Plateau Creek (200 acres); • Pyramid Rock (1,300 acres); • South Shale Ridge (28,200 acres); and • Unaweep Seep (85 acres). Alternative D: • Badger Wash (2,200 acres); • Pyramid Rock (1,300 acres); and • Unaweep Seep (80 acres). **PURPOSE:** Atwell Gulch: To protect threatened and sensitive plants. Badger Wash: To protect sensitive plants. Plateau Creek: To protect sensitive fish species. Pyramid Rock: To protect known threatened, proposed, and sensitive plants. South Shale Ridge: To protect threatened, proposed, and sensitive plants. Unaweep Seep: To protect sensitive plants and Great Basin Silverspot Butterfly habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** This stipulation may be modified to include species listed as threatened, endangered, proposed, candidate, or sensitive in the future. This stipulation may also be modified to account for the change in status of species protected in this stipulation. **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect critical habitat for threatened, proposed, and sensitive plants.				

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-13 *(ROWA)* **Current and Historically Occupied Habitat of Threatened, Endangered, Proposed, and Candidate Species.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities to protect threatened, endangered, proposed, and candidate plants and animals from indirect impacts or loss of immediately adjacent suitable habitat. Maintain existing buffer distances where pre-existing disturbance exists. In undisturbed environments and ACECs, prohibit new disturbance within 200 meters (656 feet) of current and historically occupied and suitable habitat. **PURPOSE:** To protect threatened, endangered, proposed, and candidate species from indirect impacts or loss of immediately adjacent suitable habitat. **EXCEPTION:** The NSO may be altered if all of the following conditions are met: 1. Section 7 consultation with USFWS on threatened or endangered species has been completed; 2. Valid current surveys for protected species have been completed and submitted; 3. Mitigation has been applied to avoid adverse impacts to protected species and the proponent will submit monitoring reports; and 4. The proposed disturbance would occur in unsuitable habitat. Other surface-disturbing activities may be allowed in suitable habitat if conditions 1 through 3 above are met, and the purpose or the result of the activity would improve habitat conditions for the protected species. Allow occupancy within 200 meters (656 feet) when terrain and topography provide adequate protections **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER**: Standard waivers apply (Section B.2). **JUSTIFICATION**: This stipulation is necessary to protect threatened, endangered, proposed, and candidate species and ensure the preservation of their habitat (including plant pollinator habitat).		•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-14 *(ROWA)* **Currently Occupied Habitat of Threatened, Endangered, Proposed, and Candidate Species.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities to protect threatened, endangered, proposed, and candidate plants and animals from indirect impacts or loss of immediately adjacent suitable habitat. Maintain existing buffer distances where pre-existing disturbance exists. In undisturbed environments and ACECs, prohibit new disturbance within 200 meters (656 feet) of habitat. **PURPOSE:** To protect threatened, endangered, proposed, and candidate species from indirect impacts or loss of immediately adjacent suitable habitat. **EXCEPTION:** The NSO may be altered if all of the following conditions are met: 1. Section 7 consultation with USFWS on threatened or endangered species has been completed; 2. Valid current surveys for protected species have been completed; 3. Mitigation has been applied to avoid adverse impacts to protected species; and 4. The proposed disturbance would occur in unsuitable habitat. Other surface-disturbing activities may be allowed in suitable habitat if conditions 1 through 3 above are met, and the purpose or the result of the activity would improve habitat conditions for the protected species. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to provide minimal protection for occurrences of threatened, endangered, proposed, and candidate species.				•
NSO-15 *(ROWA)* **BLM Sensitive Plant Species' Occupied Habitat.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 100 meters (328 feet) of BLM sensitive plant species' occupied habitat. In addition, relocation of operations by more than 200 meters (656 feet) may be required. **PURPOSE:** To protect BLM sensitive plant species and their			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	habitat. **EXCEPTION:** Exceptions may be granted for activities where no other feasible alternatives are available and losses of population numbers comprise less than five percent of total population present in the action area. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to guard against BLM-permitted activities resulting in the listing of any species on the State Director's Sensitive Species List. This stipulation is based on guidance from the USFWS and BLM (USFWS and BLM 2008).				
NSO-16 *(ROWA)* **Osprey Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.25-mile of active osprey nest sites. **PURPOSE:** To protect osprey habitat and nest sites. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect osprey nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).			•	
NSO-17 *(ROWA)* **Ferruginous Hawk Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.5-mile of active ferruginous hawk nest sites and associated alternate nests. **PURPOSE:** To protect ferruginous hawk nesting habitat **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect ferruginous hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).				
NSO-18 *(ROWA)* **Red-tailed Hawk Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.33-mile of active red-tailed hawk nest sites and associated alternate nests. **PURPOSE:** To protect red-tailed hawk nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect red-tailed hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).			•	
NSO-19 *(ROWA)* **Swainson's Hawk Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.25-mile of active Swainson's hawk nest sites and associated alternate nests. **PURPOSE:** To protect Swainson's hawk nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2).			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	WAIVER: Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect Swainson's hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).				
NSO-20 *(ROWA)* **Peregrine Falcon Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.5-mile of active peregrine falcon nest sites. **PURPOSE:** To protect peregrine falcon nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect peregrine falcon nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).			•	
NSO-21 *(ROWA)* **Prairie Falcon Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.5-mile of active prairie falcon nest sites. **PURPOSE:** To protect prairie falcon nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect prairie falcon nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-22 *(ROWA)* **Other Raptor Species (accipiters, falcons [except kestrel], buteos, and owls).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 0.125-mile of an active nest site of all accipiters, falcons (except kestrel), buteos, and owls not listed in other NSO stipulations. Raptors that are listed and protected by the Endangered Species Act of 1973 and the Bald and Golden Eagle Protection Act are addressed separately. **PURPOSE:** To protect raptor nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect raptor nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2002).			•	
NSO-23 *(ROWA)* **Golden Eagle Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.25-mile of active golden eagle nest sites and associated alternate nests. **PURPOSE:** To protect golden eagle nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect golden eagle nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-24 *(ROWA)* **Bald Eagle Nest Sites.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.25-mile of active bald eagle nests. **PURPOSE:** To protect bald eagle nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The NSO area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect bald eagle nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•
NSO-25 *(ROWA)* **Sage-grouse Leks, Nesting, and Early Brood-rearing Habitat (4 miles).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 4 miles of an active lek or within sage-grouse nesting and early brood-rearing habitat. **PURPOSE:** To protect breeding, nesting, and brood-rearing habitat for the Gunnison and greater sage-grouse. **EXCEPTION:** Standard exceptions apply (Section B.2). In addition, the NSO area may be altered depending upon the active status of the lek or the geographical relationship of topographical barriers and vegetation to the lek site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to minimize impacts on greater and Gunnison sage-grouse. The four mile buffer is consistent with current scientific research recommendations (The Parachute-Piceance-Roan (PPR) Greater Sage-Grouse Work Group 2008).		•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-26 *(ROWA)* **Canyon Treefrog, Midget Faded Rattlesnake, Northern Leopard Frog, Great Basin Spadefoot, Boreal Toad (no buffer).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within all identified canyon treefrog, northern leopard frog, midget faded rattlesnake, Great Basin spadefoot, and boreal toad breeding and denning sites. **PURPOSE:** To protect breeding habitat for canyon treefrog, northern leopard frog, midget faded rattlesnake, Great Basin spadefoot, and boreal toad. Note: no midget faded rattlesnake or boreal toad breeding locations are currently identified in the GJFO. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect important breeding habitat for these species. The Northern Leopard Frog has been petitioned for listing under the ESA.		•		•
NSO-27 *(ROWA)* **Canyon Treefrog, Midget Faded Rattlesnake, Northern Leopard Frog, Great Basin Spadefoot, Boreal Toad (0.5-mile).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 0.5-mile of all identified canyon treefrog, northern leopard frog, midget faded rattlesnake, Great Basin spadefoot, and boreal toad breeding and denning sites. **PURPOSE:** To protect breeding habitat for canyon treefrog, northern leopard frog, midget faded rattlesnake, Great Basin spadefoot and boreal toad. Note: no midget faded rattlesnake or boreal toad breeding locations are currently identified in the GJFO. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect important breeding habitat for these species. The Northern Leopard Frog has been petitioned for listing under the ESA. The larger buffer would ensure potential impacts would be minimized.			•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-28 *(ROWA)* **Special Status Bat Species' Roost Sites and Winter Hibernacula.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 0.25-mile radius of special status bat species' roost sites and winter hibernacula. **PURPOSE:** To protect special status bat species' roost sites and winter hibernacula. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to minimize impacts on important bat areas.		•	•	
NSO-29 *(ROWA)* **Active Kit Fox Dens.**	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and other intensive activities including but not limited to work-over rigs and permitted recreational events within 200 meters (656 feet) of active kit fox dens. **PURPOSE:** To protect breeding kit fox. Note there are currently no known breeding locations for kit fox in the GJFO. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to minimize disturbance to the kit fox, which have become increasingly rare in Colorado and appear to be significantly more susceptible to disturbance than other canids in the GJFO.		•	•	
NSO-30 *(ROWA)* **Occupied Prairie Dog Towns (no buffer).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within active white-tailed prairie dog towns. **PURPOSE:** To maintain or improve white-tailed prairie dog habitat and distribution. **EXCEPTION:** Standard exceptions apply (Section B.2). Additional exception criteria include activities that avoid the center of active towns while maintaining the integrity of the town's social structure.		•		

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	MODIFICATION: Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect prairie dogs, a keystone species whose population has been declining across the western US.				
NSO-31 *(ROWA)* **Occupied Prairie Dog Towns (46 meters).**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 46 meters (150 feet) of active white-tailed prairie dog towns. **PURPOSE:** To maintain or improve white-tailed prairie dog habitat and distribution. **EXCEPTION:** Standard exceptions apply (Section B.2). In addition, the NSO area may be altered depending upon the type of activity and existing disturbance within 46 meters (150 feet) of the white-tailed prairie dog town. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation provides additional protection for prairie dogs, a keystone species whose population has been declining across the western US.			•	
	Fish and Wildlife				
NSO-32 *(ROWA)* **Research Sites.** 130 acres	**STIPULATION**: Prohibit surface occupancy and surface-disturbing activities in approved research sites including, but not limited to, the Ant Research Area (16 Road) and the Owl Banding Station (south of DeBeque). **PURPOSE:** To maintain the integrity of ongoing research stations. **EXCEPTION:** Exceptions would be granted for work to be done in the research areas consistent with the goals and objectives of the research being conducted on the site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).	•	•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	JUSTIFICATION: This stipulation is necessary to protect long-term, ongoing research sites within the GJFO. If research sites are impacted, they incur the potential for research findings to be negatively affected.				
NSO-12 *(Partial ROWA)* **ACECs.** *Alternative B:* 74,200 acres *Alternative C:* 146,000 acres *Alternative D:* 29,600 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in the following ACECs to protect threatened, proposed, candidate, and sensitive species and habitat: Alternative B: • Atwell Gulch (2,900 acres); • Indian Creek (1,700 acres); • The Palisade (32,200 acres); • Rough Canyon (2,800 acres); • Sinbad Valley (6,400 acres); and • South Shale Ridge (28,200 acres). Alternative C: • Atwell Gulch (6,100 acres); • Colorado River Riparian (880 acres); • Glade Park-Pinyon Mesa (27,200 acres); • Indian Creek (1,700 acres); • The Palisade (32,200 acres); • Plateau Creek (220 acres); • Prairie Canyon (6,900 acres); • Roan and Carr Creeks (33,600 acres); • Rough Canyon (2,800 acres); • Sinbad Valley (6,400 acres); and • South Shale Ridge (28,200 acres). Alternative D: • The Palisade (26,900 acres); and • Rough Canyon (2,700 acres). **PURPOSE:** Atwell Gulch: To protect wildlife habitat. Colorado River Riparian: To protect fisheries values. Glade Park-Pinyon Mesa: To protect occupied Gunnison sage-grouse habitat.		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Indian Creek: To protect wildlife values. The Palisade: To protect special status wildlife. Plateau Creek: To protect fisheries values. Prairie Canyon: To protect wildlife habitat. Roan and Carr Creeks: To protect core conservation populations of cutthroat trout. Rough Canyon: To protect wildlife habitat. Sinbad Valley: To protect wildlife resources. South Shale Ridge: To protect wildlife habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** This stipulation may be modified to include species listed as threatened, endangered, proposed, candidate, or sensitive in the future. This stipulation may also be modified to account for the change in status of species protected in this stipulation. **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect critical habitat for threatened, proposed, and sensitive plants.				
NSO-1 (Exhibit GJ-1DE) (BLM 1987) **No Surface Occupancy (Wildlife Habitat in Rough Canyon).** 2,600 acres	**STIPULATION:** Prohibit occupancy or other activity on the following portions of this lease: <LEGAL_DESCRIPTIONS> **PURPOSE:** To protect wildlife habitat in Rough Canyon. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lease can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified. If this stipulation is waived or reduced in scope, any of the other attached stipulations (if any) may impact operations on this lease.	•			

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-1 (ROWA) (BLM 1987) **No Surface Occupancy (State Wildlife Areas).**	**STIPULATION:** Prohibit occupancy and other activities on the following portions of this lease: <LEGAL_DESCRIPTIONS> • Highline Reservoir recreation site (1,800 acres) *(Exhibit GJ-11E)* • Horsethief Canyon (1,400 acres) *(Exhibit GJ-1DD)* • Jerry Creek Reservoir (7,200 acres) *(Exhibit GJ-6BD)* • Vega Reservoir recreation site (4,000 acres) *(Exhibit GJ-11D)* **PURPOSE:** To protect wildlife habitat, reservoirs, and recreation facilities. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).	•			
NSO-33 **Jerry Creek Reservoir, Plateau Creek, and Horsethief Canyon State Wildlife Areas, and Highline and Vega State Parks.** 6,100 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in areas where BLM manages the federal mineral estate under the following state wildlife areas and state parks: • Horsethief Canyon State Wildlife Area (1,400 acres) • Jerry Creek Reservoir State Wildlife Area (870 acres) • Plateau Creek State Wildlife Area (1,400 acres) • Highline State Park (350 acres) • Vega State Park (2,000 acres) **PURPOSE:** To protect wildlife habitat, reservoirs, and recreation facilities. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to prevent placement of facilities within the state wildlife areas, where BLM manages the fluid mineral rights.		•		

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-1 (Exhibit GJ-1DC) (BLM 1987) **No Surface Occupancy (Elk Calving Sites).**	**STIPULATION:** Prohibit occupancy or other activity on the following portions of this lease: <LEGAL_DESCRIPTIONS> **PURPOSE:** To protect elk calving sites. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lease can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified. If this stipulation is waived or reduced in scope, any of the other attached stipulations (if any) may impact operations on this lease.	•			
NSO-34 *(ROWA)* **Elk Production Area.** *BLM surface/ federal minerals:* 13,100 acres *Private or State surface/federal minerals*: 25,100 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in elk production areas year-round. **PURPOSE:** To protect elk production areas. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard modifications apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to reduce surface disturbance and habitat fragmentation on BLM lands that CPW has identified as elk calving habitat.		•	•	•
NSO-35 *(ROWA)* **Wildlife Emphasis Areas.** *Alternative B:* 43,800 acres *Alternative C:* 54,000 acres	**STIPULATION**: Prohibit surface occupancy and surface-disturbing activities in the following wildlife emphasis areas: <u>Alternative B:</u> • Blue Mesa (wintering habitat for mule deer and elk) (9,300 acres); • Bull Hill (wintering habitat for mule deer and elk) (4,800 acres); • A portion of East Salt Creek (wintering habitat for mule deer and elk) (4,500 acres); • Sunnyside (wintering and migratory habitat for bighorn sheep, mule deer, elk, and sage-grouse) (14,500 acres); and • Timber Ridge (habitat for mule deer, elk, and sage-grouse) (11,800 acres).		•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Alternative C: • Beehive (wintering and migratory habitat for mule deer and elk) (4,700 acres); • Blue Mesa (wintering habitat for mule deer and elk) (9,300 acres); • Bull Hill (wintering habitat for mule deer and elk) (4,800 acres); • Casto (wintering habitat for mule deer and elk) (4,200 acres); • A portion of East Salt Creek (wintering habitat for mule deer and elk) (4,400 acres); • A portion of Prairie Canyon (pronghorn antelope habitat) (2,800 acres); • A portion of Rapid Creek (wintering habitat for mule deer) (1,700 acres); and • Sunnyside (wintering and migratory habitat for bighorn sheep, mule deer, elk, and sage-grouse) (11,300 acres); and • Timber Ridge (habitat for mule deer, elk, and sage-grouse) (11,800 acres). **PURPOSE:** To protect wildlife emphasis areas for the species noted above. Wildlife emphasis areas are areas of the highest value/top-ranked wildlife habitat (by BLM and CPW) for multiple species. **EXCEPTION:** Standard exceptions apply (Section B.2). In addition, exceptions would be granted for range development projects designed to improve livestock grazing distribution. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect the highest priority wildlife habitat for deer, elk, antelope, bighorn sheep, and sage-grouse. Wildlife emphasis areas were identified in coordination with CPW biologists.				

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Wild Horses				
NSO-36 *(ROWA)* **Little Book Cliffs Wild Horse Range.** 35,100 acres	**STIPULATION**: Prohibit surface occupancy and surface-disturbing activities in the LBCWHR. **PURPOSE:** To protect wild horses in the LBCWHR. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard modifications apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to mitigate impacts that could interfere with the protection and management of wild horses in the LBCWHR.		•	•	
	Cultural Resources				
NSO-37 *(ROWA)* **Allocation to Conservation Use Category.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities, including archaeological excavation, within 100 meters (328 feet) around eligible sites allocated to Conservation Use. **PURPOSE:** To protect unique scientific information in sites allocated to Conservation Use. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** The BLM's Authorizing Officer may modify the site-protection boundary on a case-by-case basis, taking into account topographical barriers, the design of the proposed action, and the characteristics of the cultural resource site and/or area. **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to preserve sites allocated to Conservation Use, where mitigation through data recovery is not an option. This stipulation allows the BLM to mitigate impacts that can cause significant degradation to the site integrity criteria that are applied in the designation of the cultural resource as eligible or potentially eligible for nomination to the NRHP *(36 CFR part 800.5(a)(1))*.	•	•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-38 *(ROWA)* **Allocation to Traditional Use Category.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 200 meters (656 feet) around eligible or potentially eligible sites allocated to Traditional Use. In addition, consider visual impacts that projects may have on sites allocated to this use, and apply appropriate mitigation, which may include redesign. **PURPOSE:** To protect values that contribute to sites allocated to Traditional Use. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** The BLM's Authorizing Officer may modify the site-protection boundary on a case-by-case basis after completion and documentation of Native American Consultation, taking into account topographical barriers, the design of the proposed action, and the characteristics of the cultural resource site and/or area. **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to address indirect or secondary impacts that can occur to cultural resources that have been identified by the Ute Indian Tribe and Ute Mountain Ute Indian Tribe. This stipulation buffer has been established through consultation conducted with the Ute Indian Tribe for the Orchard GAP (shared CRVFO-GJFO MDP) and during the RMP Ute Ethnohistory project with the Ute Indian Tribe and the Ute Mountain Ute Tribe. Impacts to Traditional Use sites are typically not mitigated through data recovery. This stipulation allows the BLM to mitigate impacts that can cause significant degradation to the site integrity criteria that are applied in the designation of the cultural resource as eligible or potentially eligible for nomination to the NRHP *(36 CFR part 800.5(a)(1))*.		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-1 (BLM 1987) **No Surface Occupancy (Cultural Resources).** 4,600 acres	**STIPULATION:** Prohibit occupancy or other activity on the following portions of this lease: <LEGAL_DESCRIPTIONS> • Site 5ME1358 *(Exhibit GJ-1HF)* (170 acres); • Indian Creek *(Exhibit GJ-1HA)* (1,400 acres); • Rough Canyon *(Exhibit GJ-1HB)* (2,600 acres); and • Ladder Springs *(Exhibit GJ-1HG)* (460 acres). **PURPOSE:** To protect unique, significant, and fragile cultural resources. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified.	•			
NSO-39 **Cultural Resources (Indian Creek)**. 1,700 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in the following areas: • West Indian Creek (520 acres); and • East Indian Creek (1,200 acres). **PURPOSE:** To protect cultural resources. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard modifications apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary because data recovery to mitigate adverse effects (for the purposes of compliance with Section 106 of the NHPA) is not an objective for these sites. This stipulation also preserves the site(s) within these areas for long term research projects.		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Visual Resources				
NSO-1 (BLM 1987) **No Surface Occupancy (Visual Resources).** 189,900 acres	**STIPULATION:** Prohibit occupancy or other activity on the following portions of this lease: <LEGAL_DESCRIPTIONS>. • Juanita Arch (330 acres) *(Exhibit GJ-1GA)*; • The Goblins (120 acres) *(Exhibit GJ-1GB)*; • Dolores River corridor (55,200 acres) *(Exhibit GJ-1GE)*; • Gunnison River corridor (22,000 acres) *(Exhibit GJ-1GF)*; • The Book Cliffs (15,300 acres) *(Exhibit GJ-1GH)*; • Bangs Canyon (39,900 acres) *(Exhibit GJ-1GJ)*; • Sinbad Cliffs (7,400 acres) *(Exhibit GJ-1GK)*; • Granite Creek Canyon/Cliffs (14,200 acres) *(Exhibit GJ-1GL)*; • Unaweep Canyon (54,000 acres) *(Exhibit GJ-1GM)*; • Hunter/Garvey Cliffs (24,400 acres) *(Exhibit GJ-1GN)*; and • Vega State Recreation Area (7,100 acres) *(Exhibit GJ-1GO)*. **PURPOSE:** To protect visual resources. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lease can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified. If this stipulation is waived or reduced in scope, any of the other attached stipulations (if any) may impact operations on this lease.	•			
NSO-40 **VRM (Class I and the Goblins).** *Alternative B:* 98,500 acres *Alternative C:* 101,000 acres *Alternative D:* 9,500 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within the following areas: • All VRM Class I areas; and • The Goblins. **PURPOSE:** To protect visual resources. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to ensure the protection of vital visual features in the GJFO landscape.		•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Lands Managed for Wilderness Characteristics outside WSAs				
NSO-41 **Lands Managed for Wilderness Characteristics outside WSAs.** *Alternative B:* 24,600 acres *Alternative C:* 171,000 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities on lands managed for wilderness characteristics outside of existing WSAs: <u>Alternative B:</u> • Maverick (17,800 acres); • Unaweep Canyon (6,700 acres); and • West Creek (adjacent) (20 acres). <u>Alternative C:</u> • Bangs Canyon (20,400 acres); • East Demaree Canyon (4,800 acres); • East Salt Creek (17,000 acres) • Hunter Canyon (32,000 acres); • Kings Canyon (9,600 acres); • Lumsden Canyon (10,100 acres); • Maverick (20,400 acres); • South Shale Ridge (27,500 acres); • Spink Canyon (13,100 acres); • Spring Canyon (8,800 acres); • Unaweep Canyon (7,200 acres); and • West Creek (adjacent) (110 acres). **PURPOSE:** To protect wilderness characteristics. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to ensure lands with identified wilderness characteristics remain in their current undeveloped state.		•	•	

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	Recreation and Visitor Services				
NSO-1 (ROWA) (BLM 1987) **No Surface Occupancy (Recreational Resources).** 114,000 acres	**STIPULATION:** Prohibit occupancy or other activity on the following portions of this lease: <LEGAL_DESCRIPTIONS>. • The Palisade ONA (860 acres) *(Exhibit GJ-11A)*; • Established recreation sites (200 acres) *(Exhibit GJ-11B)*; • Island Acres (560 acres) *(Exhibit GJ-11C)*; • Vega State Recreation Area (4,000 acres) *(Exhibit GJ-11D)*; • Highline Reservoir Recreation Area (1,7800 acres) *(Exhibit GJ-11E)*; • Rough Canyon ACEC (2,600 acres) *(Exhibit GJ-11F)*; • Hunter/Garvey backcountry (23,000 acres) *(Exhibit GJ-11G)*; • Granite Creek Canyons/Cliffs (14,000 acres) *(Exhibit GJ-11H)*; • Bangs Canyon (36,900 acres) *(Exhibit GJ-11I)*; • Dolores River (8,400 acres) *(Exhibit GJ-11K)*; and • Gunnison River (21,500 acres) *(Exhibit GJ-11L)*. **PURPOSE:** To protect recreational resources. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lease can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified. If this stipulation is waived or reduced in scope, any of the other attached stipulations (if any) may impact operations on this lease.	•			

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
NSO-42 **Special Recreation Management Areas.** *Alternative B:* 34,200 acres *Alternative C:* 17,300 acres *Alternative D:* 25,200 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in the following RMZs/SRMAs for the protection of the recreation activities, outcomes, and setting characters. <u>Alternative B:</u> • Bangs (17,300 acres) • Dolores River Canyon (16,900 acres) <u>Alternative C:</u> • Bangs (17,300 acres) <u>Alternative D:</u> • Bangs (17,300 acres) • Castle Rock (4,400 acres) • Gunnison River Bluffs (800 acres) • Palisade Rims (2,700 acres) **PURPOSE:** To protect: (1) the prescribed physical, social, and operational natural resource recreational setting character; (2) the targeted recreation activity, experience, and beneficial outcome opportunities; and (3) visitor health and safety in areas of high recreational value and/or significant recreational activity. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard modifications apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect areas important to recreation users which may also include large facility investments. Protection of RMZs is necessary to meet desired recreation outcomes.		•	•	•
	Fluid Minerals (Oil and Gas and Geothermal Resources)				
NSO-1 (BLM 1987) **No Surface Occupancy (State Wildlife Areas).**	**STIPULATION:** Prohibit occupancy and other activities on the following portions of this lease: <LEGAL_DESCRIPTIONS> • Highline Reservoir recreation site (1,788 acres) *(Exhibit GJ-11E)* • Horsethief Canyon (1,400 acres) *(Exhibit GJ-1DD)* • Jerry Creek Reservoir (7,200 acres) *(Exhibit GJ-6BD)*	•			

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	• Vega Reservoir recreation site (4,000 acres) *(Exhibit GJ-11D)* **PURPOSE:** To protect wildlife habitat, reservoirs, and recreation facilities. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).				
NSO-33 **Jerry Creek Reservoir, Plateau Creek, and Horsethief Canyon State Wildlife Areas, and Highline and Vega State Parks.** 6,000 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities in areas where BLM manages the fluid mineral rights under the following state wildlife areas and state parks: • Horsethief Canyon State Wildlife Area (1,400 acres) • Jerry Creek Reservoir State Wildlife Area (870 acres) • Plateau Creek State Wildlife Area (1,400 acres) • Highline State Park (350 acres) • Vega State Park (1,982 acres) **PURPOSE:** To protect wildlife habitat, reservoirs, and recreation facilities. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to prevent placement of facilities within the state wildlife areas, where BLM manages the fluid mineral rights.		•		
	ACECs				
NSO-1 (Partial ROWA) (BLM 1987) **NSO-12** *(Partial ROWA)* **ACECs.** *Alternative A:*	**STIPULATION**: Prohibit surface occupancy and surface disturbing activities in the following ACECs: Alternative A: • Badger Wash (hydrologic and sensitive plants study area) *(Exhibit GJ-1BA)* (1,900 acres); • The Palisade *(Exhibit GJ-11A)* (26,900 acres); • Pyramid Rock State Natural Area (550 acres) *(Exhibit GJ-1EF)*;	•	•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	Alternative B	Alternative C	Alternative D
28,800 acres *Alternative B:* 106,000 acres *Alternative C:* 167,800 acres *Alternative D:* 33,200 acres	• Rough Canyon *(Exhibit GJ-1EF)* (2,700 acres); and • Unaweep Seep *(Exhibit GJ-1EG)* (80 acres). Alternative B: • Atwell Gulch Potential (2,900 acres); • Badger Wash (2,200 acres); • Dolores River Riparian (7,400 acres); • Indian Creek (1,700 acres); • Juanita Arch (1,600 acres); • Mt. Garfield (3,500 acres); • The Palisade (32,200 acres); • Pyramid Rock (1,300 acres); • Roan and Carr Creeks (15,700 acres); • Rough Canyon (2,800 acres); • Sinbad Valley (6,400 acres); • South Shale Ridge (28,200 acres); and • Unaweep Seep (85 acres). Alternative C: • Atwell Gulch Potential (6,100 acres); • Badger Wash (2,200 acres); • Colorado River Riparian (880 acres); • Coon Creek (110 acres); • Dolores River Riparian (7,400 acres); • Glade Park-Pinyon Mesa (27,200 acres); • Gunnison River Riparian (460 acres); • Hawxhurst Creek (860 acres); • Indian Creek (1,700 acres); • John Brown Canyon (1,400 acres); • Juanita Arch (1,600 acres); • Mt Garfield (5,700 acres); • The Palisade (32,200 acres); • Plateau Creek (200 acres); • Prairie Canyon (6,900 acres); • Pyramid Rock (1,300 acres); • Reeder Mesa (470 acres); • Roan and Carr Creeks (33,600 acres); • Rough Canyon (2,800 acres);				

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	• Sinbad Valley (6,400 acres); • South Shale Ridge (28,200 acres); and • Unaweep Seep (85 acres). <u>Alternative D:</u> • Badger Wash (paired study watersheds) (2,200 acres); • The Palisade (26,900 acres); • Pyramid Rock (1,300 acres); • Rough Canyon (2,700 acres); and • Unaweep Seep (80 acres). **PURPOSE:** To protect the relevant and important values for which the ACEC was established. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change, or if the lease can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified. If this stipulation is waived or reduced in scope, any of the other attached stipulations (if any) may impact operations on this lease. **JUSTIFICATION:** This stipulation is necessary to protect areas that contain highly important resources requiring special protections.				
	Wilderness Study Areas				
NSO-43 **Wilderness Study Areas.** 96,500 acres	**STIPULATION**: Prohibit surface occupancy and surface-disturbing activities in WSAs in accordance with the Interim Management Policy for Lands Under Wilderness Review (BLM Manual H-8550-1) (BLM 1995c). • Demaree Canyon (22,700 acres); • Little Book Cliffs (29,300 acres); • The Palisade (26,700 acres); • Sewemup Mesa (17,800 acres). **PURPOSE:** To preserve wilderness characteristics in WSAs in accordance with non-impairment standards as defined by the Interim Management Policy for land under wilderness review	•	•	•	•

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	(BLM Manual H-8550-1). **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to preserve wilderness characteristics in WSAs in accordance with non-impairment standards as defined by the Interim Management Policy for land under wilderness review (BLM Manual H-8550-1).				
	Wild and Scenic Rivers				
NSO-44 *(ROWA)* **WSR Study Segments Classified as Wild.** 1,100 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within 0.25-mile of either side of the active river channel (bank-full stage). • North Fork West Creek. **PURPOSE:** To protect the outstanding remarkable values, water quality, and free-flowing nature and recommended classification of suitable segments. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to ensure WSR segments classified as Wild remain undeveloped and waters unpolluted.			•	
	National Trails				
NSO-45 *(ROWA)* **Old Spanish National Historic Trail (200 meters).** 1,000 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a 200-meter (656-foot) buffer from the center line of the Old Spanish National Historic Trail. **PURPOSE:** To protect the Old Spanish National Historic Trail. **EXCEPTION:** Exceptions would be granted for actions not resulting in long-term adverse impacts to the trail. **MODIFICATION:** Standard modifications apply (Section B.2).		•		

Table B-5
No Surface Occupancy (NSO) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	WAIVER: Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect the cultural and historic resources along this congressionally designated historic trail.				
NSO-46 *(ROWA)* **Old Spanish National Historic Trail (0.5 mile).** 3,400 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a 0.5-mile buffer from the center line of the Old Spanish National Historic Trail. **PURPOSE:** To protect the Old Spanish National Historic Trail. **EXCEPTION:** Exceptions would be granted for actions not resulting in long-term adverse impacts to the trail. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect to protect the cultural and historic resources along this congressionally designated historic trail.			•	
NSO-47 *(ROWA)* **Old Spanish National Historic Trail (50 meters).** 270 acres	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within a 50-meter (164-foot) buffer from the center line of the Old Spanish National Historic Trail. **PURPOSE:** To protect the Old Spanish National Historic Trail. **EXCEPTION:** Exceptions would be granted for actions not resulting in long-term adverse impacts to the trail. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect to protect the cultural and historic resources along this congressionally designated historic trail.				•

[1]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	Water Resources				
CSU-1 *(ROWA)* **Major River Corridors.** 12,700 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions from 0.25- to 0.5-mile landward from identified NSO buffer (0.25-mile from ordinary high water mark or within 100 meters [328 feet] of the 100-year floodplain, whichever is greatest) on either side of the Colorado, Gunnison, and Dolores Rivers for fluid mineral development. **PURPOSE:** To protect these riverine and adjacent areas that provide: a) special status fish and wildlife species habitat: b) important riparian values: c) water quality/filtering values: d) waterfowl and shorebird production values: e) valuable amphibian habitat: and f) high scenic and recreation values of the three major rivers (Colorado, Gunnison, and Dolores). **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is required to minimize potential deterioration of water quality, high scenic and recreation values, maintain natural hydrologic function and condition of stream channels, banks, floodplains, and riparian communities, and preserve wildlife habitat including designated critical habitat for federally listed fish species. The buffers are sized to accommodate the rivers' larger floodplains and wider riparian zones.		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
CSU-7 (ROWA) (BLM 1987) **Perennial Streams Water Quality.**	**STIPULATION:** Limit surface-disturbing activities within 100 feet of perennial streams to essential roads and utility crossings. **PURPOSE:** To reduce impacts to water quality. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified.	•			
CSU-2 *(ROWA)* **Hydrologic Features/Riparian.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 152 meters (500 feet) from the edge of any hydrologic feature including perennial and intermittent streams, wetlands (including fens), lakes, springs, seeps, and riparian areas. **PURPOSE:** To protect water quality and aquatic values and prevent channel degradation, as Streamside Management Zones are lands adjacent to a waterbody where activities on land are likely to affect water quality. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect water quality, riparian and wildlife dependent habitats.		•	•	•
CSU-3 *(ROWA)* **Definable Streams.**	**STIPULATION:** Surface disturbing actions within a minimum distance of 30 meters (98 feet) from the edge of the ordinary high-water mark (bank-full stage) should be avoided to the greatest extent practicable and disturbances would be subject to site specific relocation at the discretion of the BLM. **PURPOSE:** To protect watershed resource values and reduce non-point source pollutant contributions to the Colorado River system. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2).		•		

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	WAIVER: Standard waivers apply (Section B.2) **JUSTIFICATION:** This stipulation is necessary to carefully plan and appropriately mitigate disturbances near surface water drainages in order to reduce non-point source pollutant contributions from BLM lands to the Colorado River system.				
CSU-6 (BLM 1987) **Watersheds.** 10,600 acres	**STIPULATION:** Require that all lease operations avoid interference with watershed resource values located on the following portions of this lease: • Jerry Creek Reservoirs (5,400 acres) *(Exhibit GJ-6BD)* and • The Palisade municipal watershed (5,200 acres) *(Exhibit GJ-6BB)*. **PURPOSE:** To protect watershed resource values. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** This may include the relocation of proposed roads, drilling sites, and other facilities, or the application of appropriate mitigating measures. **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified.	•			
CSU-4 *(ROWA)* **Collbran and Mesa/ Powderhorn Source Water Protection Areas, and Jerry Creek Watershed.** *BLM surface/ federal minerals:* 148,200 acres *Private or State surface/federal minerals*: 30,300 acres	**STIPULATION:** Require that all ground disturbances within source water protection areas and the Jerry Creek watershed avoid interference with watershed resource values. **PURPOSE:** To protect watershed resource values. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2) **JUSTIFICATION:** This stipulation is necessary because land management actions can compromise both water quality and quantity if proper locations, mitigation and construction techniques are not utilized.		•		•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Soils and Geology				
CSU-5 *(ROWA)* **Fragile Soils.** 481,600 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities associated with all other land use authorizations, permits, and leases granted in areas with mapped fragile soils. **PURPOSE:** To protect fragile soils, minimize erosion and sedimentation to surface water drainages, and reduce non-point source pollutants from BLM administered lands. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to allow BLM to move surface disturbances away from fragile soils in order to minimize erosion and sediment transport to area drainages. This stipulation is also necessary to help improve reclamation potential of surface disturbing actions in the resource area.		•		
CSU-6 *(ROWA)* **Mapped Mancos Shale and Saline Soils.** *BLM surface/ federal minerals:* 355,500 acres *Private or State surface/federal minerals*: 12,000 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities within mapped Mancos Shale areas and on saline soils. **PURPOSE:** To improve reclamation potential of disturbed lands, maintain soil stability and productivity in sensitive areas, and to minimize contributions of salt, selenium, sediment, and other minerals constituents of eroding soils likely to affect downstream water quality. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to decrease potential degradation to soil and watershed resources within the Greater Colorado River Basin. Land use decisions occurring on mapped areas of Mancos Shale (e.g. conversion of native vegetative communities to irrigated hay fields or golf courses) have been documented to mobilize selenium and contaminate		•	•	•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	ground and surface water resources. The Colorado River Basin Salinity Control Act of 1974 directed the BLM to manage the Colorado River's salinity, including salinity contributed from public lands.				
CSU-7 **Natural Slopes.** *BLM surface/ federal minerals:* 173,100 acres *Private or State surface/federal minerals*: 26,100 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities associated with all other land use authorizations, permits, and leases granted in areas with natural slopes in the range of 25 to 40 percent. **PURPOSE:** To protect natural slopes. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to allow BLM to move surface disturbances away from natural slopes in order to reduce erosion and sediment load, and improve reclamation potential.		•	•	
	Vegetation				
CSU-8 *(ROWA)* **Old Growth Forests and Woodlands.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within all old growth forests and woodlands. **PURPOSE:** To protect old growth forests and woodlands. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to minimize the loss of old growth trees by adjusting the location of well pads, access roads, and other development.		•	•	•
	Special Status Species				
CSU-9 *(ROWA)* **BLM Sensitive Plant Species Occupied Habitat.**	**STIPULATION:** For plant species listed as sensitive by BLM, special design, construction, and implementation measures within a 100-meter (328 feet) buffer from the edge of occupied habitat may be required. In addition, relocation of operations by more than 200 meters (656 feet) may be required.		•		

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	PURPOSE: To protect BLM sensitive plant species from direct and indirect impacts, including loss of habitat. The protection buffer reduces dust transport, weed invasion, chemical and produced-water spills and those effects on BLM sensitive plant populations. It also reduces impacts to important pollinators and their habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to reduce direct impacts to sensitive status species by placing disturbances outside of occupied habitat.				
CSU-10 *(ROWA)* **Wildlife Habitat.**	**STIPULATION:** Require proponents of surface-disturbing activities to implement specific measures to reduce impacts of operations on wildlife and wildlife habitat within high-value or crucial wildlife habitat. Measures would be determined through biological surveys, onsite inspections, effects of previous actions in the area, and BMPs. **PURPOSE:** To reduce impacts of surface disturbing activities and related actions on wildlife and wildlife habitat within high-value or crucial wildlife habitat including, but not limited to, big game winter range and Gunnison and greater sage grouse habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to remain in compliance with current BLM sage grouse direction and allow for protection of essential habitat for wildlife species.		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
CSU-1 *(ROWA)* **Major River Corridors.** 12,700 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions from 0.25- to 0.5-mile landward from identified NSO buffer (0.25-mile from ordinary high water mark or within 100 meters [328 feet] of the 100-year floodplain, whichever is greatest) on either side of the Colorado, Gunnison, and Dolores Rivers for fluid mineral development. **PURPOSE:** To protect these riverine and adjacent areas that provide: a) special status fish and wildlife species habitat: b) important riparian values: c) water quality/filtering values: d) waterfowl and shorebird production values: e) valuable amphibian habitat: and f) high scenic and recreation values of the three major rivers (Colorado, Gunnison, and Dolores). **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. • New trail construction resulting in a disturbance corridor less than or equal to 48 inches wide open to nonmotorized use. Trials would be constructed per BLM minimum design standards. • BLM on-site evaluation identifies topographic features which adequately buffer and protect riverine environments from adverse impacts. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is required to minimize potential deterioration of water quality, high scenic and recreation values, maintain natural hydrologic function and condition of stream channels, banks, floodplains, and riparian communities, and preserve wildlife habitat including designated critical habitat for federally listed fish species. The buffers are sized to accommodate the rivers' larger floodplains and wider riparian zones.		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
CSU-11 *(ROWA)* **Significant Plant Communities (200 meters).**	**STIPULATION:** For those plant communities that meet BLM's criteria for significant plant communities, special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required. Habitat areas include occupied habitat and habitat necessary for the maintenance or recovery of the species or communities. **PURPOSE:** To conserve significant plant communities and relict communities that are not otherwise protected. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to limit new disturbance within relic plant communities, thus reducing fragmentation, and the possibility of degradation or loss.		•	•	
CSU-12 *(ROWA)* **Significant Plant Communities (no buffer).**	**STIPULATION:** For those plant communities that meet BLM's criteria for significant plant communities, special design, construction, and implementation measures, including avoidance, may be required. Habitat areas include occupied habitat and habitat necessary for the maintenance or recovery of the species or communities. **PURPOSE:** To conserve significant plant communities and relict communities that are not otherwise protected. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to limit new disturbance within relic plant communities, thus reducing fragmentation, and the possibility of degradation or loss.				•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
CSU-13 *(ROWA)* **Osprey Nest Sites.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.25-mile of active osprey nest sites. **PURPOSE:** To protect osprey habitat and nest sites. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect osprey nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•		•
CSU-14 *(ROWA)* **Ferruginous Hawk Nest Sites.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.5-mile of active ferruginous hawk nest sites, and associated alternate nests. **PURPOSE:** To protect ferruginous hawk nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect ferruginous hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•		•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
CSU-15 *(ROWA)* **Red-tailed Hawk Nest Sites.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.33-mile of active red-tailed hawk nest sites, and associated alternate nests. **PURPOSE:** To protect red-tailed hawk nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect red-tailed hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•		•
CSU-16 *(ROWA)* **Swainson's Hawk Nest Sites.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.25-mile of active Swainson's hawk nest sites and associated alternate nests. **PURPOSE:** To protect ferruginous hawk nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect Swainson's hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•		•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative			
		A	B	C	D
CSU-17 *(ROWA)* **Peregrine Falcon Nest Sites.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.5-mile of active peregrine falcon nest sites. **PURPOSE:** To protect peregrine falcon nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect peregrine falcon nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•		•
CSU-18 *(ROWA)* **Prairie Falcon Nest Sites.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.5-mile of active prairie falcon nest sites. **PURPOSE:** To protect prairie falcon nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect prairie falcon nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•		•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
CSU-19 *(ROWA)* **Other Raptor Species (accipiters, falcons [except kestrel], buteos, and owls).**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.125-mile of an active nest site of all accipiters, falcons (except kestrel), buteos, and owls not listed in other CSU stipulations. Raptors that are listed and protected by the Endangered Species Act of 1973 and the Bald and Golden Eagle Protection Act are addressed separately. **PURPOSE:** To protect nesting habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). The CSU area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect raptor nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2002).		•		•
CSU-20 *(ROWA)* **Sage-grouse Nesting and Early Brood-rearing Habitat.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to protect sage-grouse nesting and early brood-rearing habitat within 4 miles of an active lek or within sage-grouse nesting and early brood-rearing habitat. **PURPOSE:** To protect sage-grouse nesting and early brood-rearing habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). In addition, the CSU area may be altered depending upon the active status of the lek or the geographical relationship of topographical barriers and vegetation to the lek site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect sage-grouse nesting and early brood-rearing habitat, per current scientific research recommendations (Parachute-Piceance-Roan Greater Sage-grouse Work Group 2008).				•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
CSU-21 *(ROWA)* **Special Status Bat Species' Roost Sites and Winter Hibernacula.**	**STIPULATION:** Require mitigation and minimization measures (as determined by the BLM biologist) for all surface occupancy and surface-disturbing activities within 0.25-mile of special status bat species' roost sites and winter hibernacula. **PURPOSE:** To protect bat-roosting and maternity sites and winter hibernacula. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to minimize impact to important bat areas.				•
CSU-22 *(ROWA)* **Kit Fox Dens.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to, and require mitigation and minimization measures (as determined by the BLM biologist) of, surface occupancy and surface-disturbing activities within 200 meters (656 feet) of active kit fox dens. **PURPOSE:** To protect breeding kit fox. Note: there are currently no known breeding locations for kit fox in the GJFO. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect breeding kit fox, which have become increasingly rare in Colorado and appear to be significantly more susceptible to disturbance than other canids in the GJFO.				•
CSU-23 *(ROWA)* **Occupied Prairie Dog Towns.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities within active white-tailed prairie dog towns to avoid the center of active towns, while maintaining the integrity of the town's social structure. **PURPOSE:** To maintain white-tailed prairie dog habitat and distribution. **EXCEPTION:** Standard exceptions apply (Section B.2). In				•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	addition, the CSU area may be altered depending upon the type of activity and existing disturbance within 150 feet of the white-tailed prairie dog town. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect prairie dogs, a keystone species whose population has been declining in the GJFO and across the western US. This stipulation would help to minimize total abandonment of towns by prairie dog colonies due to disturbance.				
	Fish and Wildlife				
CSU-1 *(ROWA)* **Major River Corridors.** 12,700 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions from 0.25- to 0.5-mile landward from identified NSO buffer (0.25-mile from ordinary high water mark or within 100 meters [328 feet] of the 100-year floodplain, whichever is greatest) on either side of the Colorado, Gunnison, and Dolores Rivers for fluid mineral development. **PURPOSE:** To protect these riverine and adjacent areas that provide: a) special status fish and wildlife species habitat: b) important riparian values: c) water quality/filtering values: d) waterfowl and shorebird production values: e) valuable amphibian habitat: and f) high scenic and recreation values of the three major rivers (Colorado, Gunnison, and Dolores). **EXCEPTION:** Exceptions, which are subject to CSU (site-specific relocation) stipulations, are as follows: • Essential future actions in which implementation of a professionally engineered design, construction, maintenance, and reclamation plan can mitigate to the fullest extent practicable all potential resource damage associated with the proposed action. • New trail construction resulting in a disturbance corridor less than or equal to 48 inches wide open to nonmotorized use. Trials would be constructed per BLM minimum design standards. • BLM on-site evaluation identifies topographic features which adequately buffer and protect riverine environments from		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	adverse impacts. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is required to minimize potential deterioration of water quality, high scenic and recreation values, maintain natural hydrologic function and condition of stream channels, banks, floodplains, and riparian communities, and preserve wildlife habitat including designated critical habitat for federally listed fish species. The buffers are sized to accommodate the rivers' larger floodplains and wider riparian zones.				
CSU-10 *(ROWA)* **Wildlife Habitat.**	**STIPULATION:** Require proponents of surface-disturbing activities to implement specific measures to reduce impacts of operations on wildlife and wildlife habitat within high-value or crucial wildlife habitat. Measures would be determined through biological surveys, onsite inspections, effects of previous actions in the area, and BMPs. **PURPOSE:** To reduce impacts of surface disturbing activities and related actions on wildlife and wildlife habitat within high-value or crucial wildlife habitat including, but not limited to, big game winter range and Gunnison and greater sage grouse habitat. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to remain in compliance with current BLM sage grouse direction and allow for protection of essential habitat for wildlife species.		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
CSU-24 *(ROWA)* **Deer and Elk Migration and Movement Corridors.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities within migration and movement corridors for deer and elk. **PURPOSE:** To protect deer and elk migration and movement corridors. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to ensure connectivity between summer and winter ranges for deer and elk. Fragmentation is an increasing problem in deer and elk habitat and this stipulation would help to maintain existing corridors on BLM lands.		•	•	
CSU-25 **Wildlife Emphasis Areas.** *Alternative B:* 130,800 acres *Alternative C:* 90,400 acres *Alternative D:* 33,400 acres	**STIPULATION**: Apply CSU (site-specific relocation) restrictions to surface-disturbing activities within the following wildlife emphasis areas: <u>Alternative B:</u> • Beehive (habitat for mule deer and elk) (4,700 acres); • A portion of East Salt Creek (habitat for mule deer and elk) (21,700 acres); • Glade Park (habitat for Gunnison sage-grouse, mule deer, and elk) (27,200 acres); • A portion of Prairie Canyon (long billed curlew, long eared owl, pronghorn antelope, white-tailed prairie dog, kit fox, and burrowing owl habitat) (16,500 acres); • A portion of Rapid Creek (wintering and migratory habitat for mule deer and elk) (26,900 acres); • Roan and Carr Creeks (habitat for cutthroat trout and sage-grouse) (17,700 acres); and • South Shale Ridge (deer and elk wintering grounds) (3,500 acres). <u>Alternative C:</u> • A portion of East Salt Creek (habitat for mule deer and elk) (21,700 acres); • Hawxhurst (wintering and migratory habitat for bighorn sheep, mule deer, and elk) (9,400 acres);		•	•	•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	• Indian Point (habitat for pronghorn antelope and wintering habitat for mule deer and elk) (11,400 acres); • A portion of Prairie Canyon (long billed curlew, long eared owl, pronghorn antelope, white-tailed prairie dog, kit fox, and burrowing owl habitat) (12,500 acres); • A portion of Rapid Creek (wintering and migratory habitat for mule deer and elk) (26,900 acres); • Red Mountain (wintering and migratory habitat for mule deer and elk) (5,000 acres); and • South Shale Ridge (deer and elk wintering grounds) (3,500 acres). Alternative D: • Roan and Carr Creeks (33,400 acres). **PURPOSE:** To protect core wildlife areas, which are areas of the highest value/top-ranked wildlife habitat (by BLM and CPW) for multiple species. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect the highest priority wildlife habitat for deer, elk, antelope, bighorn sheep, and sage-grouse, Wildlife emphasis areas were identified in coordination with CPW biologists.				
	Wild Horses				
CSU-2 *(Exhibit GJ-2FA)* *(BLM 1987)* **Scenic and Natural Values (Little Book Cliffs Wild Horse Area).** 36,100 acres	**STIPULATION:** Special design and reclamation measures may be required to protect the outstanding scenic and natural landscape value of the following portion(s) of this lease: <LEGAL_DESCRIPTIONS> Special design and reclamation measures may include transplanting trees and shrubs, fertilization, mulching, special erosion-control structures, irrigation, site recontouring to match the original contour, buried tanks and low-profile equipment, and painting to minimize visual contrasts. Surface-disturbing activities may be denied in sensitive areas, such as unique geologic features and rock formations, visually prominent areas, and high	•			

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	recreation use areas. **PURPOSE:** To protect scenic and natural values in the Little Book Cliffs Wild Horse Area. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concerns(s) identified.				
CSU-26 **Little Book Cliffs Wild Horse Range.** 35,100 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities within the LBCWHR. **PURPOSE:** To protect wild horses in the LBCWHR. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to mitigate impacts that could interfere with the protection and management of wild horses in the LBCWHR.				•
	Cultural Resources				
CSU-27*(ROWA)* **Allocation to Scientific Use Category.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities, except archaeological documentation and excavation, within 100 meters (328 feet) around eligible or potentially eligible sites allocated to Scientific Use. **PURPOSE:** To protect unique scientific information in sites that may be damaged from inadvertent or unauthorized uses. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** The BLM's Authorizing Officer may modify the site-protection boundary on a case-by-case basis, taking into account topographical barriers, the nature of the proposed action, and the nature of the cultural resource site and/or area.	•	•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	WAIVER: Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to address indirect or secondary impacts that can occur to cultural resources. Indirect and secondary impacts are typically not mitigated through data recovery by the proponent. Managing properties by addressing only direct impacts can lead to adverse effect and the loss of the resource. This stipulation allows the BLM to mitigate impacts that can cause significant degradation to the site integrity criteria that are applied in the designation of the cultural resource as eligible or potentially eligible for nomination to the NRHP *(36 CFR part 800.5(a)(1))*.				
CSU-28 *(ROWA)* **Allocation to Public Use Category.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface-disturbing activities within 100 meters (328 feet) around sites allocated to Public Use. In addition, consider factors such as integrity of setting, recreation opportunity, or visual impacts that projects may have on sites allocated to this use. **PURPOSE:** To protect the values that contribute to sites allocated to Public Use. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** The BLM's Authorizing Officer may modify the site-protection boundary on a case-by-case basis, taking into account topographical barriers, the nature of the proposed action, and the nature of the cultural resource site and/or area. **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect sites allocated to Public Use, including those that may not meet the criteria for the NRHP but are important for heritage tourism as a visual resource of a rural landscape.	•	•	•	
CSU-29 *(ROWA)* **Sub-surface Inventory.** *Alternative B:*	**STIPULATION**: Require sub-surface inventory for deep sub-surface-disturbing activities and buried ROW in the following locations: <u>Alternative B:</u> • Grand Mesa Slopes (16,000 acres);	•	•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
53,500 acres *Alternative C:* 68,400 acres *Alternative D:* 51,600 acres	• Indian Creek (20,200 acres); and • Sunnyside (17,300 acres). <u>Alternative C:</u> • Grand Mesa Slopes (24,400 acres); • Indian Creek (20,200 acres); and • Sunnyside (24,000 acres). <u>Alternative D:</u> • Grand Mesa Slopes (16,000 acres); • Indian Creek (20,200 acres); and • Sunnyside (15,400 acres). **PURPOSE:** To protect cultural resources. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is needed to protect buried cultural resources within areas of high potential for sub-surface activities.				
CSU-5 (ROWA) (BLM 1987) **Known Cultural Resource Values.**	**STIPULATION:** Important cultural resource values <RESOURCE_VALUE> are present on the following portions of this lease: <LEGAL_DESCRIPTIONS>. Surface-disturbing activities must avoid these areas. **PURPOSE:** To protect known cultural sites. **EXCEPTION:** An exception could be granted if mitigation of impacts is agreed to by the Authorized Officer. Where impacts cannot be mitigated to the satisfaction of the Authorized Officer, surface occupancy on that area must be prohibited. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).	•			

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Visual Resources				
CSU-30 *(ROWA)* **VRM Class II.** *Alternative B:* 314,500 acres *Alternative C:* 556,600 acres *Alternative D:* 194,800 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to fluid mineral leasing and other surface-disturbing activities within all areas designated as VRM Class II. Require that surface-disturbing activities meet the objectives of VRM Class II. **PURPOSE:** To protect visual resources. **EXCEPTION:** An exception could be granted for bond projects within scenic byways to ensure that visual and reclamation objectives are achieved. Facility design should incorporate viewshed analysis and modeling to minimize impacts to visual resources. Special mitigation measures such as facility placement and color selection have been proposed to reduce impacts to visual resources. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is needed to maintain the visual integrity within designated Class II VRM areas. A CSU will allow placement of facilities and disturbances outside of the critical view sheds.		•	•	•
CSU-2 (BLM 1987) **Scenic and Natural Landscape Values.** 310,600 acres	**STIPULATION:** Special design and reclamation measures may be required to protect the outstanding scenic and natural landscape values located on the following portions of this lease: <LEGAL_DESICRIPTION>. • Bangs Benches (Exhibit GJ-2GJ) (32,000 acres); • The Book Cliffs (Exhibit GJ-2GC) (31,100 acres); • Established BLM Recreation Sites (Exhibit GJ-2GB and Exhibit GJ-2IB) (1,000 acres); • Grand Mesa Slopes (Exhibit GJ-2GI) (62,000 acres); • Granite Creek Benches (Exhibit GJ-2GL) (23,400 acres); • Gunnison River Corridor (Exhibit GJ-2GF) (1,200 acres); • Highway Corridors (Exhibit GJ-2GP) (69,400 acres); • Hunter/Garvey (Exhibit GJ-2GN) (24,700 acres); • Little Book Cliffs Wild Horse Area (Exhibit GJ-2FA) (33,000 acres); • Sinbad Valley (Exhibit GJ-2GK) (6,400 acres);	•			

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	• South Shale Ridge (Exhibit GJ-2GG) (24,400 acres); and • Unaweep Valley (Exhibit GJ-2GM) (2,000 acres). Special design and reclamation measures may include transplanting trees and shrubs, fertilization, mulching, special erosion-control structures, irrigation, site recontouring to match the original contour, buried tanks and low-profile equipment, and painting to minimize visual contrasts. Surface-disturbing activities may be denied in sensitive areas, such as unique geologic features and rock formations, visually prominent areas, and high recreation use areas. **PURPOSE:** To protect outstanding scenic and natural landscape values. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).				
	Recreation and Visitor Services				
CSU-2 *(BLM 1987)* **Scenic and Natural Landscape Values (Recreation Resources).** 89,200 acres	**STIPULATION:** Special design and reclamation measures may be required to protect the outstanding scenic and natural landscape value of the following portion(s) of this lease: <LEGAL_DESCRIPTIONS> • Bangs Benches (Exhibit GJ-2IJ) (42,900acres); • Granite Creek Benches (Exhibit GJ-2IH) (23,400 acres); • Hunter/Garvey Benches (Exhibit GJ-2IG) (21,700 acres); and • Lower Gunnison River (Exhibit GJ-2IL) (1,200 acres). Special design and reclamation measures may include transplanting trees and shrubs, fertilization, mulching, special erosion-control structures, irrigation, site recontouring to match the original contour, buried tanks and low-profile equipment, and painting to minimize visual contrasts. Surface-disturbing activities may be denied in sensitive areas, such as unique geologic features and rock formations, visually prominent areas, and high recreation use areas. **PURPOSE:** To protect recreation resources. **EXCEPTION:** Standard exceptions apply (Section B.2).	•			

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	MODIFICATION: Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concerns(s) identified.				
CSU-31 *(ROWA)* **Recreation.**	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to surface occupancy and surface-disturbing activities to minimize conflicts with developed (and future) recreation sites and to mapped (and future) national/regional trails, local system trails that connect communities, and trailheads and interpretive sites with exceptional recreation values or significant public interest. **PURPOSE:** To minimize conflicts with developed (and future) recreation sites and to mapped (and future) national/regional trails, local system trails that connect communities, and trailheads and interpretive sites with exceptional recreation values or significant public interest. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to assure significant public investment and desired recreation opportunities are protected from surface-disturbing occupancy.	•	•	•	
CSU-32 **Special Recreation Management Areas.** *Alternative B:* 44,100 acres *Alternative C:* 42,700 acres *Alternative D:* 58,100 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions in the following SRMAs: <u>Alternatives B:</u> • North Fruita Desert (44,100 acres) <u>Alternative C</u> • North Fruita Desert (42,700 acres) <u>Alternative D:</u> • Castle Rock (4,400 acres) • Grand Valley OHV (9,600 acres) • North Fruita Desert (44,100 acres)	•	•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	PURPOSE: To protect recreation outcomes and setting prescriptions. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect areas important to recreation users which may also include large facility investments. Protection of RMZs is necessary to meet desired recreation outcomes.				
	Lands and Realty				
CSU-33 *(CSU CO-25)* **Disposal Tracts.**	**STIPULATION:** Special design, construction, and implementation measures, including relocation of operations by more than 200 meters (656 feet), may be required on disposal tracts. **PURPOSE:** To preserve the value of disposal tracts and/or protect facilities or uses for which these tracts of land were identified for disposal. **EXCEPTION:** Standard exceptions apply (Section B.2). Underground facilities may be excepted. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to preserve the value of disposal tracts and/or protect facilities or uses for which these tracts of land were identified for disposal.		•		•
	Coal				
CSU-34 *(CSU CO-25)* **Federally Leased Coal.** 9,000 acres	**STIPULATION:** Where applicable, apply CSU (site-specific relocation) restrictions to oil and gas operations within the area of federally leased coal. Relocate oil and gas operations outside the area to be mined or locate to accommodate room and pillar mining operations. **PURPOSE:** To protect federally leased coal lands. **EXCEPTION:** Standard exceptions apply (Section B.2).		•	•	•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	MODIFICATION: Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to allow underground coal operations within oil and gas leases while reducing safety concerns.				
	Wild and Scenic Rivers				
CSU-35 *(ROWA)* **WSR Study Segments Classified as Scenic and Recreational.** *Alternative C:* 22,980 acres *Alternative B:* 5,900 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.25-mile on either side of the active river channel (bank-full stage). Alternative B: • Dolores River (5,900 acres). Alternative C: • Colorado River Segment 1 (2,200 acres); • Colorado River Segment 2 (120 acres); • Dolores River (5,900 acres); • North Fork Mesa Creek (700 acres); • Blue Creek (2,900 acres); • Gunnison River Segment 2 (970 acres); • Roan Creek (2,000 acres); • Carr Creek (1,800 acres); • Rough Canyon Creek (1,200 acres); • East Creek (1,900 acres); • West Creek (1,700 acres); and • Ute Creek (1,400 acres). **PURPOSE:** To protect the outstandingly remarkable values for which the stream segments were found suitable. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect ORVs associated with WSR segments, and allow BLM to place disturbances 0.25-miles away from the identified segment.		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	National Trails				
CSU-36 **Old Spanish National Historic Trail.** 3,400 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions within 0.5 miles of either side of the Old Spanish National Historic Trail. **PURPOSE:** To protect visual resources associated with the trail. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect to protect visual resources along this congressionally designated historic trail.			•	
CSU-37 **Scenic Byways (0.5-mile).** 32,500 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to fluid mineral leasing and other surface-disturbing activities within 0.5-mile of the following scenic byways: • Dinosaur Diamond Prehistoric Highway (National Scenic Byway and All American Road) (14,300 acres); • Grand Mesa Scenic and Historic Byway (1,200 acres); and • Unaweep-Tabeguache Scenic and Historic Byway (17,000 acres). **PURPOSE:** To protect scenic views in driving corridors. **EXCEPTION:** An exception could be granted if: (a) a viewshed analysis indicates minimal impairment of the visual resources from the driving corridor; or (b) the action is determined to be consistent and compatible with protection or enhancement of the resource values, or the use would provide suitable opportunities for public enjoyment of these resources. An exception could also be granted for bond projects within scenic byways to ensure that visual and reclamation objectives are achieved. Facility design should incorporate viewshed analysis and modeling to minimize impacts to visual resources. Special mitigation measures such as facility placement and color selection have been proposed to reduce impacts to visual resources.		•	•	

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	MODIFICATION: Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to place surface-disturbing activities along scenic byways in areas that do not affect values associated with the identified scenic byway.				
CSU-38 **Scenic Byways (0.25-mile).** 29,500 acres	**STIPULATION:** Apply CSU (site-specific relocation) restrictions to fluid mineral leasing and other surface-disturbing activities within 0.25-mile of the following scenic byways: • Lands' End (540 acres); • John Brown Canyon (1,800 acres); • Dinosaur Diamond Prehistoric Highway (National Scenic Byway and All American Road) (7,000 acres); • Grand Mesa Scenic and Historic Byway (860 acres); • Unaweep-Tabeguache Scenic and Historic Byway (7,700 acres); • Niche to Blue Mesa (3,800 acres); and • Winter Flats Road (7,800 acres). **PURPOSE:** To protect scenic views in driving corridors. **EXCEPTION:** An exception could be granted if: (a) a viewshed analysis indicates minimal impairment of the visual resources from the driving corridor; or (b) the action is determined to be consistent and compatible with protection or enhancement of the resource values, or the use would provide suitable opportunities for public enjoyment of these resources. An exception could also be granted for bond projects within scenic byways to ensure that visual and reclamation objectives are achieved. Facility design should incorporate viewshed analysis and modeling to minimize impacts to visual resources. Special mitigation measures such as facility placement and color selection have been proposed to reduce impacts to visual resources. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).				•

Table B-6
Controlled Surface Use (CSU) Stipulations Applicable to Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	JUSTIFICATION: This stipulation is necessary to ensure surface-disturbing activities do not affect values associated with the identified scenic byway.				

[1]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	Special Status Species				
TL-1 *(ROWA)* **Sport and Native Fish (brown, brook, rainbow, and cutthroat trout; bluehead and flannelmouth sucker; roundtail chub; mountain whitefish; Paiute and mottled sculpin; and speckled dace).**	**STIPULATION:** Prohibit in-channel stream work in all occupied streams during appropriate spring and fall spawning periods. Alternative B: Rainbow and cutthroat trout, bluehead and flannelmouth sucker, roundtail chub, and Paiute and mottled sculpin (April 1 to August 1); brown and brook trout (October 1 to November 30). Alternative C: Cutthroat trout (May 1-September 1), Rainbow trout (March 1-June 30), Brown trout (October 1-May 1), Brook trout (August 1-May 1), Sculpin (May 1-July 31), Bluehead sucker (May 1-July 31), Flannelmouth sucker (April 1-July 1), Roundtail chub (May 1-July 31), Speckled dace (May 1-August 31), Mountain whitefish (October 1-November 30). **PURPOSE:** To protect redds (egg masses) in the gravel and emerging fry. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect important native and game fish breeding.		•	•	
TL-2 *(ROWA)* **Occupied Cutthroat Trout Waters.**	**STIPULATION:** Prohibit in-channel work in all occupied cutthroat trout streams during spring spawning periods of April 1 to August 1. **PURPOSE:** To protect redds (egg masses) in the gravel and emerging fry. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect important native fish species, including a USFWS-listed species.				•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
TL-3 *(ROWA)* **Migratory Bird Habitat.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities, including vegetation-altering projects, in migratory bird habitat during nesting season when nesting birds are present. Alternative B: May 15 to July 15 or as site-specific analysis dictates. Alternative C: April 15 to July 31 or as site-specific analysis dictates. **PURPOSE:** To protect nesting migratory birds from human disturbance that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect osprey nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	
TL-4 *(ROWA)* **Birds of Conservation Concern's Habitat.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities, including vegetation-altering projects, in birds of conservation concern's habitat (USFWS 2008) during nesting season (May 15 to July 15 or as site-specific analysis dictates) when nesting birds are present. **PURPOSE:** To protect nesting osprey from human disturbance that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).				•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	JUSTIFICATION: This stipulation is necessary to protect osprey nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).				
TL-5 *(ROWA)* **Osprey Nests.**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.25-mile of active osprey nests from April 1 to August 31. **PURPOSE:** To protect nesting osprey from human disturbance that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect osprey nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•
TL-6 *(ROWA)* **Ferruginous Hawk Nests.**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.25-mile of active ferruginous hawk nests, including any alternate nests, from February 1 to July 15. **PURPOSE:** To protect ferruginous hawks from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect ferruginous hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] Protected Resource Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
TL-7 *(ROWA)* **Red-tailed Hawk Nests.**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.33-mile of active red-tailed hawk nests, including any alternate nests, from February 15 to July 15. **PURPOSE:** To protect nesting red-tailed hawks from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect red-tailed hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•
TL-8 *(ROWA)* **Swainson's Hawk Nest Sites.**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.25-mile of active Swainson's hawk nests and associated alternate nests from April 1 to July 15. **PURPOSE:** To protect nesting Swainson's hawks from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect Swainson's hawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
TL-14 (ROWA) (Exhibit GJ-14EB) (BLM 1987) **Threatened and Endangered Seasonal Habitat (Peregrine Falcon Habitat).**	**STIPULATION:** In order to protect important seasonal habitat of threatened or endangered animal species, any lease operations which may affect these species will be allowed only during the following period: Occupancy is allowed <BEGIN_DATE> to <END_DATE> on the lands described below: <LEGAL_DESCRIPTIONS>. **PURPOSE:** To protect bald eagle habitat. **EXCEPTION:** Exceptions to this limitation in any particular year may be specifically approved in writing by the Authorized Officer. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).	•			
TL-9 *(ROWA)* **Peregrine and Prairie Falcon Nest Sites.**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.5-mile of active peregrine and prairie falcon nest cliff(s) from March 15 to July 31. **PURPOSE:** To protect nesting peregrine and prairie falcons from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect peregrine and prairie falcon nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•
TL-10 *(ROWA)* **Goshawk Nest Sites.**	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and intensive human activities that may affect nesting success within 0.5-mile of active goshawk nest sites from March 1 to September 30.		•	•	•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	PURPOSE: To protect nesting goshawks from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect goshawk nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).				
TL-11 *(ROWA)* **Burrowing Owl Burrows and Nest Sites.**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.25-mile of active burrows or burrowing owl nest sites from March 1 to August 15. **PURPOSE:** To protect nesting burrowing owls from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect nesting burrowing owls.	•	•	•	
TL-12 *(ROWA)* **Other Raptor Species (accipiters, falcons [except kestrel], buteos, and owls).**	**STIPULATION:** Prohibit surface occupancy, surface disturbing activities, and intensive human activities that may affect nesting success within 0.25 miles of active nests from February 1 to August 15 (great horned owl), March 1 to August 15 (other owls and raptors), and April 1 to August 15 (Cooper's hawk, sharp shinned hawk, and northern harrier). **PURPOSE:** To protect reproductive activity at active nest sites. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2).	•	•	•	

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	WAIVER: Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect raptor species per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).				
TL-13 *(ROWA)* **Golden Eagle Nest Sites.**	**STIPULATION:** Prohibit human encroachment within 0.25-mile of active golden eagle nests and associated alternate nests from December 15 to July 15. **PURPOSE:** To protect nesting golden eagles from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect golden eagle nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•
TL-14 (ROWA) (Exhibit GJ-14EA) (BLM 1987) **Threatened and Endangered Seasonal Habitat (Bald Eagle Habitat).**	**STIPULATION:** In order to protect important seasonal habitat of threatened or endangered animal species, any lease operations which may affect these species will be allowed only during the following period: Occupancy is allowed <BEGIN_DATE> to <END_DATE> on the lands described below: <LEGAL_DESCRIPTIONS>. **PURPOSE:** To protect bald eagle habitat. **EXCEPTION:** Exceptions to this limitation in any particular year may be specifically approved in writing by the Authorized Officer. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).	•			

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
TL-14 *(ROWA)* **Bald Eagle Nest Sites.**	**STIPULATION:** Prohibit human encroachment within 0.5-mile of active bald eagle nests from November 15 to July 31. **PURPOSE:** To protect nesting bald eagles from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the nest site or the geographical relationship of topographic barriers and vegetation screening to the nest site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect bald eagle nesting habitat per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•
TL-15 *(ROWA)* **Bald Eagle Winter Roost.**	**STIPULATION:** Prohibit activity within 0.25-mile of bald eagle winter roosts from November 15 to March 15. Additional restrictions may be necessary within 0.5-mile of active bald eagle winter roosts if there is a direct line of sight from the roost to the activities. **PURPOSE:** To protect bald eagles from human impacts that could affect winter survival. **EXCEPTION:** Standard exceptions apply (Section B.2). The TL area may be altered depending on the status of the roost site or the geographical relationship of topographic barriers and vegetation screening to the roost site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect bald eagle winter roosts per CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2008).		•	•	•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
TL-16 *(ROWA)* **Occupied Sage-grouse Winter Habitat.**	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and intensive human activities in occupied sage-grouse winter habitat from December 1 to March 15. **PURPOSE:** To protect sage-grouse (Gunnison and greater) from human impacts that could affect winter survival. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect sage-grouse from disturbance in a time of year when the added stress from disturbance can lead to death.		•	•	
TL-17 *(ROWA)* **Sage-grouse Leks (4 miles).**	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and intensive human activities within 4 miles of sage-grouse leks from March 1 to June 30. **PURPOSE:** To protect breeding and nesting sage-grouse (Gunnsion and greater) from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). In addition, the NSO area may be altered depending upon the active status of the lek or the geographical relationship of topographical barriers and vegetation to the lek site. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect breeding and nesting sage-grouse per current research recommendations (Parachute-Piceance-Roan Greater Sage-grouse Work Group 2008).		•		

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
TL-18 *(ROWA)* **Sage-grouse Leks, Nesting, and Early Brood-rearing Habitat (0.6-mile).**	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and intensive human activities from March 1 to June 30 within 0.6-mile of the lek or within sage-grouse nesting and early brood-rearing habitat. **PURPOSE:** To protect breeding and nesting sage-grouse (Gunnsion and greater) from human impacts that could affect nest success. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect greater and Gunnison sage-grouse breeding habitat.				•
TL-19 *(ROWA)* **Occupied Prairie Dog Towns.**	**STIPULATION:** Prohibit surface occupancy and surface-disturbing activities within active white-tailed prairie dog towns from April 1 to July 15. **PURPOSE:** To avoid impacts to white-tailed prairie dogs during the pupping season. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect prairie dogs during the breeding season to allow for distribution of young.				•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	Fish and Wildlife				
TL-1 *(ROWA)* **Sport and Native Fish (brown, brook, rainbow, and cutthroat trout; bluehead and flannelmouth sucker; roundtail chub; mountain whitefish; Paiute and mottled sculpin; and speckled dace).**	**STIPULATION:** Prohibit in-channel stream work in all occupied streams during appropriate spring and fall spawning periods. Alternative B: Rainbow and cutthroat trout, bluehead and flannelmouth sucker, roundtail chub, and Paiute and mottled sculpin (April 1 to August 1); brown and brook trout (October 1 to November 30). Alternative C: Cutthroat trout (May 1-September 1), Rainbow trout (March 1-June 30), Brown trout (October 1-May 1), Brook trout (August 1-May 1), Sculpin (May 1-July 31), Bluehead sucker (May 1-July 31), Flannelmouth sucker (April 1-July 1), Roundtail chub (May 1-July 31), Speckled dace (May 1-August 31), Mountain whitefish (October 1-November 30). **PURPOSE:** To protect redds (egg masses) in the gravel and emerging fry. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect important native and game fish breeding.		•	•	
TL-2 *(ROWA)* **Occupied Cutthroat Trout Waters.**	**STIPULATION:** Prohibit in-channel work in all occupied cutthroat trout streams during spring spawning periods of April 1 to August 1. **PURPOSE:** To protect redds (egg masses) in the gravel and emerging fry. **EXCEPTION:** Standard exceptions apply (Section B.2). **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect important native fish species, including a USFWS-listed species.				•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
TL-12 (ROWA) (BLM 1987) **Deer and Elk Winter Range.** 262,800 acres	**STIPULATION:** Lease activities such as exploration, drilling, and other development will be allowed only during the period from May 1 to December1 on the following portions of this lease: <LEGAL_DESCRIPTION>. **PURPOSE:** To protect important seasonal wildlife habitat. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range management. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concerns(s) identified.	•			
TL-20 *(ROWA)* **Big Game Winter Range.** 474,500 acres	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and intensive human activities from December 1 to May 1 to protect big game winter range as mapped by the CPW. Certain areas within big game winter range may be closed to foot, horse, motorized, and/or mechanized travel from December 1 to May 1. **PURPOSE:** To protect big game winter range. **EXCEPTION:** Standard exceptions apply (Section B.2). An exception will be granted only when the proposed action would not cause unacceptable harm to big game based on the following factors: 1. Winter conditions (such as snow cover and crusting) at the project site and vicinity; 2. Predictable, short-term (1 week) storm forecasts for the project area; 3. Period of winter in which the exception is requested (e.g., after April 15, before December 15, heart of winter); 4. Project site location relative to the size and spatial configuration of delineated critical winter range, open roads and trails, and other background disturbance; 5. Length of time that activities would encroach on the period of the winter range stipulation; 6. Number of vehicle trips per day in and out of the work		•	•	•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	site; 7. Time of day that activity occurs (after dark generally prohibited); 8. Actual big game use of the area; 9. Cumulative impacts on big game (such as other activities in the area); and 10. Additional site-specific or general concerns, as appropriate. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect big game winter habitat from surface-disturbing and major human activities during the periods of the year when the habitat is occupied. This habitat is critical to the viability of big game herds. These areas will be managed by BLM to reflect CPW most current big game winter range maps.				
TL-9 (ROWA) (BLM 1987) **Bighorn Seasonal Stipulation.**	**STIPULATION:** Lease activities such as exploration, drilling, and other development will be allowed only during the period from May 1 to December 1 on the following portions of this lease: <LEGAL_DESCRIPTION>. **PURPOSE:** To protect important seasonal bighorn habitat. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range management. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concern(s) identified.	•			
TL-4 (ROWA) (BLM 1987) **Elk Calving Area.** 3,400 acres	**STIPULATION:** Lease activities such as exploration, drilling, and other development will be allowed only during the period from June 15 to May 15 on the following portions of this lease. **PURPOSE:** To protect important seasonal elk calving habitat. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range management. In	•			

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	Stipulation Description	Alternative A	B	C	D
	addition, no surface-disturbing activity will be allowed on elk calving sites. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2).				
TL-21 *(ROWA)* **Big Game Production Areas.** 13,100 acres.	**STIPULATION:** Prohibit activities, including motorized travel, in elk production areas from May 15 to June 15; in antelope production areas from April 15 to June 30; in Rocky Mountain bighorn sheep production areas from April 15 to June 30; in Moose production areas from April 15 to June 30; and in desert bighorn sheep production areas from February 1 to May 1. **PURPOSE:** To protect important seasonal big game production habitat, and protect big game from disturbance in this critical season. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range improvements. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation provides for protection of big game production areas from disturbance and displacement by human activities during critical periods.		•	•	
TL-22 *(ROWA)* **Pronghorn Wintering Habitat.** 23,500 acres	**STIPULATION:** Prohibit surface occupancy, surface-disturbing activities, and intensive human activities in pronghorn wintering habitat from January 1 to March 31. **PURPOSE:** To improve pronghorn antelope habitat. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range management. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** Standard waivers apply (Section B.2). **JUSTIFICATION:** This stipulation is necessary to protect pronghorn winter habitat from surface-disturbing and major human activities during the periods of the year when the habitat is occupied. This habitat is critical to the viability of pronghorn		•	•	•

Table B-7
Timing Limitation (TL) Stipulations Applicable to
Fluid Mineral Leasing and Other Surface-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	herds. These areas will be managed by BLM to reflect CPW most current pronghorn winter range maps.				
	Wild Horses				
TL-10 (ROWA) (BLM 1987) **Wild Horse Winter Range.**	**STIPULATION:** Lease activities such as exploration, drilling, and other development will be allowed only during the period from May 1 to December 1 on the following portions of this lease: <LEGAL_DESCRIPTION>. **PURPOSE:** To protect important wild horse habitat. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range management. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concerns(s) identified.	•			
TL-11 (ROWA) (BLM 1987) **TL-23** **Wild Horse Foaling Area.**	**STIPULATION:** Lease activities such as exploration, drilling, and other development will be allowed only during the period from July 1 to March 1 on the following portions of this lease: <LEGAL_DESCRIPTION>. **PURPOSE:** To protect important seasonal wild horse habitat. **EXCEPTION:** This limitation does not apply to maintenance and operation of producing wells and range management. **MODIFICATION:** Standard modifications apply (Section B.2). **WAIVER:** This stipulation may be waived or reduced in scope if circumstances change or if the lessee can demonstrate that operations can be conducted without causing unacceptable impacts on the concerns(s) identified.	•			•

[1]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987).

Table B-8
Lease Notices (LN) and Additional Required Conditions of Approval
Applicable to Authorized Ground-disturbing Activities

Stipulation Number *(Existing/***New***)*[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	Water Resources				
LN-17 **Palisade Municipal Watershed.**	This lease contains privately owned surface of the Town of Palisade that is within the Town's designated municipal watershed and is covered by a Watershed Protection Ordinance. This applies to the lands described below: <LEGAL_DESCRIPTIONS>.	•			
LN-1 **Source Water Protection Areas.**	The lease is within source water protection areas, and the lessee is required to implement special protective measures for water resources and to collaborate with municipalities and comply with applicable municipal watershed plans. **JUSTIFICATION:** This lease notification is necessary because leases within source water protection areas require extensive protection measures to ensure protection of water quality and human health.		•		
LN-2 **Municipal Watersheds and Source Water Protection Areas.**	The lease is within a municipal watershed or source water protection area, and the lessee is required to implement special protective measures for water resources and to collaborate with municipalities and comply with applicable municipal watershed plans. **JUSTIFICATION:** This lease notification is necessary because leases within municipal watersheds and source water protection areas require extensive protection measures to ensure protection of water quality and human health.				•
	Special Status Species				
LN-13 (BLM 1987) **Threatened and Endangered Species Habitat.**	The lessee/operator is required to submit to the BLM's Authorized Officer a plan for avoidance or mitigation of impacts on the identified species. This may require completion of an intensive inventory by a qualified biologist. The plan must be approved prior to any surface disturbance. The Authorized Officer may require additional mitigation measures, such as relocation of proposed roads, drilling sites, or other facilities. Where impacts cannot be mitigated to the satisfaction of the BLM's Authorized Officer, surface occupancy on that area is prohibited. • Black-footed ferret *(Exhibit GJ-13EC)*; • Spineless hedgehog cactus *(Exhibit GJ-13ED)*; and	•			

Table B-8
Lease Notices (LN) and Additional Required Conditions of Approval
Applicable to Authorized Ground-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	• Colorado hookless cactus (formerly Uinta Basin hookless cactus) *(Exhibit GJ-13EE)*.				
LN-3 **Biological Inventories.**	The operator is required to conduct a biological inventory prior to approval of operations in areas of known or suspected habitat of special status species, or habitat of other species of interest such as but not limited to raptor nests, sage-grouse leks, or significant natural plant communities. The operator, in coordination with the BLM, shall use the inventory to prepare mitigating measures to reduce the impacts on affected species or their habitats. These mitigating measures may include, but are not limited to, relocation of roads and other facilities and fencing operations or habitat. Where impacts cannot be mitigated to the satisfaction of the BLM's Authorized Officer, surface occupancy on that area is prohibited. **JUSTIFICATION:** This lease notice is necessary to identify current plant and animal populations in order to reduce or avoid impacts to those species.		•	•	•
LN-15/**LN-4** **Colorado Hookless Cactus (formerly Uinta Basin Hookless Cactus).**	This lease contains habitat for the Colorado hookless cactus *(Sclerocactus glaucus)*. Prior to undertaking any activity on the lease, including surveying and staking of well locations, the lessee may be required to perform botanical inventories on the lease. Special design and construction measures may also be required in order to minimize impacts to Colorado hookless cactus habitat from drilling and producing operations. This applies to the lands described below: <LEGAL_DESCRIPTIONS>. **EXCEPTION:** An exception may be granted depending on current usage of the site or on the geographical relationship to topographic barriers and vegetation screening. **MODIFICATION:** Changes to this stipulation will be made in accordance with the land use plan and/or the regulatory provisions for such changes. (For guidance on the use of this stipulation, see BLM Manual 1624 and 3101 or FS Manual 1950 and 2820.) **JUSTIFICATION:** This lease notice is necessary to identify current cactus populations and habitat in order to reduce or avoid impacts to cactus habitat.	•	•	•	•

Table B-8
Lease Notices (LN) and Additional Required Conditions of Approval
Applicable to Authorized Ground-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] **Protected Resource** **Acres/Miles Affected**	**Stipulation Description**	**Alternative**			
		A	**B**	**C**	**D**
	Fish and Wildlife				
LN-3 **Biological Inventories.**	The operator is required to conduct a biological inventory prior to approval of operations in areas of known or suspected habitat of special status species, or habitat of other species of interest such as but not limited to raptor nests, sage-grouse leks, or significant natural plant communities. The operator, in coordination with the BLM, shall use the inventory to prepare mitigating measures to reduce the impacts on affected species or their habitats. These mitigating measures may include, but are not limited to, relocation of roads and other facilities and fencing operations or habitat. Where impacts cannot be mitigated to the satisfaction of the BLM's Authorized Officer, surface occupancy on that area is prohibited. **JUSTIFICATION:** This lease notice is necessary to identify current plant and animal populations in order to reduce or avoid impacts to those species.		•	•	•
LN-5 **Working in Wildlife Habitat.**	Require operators to establish and submit to the GJFO a set of operating procedures for employees and contractors working in important wildlife habitats. Design such procedures to inform employees and contractors of ways to minimize the effect of their presence on wildlife and wildlife habitats. Procedures may address, but are not limited to, items such as working in bear or snake country, controlling dogs, and understanding and abiding by hunting and firearms regulations.		•	•	
	Paleontological Resources				
LN-6 **Class 4 and 5 Paleontological Areas.**	Have a permitted paleontologist approved by the Authorized Officer perform an inventory of surface-disturbing activities in Class 4 and 5 paleontological areas per Instruction Memorandum No. 2008-009: Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands. **JUSTIFICATION:** This lease notice is necessary to ensure an adequate paleontologist is present during surface disturbing activities to protect paleontological resources from direct impacts.	•	•	•	•

Table B-8
Lease Notices (LN) and Additional Required Conditions of Approval
Applicable to Authorized Ground-disturbing Activities

Stipulation Number (*Existing*/**New**)[1] / Protected Resource / Acres/Miles Affected	Stipulation Description	Alternative A	B	C	D
	Lands and Realty				
LN-16/**LN-7** **Powderhorn Ski Area.**	If drilling operations are proposed, the lessee is hereby notified that there are concerns about ski lift structures, other facilities, and ski runs within the Powderhorn ski area. The lessee is hereby notified that special design, construction, and scheduling measures may be required in order to minimize the impacts of drilling and production operations. Proposed drilling and production facilities and operations will be relocated and rescheduled as needed to avoid physical interference with ski area facilities and recreation use. This can include relocations of more than 200 meters (656 feet) or seasonal closures of more than 60 days. This applies to the lands described below: <LEGAL_DESCRIPTIONS>. **JUSTIFICATION:** This lease notification is necessary to protect recreation facilities at Powderhorn Ski Area.	•	•		•

[1]Existing stipulations currently in effect in Alternative A, current management, and are noted in italics and are from the current RMP (BLM 1987), Proposed new stipulations under Alternatives B, C, and/or D are noted in bold-face, non-italicized.

Appendix C

Draft Wild and Scenic Rivers Suitability Report

TABLE OF CONTENTS

Chapter Page

TABLES

FIGURES

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ACEC	area of critical environmental concern
BLM	United States Department of the Interior, Bureau of Land Management
cfs	cubic feet per second
CPW	Colorado Department of Natural Resources, Parks and Wildlife
CWCB	Colorado Water Conservation Board
EIS	environmental impact statement
ESA	Endangered Species Act
GJFO	Grand Junction Field Office
NCA	National Conservation Area
NWSRS	National Wild and Scenic Rivers System
ORV	outstandingly remarkable value
RMP	resource management plan
SRMA	special recreation management area
US	United States
USFWS	United States Department of the Interior, Fish and Wildlife Service
US BOR	United States Department of the Interior, Bureau of Reclamation
US Forest Service	United States Department of Agriculture, National Forest Service
VRM	visual resource management
WSA	wilderness study area
WSR	wild and scenic river
WSR Act	Wild and Scenic Rivers Act of 1968

This page intentionally left blank.

EXECUTIVE SUMMARY

In March 2009, the United States (US) Department of the Interior, Bureau of Land Management (BLM), Grand Junction Field Office (GJFO) completed the eligibility phase of a wild and scenic rivers (WSR) evaluation as part of the resource management plan (RMP) revision process (BLM 2009a). The eligibility study identified 20 segments within the GJFO as eligible for inclusion in the National Wild and Scenic Rivers System (NWSRS).

On March 30, 2009, after the release of the eligibility findings, Congress designated the Dominguez-Escalante National Conservation Area (NCA), which includes the Dominguez Canyon Wilderness. All or portions of five segments identified as eligible fall within the Dominguez-Escalante NCA (Dominguez Creek, Big Dominguez Creek, Little Dominguez Creek Segments 1 and 2, and Gunnison River Segment 1). These segments will be considered for suitability during the development of the RMP for the Dominguez-Escalante NCA. Further, Little Dolores was removed from further consideration due to land status that was verified through an updated cadastral survey. This was addressed in an amendment to the Eligibility Report. As such, a total of 14 eligible segments are studied for suitability in this report.

The next step in the WSR process is evaluating eligible segments for suitability. The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the national system by considering tradeoffs between corridor development and river protection. This report describes the methodology, data considered, and determinations made during the suitability phase. All eligible segments were assessed for suitability.

Project Area

The project area for this suitability study includes all BLM-managed river segments that have been determined to meet the WSR eligibility criteria within the RMP decision area. The GJFO manages approximately 1.2 million acres of BLM lands in Delta, Mesa, Montrose, and Garfield counties in northwest Colorado. This WSR suitability study also includes the eligible segment of the Colorado River that passes through the McInnis Canyons NCA as the Colorado River is not considered part of the NCA. All other aspects of the McInnis Canyons NCA were evaluated in

the McInnis Canyons NCA (BLM 2004) RMP and are not considered as part of this RMP revision process.

Suitability Phase

The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the NWSRS. The suitability analysis examines various approaches for maintaining the outstanding remarkable values identified during the eligibility determination, and weighs protection of those values against other potential uses of the stream segment. The suitability evaluation does not result in actual designation but only a suitability determination for designation. The BLM cannot administratively designate a stream via a planning decision or other agency decision into the NWSRS, and no segment studied is designated or will be automatically designated as part of the NWSRS. Only Congress can designate a WSR. In some instances, the Secretary of the Interior may designate a WSR when the governor of a state, under certain conditions, petitions for a river to be designated. Members of Congress will ultimately choose the legislative language if any suitable segments are presented to them. Water-protection strategies and measures to meet the purposes of the Wild and Scenic Rivers Act of 1968 will be the responsibility of Congress in any legislation proposed. Rivers found not suitable by the managing agency conducting the suitability study would be dropped from further consideration and managed according to the objectives and specific management prescriptions outlined in the RMP.

Suitability Determinations

Table ES-1, Summary of Suitability Determinations, shows the preliminary suitability determination for each segment. Of the 14 stream segments determined to be eligible and studied for suitability in this report, the BLM determined that two portions of the Dolores River are suitable for WSR designation.

Table ES-1
Summary of Preliminary Suitability Determinations

River or Creek	Segment	Total Segment Length (miles)	Length on BLM Land (miles)	Preliminary Suitability Determination	Proposed Classification
Colorado River	Total of three segments	78.91 (total)	27.77 (total)		
	Segment 1	17.76	7.32	Not Suitable	Recreational
	Segment 2	40.24	1.31	Not Suitable	Recreational
	Segment 3	20.91	19.14	Not Suitable	Scenic
Dolores River Watershed	Total of three segments	45.42 (total)	30.75 (total)		
Dolores River	One segment	32.01	18.62		Recreational
			11.53	*Suitable*	
			7.07	*Not Suitable*	
North Fork Mesa Creek	One segment	2.05	2.05	Not Suitable	Scenic
Blue Creek	One segment	11.36	10.08	Not Suitable	Scenic
Gunnison River Segment 2	One Segment	16.63	3.85	Not Suitable	Recreational
Roan Creek	One segment	17.04	6.47	Not Suitable	Scenic
Carr Creek	One segment	15.10	5.06	Not Suitable	Scenic
Rough Canyon	One segment	4.21	4.21	Not Suitable	Scenic
Unaweep Canyon Complex	Total of four segments	56.50 (total)	21.39 (total)		
East Creek	One segment	20.26	8.96	Not Suitable	Recreational
West Creek	One segment	23.56	4.93	Not Suitable	Recreational
North Fork of West Creek	One segment	8.46	3.31	Not Suitable	Wild
Ute Creek	One segment	4.22	4.19	Not Suitable	Scenic

This page intentionally left blank.

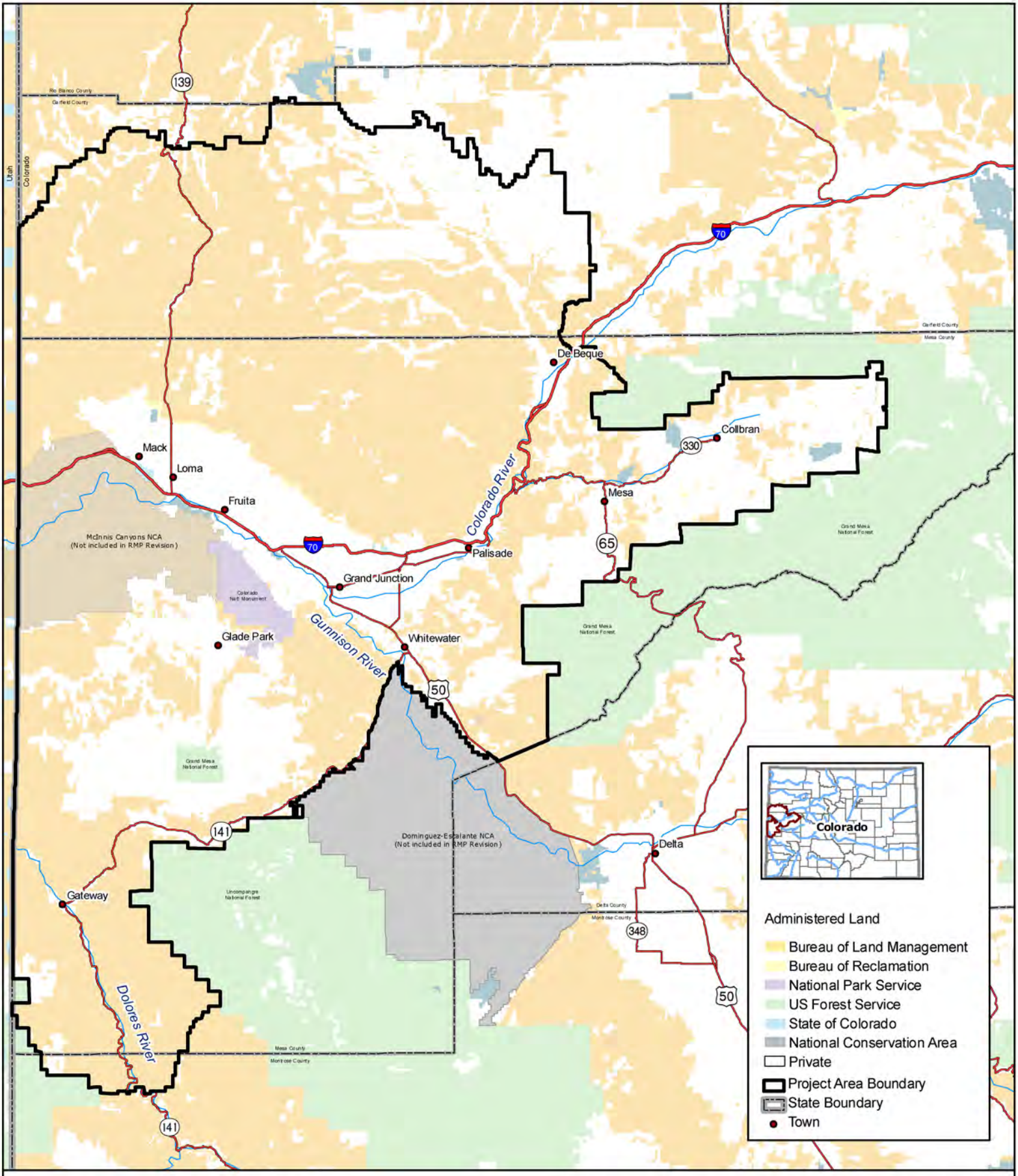
CHAPTER 1
INTRODUCTION

In March 2009, the United States (US) Department of the Interior, Bureau of Land Management (BLM), Grand Junction Field Office (GJFO) completed the eligibility phase of a wild and scenic rivers (WSR) evaluation as part of the resource management plan (RMP) revision process (BLM 2009a). The eligibility study identified 20 segments within the GJFO as eligible for inclusion in the National Wild and Scenic Rivers System (NWSRS).

The GJFO manages approximately 1.2 million acres of BLM lands in Delta, Mesa, Montrose, and Garfield counties in northwest Colorado (**Figure 1-1**, Project Area). A separate planning process was conducted for the McInnis Canyons National Conservation Area (NCA) (BLM 2004); therefore the GJFO RMP revision will not consider lands within the NCA boundary and will not determine the eligibility or suitability of watercourses within the NCA boundary. However, the Colorado River is not considered part of the NCA and was therefore included in the GJFO WSR eligibility study and will be considered for suitability.

On March 30, 2009, after the release of the eligibility findings, Congress designated the Dominguez-Escalante NCA, which includes the Dominguez Canyon Wilderness. All or portions of five segments identified as eligible fall within the Dominguez-Escalante NCA (Dominguez Creek, Big Dominguez Creek, Little Dominguez Creek Segments 1 and 2, and Gunnison River Segment 1). These segments will be considered for suitability during the development of the RMP for the Dominguez-Escalante NCA.

This report describes the outstandingly remarkable values (ORVs), suitability factors, and preliminary suitability determination data on each of the segments which have been determined to meet the WSR eligibility criteria. **Figure 1-2** (Eligible Segments within the GJFO) displays the 14 segments being studied as part of this WSR suitability analysis.



Source: BLM 2010a

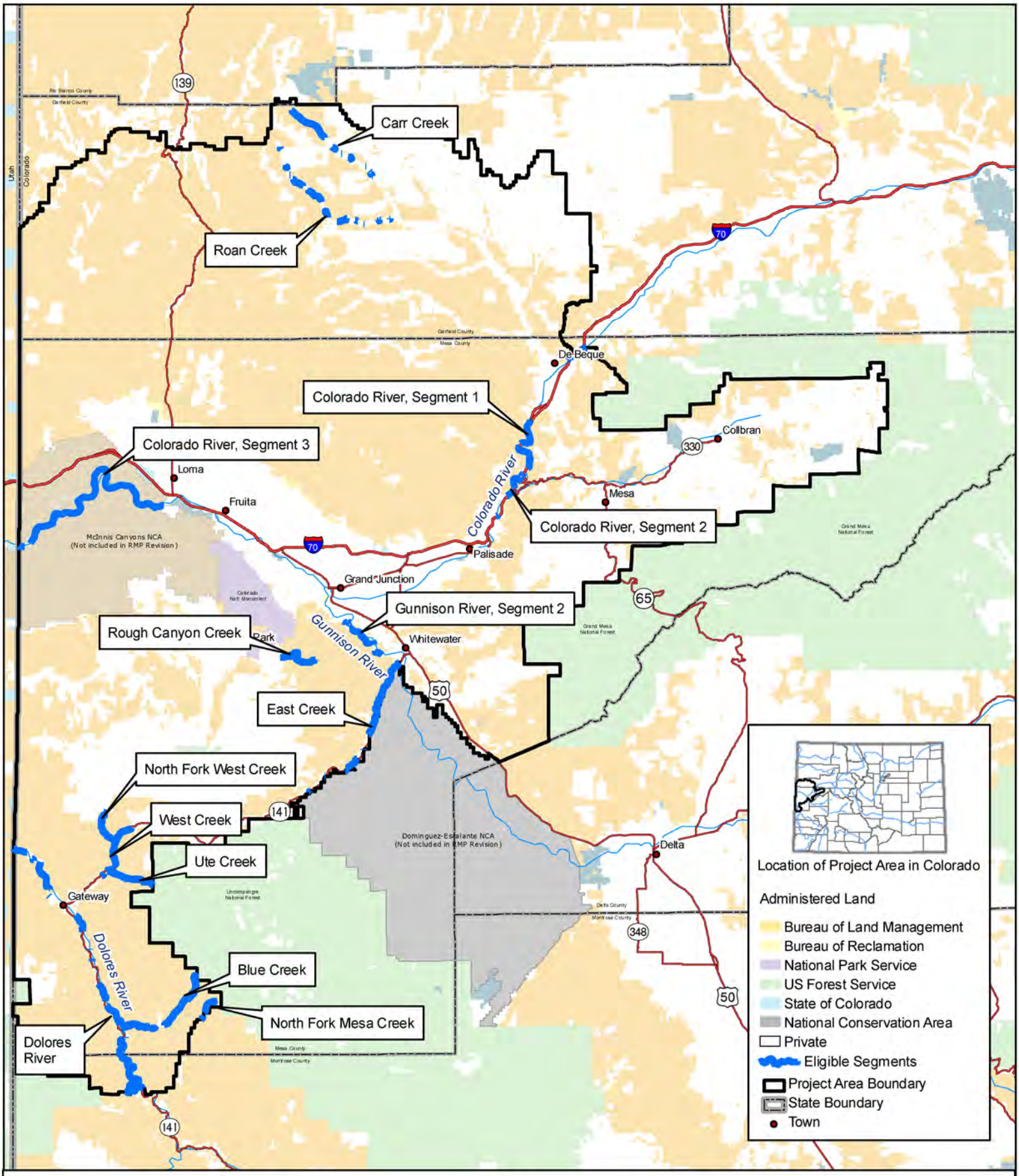
Wild and Scenic Rivers Project Area

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice. Map produced by Grand Junction Field Office, Bureau of Land Management, Grand Junction, CO.

0 2.5 5 10 15 20
Miles

Figure 1-1

BLM Grand Junction Field Office Resource Management Plan



Source: BLM 2010a

Wild and Scenic Rivers Eligible Segments

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice. Map produced by Grand Junction Field Office, Bureau of Land Management, Grand Junction, CO.

0 2.5 5 10 15 20
Miles

Figure 1-2

BLM Grand Junction Field Office Resource Management Plan

1.1 WILD AND SCENIC RIVERS STUDY PROCESS

A WSR study process is composed of two main components: the eligibility phase and the suitability phase. At this point, the GJFO has completed the eligibility phase and is completing the suitability phase. The eligibility and suitability phases were conducted in accordance with BLM Manual 8351, *Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, and Management* (BLM 1992), *The Wild and Scenic River Study Process Technical Report* (Interagency Wild and Scenic Rivers Coordinating Council 1999), and with the Wild and Scenic Rivers Act of 1968 (WSR Act).

1.1.1 Eligibility Phase

The eligibility phase was completed for the GJFO in March 2009. A determination of eligibility includes identifying the river segment's ORVs, free-flowing nature, and preliminary classification. For a complete description of the segments analyzed and methodology used, see the *Wild and Scenic River Eligibility Report for Bureau of Land Management, Grand Junction Field Office* (BLM 2009a).

A summary of segments identified as eligible in the GJFO and that are evaluated for suitability in this report is provided in **Table 1-1**, Eligible Stream Segments Studied for Suitability.

1.1.2 Suitability Phase

The purpose of the suitability phase of the study process is to determine whether eligible segments would be appropriate additions to the NWSRS by considering tradeoffs between corridor development and river protection. The suitability evaluation does not result in actual designation but only a suitability determination for designation. The BLM cannot administratively designate a stream via a planning decision or other agency decision into the NWSRS, and no segment studied is designated or will be automatically designated as part of the NWSRS. Only Congress can designate a WSR. In some instances, the Secretary of the Interior may designate a WSR when the governor of a state, under certain conditions, petitions for a river to be designated. Members of Congress will ultimately choose the legislative language if any suitable segments are presented to them. Water-protection strategies and measures to meet the purposes of the WSR Act will be the responsibility of Congress in any legislation proposed. Rivers found not suitable by the managing agency conducting the suitability study would be dropped from further consideration and managed according to the objectives and specific management prescriptions outlined in the land management plan. A summary of segments identified as eligible in the GJFO and that were evaluated for suitability in this report is provided in **Table 1-1**.

Table 1-1
Eligible Stream Segments Studied for Suitability

River or Creek	Segment	Total Segment Length (miles)	Length on BLM Land (miles)	Preliminary Classification	Outstandingly Remarkable Values
Colorado River	Total of three segments	78.91 (total)	27.77 (total)		
	Segment 1	17.76	7.32	Recreational	Scenic, Fish, Wildlife
	Segment 2	40.24	1.31	Recreational	Fish
	Segment 3	20.91	19.14	Scenic	Scenic, Recreation, Fish, Wildlife, Geologic, Historic
Dolores River Watershed	Total of three segments	45.42 (total)	30.75 (total)		
Dolores River	One segment	32.01	18.62	Recreational	Scenic, Recreation, Geologic, Paleontological, Fish
North Fork Mesa Creek	One segment	2.05	2.05	Scenic	Vegetation
Blue Creek	One segment	11.36	10.08	Scenic	Scenic, Fish, Cultural
Gunnison River Segment 2	One Segment	16.63	3.85	Recreational	Fish, Historic
Roan Creek	One segment	17.04	6.47	Scenic	Fish
Carr Creek	One segment	15.10	5.06	Scenic	Fish
Rough Canyon	One segment	4.21	4.21	Scenic	Scenic, Wildlife, Geologic
Unaweep Canyon Complex	Total of four segments	56.50 (total)	21.39 (total)		
East Creek	One segment	20.26	8.96	Recreational	Geologic
West Creek	One segment	23.56	4.93	Recreational	Scenic, Wildlife, Geologic, Vegetation
North Fork of West Creek	One segment	8.46	3.31	Wild	Scenic
Ute Creek	One segment	4.22	4.19	Scenic	Scenic, Vegetation

Source: BLM 2009a

This page intentionally left blank.

CHAPTER 2
METHODOLOGY

This section describes the methodology implemented to evaluate eligible segments for suitability. The criteria used to evaluate eligible river and stream segments are those described in BLM Manual 8351, *Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, and Management* (BLM 1992) and recommendations from the Interagency Wild and Scenic Rivers Coordinating Council (1999).

2.1 SUITABILITY CRITERIA USED TO EVALUATE RIVER AND STREAM SEGMENTS

The purpose of the suitability phase of the study process is to determine whether eligible rivers would be appropriate additions to the NWSRS by considering tradeoffs between corridor development and river protection. Suitability considerations include the environment and economic consequences of designation and the manageability of a river if it were designated by Congress.

A suitability study is designed to answer these questions:

1. Should the river's free-flowing character, water quality, and ORVs be protected, or are one or more other uses important enough to warrant doing otherwise?
2. Will the river's free-flowing character, water quality, and ORVs be protected through designation? Is designation the best method for protecting the river corridor? In answering these questions, the benefits and impacts of WSR designation must be evaluated and alternative protection methods considered.
3. Is there a demonstrated commitment to protect the river by any nonfederal entities that may be partially responsible for implementing protective management?

With the above guidance from the Interagency Wild and Scenic Rivers Coordinating Council (1999) in mind, the following 11 suitability criteria factors, identified in BLM Manual Section 8351 (BLM 1992), were applied to each eligible river segment in the suitability study:

1. Characteristics which do or do not make the area a worthy addition to the NWSRS.

2. Status of landownerhip, minerals (surface and subsurface), use in the area, including the amount of private land involved, and associated or incompatible uses. Jurisdictional consideration (administrative role and/or presence) must be taken into account to the extent that management would be affected. In situations where there is limited public lands (shoreline and adjacent lands) administered by the BLM within an identified river study area, it may be difficult to ensure those identified outstandingly remarkable values could be properly maintained and afforded adequate management protection over time. Accordingly, for those situations where the BLM is unable to protect or maintain any identified outstandingly remarkable values, or through other mechanisms (existing or potential), river segments may be determined suitable only if the entity with land use planning responsibility supports the finding and commits to assisting the BLM in protecting the identified river values. An alternative method to consider these segments is for state, local governments, or private citizens to initiate efforts for designation under Section 2(a)(iii), or a joint study under Section 5(c) of the WSR Act. In certain cases, there might be existing or future opportunities for the BLM to acquire river shoreline or where landowners are willing to donate, exchange, transfer, assign, sell, or sign an easement. Wherever appropriate, the BLM shall encourage the state, responsible federal agency or other entities to evaluate segments where the BLM lacks sufficient jurisdictional control and the BLM shall provide technical assistance concerning the WSR river studies, as well as information concerning public lands within the study corridor. The BLM shall continue to protect and, wherever possible, enhance any outstandingly remarkable values identified in the RMP process which are associated with lands under the BLM's jurisdiction.

3. Reasonably foreseeable potential uses of the land and related waters which would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and the values which could be foreclosed or diminished if the area is not protected as part of the NWSRS.

4. Federal, public, state, tribal, local, or other interests in designation or nondesignation of the river, including the extent to which the administration of the river, including the costs thereof, may be shared by state, local, or other agencies and individuals. Also, the federal agency that will administer the area should it be added to the National System.

5. Estimated cost, if necessary, of acquiring lands, interests in lands, and administering the area if it is added to the NWSRS. Section 6 of the WSR Act outlines policies and limitations of acquiring lands or interests in land by donation, exchange, consent of owners, easement, transfer, assignment of rights, or condemnation within and outside established river boundaries.

6. Ability of the agency to manage and/or protect the river area or segment as a WSR river, or other mechanisms (existing and potential) to protect identified values other than WSR designation.

7. Historical or existing rights which could be adversely affected. In determining suitability, consideration of any valid existing rights must be afforded under applicable laws (including the WSR Act), regulations, and policies.

8. Other issues and concerns, if any.

In addition to the criteria described above, three additional suitability factors were considered, as suggested by the Interagency Wild and Scenic Rivers Coordinating Council (1999):

1. Adequacy of local zoning and other land use controls in protecting the rivers ORVs by preventing incompatible development. This evaluation may result in a formal finding that the local zoning fulfills Section 6(c)'s requirements, which in turn preempts the federal government's ability to acquire land through eminent domain if the river is designated.
2. Consistency of designation with other agency plans, programs, or policies and in meeting regional objectives. Designation may help or impede the "goals" of other tribal, federal, state, or local agencies. For example, designation of a river may contribute to state or regional protection objectives for fish and wildlife resources. Similarly, adding a river which includes a limited recreation activity or setting to the National System may help meet statewide recreation goals. Designation might, however, limit irrigation and/or flood control measures in a manner inconsistent with regional socioeconomic goals.
3. Contribution to a river system watershed or basin integrity. This factor reflects the benefits of a "systems" approach, i.e., expanding the designated portion of a river in the National System or developing a legislative proposal for an entire river system (headwaters to mouth) or watershed. Numerous benefits are likely to result from managing an entire river or watershed, including the ability to design a holistic protection strategy in partnership with other agencies and the public.

In the suitability analysis, water resource development issues are generally considered under criterion three and seven from BLM Manual Section 8351 (BLM 1992).

2.2 DATA SOURCES AND METHODOLOGY

The BLM relied on several sources, including geographic information systems data, GJFO resource specialists, informational sources, other agencies, and public input. The result was a compilation of data applicable to the suitability criteria. This data was then used to determine the suitability of a particular segment.

2.2.1 Geographic Information Systems

The US Geological Survey National Hydrography Dataset was used to select all perennial stream segments for the eligibility study. Streams and stream sections were removed that did not fall within GJFO jurisdiction. In addition to US Geological Survey data, the BLM also used its corporate Geographic Information Systems data for all associated resources.

2.2.2 BLM Resource Interdisciplinary Team

The BLM interdisciplinary team consisted of resource specialists from the GJFO. The interdisciplinary team provided information pertaining to the suitability criteria factors and also reviewed data from additional sources, such as agency and public input, for accuracy. Once all available data were compiled, the team evaluated each segment and made a suitability determination.

2.2.3 Informational Sources

The BLM used a number of informational sources and publications to evaluate segments for suitability. These sources included:

- BLM Manual Section 835;
- US Geological Survey Minerals Maps;
- US Geological Survey stream gage data;
- Land Status Maps;
- Agreements with other agencies;
- Other Agency management plans;
- Land use planning and zoning documents for local and county governments;
- Descriptions of current and proposed water projects provided by water management agencies;
- Published books;
- River guides;
- Tabulations of water rights; and
- Input from Cooperating Agencies and stakeholders.

2.2.4 Other Agencies

Additional information was gathered from other federal and state agencies from scoping letters, stakeholder outreach, and existing documents. The following other agencies were contacted in order to assess suitability:

- Colorado Department of Natural Resources, Parks and Wildlife (CPW) databases;
- US Department of Agriculture, National Forest Service [Forest Service], where segments originate or continue onto Forest Service land;
- Environmental organizations;
- Land owners;
- Water users;
- Municipalities;
- Counties; and
- State entities.

2.2.5 Public Input

Eligibility Phase

Public involvement for the GJFO WSR evaluation process began during the eligibility phase as part of initial scoping for the RMP from October 15, 2008 through January 9, 2009. Public outreach during the scoping period included: 1) a newsletter mailed to over 600 agency officials,

organizations, and members of the public; 2) three scoping open houses in December 2008 in Grand Junction and Collbran, Colorado, and in Moab, Utah; and 3) a public Web site, http://www.blm.gov/co/st/en/fo/gjfo/rmp, which provides access to materials distributed at scoping meetings, as well as information on the public involvement process. The BLM presented the results of its initial identification efforts, provided educational materials regarding the WSR process, and solicited comments from the public and government agencies.

The public was invited to submit comments via US mail, facsimile, and/ or electronic mail and comments were accepted until January 9, 2009. The BLM received 36 discreet comments in seven letters related to WSR during scoping. Comments were analyzed and incorporated as appropriate into the eligibility study. More detailed information on public involvement during the eligibility phase can be found in the *Wild and Scenic River Eligibility Report for Bureau of Land Management, Grand Junction Field Office* (BLM 2009a) and the *Resource Management Plan Revision Scoping Summary Report* (BLM 2009b).

Suitability Phase

In late-March of 2009 at the beginning of the suitability phase of the evaluation process Colorado River District convened a stakeholders group. Letters were mailed to potential stakeholders soliciting data on the segments being studied for suitability. Stakeholders were specifically asked to provide data related to the suitability criteria in **Section 2.1**. Letters to potential stakeholders were sent on March 31, 2009, and included a list of the suitability criteria, a question and answer on WSRs analysis and water rights/water projects overview, and a WSRs guide for riverfront property owners. Data received were analyzed and incorporated into the suitability evaluation.

During stakeholder outreach for suitability, the BLM received *23* comment letters. Comments pertained to a range of topics from the eligibility of certain segments to opinions on the suitability of eligible segments. As intended, the stakeholders provided valuable information related to the suitability criteria which was incorporated into the evaluation when applicable.

A stakeholder group, named the Lower Colorado River Wild and Scenic Stakeholder Collaborative, formed independently of BLM's public outreach process. This stakeholder group included representatives from state government, local governments, conservation districts, water districts, organizations representing agricultural interests, and organizations representing environmental interests. The stakeholder group also included several private landowners. The objective adopted by the group was to provide collaboratively-developed management recommendations to the BLM that would support the identified ORVs on specific stream segments while also supporting stakeholder uses and values that exist along certain stream segments. At the request of the group, BLM provided information concerning the WSR Act, the BLM planning process, and stream-related natural resource values. The BLM did not participate in the group as a stakeholder, nor did BLM participate in decisions made by the group concerning management recommendations. The group sent a letter signed by all the parties conveying its recommendations to BLM. These letters are incorporated as part of the public comment record for the BLM planning effort. Stakeholder group recommendations are more fully discussed in the following sections on specific stream segments.

All comments received were considered and analyzed. Only those comments that pointed out errors or omissions in BLM's eligibility resulted in changes to the eligibility analysis. Those changes are explained in a March 2010 amendment to the eligibility report.

2.3 SUITABILITY DETERMINATIONS

Each of the 15 individual eligible segments were evaluated to assess whether or not it would be suitable for inclusion in the NWSRS. The determination was made based on the suitability criteria factors described previously. When the Draft RMP/Draft EIS is published the public will have 90 days to comment on the draft suitability determinations.

2.4 INTERIM MANAGEMENT OF SUITABLE SEGMENTS

The WSR Act and BLM guidance require that interim management be developed and followed to protect the free-flowing nature, ORVs, and recommended classification of suitable segments until congressional action regarding designation is taken. Interim protections for suitable segments are provided administratively by the management agency and are not legislative protection under the WSR Act. Legislative protection is provided only by formal designation by Congress. Guidelines for management of Section 5(d)(1) suitable rivers, as adapted by the Interagency Wild and Scenic Rivers Coordinating Council from the WSR Act, are included in **Table 2-1**. Once final determinations have been made, the BLM will draft protective management measures for each suitable segment.

Table 2-1
Interim Protection for Candidate Wild and Scenic Rivers

Issue	Management Prescription/Action
Study Boundary	Minimum of 0.25-mile from ordinary high-water mark Boundary may include adjacent areas needed to protect identified values
Preliminary Classification (Section 2(b) of WSR Act)	3 classes: wild, scenic, recreational (defined by statute) Criteria for classification described in Interagency Guidelines Manage at recommended classification
Study Report Review Procedures	Notice of study report/Draft EIS published in *Federal Register* Comments/response from federal, state, and local agencies, and the public included in the study report/Final EIS transmitted to the President and Congress
Private Land: • Administration • Acquisition	Affect private land uses through voluntary partnership with state/local governments and landowners No regulatory authority Typically an evaluation of the adequacy of local zoning and land use controls is a component of suitability determination[1] No ability to acquire interest in land under the Act's authority prior to designation
Water Resources Project	River's free-flowing condition protected to the extent of other agency authorities; not protected under the WSR Act

Table 2-1
Interim Protection for Candidate Wild and Scenic Rivers

Issue	Management Prescription/Action
Land Disposition	Agency discretion to retain lands within river corridor in federal ownership
Mining and Mineral Leasing	Protect free flow, water quality, and ORVs through other agency authorities
Actions of Other Agencies	Affect actions of other agencies through voluntary partnership.
Protect Outstandingly Remarkable Values	No regulatory authority conferred by the WSR Act; agency protects through other authorities Section 11(b)1: Limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources[2]

[1] For an agency-identified study river that includes private lands there is often the need to evaluate existing state and local land use controls and, if necessary, assess the willingness of state and local government to protect river values.

[2] Section 11(b)1 authorizes the Secretary of the Interior and secretary of Agriculture, or the head of any other federal agency, to provide for "limited financial or other assistance to encourage participation in the acquisition, protection, and management of river resources." This authority "applies within or outside a federally administered area and applies to rivers which are components of the National system and to other rivers." The recipients of federal assistance include states or their political subdivisions, landowners, private organizations, or individuals. Some examples of assistance under this section include, but are not limited to, riparian restoration, riparian fencing to protect water quality and riparian vegetation, of vegetative screening to enhance scenery/recreation experience.

Source: Interagency Wild and Scenic Rivers Coordinating Council 1999

This page intentionally left blank.

CHAPTER 3
SUITABILITY CRITERIA-BASED DATA AND DETERMINATIONS

The purpose of the suitability phase is to determine whether eligible river segments are suitable or not suitable for inclusion in the NWSRS, per the criteria from the WSR Act. The suitability evaluation does not result in actual designation but only a suitability determination for designation. The BLM may or may not recommend a stream segment for designation into the NWSRS by transmitting its suitability determinations to Congress and the President. No stream segment studied is designated or will be automatically designated as part of the NWSRS. Only Congress can designate a WSR. In some instances, the Secretary of the Interior may designate a WSR when the governor of a state, under certain conditions, petitions for a river to be designated. Congress will ultimately choose the legislative language if any suitable segments are presented to them. Water protection strategies and measures to meet the purposes of the WSR Act will be the responsibility of Congress in any legislation proposed. Rivers found nonsuitable will be dropped from further consideration and managed according to the objectives outlined in the RMP.

Impacts that would occur from designating or not designating the suitable river segments will be analyzed in the EIS associated with the RMP. Public review and comment on suitability determinations included in the Draft RMP are considered before the BLM makes final suitability determinations. Maps have been included only for those segments preliminarily determined suitable. Maps of all eligible segments were included in the *Wild and Scenic River Eligibility Report for Bureau of Land Management, Grand Junction Field Office* (BLM 2009a).

This section contains a discussion of 11 suitability factors in relation to each of the 15 river and stream segments within the RMP planning area determined to be eligible in the *Wild and Scenic River Eligibility Report for Bureau of Land Management, Grand Junction Field Office* (BLM 2009a). The criteria described in **Section 2.1** are presented as follows:

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.
3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.
4. Federal, state, tribal, local, public, or other interest in designating or not designating the river.
5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.
6. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.
7. Historical or existing rights that could be adversely affected with designation.
8. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.
9. Consistency of designation with other agency plans, programs, or policies.
10. Contribution to a river system watershed or basin integrity.
11. Other issues and concerns, if any.

3.1 COLORADO RIVER

3.1.1 Colorado River Segment 1

Description:	From the eastern boundary of the planning area northeast of De Beque to the Grand Valley Diversion Dam, northeast of Palisade.		
Total Segment Length:	17.76 miles	**Total Segment Area:**	5,635.55 acres
Length on BLM Land :	7.32 miles	**Area on BLM Land:**	2,587.82 acres
Preliminary Classification:	Recreational		
ORVs:	Scenic, Fish, Wildlife		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

This segment has outstandingly remarkable scenic, fish, and wildlife values, which would make the segment a worthy addition to the NWSRS if designated. On the other hand, this segment has other characteristics that detract from its value as an addition to the NWSRS. The tentative classification for this segment is recreational due to Interstate 70 and railroad, both of which run parallel to and are readily apparent from the river.

This segment has outstandingly remarkable scenic values. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery,

scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). This segment flows through De Beque Canyon: a wide, relatively gentle sloped canyon through the Mesa Verde formation, formed by the down cutting of the Colorado River. The majestic views from and along the river are composed of stair-stepped brownish sandstone cliffs intermixed with lightly vegetated slopes of the canyon in sharp contrast to the riparian vegetation and varied colors near the river. The river drops several hundred feet through the canyon, with extensive views at the upper end of the canyon before opening up again at the bottom to views of the Grand Valley near Palisade.

This segment also has outstandingly remarkable fish values. The entire segment is designated critical habitat by the US Department of the Interior, Fish and Wildlife Service (USFWS) for the federally endangered Colorado pikeminnow (*Ptychocheilus lucius*) and the Razorback sucker (*Xyrauchen texanus*) (59 Fed. Reg. 13,374). Critical habitat is the specific area or areas that possess physical or biological features that are essential to the conservation of the species and that may require special management considerations or protections. The Colorado pikeminnow is the largest minnow in North America and one of the largest in the world. At one time, individuals may have lived more than fifty years, growing to nearly six feet in length and weighing up to 80 pounds. The razorback sucker is one of the largest suckers in North America. Individuals can live for more than forty years and can grow to up to thirteen pounds in weight and to three feet in length. These species were once widespread throughout most of the Colorado River Basin from Wyoming to Mexico.

Lastly, this segment has outstandingly remarkable wildlife values. Specifically, the segment contains important winter habitat for bald eagles *(Haliaeetus leucocephalus)*, a State Threatened Species in Colorado (CPW 2008). The USFWS also recently discovered a nesting site along this segment. Bald eagles no longer receive protection under the Endangered Species Act (ESA). The USFWS delisted bald eagles in June 2007 because their populations have recovered sufficiently. Nevertheless, bald eagles still receive protection under the Bald and Golden Eagle Protection Act.

There are also characteristics that are unrelated to ORVs that affect the suitability of this segment. Numerous water diversions exist along this segment, including several conditional water rights. If made absolute, these water rights could result in additional depletions and additional water development and diversion structures along the private land in the corridor. A portion of this segment overlaps the city limits of De Beque. Future population growth and expansion of De Beque and associated development, particularly along the riverfront, have the potential to change the setting found in this segment. Interstate 70 runs adjacent to the segment but gives drivers the opportunity to view the scenic landscape. A railroad and power lines are visible throughout the segment as well. Future expansion of the interstate, railroad, and transmission lines also have the potential to change the setting found in this segment. These characteristics somewhat detract from the value of the segment as an addition to the NWSRS.

2. <u>The status of land ownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.</u>

Land ownership for this 17.76-mile segment is a combination of federal (BLM and US Department of the Interior, Bureau of Reclamation [US BOR]) and private. The BLM manages

shoreline along 7.32 miles (41.2 percent) of the segment. Within the 5,635.55-acre segment corridor, the BLM manages 2,587.82 acres (45.9 percent). Another 3,016.15 acres (53.5 percent) are privately owned. The US BOR manages the remaining land within the study corridor (31.58 acres; less than one percent).

The area is leased for oil and gas exploration and there are four active wells within the study corridor. Nearly all of the BLM-managed lands within the segment corridor are under lease for oil and gas development. The BLM-managed lands in the segment corridor northeast of De Beque have high oil and gas potential; while the remaining BLM-managed lands in the segment corridor generally have low oil and gas potential. There are no mining claims within the segment.

The BLM does not have authority over maintenance, operation, and construction activities associated with the highway and railroad. Activities associated with the highway and railroad are not likely to adversely impact the ORVs. The Department of Transportation, pursuant to the Federal-Aid Highway Act and section 4(f) of the Department of Transportation Act of 1966, must consult with the Department of the Interior so that its plans and programs include measures to maintain or enhance the natural beauty of the lands traversed. These statutes also permit the Department of Transportation to approve a program or project using public park and recreation lands, wildlife and waterfowl refuges, or historic sites only if there is no feasible and prudent alternative and it has used all possible planning to minimize harm to these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to impact future water development along this segment. With designation, BLM would obtain authority to place terms and conditions on or deny approval for any proposed projects on BLM lands that would be incompatible or potentially degrade to ORVs for this segment. Other federal agencies that consider proposed projects that require federal permits, licenses, or funds would be required to evaluate the potential effects on the segment's ORVs, and prevent significant impacts to ORVs, free-flowing nature, or water quality. However, the Colorado Statewide Water Supply Initiative concluded that Mesa County would be able to meet estimated demand for water in the Colorado River basin through 2030 by utilizing existing supplies, agricultural transfers, Ruedi and Wolford Reservoir contracts, and Jerry Creek Reservoir. (Colorado Water Conservation Board, Statewide Water Supply Initiative Reports, 2004)

Several conditional storage water rights have the potential to impact values along this segment. A conditional water right is a water right where the water has not been placed to a beneficial use. It gives the holder time to complete a project, provided that the holder pursues its completion with due diligence. Once the holder has put the water to beneficial use, the conditional right will be decreed as an absolute water right. Some of these conditional storage rights have priority dates senior to existing absolute junior rights and therefore could affect junior water right holders if made absolute. These conditional storage rights could result in additional depletions and change the flow regime along this segment. The combined volume of conditional storage rights in the Colorado River basin in Colorado totals almost 3 million acre-

feet. Water District 70 alone (Roan Creek Basin) has approximately 560,000 acre-feet of conditional storage rights. The majority of which have priority dates ranging from 1960-1980, with some as early as 1940-1960 (SWSI). The development of conditional water rights both along the segment and upstream from the segment has the potential to impact the fish values along this segment.

Presently, there are no state-based instream flow water rights in this reach to ensure sufficient flow to preserve the natural environment to a reasonable degree. Rather, flows derive from required deliveries to downstream senior water rights, contractual water deliveries from Green Mountain, Ruedi, and Wolford Mountain Reservoirs, and by water deliveries that are made as part of the Upper Colorado River Endangered Fish Recovery Program (see Criteria 9). The USFWS has developed flow recommendations for the Colorado River to benefit endangered fish. Flow recommendations are not absolute values and may be revised from time to time to include the results of research. The goal of the recommendations is to provide the flow patterns to enhance populations of the endangered fishes and to allow Colorado the full ability to develop its compact entitlements. The flow recommendations consist of peak flow recommendations and base flow recommendations. Peak flow recommendations are based on historical river flows during spring runoff to provide spawning cues and to restore and maintain in-channel and flood plain habitats. Base flow recommendations are designed to allow fish movement among river segments and to provide maximum amounts of warm, quiet-water habitats to enhance growth and survival of young fish. Although there is no instream-flow right along this segment, USFWS flow recommendations provide a layer of protection for the ORVs.

The scenic and wildlife values along this segment likely would not be diminished or foreclosed if the segment was not designated. Other management requirements and tools (discussed under Criterion 6) provide a layer of protection for these values. These mechanisms will apply regardless of whether the segment receives WSR designation by Congress.

The Colorado River Recovery Program functions to insure that adequate flow regimes exist to support the four threatened and endangered fish species in the Colorado River as further water development proceeds. In addition, the program implements programs to improve fish habitat and reduce competition from non-native species. These measures are likely to maintain the fish ORV. Designation of this reach into the NWSRS, which would include a federal reserved water right, is unlikely to provide greater protection. The federal reserved water right would be very junior, and could not be used to prevent the exercise of previously decreed conditional or absolute water rights.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river.

The State of Colorado, water districts, user groups, and individuals have expressed concern about the impact of designating this segment on current and future upstream and downstream water projects. However, they also recognize that this segment supports a high number of ORVs and that some special management provisions are warranted to protect and support these values. Mesa County Board of Commissioners recommends that no river or stream segment in Mesa County be found suitable.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

Designation of the segment would not likely increase the cost of administering the segment for the protection of the ORVs. There is some potential for cost to increase due to the need for additional facilities to accommodate increased visitation. However as discussed below, the fish and wildlife ORVs already require special management practices pursuant to other federal statutes. The cost of administering this area pursuant to the WSRA is likely to be similar to the cost of administering these other management practices.

The BLM would not pursue land acquisition from willing sellers. Because the majority of the land within the segment corridor is privately owned, it would be difficult for the BLM to acquire enough additional land to affect the manageability of the segment. No detailed cost analysis or estimate was prepared as part of this study.

6. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM's land management authorities can adequately protect the federal lands in the river corridor, but BLM does not have the authority to protect ORVs on private lands in the corridor, nor does it have authority to protect the stream flows necessary to support the ORVs. Designation would provide a comprehensive framework for working with local governments to protect against land uses that are incompatible with the ORVs, and designation would also provide a federal water right that would assist with flow protection.

The makeup of this segment hinders the BLM's ability to manage it effectively as a WSR. First, the BLM-managed portions of the segment are somewhat fragmented. The BLM manages roughly a quarter-mile portion at the upstream end of the segment and another roughly quarter-mile portion after the river flows through a little over a mile of private lands. Then, the river flows another six miles through private lands before reaching the lower half of the segment, where the majority of the segment corridor is BLM-managed. Second, the majority of the shoreline and the segment corridor fall under private ownership. The BLM does not control uses or activities on private lands, making effective management of this segment difficult.

Mechanisms and management tools other than WSR designation can protect the segment's ORVs. The BLM's RMP revision process addresses protection of scenic values. The BLM also must comply with federal statutes, other than the WSRA, that address protection of the fish and wildlife values.

The BLM manages approximately 2,048 acres within the segment corridor as Visual Resource Management (VRM) Class II (De Beque Canyon). The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape. It provides that management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape. This management prescription protects the scenic values along this segment.

Mechanisms are already in place that will adequately protect the wildlife values (bald eagles) in this segment. In 2007, the USFWS removed the bald eagle from the endangered species list

because its populations had recovered sufficiently. Nevertheless, the bald eagle still receives federal protection under the Bald and Golden Eagle Protection Act. Regulations issued under this Act establish a permit system to limit "take" of bald eagles, similar to the ESA. These regulations provide that take will only be authorized where it is compatible with the preservation of either of the eagle species—where take is consistent with the goal of stable or increasing breeding populations—or where take cannot be practicably avoided. Further, the Colorado Division of Wildlife recommends buffer zones and seasonal restrictions that apply to management actions occurring near bald eagle habitat. These include: (1) a year-round closure to surface occupancy within a quarter-mile radius of a nest; (2) a restriction on human encroachment from November 15 through July 31 within a half-mile radius of a nest; and (3) a restriction on activity within a quarter-mile radius of winter roosts between November 15 and March 15. The combination of these measures will prevent the foreclosure or diminishment of the wildlife values present in this segment.

The ESA provides protection for the fish values present along this segment. This entire segment is designated critical habitat for the Colorado pikeminnow and the razorback sucker. Areas designated as critical habitat receive protection under Section 7 of the ESA with regard to actions carried out, funded, or authorized by a Federal agency that are likely to adversely modify or destroy critical habitat. Section 7 requires Federal agencies to consult on and insure that such actions are not likely to destroy or adversely modify critical habitat. These fish species also receive special management as part of the Upper Colorado River Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery strategies include conducting research, improving river habitat, providing adequate stream flows, managing non-native fish, and raising endangered fish in hatcheries for stocking. Program partners cooperatively manage water resources in accordance with the ESA, state water law, individual water rights, and interstate compacts. Program partners utilize a variety of management tools: leases and contracts for water supplies; coordinated water releases from upstream reservoirs; participation in reservoir enlargements, efficiency improvements to irrigation systems to reduce water diversions; and re-operation of federal dams and reservoirs. These mechanisms will protect the fish values along this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in Section 2.2.5 (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should continue to rely on the provisions of the Colorado Endangered Fish Recovery Program to protect the Fish ORV.
2. BLM should continue to rely upon the special recreation management area (SRMA) designation to protect the scenic ORV. In addition, BLM should adopt VRM Level 2 restriction to protect the scenic ORV in the revised RMP.
3. BLM should use its authority to control land development along the river corridor to protect the wildlife ORV.

Based on these recommendations, the stakeholder collaborative also recommended that BLM determine that this stream segment is not suitable for designation under the WSR Act.

7. Historical or existing rights that could be adversely affected with designation.

This segment is downstream from current water projects and diversions that are designed to provide water for the State of Colorado. The ability to change existing projects and construct new projects upstream could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new projects and changes to existing projects would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORVs. Numerous absolute water rights exist along the Colorado River. Historical operation, maintenance, and access practices would be allowed to continue. While these rights would not be affected by designation of the segment, the development of new water projects as described in sections 7(b) and 7(c) of the WSR Act would be permitted only if they did not have a direct and adverse effect on the values for which the river segment was designated. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

8. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa County. A small portion of the segment is within the Planned Unit Development district. The Planned Unit Development district is intended to encourage innovative land planning and site design concepts that implement and are consistent with the Mesa County Master Plan (Mesa County 2008). The majority of the area on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008).

The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

9. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

10. Consistency of designation with other agency plans, programs, or policies.

The Colorado pikeminnow and razorback sucker are part of the Upper Colorado River Endangered Fish Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery plans and goals have been issued by the USFWS (USFWS 2002a and USFWS 2002b).

The Colorado River Valley and Kremmling Field Offices (Colorado) have found the Colorado River from the gauging station near the mouth of Gore Canyon within the Kremmling Field

Office to approximately one mile east of No Name Creek within the Colorado River Valley Field Office to be preliminary suitable for inclusion in the NWSRS in its draft plan and EIS.

In coordination with the Colorado River Valley Field Office, the White River National Forest has found two segments in Glenwood Canyon to be suitable for inclusion in the NWSRS in its draft plans and EIS.

The Moab Field Office (Utah) found the segment of the Colorado River from the Colorado/Utah border to Westwater Canyon not-suitable for inclusion in the NWSRS. However, it found the Colorado River from Westwater Canyon to the Boundary of Canyonlands National Park (approximately 91 river miles, 65.5 on BLM land) to be suitable for inclusion in the NWSRS (BLM 2008).

Designation of this segment would be consistent with the goals of the recovery plan and with the suitable segments listed above.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable**. The majority of lands in this segment corridor are privately owned, and the BLM has no control over activities on private lands. Further, the BLM-managed lands are fragmented within the segment. Mesa County zoning does not prevent development that is incompatible with WSR designation. The Agricultural, Forestry, Transitional district allows extractive uses (either as of right or conditionally) that have the potential to change the landscape and setting found along this segment. The city limits of De Beque also lie within the segment corridor. As the city expands, the possibility of development along this part of the corridor increases. The fish ORV in this segment appears to be sufficiently protected by the provisions of the ESA and by the Colorado River Recovery Program. The wildlife ORV appears to be sufficiently protected by the Bald and Golden Eagle Protection Act.

3.1.2 Colorado River Segment 2

Description:	BLM sections of the Colorado River downstream from the Grand Valley Diversion Dam to the Loma Boat Launch.		
Total Segment Length:	40.24 miles	**Total Segment Area:**	12,897.11 acres
Length on BLM Land :	1.31 miles	**Area on BLM Land:**	533.25 acres
Preliminary Classification:	Recreational		
ORVs:	Fish		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

This segment has outstandingly remarkable fish values, which would make the segment a worthy addition to the NWSRS if designated. On the other hand, this segment has other characteristics that detract from its value as an addition to the NWSRS. The tentative classification for this segment is recreational due to Interstate 70 and a railroad, both of which run parallel to and are readily apparent from the river.

This segment has outstandingly remarkable fish values. The entire segment is USFWS-designated critical habitat for the federally endangered Colorado pikeminnow *(Ptychocheilus lucius)* and the Razorback sucker *(Xyrauchen texanus)* (59 Fed. Reg. 13,374). Critical habitat is the specific area or areas that possess physical or biological features that are essential to the conservation of the species and that may require special management considerations or protections. The Colorado pikeminnow is largest minnow in North America and one of the largest in the world. At one time, individuals may have lived more than fifty years, growing to nearly six feet in length and weighing up to 80 pounds. The razorback sucker is one of the largest suckers in North America. Individuals can live for more than forty years and can grow to up to thirteen pounds in weight and to three feet in length. These species were once widespread throughout most of the Colorado River Basin from Wyoming to Mexico.

The James M. Robb Colorado River State Park is within the segment. Even though recreation was not determined to be an ORV within this segment, the park provides multiple opportunities for recreation, including camping, fishing, hiking, biking, and swimming.

The Grand Valley Project Diversion Dam forms the upstream terminus of the segment and diverts water from the Colorado River to irrigate approximately 33,368 acres of land in the Grand Valley (US BOR, no date). In addition to irrigation, project water is used for the generation of power. The Orchard Mesa Power Plant has produced power from its two 3,000 k/w generators since 1933, and the Cameo Power Plant, built by Public Service Company in the late 1950s, has used project water for cooling since it was constructed.

There are also characteristics that are unrelated to ORVs that affect the suitability of this segment. Numerous water diversions exist along this segment, including several conditional water rights. If made absolute, these water rights could result in additional depletions and additional water development and diversion structures along the private land in the corridor. Portions of the study area for this segment overlap the city limits of Palisade, Grand Junction, and Fruita. The future population growth, expansion, and associated development of these communities, particularly along the riverfront, have the potential to change the setting found in this segment. Interstate 70 runs adjacent to the segment, and a railroad and power lines also are visible throughout the segment. Future expansion of the interstate, railroad, and transmission lines also have the potential to change the setting found in this segment. These characteristics somewhat detract from the value of the segment as an addition to the NWSRS.

2. <u>The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.</u>

Land ownership for this 40.24-mile segment is a combination of federal (BLM), state, and private. The BLM manages shoreline along 1.31 miles (3.3 percent) of the segment. Within the 12,897.11-acre study corridor, the BLM manages 533.25 acres (4.1 percent). Another 11,052.63 acres (53.8 percent) are privately owned. The State of Colorado manages the remaining 1311.23 acres within the segment corridor. The Colorado Division of State Parks manages the James M. Robb Colorado River State Park. The Colorado Division of Wildlife manages various state wildlife areas (Horsethief, Tillman Bishop, and Walker).

Most of the BLM-managed lands in the study area are leased for oil and gas exploration, but there are no active wells within the study corridor. The mineral potential in this segment corridor is low to very low. There are no active mining claims in this segment corridor.

The BLM does not have authority over maintenance, operation, and construction activities associated with the highway and railroad. Activities associated with the highway and railroad are not likely to adversely impact the ORVs. The Department of Transportation, pursuant to the Federal-Aid Highway Act and section 4(f) of the Department of Transportation Act of 1966, must consult with the Department of the Interior so that its plans and programs include measures to maintain or enhance the natural beauty of the lands traversed. These statutes also permit the Department of Transportation to approve a program or project using public park and recreation lands, wildlife and waterfowl refuges, or historic sites only if there is no feasible and prudent alternative and it has used all possible planning to minimize harm to these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to impact future water development along this segment. With designation, BLM would obtain authority to place terms and conditions on or deny approval for any proposed projects on BLM lands that would be incompatible or potentially degrade to ORVs for this segment. Other federal agencies that consider proposed projects that require federal permits, licenses, or funds would be required to evaluate the potential effects on the segment's ORVs, and prevent significant impacts to ORVs, free-flowing nature, or water quality. However, the Colorado Statewide Water Supply Initiative concluded that Mesa County would be able to meet estimated demand for water in the Colorado River basin through 2030 by utilizing existing supplies, agricultural transfers, Ruedi and Wolford Reservoir contracts, and Jerry Creek Reservoir. (Colorado Water Conservation Board, Statewide Water Supply Initiative Reports, 2004)

Several conditional storage water rights have the potential to impact values along this segment. A conditional water right is a water right where the water has not been placed to a beneficial use. It gives the holder time to complete a project, provided that the holder pursues its completion with due diligence. Once the holder has put the water to beneficial use, the conditional right will be decreed as an absolute water right. Some of these conditional storage rights have priority dates senior to existing absolute junior rights and therefore could affect junior water right holders if made absolute. These conditional storage rights could result in additional depletions and change the flow regime along this segment. The combined volume of conditional storage rights in the Colorado River basin in Colorado totals almost 3 million acre-feet. Water District 70 alone (Roan Creek Basin) has approximately 560,000 acre-feet of conditional storage rights. The majority of which have priority dates ranging from 1960-1980, with some as early as 1940-1960 (SWSI). The development of conditional water rights both along the segment and upstream from the segment has the potential to impact the fish values along this segment.

Presently, there are no state-based instream flow water rights in this reach to ensure sufficient flow to preserve the natural environment to a reasonable degree. Rather, flows derive from

required deliveries to downstream senior water rights, contractual water deliveries from Green Mountain, Ruedi, and Wolford Mountain Reservoirs, and by water deliveries that are made as part of the Upper Colorado River Endangered Fish Recovery Program (see Criteria 9). The USFWS has developed flow recommendations for the Colorado River to benefit endangered fish. Flow recommendations are not absolute values and may be revised from time to time to include the results of research. The goal of the recommendations is to provide the flow patterns to enhance populations of the endangered fishes and to allow Colorado the full ability to develop its compact entitlements. The flow recommendations consist of peak flow recommendations and base flow recommendations. Peak flow recommendations are based on historical river flows during spring runoff to provide spawning cues and to restore and maintain in-channel and flood plain habitats. Base flow recommendations are designed to allow fish movement among river segments and to provide maximum amounts of warm, quiet-water habitats to enhance growth and survival of young fish. Although there is no instream-flow right along this segment, USFWS flow recommendations provide a layer of protection for the ORVs.

The Colorado River Recovery Program functions to insure that adequate flow regimes exist to support the four threatened and endangered fish species in the Colorado River as further water development proceeds. In addition, the program implements programs to improve fish habitat and reduce competition from non-native species. These measures are likely to maintain the fish ORV. Designation of this reach into the NWSRS, which would include a federal reserved water right, is unlikely to provide greater protection. The federal reserved water right would be very junior, and could not be used to prevent the exercise of previously decreed conditional or absolute water rights.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river.

The State of Colorado, water districts, user groups, and individuals have expressed concern about the impact of designating this segment on current and future upstream and downstream water projects. However, they also recognize that this segment supports a high number of ORVs and that some special management provisions are warranted to protect and support these values. Mesa County has not made a formal indication to the BLM as to whether it is interested in supporting designation.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The vast majority of land in this segment is privately owned. The BLM would not pursue land acquisition from willing sellers, as it is not feasible to acquire enough land to affect its ability to manage the segment. Designation of the segment would not likely increase the cost of administering the segment for the protection of the ORV. The cost of administering the area pursuant to the WSRA would likely be similar to the current cost of administering the area under the ESA for the endangered fish species. No detailed cost analysis or estimate was prepared as part of this study.

6. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM's land management authorities can adequately protect the federal lands in the river corridor, but the BLM does not have the authority to protect ORVs on private lands in the corridor, nor does it have authority to protect the stream flows necessary to support the ORVs. Designation would provide a comprehensive framework for working with local governments to protect against land uses that are incompatible with the ORVs. Designation also would provide a federal water right that would assist with flow protection.

The makeup of this segment hinders the BLM's ability to manage it effectively as a WSR. As stated above, the BLM manages a very small percentage of the shoreline along this segment (3.3 percent) and a very small percentage of the land in the segment corridor (4.1 percent). The BLM-managed lands in the segment corridor are extremely scattered as well. Some are located are the upstream end of the segment, and the remainder are located at the downstream end of the segment, with the urban corridor of Palisade, Grand Junction, and Fruita in between. The scattered nature and small proportion of BLM-managed lands in this segment corridor make it difficult for the BLM to exercise effective management control over this segment.

The ESA provides protection for the fish values present along this segment. This entire segment is designated critical habitat for the Colorado pikeminnow and the razorback sucker. Areas designated as critical habitat receive protection under section 7 of the ESA with regard to actions carried out, funded, or authorized by a Federal agency that are likely to adversely modify or destroy critical habitat. Section 7 requires Federal agencies to consult on and insure that such actions are not likely to destroy or adversely modify critical habitat. These fish species also receive special management as part of the Upper Colorado River Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery strategies include conducting research, improving river habitat, providing adequate stream flows, managing non-native fish, and raising endangered fish in hatcheries for stocking. Program partners cooperatively manage water resources in accordance with the ESA, state water law, individual water rights, and interstate compacts. Program partners utilize a variety of management tools: leases and contracts for water supplies; coordinated water releases from upstream reservoirs; participation in reservoir enlargements, efficiency improvements to irrigation systems to reduce water diversions; and re-operation of federal dams and reservoirs. These mechanisms will protect the fish values along this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in Section 2.2.5 (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should continue to rely on the provisions of the Colorado Endangered Fish Recovery Program to protect the Fish ORV.

Based on this recommendation, the stakeholder collaborative also recommended that BLM determine that this stream segment is not suitable for designation under the WSR Act.

7. Historical or existing rights that could be adversely affected with designation.

This segment is downstream from current water projects and diversions that are designed to provide water for the State of Colorado. The ability to change existing projects and construct new projects upstream could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new projects and changes to existing projects would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORVs. Numerous absolute water rights exist along the Colorado River. Historical operation, maintenance, and access practices would be allowed to continue. While these rights would not be affected by designation of the segment, the development of new water projects as described in sections 7(b) and 7(c) of the WSR Act would be permitted only if they did not have a direct and adverse effect on the values for which the river segment was designated. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

8. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa County. The majority of the area on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008). The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORV.

9. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4

10. Consistency of designation with other agency plans, programs, or policies.

The Colorado pikeminnow and razorback sucker are part of the Upper Colorado River Endangered Fish Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery plans and goals have been issued by the USFWS (USFWS 2002a and USFWS 2002b).

The Colorado River Valley and Kremmling Field Offices (Colorado) have found the Colorado River from the gauging station near the mouth of Gore Canyon within the Kremmling Field Office to approximately one mile east of No Name Creek within the Colorado River Valley Field Office to be preliminarily suitable for inclusion in the NWSRS in the Draft Plan and EIS.

In coordination with the Colorado River Valley Field Office, the White River National Forest has found two segments in Glenwood Canyon to be preliminarily suitable for inclusion in the NWSRS.

The Moab Field Office (Utah) found the segment of the Colorado River from the Colorado/Utah border to Westwater Canyon not-suitable for inclusion in the NWSRS. However, it found the Colorado River from Westwater Canyon to the Boundary of Canyonlands National Park (approximately 91 river miles, 65.5 on BLM land) to be suitable for inclusion in the NWSRS (BLM 2008).

Designation of this segment would be consistent with the goals of the recovery plan and with the suitable segments listed above.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable**. The vast majority of lands in this segment corridor are not managed by the BLM (over 90 percent), and the BLM has no control over activities on private lands. With management control over such small portion of the lands in this segment corridor, it would be difficult for the BLM to effectively manage this segment as a WSR. For example, Mesa County zoning does not prevent development that is incompatible with WSR designation. The Agricultural, Forestry, Transitional district allows extractive uses (either as of right or conditionally) that have the potential to change the landscape and setting found along this segment. This segment flows through the growing urban corridor of the Grand Valley. The city limits of Palisade, Grand Junction, and Fruita overlap the segment corridor. As these cities continue to grow, the potential for incompatible development in the segment corridor will correspondingly increase. There are also numerous diversions along this segment. Designation of this segment could affect the ability of water users to make changes to existing water rights.. The fish ORV in this segment appears to be sufficiently protected by the provisions of the ESA and by the Colorado River Recovery Program.

3.1.3 Colorado River Segment 3

Description:	BLM sections of the Colorado River from the Loma Boat Launch to the Colorado/Utah border.		
Total Segment Length:	20.91 miles	**Total Segment Area:**	6,798.10 acres
Length on BLM Land :	19.14 miles	**Area on BLM Land:**	5,771.92 acres
Preliminary Classification:	Scenic		
ORVs:	Scenic, Recreation, Fish, Wildlife, Geologic, Historic		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

This segment has outstanding scenic, recreational (floatboating and biking), fish, wildlife, geologic, and historical values. This combination of values is similar to other major rivers segments in the western US that have been designated into the NWSRS. Each of these values is discussed below. The tentative classification of this segment is scenic. There are a few private in-holdings with

developments, several access points to the river via dirt roads, and a mostly inconspicuous stretch of railroad runs through Ruby Canyon.

This segment has outstandingly remarkable scenic values. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). The Colorado River provides remarkable views of the shear walls of Ruby and Horsethief Canyons and the many side canyons, alcoves, pinnacles, amphitheaters, and other unique sandstone formations formed by the erosional forces of the river. The many different exposed layers show a wealth of geologic history and offer a variety of different colors and textures throughout the canyons. The segment also offers opportunities to view rare species and examine petroglyphs.

This segment has outstandingly remarkable recreational values. The stretch of river is popular for overnight flat-water boating and attracts rafters, kayakers, and canoeists from across Colorado and from nearby states. Water levels are sufficient to permit water recreation throughout the year, an uncommonly long season for watercourses in this region. This segment also contains a trailhead for Kokepelli's Trail, a popular mountain bike route that runs to Moab, Utah. This trail runs above the Colorado River along the top of the wall that forms the inner part of Horsethief Canyon. It recognized worldwide for its spectacular views of the river and surrounding areas. The Mack Ridge mountain bike area contains additional trails with sections running above the canyon walls and immediately above the river.

This segment also has outstandingly remarkable fish values. The entire segment is USFWS-designated critical habitat for the federally endangered Colorado pikeminnow *(Ptychocheilus lucius)* and the Razorback sucker *(Xyrauchen texanus)* (59 Fed. Reg. 13,374). The section from Black Rocks to the Colorado/Utah border is also designated critical habitat for humpback chub *(Gila cypha)* and bonytail chub *(Gila elegans)*, also federally endangered species (59 Federal Register 54 [21 March 1994], pp. 13374-13399). Critical habitat is the specific area or areas that possess physical or biological features that are essential to the conservation of the species and that may require special management considerations or protections. The Colorado pikeminnow is largest minnow in North America and one of the largest in the world. At one time, individuals may have lived more than fifty years, growing to nearly six feet in length and weighing up to 80 pounds. A site near the Colorado/Utah border has been identified as a spawning site for this species. The razorback sucker is one of the largest suckers in North America. Individuals can live for more than forty years and can grow to up to thirteen pounds in weight and to three feet in length. These species were once widespread throughout most of the Colorado River Basin from Wyoming to Mexico. The humpback chub owes its name and striking, unusual appearance to a pronounced hump located behind its head. It historically inhabited the canyons of the Colorado River, can live for more than thirty years, and can grow up to nearly twenty inches. The bonytail chub is the rarest of the endangered fish species in the Colorado River. They can grow to twenty-two inches or more and can live for nearly fifty years. The Black Rock section of the river is a spawning ground for both species of chub and is an important study site where the USFWS have recorded both species.

This segment has outstandingly remarkable wildlife values. Specifically, the segment contains important winter habitat and nests for several pairs of bald eagles *(Haliaeetus leucocephalus)*, a State Threatened Species in Colorado (CPW 2008). Bald eagles no longer receive protection under the ESA. The USFWS delisted bald eagles in June 2007 because their populations have recovered sufficiently. Nevertheless, bald eagles still receive some protection under the Bald and Golden Eagle Protection Act. River otters *(Lontra Canadensis)*, a state threatened species in Colorado, are also frequently observed along this segment.

This segment has outstandingly remarkable historical values as well. The Denver and Rio Grande Railroad (now part of Union Pacific) runs parallel to the segment. This came as a result of the rerouting the Grand Junction to Salt Lake City line and the replacement of a southern route from Denver to Salt Lake City through Montrose. The importance of the railroad in developing the West makes this site eligible for inclusion in the National Register of Historic Places and a site of national, regional, and local significance.

Lastly, this segment is outstandingly remarkable for its geological values. The steep and deep canyons along this segment expose an unusually extensive series of rocks from the recent Mancos Shale to the extremely old Precambrian formations (overlaid by the Chinle formation as an unconformity). There are also several examples of faults that are free of vegetation that allow visitors to clearly view evidence of geologic processes.

Although the river is not located within the boundaries of the McInnis Canyons NCA (formerly known as the Colorado Canyons NCA), the NCA is located on both sides of the river above the line of the 100-year floodplain. In addition, the Black Ridge Canyons Wilderness is visible from the south bank of the river. Congress designated the NCA in 2000 "to conserve, protect, and enhance for the benefit and enjoyment of present and future generations the unique and nationally important values … including geological, cultural, paleontological, natural, scientific, recreational, environmental, biological, wilderness, wildlife education, and scenic resources of such public lands." The legislation also directed BLM to manage the river in a manner consistent with the protecting the values recognized by Congress for lands within the NCA.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 20.91-mile segment is a combination of federal (BLM), CPW, and private. The BLM manages shoreline along 19.14 miles (91.5 percent) of the segment. Within the 6,798.10-acre study corridor, the BLM manages 5,771.92 acres (84.9 percent). Another 792.96 acres (11.7 percent) are privately owned. CPW manages the remaining land within the study corridor as part of the Horsethief State Wildlife Area (168.12 acres; 2.5 percent).

The Colorado Canyons National Conservation Area and Black Ridge Canyons Wilderness Act of 2000 (Public Law 106-353 [October 24, 2000]) formally withdrew all BLM lands within the segment study area from location, entry, and patent under the mining laws, and operation of the mineral leasing, mineral materials, and geothermal leasing laws. The withdrawal recognizes valid existing rights (those leases or operations existing prior to October 24, 2000). There are no know valid existing rights related to mining in the segment corridor.

Livestock grazing occurs on the private parcels within the segment corridor, as well as on some BLM parcels. Grazing appears to be commensurate with the protection of the ORVs.

The BLM does not have authority over maintenance, operation, and construction activities associated with the highway and railroad. Activities associated with the highway and railroad are not likely to adversely impact the ORVs. The Department of Transportation, pursuant to the Federal-Aid Highway Act and section 4(f) of the Department of Transportation Act of 1966, must consult with the Department of the Interior so that its plans and programs include measures to maintain or enhance the natural beauty of the lands traversed. These statutes also permit the Department of Transportation to approve a program or project using public park and recreation lands, wildlife and waterfowl refuges, or historic sites only if there is no feasible and prudent alternative and it has used all possible planning to minimize harm to these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

This segment flows through McInnis Canyons NCA and borders Black Ridge Canyon Wilderness. Designation of this segment would provide permanent protection and management direction for BLM lands along the river corridor that are not presently within the NCA. Congress designated the NCA to conserve, protect, and enhance its geological, recreational, biological, wilderness, and scenic values, among others. These values parallel the ORVs found in this segment: scenic, recreation, fish, wildlife, geologic, and historic. Designation of this segment would provide complementary protective management.

WSR designation has the potential to foreclose or curtail future water development along this segment. With designation, BLM would obtain authority to deny or place terms and conditions on proposed projects located on BLM lands that would be incompatible or would potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other federal agencies to evaluate the potential effects on the designated river segments.

This segment contains undeveloped conditional water rights, including some large water rights for industrial and commercial uses, but there are no known conditional water rights for municipal water supply or agricultural water supply purposes. The Colorado Statewide Water Supply Initiative concluded that Mesa County would be able to meet estimated demand for water in the Colorado River basin through 2030 by utilizing existing supplies, agricultural transfers, Ruedi and Wolford Reservoir contracts, and Jerry Creek Reservoir (Colorado Water Conservation Board, Statewide Water Supply Initiative Reports, 2004).

Conditional storage water rights upstream from this segment have the potential to affect the flow rates that support the ORVs in this segment. A conditional water right is a water right where the water has not been placed to a beneficial use. It gives the holder time to complete a project, provided that the holder pursues its completion with due diligence. Once the holder has put the water to beneficial use, the conditional right will be decreed as an absolute water right. Some of these conditional storage rights have priority dates senior to existing absolute junior rights and therefore could affect junior water right holders if made absolute. These conditional storage rights could result in additional depletions and change the flow regime along

this segment. The combined volume of conditional storage rights in the Colorado River basin in Colorado totals almost 3 million acre-feet. Water District 70 alone (Roan Creek Basin) has approximately 560,000 acre-feet of conditional storage rights, the majority of which have priority dates ranging from 1960-1980, with some as early as 1940-1960 (SWSI).

Interstate compacts place limitations on water use in Colorado. The Colorado River Compact of 1922 divides the Colorado River Basin into the Lower Basin and the Upper Basin. Colorado lies in the Upper Basin; the water available to the Upper Basin is further allocated among Colorado, Utah, Wyoming, and New Mexico by the Upper Colorado River Compact of 1948. The State of Colorado's right to consumptive use of water under the Compacts ranges from 3.079 million AF to 3.855 million AF. Colorado currently consumes an average of 2.3 million AFY with facilities in place to use up to 2.6 million AFY (SWSI 4-4). A draft water availability study conducted by the Colorado Water Conservation Board (CWCB) includes estimates that the volume of water remaining for future development within Colorado from the Colorado River system ranges from 0 acre feet to 1 million acre feet annually, depending upon future climatic conditions (CWCB 2010). However, this study does not allocate or estimate the specific volume available for future development on the Colorado River, as opposed to other Colorado River tributaries, such as the Yampa River or White River. Accordingly, it reasonable to expect that substantial water deliveries to downstream states will continue through this segment, but it is not possible to accurately estimate the long-term flow rates that can be expected.

This segment lies immediately upstream of the Colorado/Utah border. It is downstream from the majority of senior water rights in the state. Because of these two circumstances, it represents an opportunity to develop and divert unused water allocated to Colorado under the Compacts before it leaves the state. For example, Phase II of the Statewide Water Supply Initiative analyzed the concept and feasibility of such a major diversion, calling it the Colorado River Return Project (CRRP). The CRRP would consist of a diversion from the Colorado River near the Utah state line downstream of Grand Junction for delivery to multiple basins in Colorado (areas in the headwater of the Colorado River and the Front Range). The water would be diverted under a new water appropriation. The CRRP identified and evaluated three levels of water diversion: 250,000, 500,000, and 750,000 AFY. The CRRP identified two potential diversion areas, both of which lie within this segment corridor: (1) at the confluence of the Colorado River and Salt Creek in Horsethief Canyon and (2) at the upstream end of Horsethief Canyon near the existing Loma Boat Launch. The CRRP was only a reconnaissance-level investigation, and as such, it not assumed to be a reasonably foreseeable potential use of the land at this time. Nevertheless, the CRRP serves as an example of the potential for additional future depletions of water from this segment. While any similar project would have to comply with the requirements of the ESA and similar statutory requirements, there is still the potential for reduced flow and impacts on this segment's ORVs. This type of project likely would be curtailed or foreclosed if the segment was designated.

Presently, there are no state-based instream flow water rights in this segment to ensure sufficient flow to preserve the natural environment to a reasonable degree. Rather, flow rates are the result of required deliveries to senior irrigation water rights located in the Grand Valley and the substantial return flows that accrue to this stream segment from those irrigation

systems. Flow rates are also influenced by contractual water deliveries from Green Mountain, Ruedi, and Wolford Mountain Reservoirs to water users in this segment, and by water deliveries that are made as part of the Upper Colorado River Endangered Fish Recovery Program (see Criteria 9).

The USFWS has developed flow recommendations for the Colorado River to benefit endangered fish, and these recommendations provide a substantial layer of protection for the ORVs in this segment. The flow recommendations are administered at the US Geological Survey gage near the Utah-Colorado border, which is located within this segment. The flow recommendations are not absolute values and may be revised from time to time to include the results of research. The goal of the recommendations is to provide the flow patterns to enhance populations of the endangered fishes and to allow Colorado the full ability to develop its compact entitlements. The flow recommendations consist of peak flow recommendations and base flow recommendations. Peak flow recommendations are based on historical river flows during spring runoff to provide spawning cues and to restore and maintain in-channel and flood plain habitats. Base flow recommendations are designed to allow fish movement among river segments and to provide maximum amounts of warm, quiet-water habitats to enhance growth and survival of young fish. Any proposed water development project within the segment that would require a federal permit, such as land use authorization from BLM and/or a dredge and fill permit from the US Army Corps of Engineers, would be required to go through an ESA Section 7 consultation with the USFWS. The USFWS consultation process would insure that the proposed project would not significantly impact the State of Colorado's ability to meet the flow recommendations for this stream reach.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river.

The State of Colorado, water districts, user groups, and individuals have expressed concern about the impact of designating this segment on current and future upstream water projects. However, they also recognize that this segment supports a number of ORVs and that some special management provisions are warranted to protect and support these values. Mesa County has not made a formal indication to the BLM as to whether it is interested in supporting designation.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The cost of administering the area if designated would not likely increase above current levels because the management, and thus the associated costs, of administering the area pursuant to the NWSRS would be similar to the current administration of the area. For example, recreational use of the segment is already high. The BLM already conducts regular ranger patrols and maintains campsites within this segment to accommodate the level of usage. The cost of maintaining and administering these facilities would continue regardless of designation.

The BLM would pursue land acquisition only from willing sellers as funds and opportunities arise in order to better manage the area for the protection of the ORVs. Designation of the segment would likely enhance the BLM's ability to obtain funding for such acquisitions, and acquisitions

would enhance the BLM's ability to manage the segment. No detailed cost analysis or estimate was prepared as part of this study.

6. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM's land management authorities can adequately protect the federal lands in the river corridor, but BLM does not have the authority to protect ORVs on private lands in the corridor, nor does it have authority to protect the stream flows necessary to support the ORVs. However, the BLM is the majority landowner for this segment (9.15 percent of the shoreline and 84.9 percent of land in the segment corridor, which would facilitate effective and cohesive management of the segment if designated. Designation would provide a comprehensive framework for working with local governments agencies, state agencies, and other federal government agencies to protect against proposed land use and project that are incompatible with the ORVs. Designation would provide a federal water right that would assist with flow protection, but the water right would be an extremely junior water right. Accordingly, the water right would have limited effectiveness in insuring that flow rates through the segment are sufficient for the ORVs, but it would provide the BLM with an opportunity to object to new water rights and changes in water rights that would substantially impact the flow rates available to protect the ORVs.

This segment runs through the McInnis Canyons NCA and Black Ridge Canyons Wilderness and management of the NCA and Wilderness is commensurate with protection of the ORVs. BLM wilderness areas are managed according to BLM Manual 8560, *Management of Designated Wilderness Areas* (BLM 1983). Wilderness areas allow for continued use of valid existing rights (i.e., rights or activities that existed when the area became a wilderness study area [WSA]).

The BLMs VRM system provides a mechanism to protect the scenic values along this segment. The BLM manages the river corridor VRM Class I on the south side of the river and VRM Class II on the north side of the river (BLM 2004). The objective of VRM Class I is to preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention. The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape. It provides that management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape. This management prescription protects the scenic values along this segment and also provides some indirect protection of the geologic values.

Historical values associated with the river segment are protected and regulated by a number of laws, regulations, executive orders, programmatic agreements, and other requirements. The principal federal law addressing cultural resources is the NHPA, and it's implementing regulations (36 CFR 800). These regulations, commonly referred to as the Section 106 process, describe the procedures for identifying and evaluating historic properties, for assessing the effects of federal actions on historic properties, and for project proponents consulting with appropriate agencies to avoid, reduce, or minimize adverse effects.

Mechanisms are already in place that will adequately protect the wildlife values (bald eagles) in this segment. In 2007, the USFWS removed the bald eagle from the endangered species list because its populations had recovered sufficiently. Nevertheless, the bald eagle still receives federal protection under the Bald and Golden Eagle Protection Act. Regulations issued under this Act establish a permit system to limit "take" of bald eagles, similar to the ESA. These regulations provide that take will only be authorized where it is compatible with the preservation of either of the eagle species—where take is consistent with the goal of stable or increasing breeding populations—or where take cannot be practicably avoided. Further, the Colorado Division of Wildlife recommends buffer zones and seasonal restrictions that apply to management actions occurring near bald eagle habitat. These include: (1) a year-round closure to surface occupancy within a quarter-mile radius of a nest; (2) a restriction on human encroachment from November 15 through July 31 within a half-mile radius of a nest; and (3) a restriction on activity within a quarter-mile radius of winter roosts between November 15 and March 15. The combination of these measures will prevent the foreclosure or diminishment of the wildlife values present in this segment.

The ESA provides protection for the fish values present along this segment. This entire segment is designated critical habitat for the Colorado pikeminnow, razorback sucker, bonytail chub, and humpback chub. Areas designated as critical habitat receive protection under section 7 of the ESA with regard to actions carried out, funded, or authorized by a Federal agency that are likely to adversely modify or destroy critical habitat. Section 7 requires Federal agencies to consult on and insure that such actions are not likely to destroy or adversely modify critical habitat. These fish species also receive special management as part of the Upper Colorado River Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery strategies include conducting research, improving river habitat, providing adequate stream flows, managing non-native fish, and raising endangered fish in hatcheries for stocking. Program partners cooperatively manage water resources in accordance with the ESA, state water law, individual water rights, and interstate compacts. Program partners utilize a variety of management tools: leases and contracts for water supplies; coordinated water releases from upstream reservoirs; participation in reservoir enlargements, efficiency improvements to irrigation systems to reduce water diversions; and re-operation of federal dams and reservoirs. These mechanisms will protect the fish values along this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in Section 2.2.5 (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. Congress should implement amendments to the existing legislation that created the McInnis Canyons NCA, so that the legislation better protects ORVs associated with the Colorado River. The legislation should specifically address boundary adjustments that are needed to better manage the river corridor for recreation and administrative access. The legislation should also permanently release this segment from future consideration under the WSR Act.

2. Retain the current mineral withdrawal associated with the NCA, and implement VRM Level I restrictions in the revised RMP to protect the scenic ORV and geological ORV.
3. Implement recreational permitting and enforcement, along with limiting recreation travel to designated roads and trails, to protect the recreational ORV.
4. Continue to work with the Upper Colorado River Endangered Fish Recovery Program to protect the fish ORV.
5. Continue to use the National Historic Preservation Act to protect the historical ORV.

Based on these recommendations, the stakeholder collaborative also recommended that BLM determine that this stream segment is not suitable for designation under the WSR Act.

7. Historical or existing rights that could be adversely affected with designation.

This segment is downstream from current water projects and diversions that are designed to provide water for the State of Colorado. The ability to change existing projects and construct new projects upstream could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new projects and changes to existing projects would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORVs. Numerous senior, absolute water rights exist along the Colorado River. While these rights would not be affected by designation of the segment, the development of new water projects as described in sections 7(b) and 7(c) of the WSR Act would be permitted only if they did not have a direct and adverse effect on the values for which the river segment was designated. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

8. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa County. The majority of the area on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008). The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

9. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

10. Consistency of designation with other agency plans, programs, or policies.
The Colorado pikeminnow, razorback sucker, humpback chub, and bonytail chub are part of the Upper Colorado River Endangered Fish Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery plans and goals have been issued by the USFWS (USFWS 2002a and USFWS 2002b).

The Colorado River Valley and Kremmling Field Offices (Colorado) have found the Colorado River from the gauging station near the mouth of Gore Canyon within the Kremmling Field Office to approximately one mile east of No Name Creek within the Colorado River Valley Field Office to be preliminarily suitable for inclusion in the NWSRS, as part of the draft RMP (BLM 2011).

In coordination with the Colorado River Valley Field Office, the White River National Forest has found two segments in Glenwood Canyon to be preliminarily suitable for inclusion in the NWSRS (U.S. Forest Service 2011).

The Moab Field Office (Utah) found the segment of the Colorado River from the Colorado/Utah border to Westwater Canyon not-suitable for inclusion in the NWSRS. However, it found the Colorado River from Westwater Canyon to the Boundary of Canyonlands National Park (approximately 91 river miles, 65.5 on BLM land) to be suitable for inclusion in the NWSRS (BLM 2008).

Designation of this segment would be consistent with the goals of the recovery plan and with the suitable segments listed above.

Preliminary Suitability Determination
The preliminary determination for this segment is **not suitable**. Only about 11 percent of the land in the segment corridor is privately owned, so there is limited potential for development that would be incompatible with the ORVs. The presence of the McInnis Canyons NCA along both sides of the river provides substantial protection to the ORVs that are reliant upon lands adjacent to the river, such as scenic and recreation. For lands along this river corridor that are not presently within the NCA boundaries, proposed management prescriptions in the RMP revision would be sufficient to protect the geological, scenic, recreation, and historical ORVs. The Fish ORV can be successfully managed by continued cooperation and compliance with the Colorado River Endangered Fish Recovery Program.

3.2 DOLORES RIVER WATERSHED

3.2.1 Dolores River

Description:	Sections of the Dolores River on BLM land from where the river enters the GJFO at the southwest border and then running parallel to Highway 141, through Gateway, until the river reaches the Colorado/Utah border.		
Total Segment Length:	32.01 miles	**Total Segment Area:**	9,918.91 acres
Length on BLM Land :	18.62 miles	**Area on BLM Land:**	7,041.19 acres

Preliminary Classification: Recreational
ORVs: Scenic, Fish, Recreation, Geologic, Paleontological

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
The Dolores River has outstandingly remarkable scenic, recreational, geological, and paleontological values. Each of these ORVs are discussed in detail below. The tentative classification for this segment is recreational because Highway 141 parallels the river and is fairly obvious along stretches of the river corridor.

This segment has outstandingly remarkable scenic value. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). The Dolores River has formed a spectacular canyon, with cliffs sometimes up to 2000 feet higher than the river, with many geologic layers exposed. The variety of different colors including deep reds, purples, and lighter earth tones are in stark contrast to the green riparian vegetation along the river. The cottonwoods along the river and the river itself change color seasonally adding to the scenic beauty. Portions of the segment adjacent to the Sewemup Mesa Wilderness Study Area and The Palisade Wilderness Study are heavily influenced by the stunning uplift of canyon walls and cliffs from the river corridor.

This segment has outstandingly remarkable recreational value. The scenic and geologic values readily visible from the river make this segment of the Dolores a popular boating destination. During the spring runoff and the summer, the segment is popular with canoeists, kayakers, and rafters. This segment parallels Highway 141, part of the Unaweep-Tabequache Scenic and Historic Byway, offering opportunities for vehicular recreation, picnicking, camping, and viewing of the wildlife and geologic features of the river canyon. Though the Dolores River receives less use than the Gunnison River and Colorado River Segment 3, the segment is seeing an increase in recreational use. The segment offers challenging whitewater rapids between late April and early June during high water years. Flows are affected by releases from the McPhee Reservoir and are sometimes unpredictable. There are no official boat launches along the segment on BLM land, though on unofficial boat launch is located at the county highway property on Highway 141 near Gateway. The launch is suitable for trailer and raft use, although the most traffic is by kayak or canoe.

This segment also has outstandingly remarkable geologic value. The Dolores River has exposed and extensive sequence of rocks including additional layers not found farther north along the Colorado River. Additional Permian and Triassic layers including the Cutler and Moenkopi formations are found between the Precambrian bedrock (not exposed) and the Chinle formation. This wide range allows one to examine many of the important layers for the Colorado Plateau.

This segment has outstandingly remarkable paleontological value. Along this segment of the Dolores River are rock slabs containing dinosaur and ancient mammal footprints. Although full surveys have not been completed, there are hundreds of fossilized footprints and track ways, and there likely may be more than 1000 tracks along the river.

The segment has outstandingly remarkable fishery value. Colorado Division of Wildlife (currently Colorado Parks and Wildlife) provided the BLM with additional data following the completion of the Eligibility Study that the Dolores River supports a native fish population that meets the guidelines for evaluating ORVs as described in the BLM Manual 8351.

Overall, this segment is unique and exemplary among streams in the Colorado Plateau region because it supports a high number of outstandingly remarkable values. Wild and Scenic River designation is a framework that can be effectively used to management multiple ORVs in a comprehensive and integrated manner, and it provides comprehensive standards for preventing degradation to the ORVs.

This segment also possesses characteristics in addition to its ORVs that would add to its value as a component of the NWSRS, if designated by Congress. The river segment generally borders, and the study area, which extends 0.25-mile on either side of the river, includes portions of two WSAs: The Palisade (170.66 acres) and Sewemup Mesa (930.99 acres). The segment study area also includes a portion of two areas of critical environmental concern (ACECs): The Palisade Outstanding Natural Area/ACEC (70.02 acres) and the Dolores River Riparian ACEC (3170 acres). The BLM has proposed to expand The Palisade outstanding natural area and ACEC to provide special management attention for its vegetation (rare plant species), wildlife (peregrine falcon), and scenic values. The BLM has proposed the Dolores River Riparian ACEC to provide special management attention to its fish (bluehead sucker), wildlife (peregrine falcon), scenic, and riparian habitat values.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 32.01-mile segment is a combination of federal (BLM) and private. The BLM manages shoreline along 18.62 miles (58.1 percent) of the segment. Within the 9,918.91-acre study corridor, the BLM manages 7,041.19 acres (70.1 percent). The remaining 2,877.72 acres (29.9 percent) are privately owned.

The percentage of lands under federal ownership is the highest in the portions of the river segment that are adjacent to the Sewemup Mesa WSA (9% private, 91% BLM) and The Palisade WSA (26% private, 74% BLM). In these portions of the segment, the river corridor is characterized by a low level of development and largely natural conditions, with the exception of roads and highways along the river.

In the middle of the segment, from approximately the confluence with Cottonwood Canyon to 2.5 miles northwest of Gateway, the percentage of private land ownership exceeds 75% (55% private, 45% BLM). In this portion of the segment, land use is dominated by low intensity agriculture, low-density residential development, and the small community of Gateway. Under the Mesa County zoning for these private lands, development can occur that may be

incompatible with maintenance of the outstandingly remarkable values. See Factor #7 for a full discussion of county zoning.

The BLM-managed lands west of The Palisade WSA are leased for oil and gas development. There are no active wells in the segment corridor. There is no oil and gas potential on the BLM-managed lands in the segment corridor. There are several active mining claims in the segment corridor.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or to impose terms and conditions on any proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other federal agencies to evaluate the potential effects on the segments values. Water diversion and conveyance structures that are already in existence on BLM lands could continue to operate historical operation, maintenance, and access practices. Increased water demands in this segment, such as demand associated with the expansion of Gateway Canyons resort, appear to be small in volume relative to the volume of water available in the river. It is unknown whether future water supply projects associated with Gateway Canyons would require BLM land use authorization or federal permits.

Recreational uses within the segment are not likely to affected by designation under a "recreational" classification. The "recreational" classification would allow development on BLM lands within the corridor that is consistent with the recreation ORV, such as trails, boat ramps, campgrounds, and interpretive kiosks.

Agricultural uses on private lands within the river are not likely to be significantly affected by designation. Designation would not give BLM authority to manage agricultural and other land use practices on private lands, because such as authority would remain under local government control. If agricultural users require a federal permit to implement a project on private lands, such as a dredge and fill permit from the US Army Corps of Engineers, the project would have to be compatible with the ORVs identified for this segment. Since the classification of the segment if "recreational," a broad variety of development projects could be considered as compatible with the ORVs.

If designated, valid mining claims and mineral leases would remain in effect. Because the segment is preliminarily classified as recreational, new mining claims or mineral leases may be allowed, subject to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

As discussed below, existing mechanisms and management tools would reduce the potential for adverse effects on the ORVs in this segment if it were not designated.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

There is likely to be some increased cost of administering the area if designated. Currently, there are no recreation facilities designed to meet the needs of users. Additional infrastructure and maintenance resources would be required to accommodate the increased visitation that would likely result from designation. Facilities that may be required on BLM lands include boat ramps, campgrounds, interpretation sites, trailheads, and trails. However, increased usage that is already occurring within the river corridor will require BLM to expend resources to provide facilities and manage use to minimize impacts on resources. Given that increased visibility for the Gateway area has already increased visitation, it is impossible to accurately predict the volume and timing of increased visitation. However, it is likely that designation would result in additional funding to address current and future recreation demands.

The BLM would pursue land acquisition from willing sellers as funds and opportunities arise in order to better manage the area for the protection of the ORVs. Designation of the segment would enhance the BLM's ability to obtain funding for such acquisitions, and acquisitions would enhance the BLM's ability to manage the segment. At this time, BLM does not consider any land acquisitions as essential for the management of a designated river corridor, so no detailed cost analysis or estimate was prepared as part of this study.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

Two of the identified ORVs, recreation and fish, are highly dependent on adequate flow rates for the continued existence and quality of the ORVs. Flow rates in this river segment are driven primarily by water operations on two upstream river segments. The segment receives flows from the San Miguel River, which is largely unregulated and has a natural flow regime. During much of the year, flows from the San Miguel River provide the majority of the flow within this segment. Flows in this segment are also affected by releases from McPhee Reservoir, located on the upper Dolores River near Cortez, Colorado. This project diverts approximately two thirds of the flow of the upper Dolores River out of the basin. The upper Dolores River contributes significantly to flows in this segment when spills occur, typically during snowmelt runoff, but it contributes only small percentages of flow, typically ranging from 20 to 78 cubic feet per second (cfs), when the reservoir is releasing water from its conservation pool.

At the present time, there is no state-based instream flow protection for this river segment. The Colorado Water Conservation Board (CWCB) has the authority to consider establishment of an instream flow water right to protect the water-dependent natural environment, but it does not have the authority to appropriate flows to protect the recreation ORV. In 2011, the CWCB appropriated an instream flow water right for the segment of the San Miguel River that contributes the majority of flow to this segment. This appropriation has not yet been finalized by the water court. Once confirmed by the water court, the water right will allow flows to be protected to the confluence of the San Miguel and Dolores Rivers.

Without protection, there is no assurance that the flow rates needed for continued existence of the fishery and recreational activities will continue. Since there is a substantial portion of Dolores River flows that are presently unappropriated, even a very junior instream flow water

right could be effective in maintaining flows to support the ORVs. Accordingly, the federal reserved water right that is associated with designation would assist the BLM in ensuring that flows are available to support the ORVs.

Recreation management is challenging, because there are no facilities designed to meet the activity demands of the users. Additional infrastructure and maintenance resources would be required to meet the additional recreation demand created by residents and travelers. Designation of the river corridor would assist BLM in competing for funds to manage the presently high level or recreational usage and additional recreational use that could occur with designation.

The high percentage of BLM-managed land in the portions of the segment adjacent to Sewemup WSA and The Palisade WSA would facilitate recreational management of the segment as a WSR, because there is unlikely to be conflicts with private landowners associated with access to the river and adjacent lands. However, the middle section of the segment, between Cottonwood Canyon and 2.5 miles northwest of Gateway, would present more challenges for access management because of the intermix of private and public lands. In the middle section, there is potential for cooperation between private and public land owners to manage increased recreational use, but there is no guarantee that all private landowners would be interested in cooperative management measures. As mentioned above, designation of the river segment would likely provide additional resources to the BLM to create designated access points and to provide information to users about avoiding trespass on private lands.

Paleontological values associated with the river segment are protected and regulated by the BLM primarily under the Paleontological Resources Preservation Act, the Federal Land Policy and Management Act of 1976, the National Environmental Policy Act of 1969, other federal regulations, and BLM orders. Pursuant to the Federal Land Policy and Management Act of 1976, the BLM has issued regulations that provide additional protection. Section 8365.1-5 of Title 43 of the CFR prohibits removing any scientific resource or natural object without authorization. There are exceptions to this prohibition for small quantities of common invertebrate fossils and petrified wood. The BLM manages paleontological resources for their scientific, educational, and recreational values and to ensure that any impacts are mitigated. The primary objective of managing paleontological resources is scientific research. Paleontological resources may only be disturbed or removed in conjunction with scientific research and only upon the issuance of prior written authorization of the disturbance or removal activity. BLM Manual Section 8270, *Paleontological Resource Management* (BLM 1998), provides specific guidance.

The portion of the segment corridor upstream from Gateway overlaps the Dolores River Riparian ACEC. Also, the portion of the segment corridor downstream from Gateway overlaps the Palisade ACEC. An ACEC is an administrative designation that the BLM uses to provide special management attention is to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes. Management actions of the Dolores River Riparian ACEC include: (1) manage as VRM Class II; (2) only allow vegetation treatments for the benefit of the identified relevant and important values (riparian, hydrology, scenic, paleontological, and special status species); (3) designate as ROW avoidance area; and (4) open to livestock grazing. Management actions of the

Palisade ACEC include: (1) no allowable timber harvest; (2) designate as a ROW avoidance area (including renewable energy sites such as solar, wind, hydro, and biomass development); (3) open to livestock grazing; (4) withdraw from mineral entry, close to mineral material sales, and classify as unsuitable for coal leasing; and (5) withdraw from mineral location, close to mineral material sales, and classify as unsuitable for coal leasing. These ACECs would provide some protection for the ORVs on this segment if it were not designated.

The administrative designations along this segment would provide some limited protection for the ORVs if the segment was not designated. Portions of this segment overlap two WSAs. The uppermost thirteen miles (approximate) of this segment flows along the boundary of Sewemup Mesa WSA. About five miles of the segment near its downstream terminus also flows along the Palisade WSA. The BLM manages WSAs according to BLM Manual 8550, Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1995). The goal of this policy is to manage WSAs to not impair their suitability for preservation as wilderness, until Congress designates them as wilderness, or until they are released from further wilderness consideration. This "non-impairment" management standard is more stringent than the BLM's management direction for Recreational WSRs. But if the area is not designated as wilderness and the WSA designation is removed, protection of the area would be limited to RMP management measures.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in Section 2.2.5 (Public Input) of this report, provided management recommendations for this stream segment. The management recommendations did not include any specific recommendations to the BLM regarding whether the segment should be determined as suitable or non suitable for designation. Specifically, the stakeholder collaborative recommended:

1. A large stakeholder group should be convened, comprised of representatives from throughout the entire Dolores River watershed, to discuss suitability, flow management, and other issues associated with river management. The CWCB should convene the larger stakeholder group. To date, this recommended process has not occurred.
2. Implement VRM Class II prescriptions along the river corridor to protect scenic and geological ORVs.
3. Implement ACECs to protect fish, scenic, geological, and paleontological ORVs.
4. Establish controlled surface use or no surface occupancy stipulations to proposed land uses to protect all ORVs within ¼ mile of the river, and establish controlled surface use restrictions to protect the scenic ORVs within the viewshed of the scenic byway.
5. Establish an SRMA to protect the recreation ORV.
6. Work with the CWCB to establish and instream flow water right to maintain seasonal variability of flow for protection of the fish ORV and work to encourage voluntary flow management in support of the fish ORV. To date, an instream flow water right and voluntary flow management has not been established.

Based on these considerations, the stakeholder collaborative did not make any recommendation concerning a suitability determination for this stream segment. Instead, the stakeholder collaborative suggested suitability issues should be addressed on a larger scale by stakeholder group with representatives from the entire watershed.

6. Historical or existing rights that could be adversely affected with designation.

This segment is downstream from current water projects and diversions that are designed to provide water for the State of Colorado. The ability to change existing projects and construct new projects upstream could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, the amount and timing of water to support the ORVs would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system. New projects and changes to existing projects would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORVs. No significant new water supply or water storage projects have been proposed for this stream segment, but additional storage and diversion projects are under consideration for portions of the San Miguel River located upstream from this segment.

Numerous absolute water rights exist along this segment of the Dolores River. While these rights would not be affected by designation of the segment, the development of new water projects on BLM lands, as described in sections 7(b) and 7(c) of the WSR Act, would be permitted only if they did not have a direct and adverse effect on the values for which the river segment was designated.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa and Montrose Counties. A small portion of the segment corridor in Mesa County is within the Planned Unit Development district. The Planned Unit Development district is intended to encourage innovative land planning and site design concepts that implement and are consistent with the Mesa County Master Plan (Mesa County 2008). The majority of the area on private land in the segment corridor in Mesa County is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008).

The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

Zoning does not represent a significant issue in Montrose County as only a small portion of the segment (0.31 acres) is on private land.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Local governments, state governments, and other interested parties participated in the Lower Colorado River Wild and Scenic River Stakeholder Collaborative. This group did not provide specific recommendations regarding suitability to BLM, but did provide a variety of other management recommendations. Refer to Criterion 5 for details.

9. Consistency of designation with other agency plans, programs, or policies.

The Dolores River flows through lands managed by four separate BLM offices, and each of those offices has either completed or in the process of completing Wild and Scenic Rivers analysis.

The upper part of the river, downstream to approximately Bedrock, is managed by the San Juan Public Lands Center. The Draft Land Management Plan and Draft EIS for the San Juan Public lands Center identified 109.02 miles of the Dolores River from McPhee to Bedrock to be suitable for inclusion in the NWSRS (BLM and US Forest Service 2007). The final decision on suitability will be made in the record of decision.

The segment of the river from approximately Bedrock to Roc Creek is managed by BLM's Uncompahgre Field Office. The Uncompahgre Field Office found 11.5 miles of the Dolores River eligible for inclusion in the NWSRS. In addition, the Uncompahgre Field Office found 17.2 miles of the San Miguel River, immediately upstream from its confluence with the Dolores River, as eligible for inclusion in the NWSRS. In its Draft Suitability Report, the Uncompahgre Field Office has found 14.0 miles of the Dolores River as suitable for designation (This mileage includes 5.3 miles downstream from Bedrock and 8.7 miles upstream from Bedrock that formerly had been analyzed by the San Juan Public Center. The Uncompahgre Field Office also found that 2.1 miles of the San Miguel River, immediately upstream from its confluence with the Dolores River, is suitable for designation.

The segment of the river from Roc Creek to the Utah-Colorado boundary is within the GJFO planning area and is the subject of this suitability report.

The BLM Moab Field Office found 35.73 miles of the Dolores River on BLM land from the Colorado/Utah border to the confluence with the Colorado River to be suitable for inclusion in the NWSRS (BLM 2008).

In 1979, the U.S. Department of Interior, acting through the National Park Service and Bureau of Outdoor Recreation, completed a Wild and Scenic Rivers Study of the Dolores River, pursuant to 1975 amendment to the Wild and Scenic Rivers Act. That study recommended that the portion of the Dolores River from Gateway to the Utah border be designated into the National Wild and Scenic Rivers system. Although more than 30 years have elapsed since this study, BLM finds that conditions along the portion of the river corridor between Gateway and the Utah border have not changed substantially.

10. Contribution to a river system watershed or basin integrity.

This segment of the Dolores River provides a critical connection between numerous aquatic habitats that are important for sensitive fish, including the flannelmouth sucker, bluehead sucker, and roundtail chub. These fish are year-round residents throughout the study segment and in the

San Miguel River immediately upstream from the study segment. In addition, the sensitive species also utilize tributaries of the Dolores River for spawning purposes, including Mesa Creek, Roc Creek, and Blue Creek. Together with these tributaries, the lower Dolores River provides one of the few places in Colorado with largely natural flow regime timing at low elevations. The lower Dolores River, along with these tributaries, provides a very important interconnected aquatic habitat that insures the continued viability and genetic diversity of these populations.

Preliminary Suitability Determination

The BLM determines that two portions of the Dolores River within the Grand Junction Field Office are **suitable** for designation into the National Wild and Scenic Rivers System. Those two segments are described as follows:

- From point on the river closest to the southern boundary of the Sewemup Mesa Wilderness Study to the BLM-private land boundary in Section 24, T50N R19W, New Mexico P.M. a distance of approximately 14.4 miles.
- From the BLM-private land boundary in Section 34, T15S R104W, Sixth P.M. to the CO-UT boundary, a distance of approximately 5.5 miles.

The classification for the suitable segments is **recreational.**

The BLM determines that the following portion of the Dolores River within the Grand Junction Field Office is **not suitable** for designation into the National Wild and Scenic River System:

- BLM-private land boundary in Section 24, T50N R19W, New Mexico P.M. to the BLM-private land boundary in Section 34, T15S R104W, Sixth P.M. a distance of approximately 11.6 miles.

The rationale for the BLM suitability determinations are as follows:

- Consistency – The lands found suitable for designation share similar qualities with portions of the river found suitable in neighboring BLM field offices. These qualities include five or more ORVs, a high percentage of federal land ownership, minimal conflicts with competing land uses, significant and growing recreational use, and conditions little changed from the previous Wild and Scenic Rivers analysis performed in 1979.
- Management Opportunities – Designation would provide BLM with additional resources to manage recreational use that is already growing. Designation would provide a permanent standard for managing growing public use in a manner that does not degrade the ORVs. Designation would also provide a federal water right that would assist in managing multiple ORVs that are directly water-dependent.
- Minimize Conflicts With Private Lands – By determining that the middle portion of the reach, from Cottonwood Canyon to 2.5 miles northwest of Gateway, is **not suitable**, BLM minimizes potential conflicts between private landowners and the protective provisions of the Wild and Scenic Rivers Act. Specifically, the need to analyze projects proposed on private lands for potential impacts to Wild and Scenic River values would be minimized. Such consultation occurs when a private

landowner seek a federal permit or funding from other federal agencies, such as Army Corps of Engineers or National Resource Conservation Service. The need for consultation would be limited to projects on private land where the impacts of the proposed project stretch to upstream or downstream locations on federal lands. Projects with impacts limited strictly to private lands would not require detailed analysis for impacts to Wild and Scenic River values. Projects on private lands that do not require a federal permit or federal agency funding would be exempt from any consultation requirements.

3.2.2 North Fork Mesa Creek

Description:	BLM sections of North Fork Mesa Creek from the GJFO boundary with the Uncompahgre National Forest on the east, and flowing southwest to the boundary with the BLM, Uncompahgre Field Office.		
Total Segment Length:	2.05 miles	**Total Segment Area:**	699.96 acres
Length on BLM Land :	2.05 miles	**Area on BLM Land:**	699.96 acres
Preliminary Classification:	Scenic		
ORVs:	Vegetation		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
North Fork Mesa Creek is outstandingly remarkable for its vegetation. The tentative classification for this segment is scenic because there is an inconspicuous dirt road with multiple access points running parallel to the lower sections of the creek.

This segment contains sections of a type of Narrowleaf Cottonwood Riparian Forest *(Populus angustifolia/salix ligulfolia-Shepherdia argentea* woodland). This community is classified as critically imperiled globally (G1) and vulnerable statewide (S3) by the Colorado Natural Heritage Program (Colorado Natural Heritage Program 2009). A G1 conservation status rank indicates that a species or community is at very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors. Likewise, an S3 conservation status rank indicates that a species or community is imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the state. The rarity and conservation value of this plant community would make this segment a worthy addition to the NWSRS.

There are only two active diversions along North Fork Mesa Creek from its headwaters to its confluence with the Dolores River. Both of these diversions are for irrigation purposes and have the potential to provide return flows. The CWCB also holds an instream flow right along this segment for the purpose of preserving the natural environment to a reasonable degree.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

The entire segment corridor flows through and is on BLM land; approximately 150 acres of the segment corridor at the downstream end of the segment are within the Uncompahgre Field Office planning area. In the past, uranium mining took place in the surrounding area, but most operations are closed or temporarily suspended as uranium mining is not currently as economically viable as other energy materials. The entire area is leased for oil and gas exploration, but there are no active wells. There is no oil and gas potential in the segment corridor. Two active mining claims overlap the segment corridor.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to foreclose or curtail future water development along this segment. With designation, BLM would obtain conditioning authority to control any proposed projects that would be incompatible or potentially degrading to the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds to evaluate the potential effects on the segment's values.

If designated, valid mineral leases would remain in effect. Because the segment is preliminarily classified as Scenic, new mining claims or mineral leases may be allowed, subject to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

If this segment is not designated, there is the potential for its vegetation values to diminish. The BLM does not have any management measures in place to protect the rare plant community found along this segment. Additional depletions of water from the creek could also diminish these values.

4. Federal, state, tribal, local, public, or other interest in designating or not designating the river.

Neither support for nor has opposition to designation of this segment been expressed.

5. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The BLM manages all lands within this segment; acquisition of additional lands is not necessary. It is unlikely that the BLM would incur additional costs to manage the area if designated, partially due to the remote location of the segment. Nevertheless, designation of the segment would enhance the BLM's ability to obtain funding for the management of the segment. No detailed cost analysis or estimate was prepared as part of this study.

6. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM manages the entire segment corridor and could effectively manage this segment as a WSR. Additionally, the CWCB holds an instream flow right along this segment from Long Canyon to Cedar Tree Ditch. There are varying levels of instream flow appropriations throughout the year for the entire segment. Between April 1 and May 31, the appropriated

instream flow is 2.75 cfs. It drops to 0.5 cfs between June 1 and February 29, and rises to 1.9cfs between March 1 and March 31. The instream flow right provides some additional protection for the vegetation values along this segment.

7. Historical or existing rights that could be adversely affected with designation.

There are current water diversions along this segment. The ability to change existing diversions and to appropriate new diversion of water could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new diversions and changes to existing diversions would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORV. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

8. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

The entire segment corridor is managed by the BLM.

9. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

10. Consistency of designation with other agency plans, programs, or policies.

The BLM Uncompahgre Field Office manages North Fork Mesa Creek downstream from this segment until it reaches the Dolores River. The Uncompahgre Field Office found North Fork Mesa Creek eligible with a vegetation ORV.

The Uncompahgre National Forest found the portion of North Fork Mesa Creek upstream of the BLM segment not eligible for inclusion in the NWSRS during the eligibility study for the Grand Mesa, Uncompahgre, and Gunnison National Forests land management plan revision process (US Forest Service 2006). The Uncompahgre National Forest manages the area surrounding North Fork Mesa Creek for livestock grazing and according to the following general principles: improve rangeland through vegetation and soil restoration practices, improved livestock management, and regulation of other resource activities; provide semi-primitive non-motorized, semi-primitive motorized, and roaded natural recreation opportunities; and use vegetation treatments to enhance plant and animal diversity. These management guidelines are generally consistent with BLM management that would occur with designation.

The Uncompahgre National Forest's 2007 proposed forest plan would manage this area as "backcountry—motorized trails." This management would be relatively passive and emphasize natural features of landscapes. Resource management activities would occur, but natural ecological processes and patterns would normally predominate. This management prescription allows water development as a suitable use. (US Forest Service 2007) However, the proposed forest plan is not final and has been suspended because of litigation over the US Forest Service's 2005 planning rule. Management by the US Forest Service as backcountry—motorized trails has the potential to be inconsistent with designation (if the 2007 proposed plan becomes final) to the extent that future water development reduces stream flow or adversely affects the cottonwood communities downstream.

11. Contribution to a river system watershed or basin integrity.
North Fork Mesa Creek is a tributary to the Dolores River.

Preliminary Suitability Determination
This segment was found to be **not suitable**, as current protections are adequate to protect the ORVs listed.

3.2.3 Blue Creek

Description:	BLM sections of Blue Creek from the GJFO boundary with the Uncompahgre National Forest on the east, and flowing west to the confluence with the Dolores River.		
Total Segment Length:	11.36 miles	**Total Segment Area:**	3,335.98 acres
Length on BLM Land :	10.08 miles	**Area on BLM Land:**	2,975.48 acres
Preliminary Classification:	Scenic		
ORVs:	Scenic, Fish, Cultural		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
Blue Creek has outstandingly remarkable scenic, fish, and cultural values that would make it a worthy addition to the NWSRS, if designated by Congress. The tentative classification for this segment is scenic. There is an inconspicuous dirt road with multiple access points running parallel to the creek, in addition to some development and grazing in the creek corridor.

This segment has outstandingly remarkable scenic values. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). Blue Creek drops steeply off the Uncompahgre Plateau carving a canyon through the deep red sandstone of the area. This spectacular drop has formed a remarkable canyon with spectacular views of the Uncompahgre Plateau and Dolores River Canyon. The canyon as a whole is distinctive and rare in the region.

This segment also has remarkably outstanding fish values. Water flow in the segment is sufficient to maintain fish populations such as the bluehead sucker *(Catostomus discobolus)*. The bluehead sucker is a BLM sensitive species (BLM 2000). The management objective for BLM sensitive species that are not federally listed as endangered or threatened is to initiate protective conservation measures that reduce or eliminate threats to minimize the likelihood of and need for listing of these species under the ESA. The CPW has also identified the bluehead sucker as a species of greatest conservation need in its Comprehensive Wildlife Conservation Strategy (CPW 2006).

This segment also has remarkably outstanding cultural values. Blue Creek contains important Native American sites from the formative period of cultures in this region and is important for current Native American concerns. Research from these sites has the potential to yield additional discoveries about the development of agriculture in the area. This creek canyon is a

known transportation corridor with game trails used by Ute Tribes, later used as a pack trail to the Uranium mines, and as an early stock driveway that is still in use today.

The lower 3 miles lie within the Gateway SRMA. The lower 1.5 miles lie within the Dolores River Riparian ACEC. The BLM has proposed the Dolores River Riparian ACEC to provide special management attention to its fish (bluehead sucker), wildlife (peregrine falcon), scenic, and riparian habitat values.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 11.36-mile segment is a combination of federal (BLM and US Forest Service) and private. The BLM manages shoreline along 10.08 miles (89.9 percent) of the segment. Within the 3,335.98-acre study corridor, the BLM manages 2,975.48 acres (89.2 percent). The remaining 293.55 acres (8.8 percent) are privately owned. The US Forest Service manages the remaining land in the segment corridor (66.9 acres; 2 percent).

Most of the segment corridor upstream from Calamity Creek is leased for oil and gas development but there are no active wells. There is no oil and gas potential in this area. Active mining claims overlap a small portion of the segment corridor.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or place terms and condition on any proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other federal agencies to evaluate the potential effects on the segment's values.

If designated, valid mining claims and mineral leases would remain in effect. Because the segment is preliminarily classified as Scenic, the BLM may allow new mining claims or mineral leases, subject to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The cost of administering the area for protection of the ORVs would be minimal. The segment is comprised mostly of BLM lands, and BLM is pursuing the acquisition of the private parcel along this segment at this time through a land exchange. Since the creek is small and many portions of the creek are not easily accessible, BLM would not expect visitation to the creek to increase dramatically. Designation of the segment would enhance the BLM's ability to obtain funding for management of this segment.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

Under Alternative B of the proposed plan, BLM would manage the stream corridor under VRM Class II, which would provide vigorous protection for the Scenic ORV. In addition, the lower

portions of the stream corridor would fall within the Dolores River Riparian ACEC and within the Maverick Lands with Wilderness Characteristics area. These two designations would provide further protection of the scenic ORV by prohibiting development that would be inconsistent with riparian values and wilderness characteristics.

The CWCB holds an instream flow right on two different reaches of Blue Creek: from Massey Branch to Calamity Creek and from Calamity Creek to Tom Watkins Ditch. The purpose of an instream flow right is to preserve the natural environment to a reasonable degree. As such, instream flow rights provide a measure of flow protection that supports the ORVs (especially fish) found on this segment. The decreed flow levels vary seasonally. Between the upper end of the segment and the confluence with Calamity Creek on private land (roughly 5.5 miles), the amounts are as follows: 5.5 cfs (April 15 to May 14); 2.1 cfs (March 15 to April 14 and (May 15 and June 14); and 0.5 cfs (June 15 to March 14). From the confluence with Calamity Creek on private land to the headgate of Tom Watkins Ditch (3.0 miles), the amounts are 3.5 cfs (April 15 to May 14), 1.0 cfs (March 15 to April 14 and May 15 to June 14), and 0.5 cfs (June 15 to March 14).

Cultural resources and historic values associated with the river segment are protected and regulated by a number of laws, regulations, executive orders, programmatic agreements, and other requirements. The principal federal law addressing cultural resources is the NHPA, and its implementing regulations (36 CFR 800). These regulations, commonly referred to as the Section 106 process, describe the procedures for identifying and evaluating historic properties, for assessing the effects of federal actions on historic properties, and for project proponents consulting with appropriate agencies to avoid, reduce, or minimize adverse effects.

The primary objective of managing cultural resources is the protection of the resource from damage or destruction. To the extent consistent with protection, the BLM also manages cultural resources for scientific research, public education and enjoyment. Any interpretation of these sites for public benefit must be compatible with the protection of cultural resources. Management of the river to protect identified ORVs would include direct and indirect protection of cultural resources in the river corridor.

BLM is a signatory to the Rangewide Conservation Agreement for Roundtail Chub, Bluehead Sucker, and Flannelmount Sucker (Utah Department of Natural Resources, 2006). The strategy outlines conservation guidelines for habitat maintenance and protection, non-native fish control, population viability, and conservation genetics. This agreement and strategy will provide a layer of protection for the fish values along this segment even if it is not designated.

The bluehead sucker is also a BLM sensitive species and receives special management attention as a result. The BLM manages sensitive species and their habitats to minimize or eliminate threats affecting the status of the species or to improve the condition of the species habitat. The BLM achieves this through a variety of measures, including (1) ensuring that BLM activities are carried out consistently with species management objectives, (2) monitoring populations and habitats to determine whether species management objectives are being met, (3) working with partners and stakeholders to develop species-specific or ecosystem-based conservation strategies, (4) prioritizing Bureau sensitive species and their habitats for conservation action, and others.

6. Historical or existing rights that could be adversely affected with designation.

There are only two active water diversions on Blue Creek and one active diversion on Calamity Creek (a tributary to Blue Creek); all divert water for irrigation purposes and have the potential to provide return flows. The ability to make changes to these water rights and to appropriate new water rights upstream could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new projects and changes to existing projects would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORVs.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa County. The area on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008). The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. Mineral and extractive uses require 100-foot setback from the 100-year floodway. Nevertheless, these industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

The Uncompahgre National Forest found the portion of Blue Creek upstream of the BLM segment not eligible for inclusion in the NWSRS during the eligibility study for the Grand Mesa, Uncompahgre, and Gunnison National Forests land management plan revision process (US Forest Service 2006). The Uncompahgre National Forest manages the area surrounding Blue Creek as "big game winter range in non-forest areas" and according to the following general prescriptions: (1) provide semi-primitive non-motorized, semi-primitive motorized, and roaded natural recreation opportunities; (2) manage motorized recreation prevent unacceptable stress on big game animals during primary big game use season; use vegetation treatments to enhance plant and animal diversity; and (3) manage livestock grazing to favor wildlife habitat.

The Uncompahgre National Forest's 2007 proposed forest plan would manage this area as backcountry. However, the proposed forest plan is not final and has been suspended because of litigation over the US Forest Service's 2005 planning rule. If the area was managed as backcountry, management would be relatively passive and emphasize natural features of landscapes. Resource management activities would occur, but natural ecological processes and patterns would normally predominate (US Forest Service 2007). Management by the US Forest Service either to provide big game habitat or as backcountry is unlikely to have an adverse effect

on this segment's ORVs and is generally consistent with BLM management that would occur with designation.

The Colorado Division of Wildlife is a party to a multi-state conservation agreement specific to the bluehead sucker and two other fish species (Utah Department of Natural Resources, 2006). The purpose of this agreement is to expedite implementation of conservation measures to ensure the persistence of bluehead sucker populations throughout its range. Designation of this segment is generally consistent with this agreement.

10. Contribution to a river system watershed or basin integrity.
Blue Creek is a tributary to the Dolores River.

Preliminary Suitability Determination
The preliminary suitability determination for this segment is **not suitable.** The fish ORV is protected by an existing instream flow water right, by BLM's commitment to manage for this sensitive species under multi-state conservation agreement, and by the appearance of the fish species on BLM sensitive species list, which restricts management actions that could harm the species. The cultural ORV is protected by the provisions of the National Historic Preservation Act. The Scenic ORV will be protected by the proposed VRM Class II and by the Maverick Lands with Wilderness Characteristics prescription.

3.2.4 Gunnison River Segment 2

Description:	Sections of the Gunnison River west of Highway 50 on BLM land from Whitewater to the Redlands Dam, south of Grand Junction and the Gunnison Rivers' confluence with the Colorado River.		
Total Segment Length:	16.63 miles	**Total Segment Area:**	5,273.45 acres
Length on BLM Land :	3.85 miles	**Area on BLM Land:**	1,375.21 acres
Preliminary Classification:	Recreational		
ORVs:	Fish, Historic		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
This segment contains outstandingly remarkable fish and historical values . The tentative classification of this segment is recreational because of a railroad and development above the canyon walls that are readily apparent from the river.

This segment has outstandingly remarkable fish values. The entire segment is USFWS-designated critical habitat for the federally endangered Colorado pikeminnow *(Ptychocheilus lucius)* and the Razorback sucker *(Xyrauchen texanus)* (59 Fed. Reg. 13,374). Critical habitat is the specific area or areas that possess physical or biological features that are essential to the conservation of the species and that may require special management considerations or protections. The Colorado pikeminnow is largest minnow in North America and one of the largest in the world. At one time, individuals may have lived more than fifty years, growing to nearly six feet in length and weighing up to 80 pounds. The razorback sucker is one of the largest suckers in North America.

Individuals can live for more than forty years and can grow to up to thirteen pounds in weight and to three feet in length. These species were once widespread throughout most of the Colorado River Basin from Wyoming to Mexico.

This segment also has outstandingly remarkable historical values. The Denver and Rio Grande Railroad (now part of Union Pacific) runs parallel to the segment and was the first line connecting Denver to Grand Junction, reaching the Grand Valley in 1882. The line then connected to Salt Lake City forming a narrow gauge transcontinental railroad link. The importance of the railroad in developing the West makes this site eligible for inclusion in the National Register of Historic Places. The BLM-managed portions of the segment study area lie within the Bangs Canyon SRMA.

This segment also has characteristics that may create significant management issues, if the segment were to be designated as part of the NWSRS. There are many upstream diversions along the Gunnison River and numerous diversions within this segment (roughly fifteen). The diversions within this segment are generally for irrigation, industrial, commercial, and municipal purposes. Several of the diversions within this segment have conditional water rights. If made absolute, these water rights could result in additional depletions and additional water development and diversion structures along the river corridor. The community of Whitewater lies along this segment of the river and portions of the segment corridor overlap the Grand Junction city limits. Future population growth, expansion, and the associated development of these communities, particularly along the riverfront, have the potential to change the setting found in this segment.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

The BLM manages 1,375.21 acres (26.1 percent) of the land within the 5,273.45-acre study corridor and 3.85 miles (23.2 percent) of the segment shoreline. The remaining land status consists of 3,899.24 acres (73.9 percent) in private ownership. The segment corridor is not leased for oil and gas development. There is no oil and gas potential for the BLM-managed lands in the segment corridor, and there are no active mining claims in the segment corridor.

The BLM does not have authority over maintenance, operation, and construction activities associated with the railroad, though activities associated with it are not likely to impact the ORVs. The Department of Transportation, pursuant to the Department of Transportation Act of 1966, must consult with the Department of the Interior so that its plans and programs include measures to maintain or enhance the natural beauty of the lands traversed. These statutes also permit the Department of Transportation to approve a program or project using public park and recreation lands, wildlife and waterfowl refuges, or historic sites only if there is no feasible and prudent alternative and it has used all possible planning to minimize harm to these lands.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or to impose terms and conditions on

proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other agencies to evaluate the potential effects on the segment's values.

BLM is not aware of any major proposed water supply projects within this segment. The Colorado Statewide Water Supply Initiative concluded that Delta and Mesa Counties would be able to meet nearly all of the estimated demand for water in the Gunnison River basin through 2030 by utilizing Tri-County Water Conservancy District water rights, existing supplies, agricultural transfers, and an Uncompahgre Project Water Right. (Colorado Water Conservation Board, Statewide Water Supply Initiative Reports, 2004)

Several conditional storage water rights along and upstream from this segment have the potential to affect the identified ORVs. A conditional water right is a water right where the water has not been placed to a beneficial use. It gives the holder time to complete a project, provided that the holder pursues its completion with due diligence. Once the holder has put the water to beneficial use, the conditional right will be decreed as an absolute water right. Some of these conditional storage rights have priority dates senior to existing absolute junior rights and therefore could affect junior water right holders if made absolute. These conditional storage rights could result in additional depletions and change the flow regime along this segment. The volume of conditional storage rights in the Gunnison River Basin totals over 2 million acre-feet. Water District 40 (North Fork Gunnison/Gunnison Rivers) accounts for approximately 290,000 acre-feet of conditional storage rights. The majority of these rights which have priority dates ranging from 1960-1980, with some as early as 1900-1920 (SWSI). The development of conditional water rights both along the segment and upstream from the segment has the potential to affect the fish values along this segment.

Presently, there are no state-based instream flow water rights in this reach to ensure sufficient flow to preserve the natural environment to a reasonable degree. Rather, flows rates are the result of required deliveries to senior water rights within and downstream from this segment, water releases from US BOR's Aspinall Unit Reservoirs (Blue Mesa, Morrow Point, and Crystal) and Ridgeway Reservoirs, and by water deliveries that are made as part of the Upper Colorado River Endangered Fish Recovery Program (see Criteria 9).

The USFWS has developed flow recommendations for the Gunnison River to benefit endangered fish. In addition, the US BOR is currently undergoing an EIS process regarding reoperation of the Aspinall Unit, in which flow regimes would be modified to support threatened and endangered fish species. Flow recommendations are not absolute values and may be revised from time to time to include the results of research. The goal of the recommendations is to provide the flow patterns to enhance populations of the endangered fishes and to allow Colorado the full ability to develop its compact entitlements. The flow recommendations consist of peak flow recommendations and base flow recommendations. Peak flow recommendations are based on historical river flows during spring runoff to provide spawning cues and to restore and maintain in-channel and flood plain habitats. Base flow recommendations are designed to allow fish movement among river segments and to provide maximum amounts of warm, quiet-water habitats to enhance growth and survival of young fish.

Although there is no instream-flow right along this segment, USFWS flow recommendations provide a layer of protection for the ORVs.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The majority of land in this segment is privately owned. The BLM would not pursue land acquisition, as it is not feasible to acquire enough land to affect its ability to manage the segment. The cost of administering this area (protecting and enhancing the ORVs) would likely remain roughly the same if designated. The BLM already incurs costs associated with the protection of the ORVs through its administration of other statutory requirements (the ESA and the National Historic Preservation Act).

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM's land management authorities can adequately protect the federal lands in the river corridor. However, the BLM does not have authority over private lands in the corridor, nor does it have authority to protect the stream flows necessary to support the ORVs. Designation would provide a comprehensive framework for cooperating with local governments to encourage land uses that are compatible with the ORVs, and designation would provide a federal water right that would assist with flow protection.

The makeup of this segment hinders the BLM's ability to manage it effectively as a WSR. The majority of the shoreline and the segment corridor falls under private ownership. The BLM only manages roughly a quarter of the lands within the segment corridor. The BLM does not control uses or activities on private lands, making effective management of this segment difficult. Further, the downstream end of the segment overlaps the Grand Junction city limits, and the upstream end of the segment neighbors the community of Whitewater. As these communities continue to grow, it will become increasingly difficult to manage this segment as a WSR and to prevent incompatible development on private lands.

The ESA provides protection for the fish values present along this segment. This entire segment is designated critical habitat for the Colorado pikeminnow, Razorback sucker, bonytail chub, and humpback chub. Areas designated as critical habitat receive protection under section 7 of the ESA with regard to actions carried out, funded, or authorized by a Federal agency that are likely to adversely modify or destroy critical habitat. Section 7 requires Federal agencies to consult on and insure that such actions are not likely to destroy or adversely modify critical habitat. These fish species also receive special management as part of the Upper Colorado River Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery strategies include conducting research, improving river habitat, providing adequate stream flows, managing non-native fish, and raising endangered fish in hatcheries for stocking. Program partners cooperatively manage water resources in accordance with the ESA, state water law, individual water rights, and interstate compacts. Program partners utilize a variety of management tools: leases and contracts for water supplies; coordinated water releases from upstream reservoirs; participation in reservoir enlargements, efficiency improvements to irrigation systems to reduce water diversions; and re-

operation of federal dams and reservoirs. These mechanisms will protect the fish values along this segment.

Historical values associated with the river segment are protected and regulated by a number of laws, regulations, executive orders, programmatic agreements, and other requirements. The principal federal law addressing cultural resources is the NHPA, and its implementing regulations (36 CFR 800). These regulations, commonly referred to as the Section 106 process, describe the procedures for identifying and evaluating historic properties, for assessing the effects of federal actions on historic properties, and for project proponents consulting with appropriate agencies to avoid, reduce, or minimize adverse effects.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should continue to rely on the provisions of the Colorado Endangered Fish Recovery Program. Including the designation of critical habitat along this stream reach, to protect the Fish ORV.
2. The railroad right-of-way that forms the basis for the historical ORV is not at risk.

Based on these recommendations, the stakeholder collaborative also recommended that BLM determine that this stream segment is not suitable for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

This segment is downstream from current water projects and diversions that are designed to provide water for the State of Colorado. The ability to change existing projects and construct new projects upstream could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new projects and changes to existing projects would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORVs.

Numerous absolute water rights exist along this segment of the Gunnison River. Under designation, historical operation, maintenance, and access activities on federal lands can continue. While these historical rights would not be affected by designation of the segment, changes to these water rights and the development of new water projects as described in sections 7(b) and 7(c) of the WSR Act would be permitted only if they did not have a direct and adverse effect on the values for which the river segment was designated. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa County. The majority of the area on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area. The Agricultural, Forestry, Transitional

district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs.

A small portion of the study area is within the Residential-Single-Family (RSF-4) district. This district is primarily intended to accommodate medium density, single family residential development (Mesa County 2008). Because such a small portion of the study area is within the RSF-4 district, it is unlikely that the zoning would adversely impact the ORVs.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

The Colorado pikeminnow and razorback sucker are part of the Upper Colorado River Endangered Fish Recovery Program, a partnership of private and public organizations working to conserve a collection of fish species while maintaining water development. Recovery plans and goals have been issued by the USFWS (USFWS 2002a and USFWS 2002b). Designation would be consistent with this program.

The National Park Service determined that a 12-mile segment of the Gunnison River (as it flows through the Black Canyon of the Gunnison National Park) is suitable for inclusion in the NWSRS. The tentative classification for this segment is a combination of Wild and Scenic. Designation of this segment would be consistent with the previous National Park Service determination.

The BLM Uncompahgre Field Office determined that a 16–mile segment of the Gunnison River (as it flows through the Gunnison Gorge NCA) is suitable for inclusion in the NWSRS. The tentative classification for this segment is a combination of Wild and Recreational (Record of Decision, Gunnison Gorge National Conservation Area Resource Management Plan and Final Environmental Impact Statement, 2004). The Uncompahgre Field Office also determined two other segments of the Gunnison River as eligible. These include a 17.48-mile segment immediately upstream from the Grand Junction planning area boundary and a 0.41-mile segment on BLM-managed lands northeast of Delta. The BLM will make suitability determinations on these segments as part of the Uncompahgre RMP revision and the Dominguez-Escalante NCA planning process. Designation would be consistent with the determinations of the Uncompahgre Field Office; it is not known at this time whether the eligible segments of the Gunnison River upstream from the GJFO will be determined suitable.

10. Contribution to a river system watershed or basin integrity.

The Gunnison River is a tributary of the Colorado River.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable.** The Colorado River Recovery Program, designation of critical habitat by the USFWS, and the USFWS flow recommendations for the Gunnison River flow provide sufficient for the fish ORV. Current federal laws and authorities provide sufficient protection for the historical ORV.

The makeup of this segment would make effective management as a WSR challenging. The BLM only manages about a quarter of the shoreline and lands in the segment corridor. Mesa County zoning does not prevent development that is incompatible with WSR designation. The Agricultural, Forestry, Transitional district allows extractive uses (either as of right or conditionally) that have the potential to change the landscape and setting found along this segment. Also, this segment overlaps the city limits of Grand Junction and the community of Whitewater. As these communities continue to grow, the potential for incompatible development in the segment corridor will correspondingly increase.

3.3 ROAN CREEK

Description:	From the headwaters in the northern part of the GJFO to the confluence with Carr Creek.		
Total Segment Length:	17.04 miles	**Total Segment Area:**	4,960.38 acres
Length on BLM Land :	6.47 miles	**Area on BLM Land:**	2,563.97 acres
Preliminary Classification:	Scenic		
ORVs:	Fish		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

This segment contains outstandingly remarkable fish values. The tentative classification for this segment is scenic due to access via a dirt road.

The creek contains a core conservation population of Colorado River cutthroat trout *(Oncorhynchus clarki pleuriticus)* (CRCT Conservation Team 2006), a BLM sensitive species (BLM 2000) and a Colorado species of special concern (CPW 2007). However, recent genetic work suggests that this population is more closely related to greenback cutthroat trout *(Oncorhynchus clarki stomias)*, a federally threatened species. Although Carr Creek is outside of what is considered the "native range" of greenback cutthroat, the USFWS considers this population greenback cutthroat for the purposes of the ESA.

The cutthroat trout is the most diverse trout species in North America, and its historical distribution covers the broadest range of any stream-dwelling trout in the Western Hemisphere. Today, they exist in only about 5 percent of their original range. Their numbers have declined due to over-fishing, stocking of rainbow, brook, brown, and Yellowstone cutthroat trout in their habitat, and loss of high-quality trout stream habitat due to logging, livestock over-grazing, water diversions and municipal and industrial pollution.

In a 2004 landscape health assessment, Roan Creek was rated as functioning-at-risk because of insufficient stream bank vegetation resulting from heavy livestock use. Road encroachment and crossings are keeping banks unstable. Current beaver ponds are unstable because of the lack of large-diameter materials.

Grazing is permitted throughout the study corridor and occurs on both BLM and private land. Overgrazing and poor management practices are disrupting the riparian ecosystem.

The Roan and Carr Creeks ACEC proposed in Alternatives B and C of the Draft RMP would overlap nearly all of the BLM-managed lands in this study area. The public and the BLM have proposed this ACEC to provide special management attention to the area's riparian habitat, fish, wildlife, and plant values.

There are five active water diversions within the segment study area and several more diversions outside the study area that affect flows in Roan Creek. Diversions are primarily for irrigation purposes and have the potential to provide return flows to Roan Creek.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 17.04-mile segment is a combination of federal (BLM) and private. The BLM manages shoreline along 6.47 miles (38.0 percent) of the segment. Within the 4,960.38-acre study corridor, the BLM manages 2,563.97 acres (51.7 percent). The remaining 2,396.41 acres in the segment corridor (48.3 percent) are in private ownership.

Nearly all of the BLM-managed lands in the segment corridor are leased for oil and gas exploration, and there are eight active wells within the segment corridor. Additionally, there are several active wells outside of the study corridor on both BLM and private land. There are no active mining claims in the segment corridor.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or impose terms and conditions on proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other federal agencies to evaluate the potential effects on the segment's values.

If designated, valid mining claims and mineral leases would remain in effect. Because the segment is preliminarily classified as Scenic, new mining claims or mineral leases may be allowed, subject to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

As discussed below, existing mechanisms and management tools would reduce the potential for adverse effects on the fish values in this segment if it were not designated.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

If designated, it is possible that the cost of administering the area to protect and enhance the cutthroat trout would increase because of the mandate to do such. The BLM would/would not pursue land acquisition along this segment at this time. A detailed cost analysis was not done as part of this study.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM only manages 38.0 percent of the shoreline of this segment and about half of the land in the segment corridor. The BLM's limited ownership of the shoreline would make management of this segment as a WSR challenging. However, other mechanisms are in place that will protect the fish values on this segment.

The greenback cutthroat trout receives protection under the ESA, while the Colorado River cutthroat trout receives protection by virtue of appearing on the BLM's official sensitive species list. The USFWS has advised the BLM to treat the fish population as though it were threatened greenback cutthroat trout, despite the current genetic uncertainty surrounding this population. Accordingly, the BLM will determine the effects on these fish from any actions it funds, authorizes, or undertakes. The BLM will initiate ESA consultation if it determines that an action may affect these fish. If the fish population turns out be Colorado River cutthroat trout, the BLM sensitive species manual guidance specifies that the population should be managed in a fashion similar to species that are listed under the ESA.

The "Greenback Cutthroat Trout Recovery Plan" (USFWS 1998) provides a framework for maintaining and enhancing current known populations of greenback cutthroat trout and for creating new populations of the species where feasible. Involved parties include the BLM, US Forest Service, USFWS, National Park Service, and CPW. The BLM, consistent with the position of the USFWS, intends to manage this segment in accordance with the conservation agreement.

The BLM is capable of managing for the protection of the cutthroat trout through incorporation of protective measures in its RMP. For example, the BLM will manage the area as an ACEC to protect the greenback cutthroat trout. An ACEC is an administrative designation that the BLM uses to provide special management attention is to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes. Management actions of this ACEC include: (1) only allow vegetation treatments for the benefit of the identified relevant and important values (i.e., fish); (2) classify as closed to unauthorized motorized travel activities, including over-the-snow travel; (3) issue no special recreation permits for special or competitive events; and (4) close to mineral material sales and withdraw from coal leasing.

The CWCB holds an instream flow right on Roan Creek. There are varying levels of instream flow appropriations throughout the year for the entire segment. Between April 1 and October 31, the appropriated instream flow is 1.75 cfs. For the remainder of the year, the appropriated instream flow is 1.25 cfs. The purpose of an instream flow right is to preserve the natural environment to a reasonable degree. As such, this instream flow right provides a measure of flow protection that supports the ORV found on this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should continue to rely upon the appearance of cutthroat trout species on its sensitive species list as mechanism to insure that fish needs are considered in BLM plans and actions.
2. BLM should continue to rely upon the existence of an instream right held by the CWCB to protect the fish ORV.
3. BLM should continue to rely upon the inaccessibility of the creek as a method to protect the Fish ORV.

Based on these recommendations, the stakeholder collaborative also recommended that BLM determine that this stream segment is not suitable for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

There are current water diversions along this segment. The ability to change existing diversions and to appropriate new diversion of water could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new diversions and changes to existing diversions would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORV. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

Roan Creek is in Garfield County and is zoned as Resource Lands. The Resource Lands zone has limited potential to prevent development that is incompatible with protection of the ORV. Land types and uses within the Resource Lands zone include irrigated agriculture, grazing, farm and ranch residences, meadow hay land, and waste land (Garfield County 2008). Also, conditional uses in the Resources Lands zone include mineral extraction, forestry, mineral waste disposal, oil and gas drilling, and utility lines. The allowable uses along this segment include numerous forms of industrial development and resource extraction. These uses may result in development that is incompatible with the protection of this segment's ORV.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

In order for the greenback cutthroat trout to be considered recovered and delisted from the federally threatened and endangered species list, populations meeting a certain criteria must be documented in its native range, which is Arkansas and South Platte drainages on the Colorado Front Range (USFWS 1998). Thus, while designation for the protection of the greenback cutthroat trout would support the recovery of the species, it would not contribute to its delisting.

10. Contribution to a river system watershed or basin integrity.
Roan Creek is a tributary to the Colorado River.

Preliminary Suitability Determination
The preliminary suitability determination for this segment is **not suitable**. The ORV for this segment is for greenback cutthroat trout that are present. Mechanisms other than WSR designation can adequately protect these fish. The Roan and Carr Creeks ACEC, if chosen, would provide special management attention, limit allowable uses, and direct management actions to protect this fish population. The cutthroat trout are protected as special status species regardless of designation.

Other factors would make management of this segment in the NWSRS challenging and not the most effective use of the BLM's limited funds and management resources. The BLM manages only about a third of the shoreline and just over half of the land in the segment corridor. A cohesive and comprehensive management approach to this segment is difficult because the makeup of the segment is scattered and fragmented. In several places, the BLM manages only one side of the shoreline. The longest contiguous section of land in this segment where the BLM manages both sides of the shoreline is only two miles. As stated above, an ACEC overlaps some of the segment (roughly uppermost three-quarters), but this special management does not apply to the private lands in that section or to the remainder of the segment.

Additionally, there are oil and gas leases on nearly all of the BLM land in the corridor, and there are eight active wells in the corridor. BLM's permits for authorization to drill wells contain stipulations designed to protect the cutthroat trout population.

3.4 CARR CREEK

Description:	From the headwaters in the northern part of the GJFO to the confluence with Roan Creek.		
Total Segment Length:	15.10 miles	**Total Segment Area:**	4,916.51 acres
Length on BLM Land :	5.06 miles	**Area on BLM Land:**	2,289.73 acres
Preliminary Classification:	Scenic		
ORVs:	Fish		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
This segment contains outstandingly remarkable fish values. The tentative classification for this segment is scenic due to access via a dirt road.

The creek contains a core conservation population of Colorado River cutthroat trout (*Oncorhynchus clarki pleuriticus*) (CRCT Conservation Team 2006), a BLM sensitive species (BLM 2000) and a Colorado species of special concern (CPW 2007). However, recent genetic work suggests that this population is more closely related to greenback cutthroat trout *(Oncorhynchus clarki stomias)*, a federally threatened species. (Colorado Parks and Wildlife, 2011, "Native cutthroat trout populations displaying the lineage GB genotype identified west of the

Continental Divide.") Although Carr Creek is outside of what is considered the "native range" of greenback cutthroat, the USFWS considers this population greenback cutthroat for the purposes of the ESA.

The cutthroat trout is the most diverse trout species in North America, and its historical distribution covers the broadest range of any stream-dwelling trout in the Western Hemisphere. Today, they exist in only about five percent of their original range. Their numbers have declined due to over-fishing, stocking of rainbow, brook, brown, and Yellowstone cutthroat trout in their habitat, and loss of high-quality trout stream habitat due to logging, livestock over-grazing, water diversions and municipal and industrial pollution.

The area is permitted for livestock grazing though the permitee does not graze the land. A locked gate on private land downstream of the segment prevents public access to the segment.

The Roan and Carr Creeks ACEC overlaps roughly four miles of the uppermost portion this segment. The public and the BLM have proposed this ACEC to provide special management attention to the area's riparian habitat, fish, wildlife, and plant values.

There are approximately a dozen active water diversions along this segment and several more diversions lie outside the study area but have the potential to affect flows in the creek. Diversions in this area are primarily for irrigation purposes and have the potential to provide return flows to the creek.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 15.10-mile segment is a combination of federal (BLM) and private. The BLM manages shoreline along 5.06 miles (33.5 percent) of the segment. Within the 4,916.51-acre study corridor, the BLM manages 2,289.73 acres (46.6 percent). The remaining land status is composed of 2,626.78 acres (53.4 percent) in private ownership.

The segment corridor is leased for oil and gas exploration along roughly the downstream most 3.5 miles. There are 6 active wells within the study corridor (all on private land). The oil and gas potential on BLM lands is low along roughly the upstream most 5 miles of the segment. The oil and gas potential is moderate along the remaining BLM lands in the segment corridor. There are no active mining claims in the segment corridor.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or impose terms and conditions on proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other federal agencies to evaluate the potential effects on the segment's values.

If designated, valid mining claims and mineral leases would remain in effect. Because the segment is preliminarily classified as Scenic, new mining claims or mineral leases may be allowed, subject

to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

As discussed below, existing mechanisms and management tools would reduce the potential for adverse effects on the fish values in this segment if it were not designated.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The cost of administering the area would not likely increase over current levels because public access to the segment is limited. The majority of land in this segment corridor is privately owned. The BLM would not pursue land acquisition, as it is not feasible to acquire enough land to affect its ability to manage the segment.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The Greenback Cutthroat Trout receives protection under the ESA, while the Colorado River Cutthroat Trout receives protection by virtue of appearing on the BLM's official sensitive species list. The USFWS has advised the BLM to treat the fish population as though it were threatened greenback cutthroat trout, despite the current genetic uncertainty surrounding this population. Accordingly, the BLM will determine the effects on these fish from any actions it funds, authorizes, or undertakes. The BLM will initiate ESA consultation if it determines that an action may affect these fish. If the fish population turns out be Colorado River Cutthroat Trout, the BLM sensitive species manual guidance specifies that the population should be managed in a fashion similar to species that are listed under the ESA.

The "Greenback Cutthroat Trout Recovery Plan" (USFWS 1998) provides a framework for maintaining and enhancing current known populations of greenback cutthroat trout and for creating new populations of the species where feasible. Involved parties include the BLM, US Forest Service, USFWS, National Park Service, and CPW. The BLM, consistent with the position of the USFWS, intends to manage this segment in accordance with the conservation agreement.

The BLM is capable of managing for the protection of the cutthroat trout through incorporation of protective measures in its RMP. For example, the BLM will manage the upper portion of the area as an ACEC to protect cutthroat trout. An ACEC is an administrative designation that the BLM uses to provide special management attention is to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes. Management actions of this ACEC include: (1) only allow vegetation treatments for the benefit of the identified relevant and important values (i.e., fish); (2) classify as closed to unauthorized motorized travel activities, including over-the-snow travel; (3) issue no special recreation permits for special or competitive events; and (4) close to mineral material sales and withdraw from coal leasing.

The CWCB holds an instream flow right on Carr Creek. There are varying levels of instream flow appropriations throughout the year for the entire segment. Between April 1 and August 31, the appropriated instream flow is 2.0 cfs. It drops to 1.0 cfs between September 1 and October 31, and again to 0.5 cfs between November 1 and March 31. The purpose of an instream flow

right is to preserve the natural environment to a reasonable degree. As such, this instream flow right provides a measure of flow protection that supports the ORV found on this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should continue to rely upon the appearance of cutthroat trout species on its sensitive species list as mechanism to insure that fish needs are considered in BLM plans and actions.
2. BLM should continue to rely upon the existence of an instream right held by the CWCB to protect the fish ORV.
3. BLM should continue to rely upon the inaccessibility of the creek as a method to protect the Fish ORV.

Based on these recommendations, the stakeholder collaborative also recommended that BLM determine that this stream segment is not suitable for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

There are current water diversions along this segment. The ability to change existing diversions and to appropriate new diversion of water could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new diversions and changes to existing diversions would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORV. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

Carr Creek is in Garfield County and is zoned as Resource Lands. The Resource Lands zone has limited potential to prevent development that is incompatible with protection of the ORV. Land types and uses within the Resource Lands zone include irrigated agriculture, grazing, farm and ranch residences, meadow hay land, and waste land (Garfield County 2008). Also, conditional uses in the Resources Lands zone include mineral extraction, forestry, mineral waste disposal, oil and gas drilling, and utility lines. The allowable uses along this segment include numerous forms of industrial development and resource extraction. These uses may result in development that is incompatible with the protection of this segment's ORV.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

In order for the greenback cutthroat trout to be considered recovered and delisted from the federally threatened and endangered species list, populations meeting a certain criteria must be document in its native range, which is Arkansas and South Platte drainages on the Colorado

Front Range (USFWS 1998). Thus, while designation for the protection of cutthroat trout may support the recovery of the species, it would not contribute to delisting.

10. Contribution to a river system watershed or basin integrity.
Carr Creek is a tributary to Roan Creek, which flows into the Colorado River near De Beque.

Preliminary Suitability Determination
The preliminary suitability determination for this segment is **not suitable**. The ORV for this segment is for greenback cutthroat trout that are present. Mechanisms other than WSR designation can adequately protect these fish. The Roan and Carr Creeks ACEC will provide special management attention, limit allowable uses, and direct management actions to protect this fish population. The cutthroat trout are protected as special status species regardless of designation.

Other factors would make management of this segment in the NWSRS challenging and not the most effective use of the BLM's limited funds and management resources. The BLM is a minority landowner on this segment. It only manages a third of the shoreline and less than half of land in the segment corridor. As stated above, an ACEC overlaps the upper portion of the segment (roughly uppermost four miles) where the BLM manages the entire shoreline and all of the surrounding land in the corridor. However, the special management afforded by the ACEC does not apply to the remainder of the segment where land ownership is fragmented.

Additionally, there are oil and gas leases on nearly all of the BLM land in the corridor, and there are eight active wells in the corridor. BLM's permits for authorization to drill wells contain stipulations designed to protect the cutthroat trout population.

3.5 ROUGH CANYON CREEK

Description:	Sections of Rough Canyon Creek on BLM land located south of Grand Junction in the Bangs Canyon SRMA.		
Total Segment Length:	4.21 miles	**Total Segment Area:**	1,356.52 acres
Length on BLM Land :	4.21 miles	**Area on BLM Land:**	1,248.06 acres
Preliminary Classification:	Scenic		
ORVs:	Scenic, Wildlife, Geologic		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
Rough Canyon Creek is an intermittent stream and contains outstandingly remarkable scenic, geologic, and wildlife values. The tentative classification of this segment is scenic due to an inconspicuous dirt road that runs parallel to the creek for most of its extent.

This segment has outstandingly remarkable scenic value. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). Deep canyons exposing multiple

layers of rock as old as the Precambrian create outstandingly remarkable scenery. A classic faulted monocline next to the creek adds to the unusual and spectacular scenery.

This segment has outstandingly remarkable geologic value. The faulted monocline within Rough Canyon is readily visible from the creek and provides a textbook example of the feature. The exposed fault has provided evidence of the formation of the Uncompahgre Plateau.

This segment has outstandingly remarkable wildlife value. Rough Canyon Creek is an important Canyon Tree Frog *(Hyla arenicolor)* breeding area with many breeding pools found in surveys of this area. The Canyon Tree Frog is a BLM sensitive species (BLM 2000). The management objective for BLM sensitive species that are not federally listed as endangered or threatened is to initiate protective conservation measures that reduce or eliminate threats to minimize the likelihood of and need for listing of these species under the ESA. The CPW identified the Canyon Tree Frog as a species of greatest conservation need in its Comprehensive Wildlife Conservation Strategy (CPW 2006).

This segment has characteristics in addition to its ORVs that add to its value as a potential addition to the NWSRS. The majority of the study area (4.09 miles, 874.61 acres) is within the Rough Canyon research natural area and ACEC. The BLM has proposed to expand this existing ACEC to provide special management attention to its plant, fish and wildlife, scenic, cultural, and geologic values. The study corridor is also within the Bangs Canyon SRMA. While the SRMA is available for a wide-range of activities, Rough Canyon is protected from surface-disturbing activities and the canyon floor is open to foot and equestrian traffic only. The Tabeguache Trail follows the eastern rim of the canyon and is a motorized trail. Lastly, there are no active diversions along Rough Canyon Creek.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

The shoreline for this 4.21-mile segment is entirely managed by BLM. Within the 1,356.52-acre study corridor, the BLM manages 1,248.06 acres (92.0 percent), and the remaining 108.46 acres (8.0 percent) are privately owned. The segment corridor is not leased for oil and gas development; there are no active wells in the corridor; and the oil and gas potential is very low.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect water development along this segment. However, the potential for future water development is very low due to the intermittent nature of the creek and its remote location. If designated, it is expected that management practices would be similar to existing management practices. Hiking in the canyon could increase with designation and threaten the ORVs, particularly the canyon treefrog habitat. The values along this segment likely would not diminish if the segment was not designated because other management tools provide adequate protection, as discussed below.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The cost of administering this area is not likely to increase substantially if designated. The BLM already devotes funding to this area for its management of the Bangs Canyon SRMA and the Rough Canyon ACEC.

The acquisition of private lands is not essential for management for the protection of the ORVs because the BLM manages nearly all of the lands within the segment corridor. Nevertheless, the BLM would pursue acquisition of private parcels from willing sellers. No detailed cost estimate was prepared as part of this study.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM could manage this segment effectively as a WSR. The BLM manages all of the shoreline along this segment and 92 percent of the acres in the segment corridor. Other means also exist to protect the identified values other than WSR designation.

The BLM currently manages the segment corridor as part of the Rough Canyon research natural area and ACEC. An ACEC is an administrative designation that the BLM uses to provide special management attention is to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes. This provides a layer of protection for the scenic, wildlife, and geologic ORVs.

The BLM also manages the segment corridor as part of the Bangs Canyon SRMA. Braided routes on the canyon floor and a lack of interpretive educational efforts put the identified ORVs, specifically the canyon treefrog, at risk. However, increased efforts by the BLM to educate users and close trails would minimize adverse impacts.

The BLM's VRM system provides some protection for the scenic values of this segment. The segment corridor is managed as VRM Class II. The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape. It provides that management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape. Class II protection also provides some protection against visual disturbance which could indirectly protect the geologic value by minimizing the possibility of significant development in the area.

6. Historical or existing rights that could be adversely affected with designation.

No historical or existing rights have been identified for this segment.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

This segment is within Mesa County. There are parcels of private land within the watershed but not directly located on the creek. The private lands are within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008). The Agricultural, Forestry, Transitional

district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

The Mesa Land Trust holds a conservation easement on a very small portion of the private land at the upstream end of the segment corridor (about 20 acres). Conservation easements are voluntary, perpetually binding documents that restrict development of a property. Conservation easements have the general purposes of conserving agricultural productivity, open space character, wildlife habitat, and scenic qualities, and for preventing any uses that will impair or interfere with the conservation values of the property (such as industrial uses). With regard to water use, conservation easements allow the maintenance of existing water systems and the development of new water sources, provided that such maintenance or development does not substantially diminish the conservation values of the property.

In sum, even though Mesa County zoning may allow incompatible development, the private lands in the segment corridor make up such a small percentage (8 percent) that adverse effects to ORVs from incompatible development is unlikely.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

Designation to protect the canyon treefrog would be consistent with the CPW initiative to protect the species.

10. Contribution to a river system watershed or basin integrity.

Because the creek is intermittent, the Gunnison River does not rely upon a contribution from Rough Canyon Creek to meet average flow levels.

11. Other issues and concerns, if any.

None.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable**. The BLM can adequately protect the ORVs along this segment with other administrative protections. The increased visitation that would likely accompany designation has the potential to have an adverse effect on the wildlife (canyon tree frog habitat) value of the segment. As such, the BLM will protect the ORVs of this segment utilizing existing means other than designation. For example, the BLM's VRM system provides a layer of protection for the scenic and geologic values. The BLM manages this area as VRM Class II. The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape.

The Rough Canyon ACEC also provides special management attention to values in this area (geologic, wildlife habitat, archaeological, and plants) that parallel the ORVs of this segment. For these reasons, the BLM determines that this segment is not suitable for inclusion in the NWSRS.

3.6 UNAWEEP CANYON COMPLEX

3.6.1 East Creek

Description:	Sections of East Creek on BLM land running parallel to Highway 141 from the Unaweep Divide to East Creek's confluence with the Gunnison River near Whitewater.		
Total Segment Length:	20.26 miles	**Total Segment Area:**	6,220.63 acres
Length on BLM Land :	8.96 miles	**Area on BLM Land:**	3,601.84 acres
Preliminary Classification:	Recreational		
ORVs:	Geologic		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

This segment has outstanding geologic value. The tentative classification for this segment is recreational because Highway 141 runs parallel to the creek. Frequent traffic and transmission lines are readily apparent. With regard to its geologic value, East Creek flows east from the Unaweep Divide, through Unaweep Canyon, to the Gunnison River. West Creek flows west from Unaweep Divide and into the Dolores River. These creeks originate in the canyon and do not have a source large enough to create a canyon of such magnitude. It is hypothesized that Unaweep Canyon was carved by one or both of the modern day Gunnison or Colorado Rivers. The second uplift of the Uncompahgre Plateau probably rerouted one or both of these rivers. This has led to the exposure of multiple layers of rock, including the Precambrian basement layer of the Uncompahgre Plateau, and high canyon walls of up to 1000 feet. The divide located in the middle of the canyon separating East and West Creeks is rare (Foutz 1994) and Unaweep Canyon is the only known canyon in the world with a divide in the middle and a creek flowing out of each end (Ikenberry 2002). Approximately one-third of the study area (1,929.99 acres) is within the Bangs Canyon SRMA. Also, a small portion of the study area lies within the Dominguez-Escalante NCA. Congress designated the Dominguez-Escalante NCA to:

> "[C]onserve and protect for the benefit and enjoyment of present and future generations--(1) the unique and important resources and values of the land, including the geological, cultural, archaeological, paleontological, natural, scientific, recreational, wilderness, wildlife, riparian, historical, educational, and scenic resources of the public land; and (2) the water resources of area streams, based on seasonally available flows, that are necessary to support aquatic, riparian, and terrestrial species and communities." (Public Law No. 111-11).

In a 2007 landscape health assessment, East Creek was rated as functioning-at-risk because of insufficient bank vegetation and streambed disturbance related to recreational use along the banks and off-highway vehicle use.

There are seven active diversions within the study area. These diversions are primarily for irrigation purposes and have the potential to provide return flows to the creek.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 20.26-mile segment is a combination of federal (BLM) and private. The BLM manages shoreline along 8.96 miles (44.2 percent) of the segment. Within the 6,220.63-acre segment corridor, the BLM manages 3,601.84 acres (57.9 percent). The remaining land status is composed of 4,014.64 acres (42.1 percent) in private ownership.

The BLM-managed lands in the segment corridor to the southeast of Highway 141 lie within the Dominguez-Escalante NCA (approximately 25 percent of this study area for this segment). The Omnibus Public Land Management Act of 2009 withdrew all BLM-managed lands in the Dominguez-Escalante NCA from "location, entry, and patent under the mining laws; and operation of the mineral leasing, mineral materials, and geothermal leasing laws." (Public Law No. 111-11) There is very low oil and gas potential on the remaining BLM lands in the segment corridor. There are no active oil and gas wells, oil and gas leases, or mining claims in this area.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or impose terms and conditions on proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other federal agencies to evaluate the potential effects on the segment's values.

The geologic value of this segment likely would not be foreclosed or diminished if the segment was not designated. As discussed above, Unaweep Canyon is thought to have been formed by either the Gunnison or Colorado Rivers. Then, the second uplift of the Uncompahgre Plateau rerouted one or both of these rivers. This value does not depend directly on flows in East Creek, and administrative provisions in the BLM land use plan will prevent outstanding expressions of the geologic value from being inappropriately developed.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

If designated, it is unlikely that the cost of administering the area would increase dramatically over the current level, as the area already sees a moderate amount of activity from scenic drivers and because the highway serves as a corridor to the Gateway area and Southwest Colorado. BLM has already developed turnouts, signage, and other recreational infrastructure along the segment to accommodate the existing use. Further, the protection of this segment's geologic value does not require the active management that an ecosystem-based ORV, such as wildlife or fish, would. The BLM would not pursue land acquisition along this segment at this time.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM manages less than half of the shoreline of this segment and only 57.1 percent of the lands in the segment corridor, making effective management of the segment as a WSR challenging.

Other administrative management tools provide some protection for this segment's ORV. Almost half of the study area (2,748.66 acres) is managed as VRM Class II. The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape. It provides that management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape. Class II protection provides some protection against visual disturbance which could indirectly protect the geologic value by minimizing the possibility of substantial development in the area. This segment flows along the boundary of the Dominguez-Escalante NCA which was designated to conserve and protect, among other resources, its geological values. Nearly 25 percent of the study area (1,438.97 acres) is protected by the NCA.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should establish a geological ACEC to protect the geological ORV.
2. BLM should carefully manage access routes and recreational use areas to prevent damage to the geological ORV.
3. BLM should continue to rely upon the inaccessibility of the creek as a method to protect the Fish ORV.

The stakeholder collaborative was unable to reach consensus on whether this stream segment should be determined suitable or not suitable by BLM for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

There are current water diversions along this segment. The ability to change existing diversions and to appropriate new diversion of water could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new diversions and changes to existing diversions on BLM lands would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORV. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

The segment is in Mesa County and the small portion of land within the segment study corridor on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa

County 2008). The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORV.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

No other agency plans, programs, or policies were identified for this segment.

10. Contribution to a river system watershed or basin integrity.

East Creek is a tributary to the Gunnison River.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable**. The ORV for this segment is its unique geologic value. The BLM's VRM system provides a layer of protection for this value. VRM Class II protection provides protection against visual disturbance, and could indirectly protect the geologic value by minimizing the possibility of substantial development in the area.

Since there is a large percentage of private land in this segment, management as a Wild and Scenic River could be challenging and resource-intensive. Current zoning in the area could allow developments that could detract from the visual observation and interpretation of the geologic values.

Creation of a federal reserved water right with designation does not appear essential for managing the geologic ORV. The vast majority of BLM-managed lands in the corridor are concentrated at the downstream end of the segment. Flows in this portion of the segment depend on the actions of senior water rights holders upstream on private lands, and a junior federal reserved water right is unlikely to significantly affect the flow regime.

Because of the factors discussed above, management of this segment as suitable for inclusion in the NWSRS is not the most effective use of the BLM's limited funds and management resources.

3.6.2 West Creek

Description:	Sections of West Creek on BLM land running parallel to Highway 141 from the Unaweep Divide to West Creek's confluence with the Dolores River near Gateway.		
Total Segment Length:	23.56 miles	**Total Segment Area:**	6,926.06 acres
Length on BLM Land :	4.93 miles	**Area on BLM Land:**	2,490.99 acres

Preliminary Classification: Recreational
ORVs: Scenic, Wildlife, Geologic, Vegetation

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
West Creek contains outstandingly remarkable scenic, geologic, wildlife, and vegetative values. The tentative classification for this segment is recreational as Highway 141 runs parallel to the creek and its traffic is readily apparent from the creek.

This segment has outstandingly remarkable scenic value. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). Colorado State Highway 141, running through Unaweep Canyon and paralleling West Creek, is part of the Unaweep-Tabeguache Scenic and Historic Byway designated by Congress in 1980. The steep canyon walls formed by a rerouted ancient river have resulted in cliffs up to 1000 feet high in a magnificent canyon. Cottonwoods abound along the watercourse and provide a a striking contrast to the variety of different colors of the multitude of rock layers exposed on the canyon walls. Sections of the canyon are very narrow and intimate while others are very wide and open up to provide fantastic views.

This segment has outstandingly remarkable geologic value. East Creek flows east from the Unaweep Divide, through Unaweep Canyon, to the Gunnison River. West Creek flows west from Unaweep Divide and into the Dolores River. These creeks originate in the canyon and do not have a source large enough to create a canyon of such magnitude. It is hypothesized that Unaweep Canyon was carved by one or both of the modern day Gunnison or Colorado Rivers. The second uplift of the Uncompahgre Plateau probably rerouted one or both of these rivers. This has led to the exposure of multiple layers of rock, including the Precambrian basement layer of the Uncompahgre Plateau, and high canyon walls of up to 1000 feet. The divide located in the middle of the canyon separating East and West Creeks is rare (Foutz 1994) and Unaweep Canyon is the only known canyon in the world with a divide in the middle and a creek flowing out of each end (Ikenberry 2002). This segment has outstandingly remarkable wildlife and vegetation values. The study area contains nearly all of Unaweep Seep ACEC/research natural area, designated to protect the area's outstanding biologic diversity. The BLM is carrying forward this existing ACEC its fish and wildlife, plant, riparian habitat and hydrologic values. This area contains around twenty seeps in a contiguous area harboring an unusually high species diversity and density. The Great Basin silverspot butterfly (*Speyeria n. Nokomis*), a BLM sensitive species, is also found here. The management objective for BLM sensitive species that are not federally listed as endangered or threatened is to initiate protective conservation measures that reduce or eliminate threats to minimize the likelihood of and need for listing of these species under the ESA. Unaweep Seep is also a designated Important Bird Area (Audubon 2008). The Unaweep Seep ACEC is also among the highest in the GJFO in terms of plant diversity. Included in this assemblage is the helleborine orchid *(Epipactis gigantea)*, ranked by CNHP as S2 (state imperiled). An S2 rank indicates that the species is imperiled in the state because of rarity due to

very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state.

The study area for this segment is partially within the Palisade outstanding natural area and ACEC (2.18 miles, 625.77 acres). The BLM has proposed to expand the existing Palisade outstanding natural area and ACEC to provide special management attention to its vegetation (rare plant species), wildlife (peregrine falcon), and scenic values. A small portion of this segment and study area overlaps The Palisade WSA (0.03 miles, 561.54 acres).

There are numerous active water diversions along West Creek (approximately two dozen). These diversions are primarily for irrigation purposes, which have the potential to provide return flows to the creek. Some diversions are for stock and domestic purposes. The CWCB holds an instream flow right for 15 cfs on West Creek from its headwaters to its confluence with the Dolores River.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 20.26-mile segment is a combination of federal (BLM) and private. The BLM manages shoreline along 4.93 miles (20.9 percent) of the segment. Within the 6,926.06-acre study corridor, the BLM manages 2,490.99 acres (36.0 percent). The remaining land status is composed of 4,435.07 acres (64.0 percent) in private ownership.

A small portion of the segment corridor downstream from the confluence of Ute Creek is leased for oil and gas exploration but there are no active wells in the area. There is an active mining claim in the segment corridor where West Creek flows into the Dolores River. There is no oil and gas potential in this area.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment. With designation, BLM would obtain authority to deny or impose terms and conditions on proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds to evaluate the potential effects on the segment's values.

If designated, valid mining claims and mineral leases would remain in effect. Because the segment is preliminarily classified as Scenic, new mining claims or mineral leases may be allowed, subject to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment.

The geologic value of this segment likely would not be foreclosed or diminished if the segment was not designated. As discussed above, Unaweep Canyon is thought to have been formed by either the Gunnison or Colorado Rivers. Then, the second uplift of the Uncompahgre Plateau rerouted one or both of these rivers. This value does not depend on flows in East Creek or require protective management by the BLM.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

If designated, it is unlikely that the cost of administering the area would increase over the current level. The area already sees a moderate amount of activity from scenic drivers, and the highway serves as a corridor to the Gateway area and southwest Colorado. Further, the BLM already devotes funding to its management of particular areas within this segment, such as the Unaweep Seep and the Palisade ACECs.

The BLM would not pursue land acquisition along this segment at this time. The majority of land in this segment is privately owned. It is not feasible for the BLM to acquire enough land to appreciably affect its ability to manage the segment.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM manages only 20.9 percent of the shoreline of this segment and only 36.0 percent of the lands in the segment corridor, making effective management of the segment as a WSR challenging.

A portion of this segment flows through the Palisade WSA. The Palisade WSA is managed according to BLM Manual 8550, Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1995). The goal of this policy is to manage WSAs to not impair their suitability for preservation as wilderness, until Congress designates them as wilderness, or until they are released from further wilderness consideration. This "non-impairment" management standard is more stringent than the BLM's management direction for Recreational WSRs. But if the area is not designated as wilderness and the WSA designation is removed, protection of the area would be limited to RMP management measures.

Portions of the study area are also currently managed as part of the Palisade outstanding natural area and ACEC and the Unaweep Seep ACEC. An ACEC is an administrative designation that the BLM uses to provide special management attention is to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes. The Unaweep Seep ACEC has been successful at protecting the Great Basin silverspot butterfly as well as the plant diversity of the area. Continuation of these ACECs would help protect the ORVs.

Management actions for the Unaweep Seep ACEC include: (1) classify as closed to unauthorized motorized travel activities, including over-the-snow travel; (2) closed to mechanized travel, wood collecting, fossil collecting and camping; (3) designate as ROW exclusion area; and (4) withdraw from mineral location, close to mineral material sales, and classify as unsuitable for coal leasing.

The BLM's VRM system provides some protection for the scenic values of this segment. The segment corridor is managed as VRM Class II. The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape. It provides that management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape. Class II protection also

provides some protection against visual disturbance which could indirectly protect the geologic value by minimizing the possibility of significant development in the area.

The CWCB holds an instream flow right on West Creek for 15 cfs year-round from its headwaters to its confluence with the Dolores River. The purpose of an instream flow right is to preserve the natural environment to a reasonable degree. As such, this instream flow right provides a measure of flow protection that supports the ORVs found on this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should utilize protections associated with existing WSAs and protections associated with the proposed lands with wilderness characteristics management prescription to protect the ORVs.
2. BLM should rely upon the existing instream flow water right held by the CWCB to assist in protecting the scenic, wildlife, and vegetation ORVs.

The stakeholder collaborative was unable to reach consensus on whether this stream segment should be determined suitable or not suitable by BLM for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

There are current water diversions along this segment. The ability to change existing diversions and to appropriate new diversion of water could be affected if the segment were designated and included a federal reserved water right. With a federally reserved water right in place, new diversions and changes to existing diversions would be allowed to the extent that sufficient flow remains in the river segment to support the identified ORV. The amount and timing of water to support the ORVs in the federal reserved water right would be established by scientific studies completed by the BLM and confirmed by the Colorado water court system.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

The segment is in Mesa County and the small portion of land within the segment study corridor on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008). The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

The Mesa Land Trust holds conservation easements on private lands at the upstream end of the segment corridor (approximately 500 acres). In large part, these conservation easements will protect the river's ORVs and prevent incompatible development. Conservation easements are voluntary, perpetually binding documents that restrict development of a property. Conservation easements have the general purposes of conserving agricultural productivity, open space character, wildlife habitat, and scenic qualities, and for preventing any uses that will impair or interfere with the conservation values of the property (such as industrial uses). With regard to water use, conservation easements allow the maintenance of existing water systems and the development of new water sources, provided that such maintenance or development does not substantially diminish the conservation values of the property.

In sum, even though Mesa County zoning may allow incompatible development, conservation easements on private lands in the segment corridor provide more stringent land use controls and generally will prevent incompatible development.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

The Uncompahgre National Forest issued a proposed Forest Plan Revision in conjunction with the Gunnison National Forest in March 2007. The US Forest Service deferred its determination on West Creek as it flows through Unaweep Canyon (called Unaweep Creek in the US Forest Service document) until the BLM completed its eligibility determination (US Forest Service 2006). However, the proposed forest plan is not final and has been suspended because of litigation over the US Forest Service's 2005 planning rule.

10. Contribution to a river system watershed or basin integrity.

West Creek is a tributary of the Dolores River.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable**. Management of this segment as a WSR would be challenging based on the amount of private land and, therefore, not the most effective use of the BLM's limited funds and management resources. The BLM manages only about a third of the land in the segment corridor and only about twenty percent of the shoreline. The CWCB holds an instream flow right along West Creek, and this water right appears to be supporting the ORVs in this segment. Other administrative mechanisms can protect the ORVs along this segment without designation. As discussed above, the BLM's VRM system provides a layer of protection for the segment's scenic and geologic values. The Unaweep Seep ACEC provides special management attention to the wildlife and vegetation values of the area. For these reasons, the BLM determines that this segment is not suitable.

3.6.3 North Fork of West Creek

Description:	Sections of the North Fork of West Creek on BLM land from Pinon Mesa running through the Palisade WSA to the confluence with West Creek east of Gateway along Highway 141.		
Total Segment Length:	8.46 miles	**Total Segment Area:**	2,751.86 acres
Length on BLM Land :	3.31 miles	**Area on BLM Land:**	1,080.11 acres
Preliminary Classification:	Wild		
ORVs:	Scenic		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.

The North Fork of West Creek has outstandingly remarkable scenic value. The tentative classification for this segment is Wild because the segment flows through the Palisade WSA and there is little development along the stream corridor. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). The North Fork of West Creek drops steeply from Pinon Mesa and forms a rugged narrow canyon through the Palisade WSA. In this area, the dark grey Precambrian bedrock is overlaid with deep red sandstone. Therefore, the canyon possesses mostly dark grey cliffs with upper cliff bands of dark red. In addition, the more mesic environment along the creek allows Ponderosa Pines and other higher elevation species to exist the entire length of the creek down to the confluence with West Creek. These features, in combination with the relatively high perennial stream flow and remote environment make the North Fork of West an outstandingly remarkable scenic area.

Grazing occurs within the segment study corridor but does not detract from the scenic nature of the area.

A portion of the segment and study area study area is within the Palisade WSA (2.85 miles, 916.46 acres) and the Palisade outstanding natural area and ACEC (2.96 miles, 917.00 acres). The BLM has proposed to expand The Palisade outstanding natural area and ACEC to provide special management attention for its vegetation (rare plant species), wildlife (peregrine falcon), and scenic values.

The study area for the portion of this segment on BLM-managed lands lies within the Gateway SRMA.

There are no active diversions along the North Fork of West Creek. The CWCB holds an instream flow right from Y Gulch to its confluence with West Creek.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Within this 8.46-mile segment, the BLM manages the shoreline along 3.31 miles (39.1 percent). Within the 2,751.86-acre study corridor, the BLM manages 1,080.11 acres (39.3 percent). The northern portion of the study area 1671.75 acres (60.7 percent) is on private land. There are no active mining claims, no oil and gas leases, and no oil and gas wells in the segment corridor. There is no oil and gas potential in the area.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

WSR designation has the potential to affect future water development along this segment and in areas located upstream from this segment. With designation, BLM would obtain authority to deny or place terms and conditions on any proposed projects on BLM lands that would be incompatible or potentially degrade the ORVs for this segment. The BLM would review proposed projects that require federal permits, licenses, or funds from other agencies to evaluate the potential effects on the segment's values.

The scenic values likely would not diminish if the segment were not designated. The segment flows through the Palisade WSA, which is subject to stringent protective management, as discussed below.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

Any additional cost of administering the area for protection of its ORVs if designated would be minimal. First, public access to the area is limited. Second, the BLM already incurs some costs specific to this area in order to manage the area according to its Interim Management Policy for Lands Under Wilderness Review. The BLM also already devotes some funds to the area in order to manage the Palisade ACEC. The BLM would not pursue land acquisition along this segment at this time. Because the BLM-managed lands in the segment corridor form a contiguous block along the downstream end of the canyon, the BLM can effectively protect the scenic value of this segment without acquiring additional lands.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM can effectively manage this segment as a WSR. Minimal management is currently required to protect the scenic nature of the area as access is challenging due to dense vegetation and the steep slopes of the canyon walls. However, other means can protect the ORVs in the absence of WSR designation.

A portion of this segment flows through the Palisade WSA. The Palisade WSA is managed according to BLM Manual 8550, Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1995). The goal of this policy is to manage WSAs in such a manner to not impair their suitability for preservation as wilderness, until Congress designates them as wilderness, or until they are released from further wilderness consideration. This "non-impairment" management standard is similar to the BLM's management direction for Wild

WSRs. But if the area is not designated as wilderness and the WSA designation is removed, protection of the area would be limited to RMP management measures.

Portions of the study area are also currently managed as part of the Palisade outstanding natural area and ACEC. An ACEC is an administrative designation that the BLM uses to provide special management attention is to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish, or wildlife resources or other natural systems or processes. Continuation of this ACEC would help protect the scenic ORV.

The BLM manages the WSA and ACEC as VRM Class I, which also provides protection for the scenic ORV. The goal of VRM Class I is to preserve the existing character of the landscape. It requires the level of change to the characteristic landscape to be very low and to not attract attention.

The CWCB holds an instream flow right on the North Fork of West Creek from Y Gulch to its confluence with West Creek. There are varying levels of instream flow appropriations throughout the year for the segment, the most being between April 1 and June 30 for 3.7 cfs. The appropriation drops to between 0.4 and 0.8 cfs for the remainder of the year. The purpose of an instream flow right is to preserve the natural environment to a reasonable degree. As such, this instream flow right provides a measure of flow protection that supports the ORVs found on this segment.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should utilize protections associated with existing WSAs and protections associated with the proposed lands with wilderness characteristics management prescription to protect the ORV.
2. BLM should rely upon the existing instream flow water right held by the CWCB to assist in protecting the scenic ORV.

The stakeholder collaborative was unable to reach consensus on whether this stream segment should be determined suitable or not suitable by BLM for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

There are a limited number of private water rights located with and upstream from this segment. Designation would not affect the ability to operate these rights as they have been historically operated. However, if the owners desire to change those water rights, the changes would be subject to the federal reserved water right that would be associated with the designated segment.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

The segment is in Mesa County and the small portion of land within the segment study corridor on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and

very low-density single-family residential development within the rural planning area (Mesa County 2008). The Agricultural, Forestry, Transitional district has limited potential to prevent development that is incompatible with protection of the ORVs. The allowable uses along this segment include various forms of industrial development and resource extraction. For example, the Agricultural, Forestry, Transitional district allows oil and gas drilling and commercial forestry as of right. The Agricultural, Forestry, Transitional district also allows some conditional uses that could have an adverse effect on ORVs, such as sand and gravel storage or excavation, waste transfer, solid waste disposal and other mining. These industrial uses may result in development that is incompatible with the protection of this segment's ORVs, particularly its scenic values.

The Mesa Land Trust holds a conservation easement on some of the private lands in the upstream end of the segment corridor (approximately 300 acres). This conservation easement will protect the river's ORV and prevent incompatible development. Conservation easements are voluntary, perpetually binding documents that restrict development of a property. Conservation easements have the general purposes of conserving agricultural productivity, open space character, wildlife habitat, and scenic qualities, and for preventing any uses that will impair or interfere with the conservation values of the property (such as industrial uses). With regard to water use, conservation easements allow the maintenance of existing water systems and the development of new water sources, provided that such maintenance or development does not substantially diminish the conservation values of the property.

In sum, even though Mesa County zoning may allow incompatible development. Only private lands with conservation easements (and thus more stringent land use controls) in the segment corridor will prevent incompatible development.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

No other agency plans, programs, or policies were identified for this segment.

10. Contribution to a river system watershed or basin integrity.

North Fork of West Creek is a tributary of West Creek, which contributes to the Dolores River.

11. Other issues and concerns, if any.

None.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable.** The upstream five miles and uppermost sixty percent of the segment corridor are on private land. Existing management of the BLM lands in the corridor can adequately protect the scenic value and tentative classification of this segment. However, protection of the ORVs on the upper part of the segment, which consists primarily of private lands, would be challenging. Management of this segment as suitable for inclusion in the NWSRS is not the most effective use of the BLM's limited funds and management resources.

The portion of the segment on BLM land flows through a WSA. The BLM manages WSAs to not impair their suitability for preservation as wilderness. This will protect the Wild classification of the segment as it flows through BLM land. Pursuant to this management objective, WSAs are managed as VRM Class I. The goal of VRM Class I is to preserve the existing character of the landscape, which will protect the scenic value of the segment as it flows through BLM land.

Neither of these protections discussed above apply to private lands. Only about 300 acres of the segment corridor are conserved under a conservation easement with the Mesa Land Trust. The remaining private lands in the corridor are only subject to the restrictions of the Mesa County Agricultural, Forestry, Transitional zoning district. As discussed above, this zoning district has the potential to allow development that is incompatible with this segment's scenic value and Wild classification (i.e., a road within the corridor).

3.6.4 Ute Creek

Description:	From North Berg Mesa near the northern extent of the Uncompahgre Plateau to the confluence with West Creek east of Gateway.		
Total Segment Length:	4.22 miles	**Total Segment Area:**	1,441.12 acres
Length on BLM Land :	4.19 miles	**Area on BLM Land:**	1,362.63 acres
Preliminary Classification:	Scenic		
ORVs:	Scenic, Vegetation		

Suitability Factor Assessment

1. Characteristics that do or do not make the river a worthy addition to the NWSRS.
Ute Creek has outstandingly remarkable scenic and vegetative values. The tentative classification for this segment is Scenic due to limited access via a dirt road along this segment.

This segment has outstandingly remarkable scenic value. Scenic quality is a measure of the visual appeal of a tract of land. The BLM uses a scenic quality rating process to assign public lands an A, B, or C rating based on seven key factors: landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. In a recent visual resources inventory, this area was determined to have a scenic quality rating of A (BLM 2009c). Ute Creek has formed a narrow canyon that rarely opens up to create a wider canyon bottom. The narrow, steep canyon walls form interesting overhangs and features, and the addition of a healthy cottonwood community provides for a unique, pristine watercourse in a region where riparian areas are frequently impacted by humans. When the canyon does open up, it reveals spectacular views of the Dolores River valley and the Palisade.

This segment also has outstandingly remarkable vegetative value. The cottonwood communities along the segment contain a gallery forest with cottonwoods of all age classes, composing one of the best examples of a "potentially natural community" in the GJFO (BLM 1993). A small portion of the segment and study area lies within the Palisade WSA (46.12 acres) and the Palisade outstanding natural area and ACEC (0.07 miles, 84.06 acres). The BLM has proposed to

expand The Palisade outstanding natural area and ACEC to provide special management attention for its vegetation (rare plant species), wildlife (peregrine falcon), and scenic values.

The segment area is almost entirely within the Gateway SRMA.

There are no active diversions from Ute Creek. However, there are a series (about five) of developed stock ponds on US Forest Service land upstream.

2. The status of landownership, minerals (surface and subsurface) use in the area, including the amount of private land involved and associated or incompatible uses.

Land ownership for this 4.22-mile segment is primarily federal (BLM and US Forest Service) with a small area of private ownership. The BLM manages shoreline along 4.19 miles (99.5 percent) of the segment. Within the 1,441.12-acre study corridor, the BLM manages 1,362.63 acres (94.6 percent). The US Forest Service manages 68.54 acres (4.1 percent) at the upstream end of the segment corridor. The remaining land status consists of 18.59 acres (along Highway 141; 1.3 percent) in private ownership.

There is no oil and gas potential in this area, and there are no active wells in this area. However, roughly 165 acres of the segment corridor near Ute Creek's confluence with West Creek is leased for oil and gas exploration. There are no active mining claims in the segment corridor.

3. Reasonably foreseeable potential uses of the land and related waters that would be enhanced, foreclosed, or curtailed if the area were included in the NWSRS, and values that would be foreclosed or diminished if the area were not designated.

While WSR designation has the potential to affect future water development along this segment, there currently are no active water diversions along Ute Creek, and additional water development is not anticipated.

If designated, valid mineral leases would remain in effect. Because the segment is preliminarily classified as Scenic, new mining claims or mineral leases may be allowed, subject to reasonable access and stipulations that minimize surface disturbance, water sedimentation, pollution, and visual impairment. As discussed below, the ORVs in this segment are not likely to diminish if the segment is not designated.

Grazing use of this segment, including the use of the trail along the segment to move livestock, would likely not be affected by designation. The scenic classification would allow for continued use and maintenance of the trail, and the existing livestock use is not expected to significantly impact the scenic and vegetation ORVs.

4. Estimated cost of acquiring necessary lands, interests in lands, and administering the area if designated.

The cost of administering the area for protection of the ORVs would be minimal as public access to the area is limited. Regardless, designation of the segment would enhance the BLM's ability to obtain funding for the management of the area.

The acquisition of private lands is not essential for management for the protection of the ORVs because the BLM manages nearly all of the lands within the segment corridor. Nevertheless, the

BLM would pursue acquisition from of private parcels from willing sellers. No detailed cost estimate was prepared as part of this study.

5. Ability of the agency to manage and protect the river area or segment as a WSR, or other means to protect the identified values other than WSR designation.

The BLM could effectively manage this segment as a WSR because it manages nearly all of the lands in the segment corridor (94.6 percent). Because of the limited access, the BLM is able to protect the vegetation ORV with minimal management. The scenic ORV is largely dependent upon management actions related to potential mineral extraction and related development in the vicinity. Again, because the corridor itself is difficult to access, it is unlikely that the corridor would be developed for mineral extraction.

The BLM's VRM system also provides some protection for the scenic values of this segment. The BLM manages the segment corridor as VRM Class II. The objective of VRM Class II is to retain existing landscape character. This class permits only low levels of change to the characteristic landscape. It provides that management activities may be seen but should not attract a casual observer's attention. Any changes must repeat the basic elements of line, form, color, and texture found in the predominant natural features of the characteristic landscape.

The Lower Colorado River Wild and Scenic River Stakeholder Collaborative, described in **Section 2.2.5** (Public Input) of this report, provided management recommendations for this stream segment. Specifically, the stakeholder collaborative recommended:

1. BLM should utilize protections associated with the proposed lands with wilderness characteristics management prescription to protect the ORVs.
2. BLM should establish a riparian ACEC, combined with surface use stipulations, to protect to the scenic and vegetation ORVs.

The stakeholder collaborative was unable to reach consensus on whether this stream segment should be determined suitable or not suitable by BLM for designation under the WSR Act.

6. Historical or existing rights that could be adversely affected with designation.

No historical or existing rights have been identified for this segment.

7. Adequacy of local zoning and other land use controls in protecting the river's ORVs by preventing incompatible development.

The segment is in Mesa County and the small portion of land within the segment study corridor on private land is within the Agricultural, Forestry, Transitional district. The Agricultural, Forestry, Transitional district is primarily intended to accommodate agricultural operations and very low-density single-family residential development within the rural planning area (Mesa County 2008). Local zoning is not a major concern for this segment as private lands constitute only one percent of the segment corridor.

8. Support or opposition of local governments, state governments, and stakeholders to designation under the WSRA.

Refer to criterion #4.

9. Consistency of designation with other agency plans, programs, or policies.

The Uncompahgre National Forest found the portion of Ute Creek upstream of the BLM segment not eligible for inclusion in the NWSRS during the eligibility study for the Grand Mesa, Uncompahgre, and Gunnison National Forests land management plan revision process (US Forest Service 2006). The portion of Ute Creek in the National Forest serves as the boundary between two management areas: big game winter range in non-forest areas and big game winter range in forested areas. The US Forest Service manages these areas according to the following general prescriptions: (1) provide semi-primitive non-motorized, semi-primitive motorized, and roaded natural recreation opportunities; (2) manage motorized recreation prevent unacceptable stress on big game animals during primary big game use season; use vegetation treatments to enhance plant and animal diversity; (3) manage livestock grazing to favor wildlife habitat; and (4) (in forested areas only) use timber harvest to improve winter range. Management by the US Forest Service to provide big game habitat is unlikely to have an adverse effect on this segment's ORVs, with the exception of some types of timber harvest (such as clearcutting). Nevertheless, management by the US Forest Service as to provide big game habitat is generally consistent with BLM management that would occur with designation.

The Uncompahgre National Forest's 2007 proposed forest plan would manage this area as recommended wilderness. The US Forest Service would manage the area to protect its wilderness characteristics until Congressional action is taken. (US Forest Service 2007) Natural processes with little or no human intervention would influence ecosystems. However, the proposed forest plan is not final and has been suspended because of litigation over the US Forest Service's 2005 planning rule. Management by the US Forest Service as recommended wilderness is generally consistent with BLM management that would occur with designation.

10. Contribution to a river system watershed or basin integrity.

The segment is a tributary of West Creek, which contributes to the Dolores River.

11. Other issues and concerns, if any.

None.

Preliminary Suitability Determination

The preliminary suitability determination for this segment is **not suitable,** BLM has proposed managing lands along the creek corridor, within the Ute Creek watershed, and within the viewshed of the creek, as lands with wilderness characteristics. This is a highly restrictive management prescription that would prevent actions that could degrade the scenic and vegetation ORVs. In addition, BLM intends to make a recommendation to the CWCB for an instream flow water right that would assist in supporting the vegetation and scenic ORVs.

This page intentionally left blank

CHAPTER 4
LIST OF PREPARERS

Name	Role
BLM, Colorado State Office	
Roy Smith	Water Rights
BLM, Grand Junction Field Office	
Matt Anderson	Planning and Environmental Coordinator
Michelle Bailey	Outdoor Recreation Planner
Peter Benduha	Recreation Technician
Janny Choy	Hydrologist
Julia Christiansen	Natural Resource Specialist
Douglas Diekman	Geographic Information Systems
Jim Dollerschell	Range Management Specialist
Robert Fowler	Range Management Specialist
Tom Fresques	Fisheries Biologist
Scott Gerwe	Geologist
Chris Hamm	Supervisory Outdoor Recreation Planner
Mike Jones	Park Ranger
Robin Lacy	Realty Specialist
Aline LaForge	Archaeologist
Alissa Leavitt-Reynolds	Archaeologist
David Lehmann	Supervisory Natural Resource Specialist
Anna Lincoln	Ecologist

Name	Role
Heidi Plank	Wildlife Biologist
Christina Stark	Natural Resource Specialist
Ken Straley	Outdoor Recreation Planner
Mark Taber	Range Management Specialist
Aaron Young	Geographic Information Systems
Environmental Management and Planning Solutions, Inc. (EMPSi), RMP Contractor	
Kevin Sampson	Geographic Information Systems
Kate Wynant	Wild and Scenic Rivers

CHAPTER 5
REFERENCES

BLM (US Department of the Interior, Bureau of Land Management). 1983. Manual 8560. Management of Designated Wilderness Areas. Release 8-22, April 27, 1983.

_____. 1984. Manual 8400: Visual Resource Management. Rel. 8-24, April 5, 1984. BLM, Washington, DC.

_____. 1986. Handbook H-8410-1: Visual Resource Inventory. Rel. 8-28, January 17, 1986. BLM, Washington, DC.

_____. 1987. Grand Junction Resource Management Plan and Record of Decision. BLM, Grand Junction Field Office, Grand Junction, Colorado. January 1987.

_____. 1992. Manual 8351: Wild and Scenic Rivers—Policy and Program Direction for Identification, Evaluation, and Management. Rel. 8-61, May 19, 1992. BLM, Washington, DC.

_____. 1993. Blue Creek Ecological Site Inventory Report. BLM, Grand Junction Colorado.

_____. 1995. Manual 8550: Interim Management Policy and Guidelines for Lands Under Wilderness Review. Rel. 8-66, July 5, 1995. BLM, Washington, DC.

_____. 1998. BLM Manual 8270: Paleontological Resource Management. July 13, 1998.

_____. 2000. Colorado BLM State Director's Sensitive Species List (Animals and Plants). Internet Web site: http://www.blm.gov/co/st/en/BLM_Programs/botany/Sensitive_Species_List_.html. Updated June 2000. Accessed June 22, 2009.

_____. 2004. Resource Management Plan and Record of Decision for the Colorado Canyons National Conservation Area and Black Ridge Canyons Wilderness. BLM, Grand Junction Field Office, Grand Junction, Colorado. September 2004.

_____. 2008. Record of Decision and Approved Resource Management Plan for Bureau of Land Management, Moab Field Office. BLM, Moab Field Office, Moab, Utah. October 2008.

_____. 2009a. Wild and Scenic River Eligibility Report for Bureau of Land Management, Grand Junction Field Office. BLM, Grand Junction Field Office, Grand Junction, Colorado. March 24, 2009. 77pp.

_____. 2009b. Resource Management Plan Revision Scoping Summary Report. BLM, Grand Junction Field Office, Grand Junction, Colorado. April 2009. 204pp.

_____. 2009c. Visual Resource Inventory. Prepared for the BLM, Grand Junction Field Office, Grand Junction, CO, by Otak, Inc., Carbondale, CO. September 2009.

BLM (US Department of the Interior, Bureau of Land Management) and US Forest Service (US Department of Agriculture, National Forest Service). 2007. San Juan Public Lands Draft Land Management Plan and Draft Environmental Impact Statement. BLM Dolores, Columbine, and Pagosa Field Offices. US Forest Service – Region 2, San Juan National Forest. December 2007.

Colorado Natural Heritage Program. 2009. Colorado Tracked Natural Plant Communities. Internet Web site: http://cnhp.colostate.edu/tracking/communities.html. Updated April 3, 2009. Accessed June 24, 2009.

CPW (Colorado Parks and Wildlife). 2006. Colorado's Comprehensive Wildlife Conservation Strategy and Wildlife Action Plans. November 2, 2006.

_____. 2007. Threatened and Endangered List. Internet Web site: http://wildlife.state.co.us/WildlifeSpecies/SpeciesOfConcern/ThreatenedEndangeredList/ListOfThreatenedAndEndangeredSpecies.htm. Updated October 15, 2007. Accessed June 23, 2009.

CRCT Conservation Team. 2006. Range-wide Status of Colorado River cutthroat trout *(Orcorhynchus clarkii pleuriticus)*: 2005. March 2006. 200pp.

CRCT Coordination Team. 2006. Conservation strategy for Colorado River cutthroat trout *(Oncorhynchus clarki pleuriticus)* in the States of Colorado, Utah, and Wyoming. Colorado Division of Wildlife, Fort Collins. 24pp.

CWCB. 2010.

Foutz, Dell R. 1994. *Geology of Colorado Illustrated*. Your Geologist, Grand Junction, Colorado. 181 pp.

Garfield County. 2008. Garfield County Unified Land Use Resolution. Article III: Zoning. September 2008.

Ikenberry, Donna Lynn. 2002. *Wild Colorado: A Guide to Fifty-one Roadless Recreation Areas*. 1st Ed. Falcon Guide, Guilford, Connecticut. 353 pp

Interagency Wild and Scenic Rivers Coordinating Council. 1999. The Wild and Scenic Rivers Study Process, Technical Report. Washington, DC.

Mesa County. 1996. Mesa Countywide Land Use Plan: From Issues to Actions. Mesa County, Colorado. October 1996.

_____. 2008. Land Development Code. Mesa County, Colorado. Effective May 2000, last revised November 2008.

USFWS (US Department of the Interior, Fish and Wildlife Service). 1998. Greenback cutthroat trout recovery plan. US Fish and Wildlife Service, Denver, Colorado.

_____. 2002a. Colorado pikeminnow *(Ptychocheilus lucius)* Recovery Goals: amendment and supplement to the Colorado Squawfish Recovery Plan. US Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

_____. 2002b. Razorback sucker (*Xyrauchen texanus*) Recovery Goals: amendment and supplement to the Razorback Sucker Recovery Plan. US Fish and Wildlife Service, Mountain-Prairie Region (6), Denver, Colorado.

US BOR (US Department of the Interior, Bureau of Reclamation). No date. Grand Valley Project, Colorado. Internet Web site: http://www.usbr.gov/dataweb/html/grandvalley.html. Accessed June 22, 2009.

US Forest Service (US Department of Agriculture, National Forest Service). 2006. Comprehensive Assessments for the Grand Mesa, Uncompahgre, and Gunnison National Forests. Appendix W-2: Rivers Reviewed. US Forest Service, Grand Mesa, Uncompahgre, and Gunnison National Forests, Colorado. July 17, 2006.

Utah Department of Natural Resources. 2006. Range-wide Conservation Agreement and Strategy for Roundtail Chub, Bluehead Sucker, and Flannelmouth Sucker. Publication Number 06-18. Salt Lake City, Utah. September 2006.

This page intentionally left blank.

Appendix D

Summary of Areas of Critical Environmental Concern Report on the Application of Relevance and Importance Criteria

TABLE OF CONTENTS

Section Page

TABLES

Page

This page intentionally left blank.

APPENDIX D
SUMMARY OF AREAS OF CRITICAL ENVIRONMENTAL CONCERN REPORT ON THE APPLICATION OF RELEVANCE AND IMPORTANCE CRITERIA

This appendix provides summary information about the Areas of Critical Environmental Concern (ACEC) evaluation process. The Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria (BLM 2010) provides more detail on the process. As part of the process for developing the Grand Junction Resource Management Plan (RMP) revision, the Grand Junction Field Office (GJFO) Interdisciplinary Team reviewed all BLM-managed lands in the planning areas to determine whether any areas should be considered for designation as ACECs. ACECs are defined in the Federal Land Policy and Management Act Section 103(a) (43 United States Code 1702) and in 43 Code of Federal Regulations 1601.0-5(a) as "areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards." The areas found to meet both the relevance and importance criteria as defined below will be identified as potential ACECs and will be fully considered for designation and management in the RMP (BLM Manual 1613.2.21 [BLM 1988]).

D.1 RELEVANCE

There shall be present a significant historic, cultural, or scenic value, a fish or wildlife resource or other natural system or process, or natural hazard. An area meets the relevance criterion if it contains one or more of the following:

1. A significant historic, cultural, or scenic value (including but not limited to rare or sensitive archaeological resources and religious or cultural resources important to Native Americans).
2. A fish and wildlife resource (including but not limited to habitat for endangered, sensitive, or threatened species or habitat essential for maintaining species diversity).
3. A natural process or system (including but not limited to endangered, sensitive, or threatened plant species; rare, endemic, or relic plants or plant communities that are terrestrial, aquatic, or riparian; or rare geological features).
4. Natural hazards (including but not limited to areas of avalanche, dangerous flooding, landslides, unstable soils, seismic activity, or dangerous cliffs). A hazard caused by human action might meet the relevance criterion if it is determined, through the resource management planning process, to have become part of a natural process.

D.2 IMPORTANCE

An area meets the importance criterion if it meets one or more of the following:

1. Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
2. Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
3. Has been recognized as warranting protection to satisfy national priority concerns or to carry out the mandates of FLPMA.
4. Has qualities that warrant highlighting to satisfy public or management concerns about safety and public welfare.
5. Poses a significant threat to human life and safety or to property.

D.3 EVALUATION PROCESS

In compiling a list of areas to be analyzed, the BLM interdisciplinary teams followed the guidance set forth in BLM Manual 1613, Areas of Critical Environmental Concern (BLM 1988), and considered:

1. Existing ACECs;
2. Areas recommended for ACEC consideration (external and internal nominations);

3. Areas identified through inventory and monitoring; and
4. Adjacent designations of other federal and state agencies.

ACECs may be nominated by BLM staff, other agencies, or members of the public at any time. During the RMP revision scoping process, the GJFO solicited nominations and comments from the public and other agencies. A map of special designation areas was distributed at the scoping meetings and made available on the RMP website: *http://www.blm.gov/co/st/en/fo/gjfo/rmp.html*.

As part of the formal outreach process, the BLM received nominations from the Colorado Natural Heritage Program (CNHP) and the Center for Native Ecosystems. The BLM staff also reviewed information from BLM inventories, Colorado Parks and Wildlife (CPW) species of concern data, and other reports to ensure that all potentially relevant and important values with in the planning areas were considered.

D.4 FINDINGS

The Interdisciplinary Team analyzed 52 proposed ACECs (existing, internally, and externally proposed) and found that 24 met the relevance and importance criteria, for a total of 167,369 acres (**Table D-1**, Proposed ACECs Found to Meet the Relevance and Importance Criteria).

Maps of ACECs recommended for analysis in the Draft RMP and additional information are included in The Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria (BLM 2010). The size and management prescriptions for each ACEC may vary by alternative to reflect a balance between the goals and objectives of the alternative and values being protected (BLM Manual 1613.2.22.B.1-2). **Table D-2**, Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs, summarizes the proposed ACECs evaluated, the values assessed, and whether the criteria were met (including supporting information).

Table D-1
Proposed ACECs Found to Meet the Relevance and Importance Criteria

ACEC	Acres
Atwell Gulch (staff and public proposed)	6,135
Badger Wash ACEC (existing)	1,891
Badger Wash ACEC Alternative (staff proposed)	*355*
Colorado River Riparian (staff proposed)	879
Coon Creek (staff and public proposed)	110
Coon Hollow/South Shale Ridge (staff and public proposed)	27,345
Dolores River Riparian (staff proposed)	7,433
Glade Park-Piñon Mesa (public proposed)	27,056
Gunnison River Riparian (staff proposed)	457
Hawxhurst Creek (staff and public proposed)	864
Indian Creek (staff proposed)	1,746
John Brown Canyon (public proposed)	1,416
Juanita Arch (staff and public proposed)	1,624
Mt. Garfield (staff proposed)	5,695
Nine-mile Hill Boulders (staff proposed)	87
The Palisade ACEC/Outstanding Natural Area (ONA) (existing)	26,951
The Palisade ACEC/ONA Expansion (staff proposed)	*5,330*
Plateau Creek (staff proposed)	223
Prairie Canyon (public proposed)	6,866
Pyramid Rock ACEC/Research Natural Area (RNA) (existing)	551
Pyramid Rock ACEC/RNA Expansion (staff proposed)	*706*
Reeder Mesa (staff and public proposed)	474
Roan and Carr Creeks (staff and public proposed)	33,694
Rough Canyon ACEC/RNA (existing)	2,737
Rough Canyon ACEC/RNA Expansion (staff proposed)	*41*
Sinbad Valley (public proposed)	6,399
Unaweep Seep ACEC/RNA (existing)	78
Unaweep Seep ACEC/RNA Expansion (public proposed)	*6*
Total	**167,149**

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
4A Ridge	Riparian Habitat	3	2	No	Included in staff proposed Roan and Carr Creeks boundary. Areas to the south and west appear to contain an even greater amount of the Piceance bladderpod *(Lesquerella parviflora)*.	0	19,082	*See proposed Roan and Carr Creeks ACEC.*
Public Proposed	Plants	3	2					
	Wildlife	2	None					
	Plants	3	None					
Atwell Gulch	Wildlife	2	2	**Yes**	Meets the relevance criteria for Cultural and scenic values, fish and wildlife resources, and a natural system supporting rare plants. The importance criteria for more than locally significant qualities for plants and has qualities that make it sensitive, rare and vulnerable to adverse change. BLM sensitive and federally listed rare plant species: Colorado hookless cactus, DeBeque milkvetch, and Naturita milkvetch. Four different monitoring sites are established for DeBeque milkvetch and Colorado hookless cactus. Atwell Gulch contains the largest known concentration of DeBeque milkvetch in the GJFO. This area provides a migratory corridor and wintering habitat for a significant portion of bighorn sheep *(Ovis Canadensis)* and mule deer *(Odocoileus hemionus)* herds in this area and includes habitat nominated by CDOW as important. This area has the presence of	0	26,450	6,135
Staff and Public Proposed	Plants	3	1 and 2	*with modified boundaries*				
	Scenic	1	2					
	Cultural	1	1 and 2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					significant cultural resources and the potential for additional sites to be identified, especially those associated with the Ute period, is high. The proposed ACEC lies between two historic trails/roads, the DeBeque Cutoff Road and the Sunnyside Road and surveys have demonstrated a high density of cultural resources. This area has the potential to contain a regionally important trail.			
Badger Wash ACEC *Existing Staff Proposed*	Hydrological	3	2	**Yes**	Meets the relevance criteria for a natural system and importance criteria for sensitive plants and to satisfy national priority concerns. The staff-proposed boundary creates improved management for the ACEC. The ACEC meets the relevance and importance criteria for a natural system that supports sensitive plants and ongoing hydrologic research. Rare plants include grand buckwheat *(Eriogonum contortum)* and Ferron's milkvetch *(Astragalus musiniensis)*. Also contains rare plant species cliffdweller's cryptantha *(Cryptantha elata)* and Gardner's saltbrush/salina wildrye *(Atriplex gardneri/Elymus slaina)*. The Badger Wash watershed was withdrawn for experimental purposes, scientific research, and	1,891	2,848	2,246
	Plants	3	1 and 2					
	Wildlife	2 and 3	2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					studies by Executive Order 10355 in 1952. The Badger Wash ACEC was put in place to protect these values, particularly the hydrologic studies examining the effects of grazing on runoff, sediment, and salinity on this Mancos Shale landscape prevalent in western Colorado and Utah. Studies have occurred since 1953 and published reports are available. Cooperative hydrologic studies are ongoing, supported by the BLM, US Geological Survey, and US Bureau of Reclamation. Meets the relevance criteria for a natural system and importance criteria for sensitive plants and to satisfy national priority concerns.			
Badger Wash Potential *Public Proposed*	Fish	None	None	No	Meets the relevance criteria for rare plants in isolated areas and wildlife supporting habitat for burrowing owls. As proposed the site does not meet the importance criteria because it is overly broad and all areas contained within the proposal are not considered unique compared to other habitat within the range of the species. A portion of this site (355 acres) will be carried forward in the proposed Badger Wash ACEC expansion. The proposed area contains			

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					designated release sites for the Mesa County Prairie Dog Relocation project; however these sites do not meet the relevance and importance criteria. The area does not meet the relevance or importance criteria for fish bearing streams or bald eagles *(Haliaeetus leucocephalus)* as the proposed areas do not contain fish bearing streams or bald eagle habitat.			
Bangs Canyon and Dominguez North *Public Proposed*	Cultural	I	None	No	The area as originally proposed is now split by the Dominguez – Escalante NCA, forming two small polygons on the west side of Highway 141 along East Creek. It is within Area 6 of the Bangs Canyon Special Recreation Management Area (SRMA). Meets the relevance criteria for the presence of significant cultural resources. Does not meet importance criteria because these resources do not have more than locally significant qualities. Sites that are culturally affiliated with the Ute within this area may best be managed for Traditional or Public Use with a management goal of long term protection and interpretation.			

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
Buzzard Creek Potential *Public Proposed*	Fish	2	None	No	Meets the relevance criteria for fish and wildlife resource providing habitat for lynx *(Lynx Canadensis)* and boreal toad *(Bufo boreas)* as well as fish bearing streams. In addition, the area may meet the relevance criteria by providing habitat for the foothills riparian shrubland, and narrowleaf cottonwood riparian forest plant communities. Does not meet importance criteria because the proposed area consists of several very small parcels of BLM-managed land that do not significantly contribute to the conservation of the species and are therefore not regionally significant.	0	2,520	0
	Wildlife	2	None					
	Plants	3	None					
Cactus Park *Public Proposed*	Paleontological	N/A	N/A	N/A	ACEC is within the Dominguez-Escalante NCA; therefore it is beyond the scope of this planning effort.	0	139	0
	Plants	N/A	N/A					
Colorado River Riparian (Palisade to DeBeque)	Fish	2 and 3	2	**Yes**	Meets the relevance criteria for scenic, threatened, and endangered fish resources and a natural system. The importance criteria for qualities that is sensitive and vulnerable to adverse change for riparian habitat supporting stream bank stability and designated critical habitat for threatened and endangered fish species. The area was surveyed by CNHP	0	1,195	879
	Wildlife	2 and 3	2					
	Scenic	1	2					
	Riparian Habitat	3	1 and 2					
	Plants	3	None					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					and found to contain Global Rank G2 Rio Grande cottonwood/ skunkbrush *(Populus deltoides ssp. wislizeni/Rhus trilobata)* riparian forest and Global Rank G3 roundtail chub. The US Fish and Wildlife Service designated the Colorado River up to its 100 year floodplain as critical habitat for the Colorado pikeminnow *(Ptychocheilus lucius)* (federally endangered, state threatened), razorback sucker *(Xyrauchen texanus)* (federally and state endangered), bonytail chub *(Gila elegans)* (federally and state endangered), and humpback chub *(Gila cypha)* (federally endangered, state threatened). Native, non-listed fish species sympatric with the listed fish species include the flannelmouth sucker *(Catostomas latipinnis)*, bluehead sucker *(Catostomus discobolus)*, roundtail chub (designated a state Species of Special Concern), and speckled dace *(Rhinichthys osculus)*. The Colorado River is designated critical habitat for threatened and endangered fish species and roost/nesting habitat for bald eagles and great blue herons *(Ardea herodias)*.			

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
					While the proposed ACEC contains significant cottonwood/willow communities that are extremely important to wildlife and riparian values, the ACEC is not known to contain any rare plant species.			
Coon Creek *Staff Proposed*	Fish	1	1, 2	**Yes**	Meets the relevance criteria for fish. Meets the importance criteria for having more than locally significant qualities and qualities that make it fragile, sensitive, rare, exemplary, and vulnerable to adverse change. The creek contains a population of rare native cutthroat trout *(Oncorhynchus clarkii)*.	0	110	110
Coon Hollow/South Shale Ridge *Staff and Public Proposed*	Plants	3	1 and 2	**Yes**	Meets the relevance criteria for wildlife resources, natural system supporting plants, and significant scenic values. Meets the importance criteria for more than locally significant importance to plants and has qualities that make it fragile, sensitive, irreplaceable, threatened, and vulnerable to adverse change. The area has known populations of Colorado hookless cactus, Naturita milkvetch, adobe thistle, as well as critical winter range for deer and elk.	0	59,701	27,345
	Scenic	1	2					
	Wildlife	2	1					
Cow Ridge Potential *Public Proposed*	Wildlife	2	None	No	Meets the relevance criteria for natural processes or systems because it supports multiple A-ranked (excellent quality)	0	25,777	0
	Rare Plants	3	None					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					occurrences of two BLM sensitive plants, Piceance bladderpod and Roan Cliffs blazingstar *(Mentzelia rhizomata)* and provides potential habitat for greater sage-grouse *(Centrocercus urophasianus)*, a BLM sensitive species. Does not meet the importance criteria because it is not unique when compared to other sage-grouse habitat located within the Parachute-Piceance-Roan population. While the proposed ACEC meets the importance criteria for more than locally significant qualities because the bladderpod and blazingstar sites are of excellent quality and are vulnerable to adverse change, the proposed site is overly broad and fragmented.			
Dolores River Canyon-Sewemup Mesa Potential ACEC *Public Proposed*	Fish	2 and 3	1 and 2	No	Meets the relevance criteria for wildlife resource and a natural system. Meets the importance criteria having potential for more than locally significant wildlife qualities making the area sensitive for rare plants and are vulnerable to adverse change. Area does not meet the relevance and importance criteria since it does not contain lynx habitat, though it may provide a movement corridor	0	33,308	*See proposed Dolores River Riparian, Sinbad Valley, and Juanita Arch ACECs*
	Wildlife	2 and 3	1 and 2					
	Plants	3	1 and 2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					into the forests of Utah although there is no evidence supporting use of the area by lynx. Several peregrine falcon *(Falco peregrinus)* eries occur along the Dolores River with densities of eries suggesting the area is more than locally significant. The area along the Dolores River meets the relevance and importance criteria for the peregrine falcon; however these areas are more accurately covered by the Dolores River riparian proposal. Multiple BLM sensitive plants (Kachina daisy *[Erigeron kachinensis]*, Eastwood's monkeyflower *[Mimulus eastwoodiae]*, San Rafael milkvetch, Dolores River skeleton plant, horseshoe milkvetch, Grand Junction milkvetch, and Gypsum cateye) occur in the area. Most areas containing sensitive plants are covered in the proposed Dolores River Riparian and Sinbad Valley ACECs.			
Dolores River Riparian *Staff Proposed*	Fish	2 and 3	2	**Yes**	The area meets the relevance and importance criteria for wildlife because CDOW considers the bluehead sucker population within this stretch of river outstanding on a regional scale. Several peregrine	0	3,635	7,433
	Wildlife	2 and 3	1 and 2					
	Scenic	1	2					
	Riparian Habitat	3	1 and 2					
	Plants	3	1 and 2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					falcon eyries occur along the Dolores River the density of eyries suggests the area is more than locally significant. Multiple BLM sensitive plants (Kachina daisy, Eastwood's monkeyflower, San Rafael milkvetch, Dolores River skeleton plant, horseshoe milkvetch, Grand Junction milkvetch, and Gypsum cateye) occur in the area.			
Dominguez North-Bangs Canyon ONA *Public Proposed*	Cultural	1	None	No	Does not meet the relevance and importance criteria for ACEC designation since part of the proposed area is not within the planning area. This proposed area is within both the Dominguez–Escalante NCA and Bangs Canyon SRMA. Recreational values identified will be analyzed in the Recreation section of the Draft Environmental Impact Statement. The areas' most critical to wildlife and cultural are included in the Rough Canyon ACEC and expansion.	0	109,975	*See existing Rough Canyon ACEC and proposed expansion*
	Recreation	None	None					
	Wildlife	2	1 and 2					
East Salt Creek Potential ACEC *Public Proposed*	Fish	2	2	No	The areas within this proposal that meet the relevance and importance criteria are included in the proposed Roan and Carr Creeks. Meets the relevance criteria for a	0	21,046	*See proposed Roan and Carr Creeks and Sinbad Valley ACECs*
	Wildlife	2	1 and 2					
	Plants	3	1					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					natural process or system which supports the BLM sensitive plant species Piceance bladderpod. The area contains A-ranked (excellent quality) occurrences of the bladderpod. In addition to the bladderpod, the site also contains hanging garden sullivantia *(Sullivantia hapemanii var. pupusii)* and narrowleaf cottonwood/skunkbrush *(Populus angustifolia/Rhus trilobata)* communities. Meets the importance criteria because the bladderpod is vulnerable to adverse change. Meets the relevance criteria for wildlife resource (sage-grouse) because it contains occupied, potential, and vacant/unknown greater sage-grouse habitat. Does not meet importance criteria because these areas are small portions of the currently occupied range of the Parachute-Piceance-Roan population of the greater sage-grouse and are not locally significant. The proposed ACEC does not contain lynx habitat. Upper Roan and Carr creeks meet the relevance and importance criteria for rare native cutthroat trout because they contain populations of the species. However,			

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					these areas are included in the Roan and Carr Creeks proposed ACEC.			
Fruita Paleontological Site ACEC/RNA *From 1987 RMP* *Public proposed*	Geologic	N/A	N/A	N/A	Former ACEC is within the McInnis Canyon NCA; therefore it is beyond the scope of this planning effort.	280	280	0
Gateway *Public Proposed*	Plants	3	1 and 2	No	Meets the relevance criteria for fish and wildlife and a natural system. Meets the importance criteria having qualities that are more than locally significant and vulnerable to adverse change. Wildlife values are analyzed in proposed John Brown Canyon, Palisade ONA Expansion, and Dolores River Riparian ACECs. Plant values are analyzed in proposed Palisade ACEC/ONA expansion.	0	11,675	*See proposed John Brown Canyon, Palisade ONA Expansion, and Dolores River Riparian ACECs*
	Fish	2	1 and 2					
	Wildlife	2	2					
Glade Park-Piñon Mesa *Public Proposed*	Fish	None	None	**Yes** *with modified boundaries*	Meets the relevance criteria for wildlife resource (Gunnison sage-grouse). Meets the importance criteria for sensitive and vulnerable to adverse change. The proposed ACEC does not contain lynx or bald eagle habitat. Contains a significant portion of occupied and potential habitat for the Piñon Mesa population of the Gunnison sage-grouse.	0	19,942	27,056
	Wildlife	2 and 3	2					
	Plants	None	None					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
					The proposed ACEC is not known to contain any rare plants.			
Granite Creek *Public Proposed*	None	None	None	No	There were no specific values associated with this ACEC proposal, but was recommended for ACEC designation as: *Granite Creek is definitely worthy of immediate protection and oversight, as subtle incursions into that area portend an impending loss of natural values.*	0	8,147	0
Greater Demaree SRMA *Proposed by public as a Special Recreation Management Area (SRMA). Proposal did not include any information regarding relevant and important values for ACEC designation*	Recreation	None	None	No	Does not meet the relevance and importance criteria for ACEC designation. Does not meet the criteria for SRMA designation (recreation demand and issues, recreation setting characteristics, resolving use/user conflicts, compatibility with other resource uses and resource protection needs). Portions of the proposed area contain wilderness characteristics (Spring Canyon, Spink Canyon, East Demareee units).	0	81,512	0
Greater Granite Creek SRMA *Proposed by public as a Special*	Recreation	None	None	No	Does not meet the relevance and importance criteria for ACEC designation. Does not meet the criteria for SRMA designation (recreation demand and issues, recreation setting characteristics,	0	42,673	0

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
Recreation Management Area (SRMA). Proposal did not include any information regarding relevant and important values for ACEC designation					resolving use/user conflicts, compatibility with other resource uses and resource protection needs). Portions of the proposed area are included in other areas that do meet the criteria for ACEC designation (The Palisade, Glade Park-Pinyon Mesa proposed ACECs); for SRMA designation (Dolores River Canyon proposed SRMA/ERMA); or contain wilderness characteristics (Lumsden Canyon unit).			
Gunnison Gravels ACEC/RNA *Existing*	Geologic	N/A	N/A	N/A	ACEC is within the Dominguez-Escalante NCA; therefore it is beyond the scope of this planning effort.	40	40	0
Gunnison River Potential ACEC *Public Proposed*	Fish	2 and 3	2	No	Meets the relevance criteria for threatened and endangered fish and wildlife resources and a natural system. The importance criteria for qualities that is sensitive and vulnerable to adverse change for riparian habitat supporting stream bank stability and designated critical habitat for threatened and endangered fish species. The areas of this proposal that meet the relevance and importance criteria for listed fish are covered by the staff proposed Gunnison River Riparian ACEC.	0	42,066	*See proposed Gunnison River Riparian ACEC*
	Wildlife	2	2					
	Plants	3	2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
Gunnison River Riparian *Staff Proposed*	Fish	2 and 3	1 and 2	**Yes**	Meets the relevance criteria for threatened and endangered fish and wildlife resources and a natural system. The importance criteria for qualities that is sensitive and vulnerable to adverse change for riparian habitat supporting stream bank stability and designated critical habitat for threatened and endangered fish species. The Colorado hookless cactus (federally threatened) is known to inhabit the alluvial benches of the Gunnison River. Results from a rare plant inventory (which is currently in progress), will determine the importance of this area. The CDOW manages the lower Gunnison and Colorado Rivers within the planning area for native, listed, and non-listed aquatic species. The area contains roundtail chub, which has a CNHP Global Rank of G3. The US Fish and Wildlife Service designates this segment of the Gunnison River as critical habitat for the Colorado pikeminnow (federally endangered, state threatened), razorback sucker (federally and state endangered), bonytail chub (federally and state endangered), and	0	1,962	457
	Riparian Habitat	3	2					
	Plants	3	2					
	Wildlife	2	2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					humpback chub (federally endangered, state threatened). Native and non-listed fish species sympatric with the listed fish species include the flannelmouth sucker, bluehead sucker, roundtail chub (designated a state Species of Special Concern), and speckled dace. The area provides roosting habitat and connectivity to river habitats upstream for bald eagles and blue herons.			
Hawxhurst Creek *Staff Proposed*	Fish	1	1, 2	**Yes**	Meets the relevance criteria for fish. Meets the importance criteria for having more than locally significant qualities and qualities that make it fragile, sensitive, rare, exemplary, and vulnerable to adverse change. The creek contains a population of rare native cutthroat trout *(Oncorhynchus clarkii)*	0	864	864
Indian Creek *Staff Proposed*	Cultural	1 and 3	1 and 2	**Yes**	Meets the relevance criteria for the presence of significant cultural resource values and the presence of a natural process or system. The importance criteria for more than locally significant qualities and qualities that make it fragile, sensitive, unique, and vulnerable to adverse change. This area straddles approximately	0	1,747	1,746

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					three miles of Indian Creek, a tributary to the Gunnison River that has both significant preservation of Holocene to Late Pleistocene deposits that have yielded Paleoindian artifacts and an accessible yet relatively undisturbed area that provides a unique geomorphological research area. These are eligible for nomination to the National Register of Historic Places under criterion "d," as sites that have yielded and should continue to yield significant information on the prehistory and history of the area. Distinct stratified deposits representing the full range of human occupation are present with an emphasis on Late Paleoindian, Middle Archaic, and Ute cultures, and climate research (paleoenvironmental) indicates that these deposits correspond to regional periods of increased moisture.			
John Brown Canyon *Public Proposed*	Wildlife	2	1	**Yes**	Meets the relevance criteria for fish and wildlife resource. Meets the importance criteria for qualities that are sensitive. Ponderosa pine *(Pinus ponderosa)* stands (located at the head of John Brown Canyon and extending	0	1,417	1,416

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					somewhat north and south from there) constitute the northern most range of the Grace's warbler *(Dendroica graciae)*. Habitat for this warbler is scarce within the planning area.			
Juanita Arch *Staff and Public Proposed*	Geologic Plants	3 3	2 1	**Yes**	Meets the relevance criteria for geologic and plants for a natural process. Meets the importance criteria for having more than locally significant qualities and qualities that make it rare, irreplaceable, exemplary, and unique. Juanita arch is classified as the only natural bridge in the state of Colorado, thus making this a unique geologic feature to the region. The rare plant, Grand Junction milkvetch, also occurs in this area.	0	1,950	1,624
Knight/Owens Hadrosaurid Locality *Staff Proposed*	Paleontological	No	No	No	Does not meet the relevance criteria for a natural process or system, and does not have significant paleontological values. Does not meet the importance criteria for more than locally significant qualities as a World Class Paleontological Research and publicly interpreted visitation location. A disarticulated juvenile Hadrosaur was collected and studied in the late 1980s. There were also fossilized	0	40	0

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
					remains of a Pliosaur and Mosasaurs as well as Pyritized inverts and large concretions nearby this site. However, a BLM survey was conducted recently and no fossils were found.			
Logan Wash *Public Proposed*	Fish Wildlife Plants	2 and 3 2 and 3 3	None None 1 and 2	No	Meets the relevance criteria for a natural system containing sensitive habitat for plants. Meets the importance criteria for having more than locally significant qualities and qualities of sensitive and rare plants. The proposed area does not contain lynx habitat. The southern tip of the proposed ACEC contains a portion of the critical habitat designated for the four listed fish species on the Colorado River; however this area is small and surrounded by private land and not carried forward for further analysis. The proposed ACEC is adjacent to Roan Creek, a fish bearing stream, however BLM segments are small and do not meet the relevance and importance criteria. The proposed ACEC contains some potential and occupied greater sage-grouse habitat; however the amount of occupied habitat included in the proposed ACEC is not significant for	0	14,514	*See proposed Colorado River Riparian ACEC*

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
					the Parachute-Piceance-Roan population and therefore does not meet the importance criteria. The proposed area meets the criteria for both relevance and importance by containing numerous BLM sensitive plants, one federally threatened plant, and possibly two federal candidate species. The rare plant species found within this landscape include, but are not limited to: DeBeque milkvetch, adobe thistle, Naturita milkvetch, Roan Cliffs blazingstar, Colorado hookless cactus (threatened), Parachute penstemon *(Penstemon debilis)* (candidate), and DeBeque phacelia (candidate). The majority of the known plants are vulnerable to adverse change. The proposed ACEC area is heavily fragmented by energy development infrastructure.			
Mt. Garfield *Staff Proposed*	Scenic	1	1 and 2	**Yes**	Meets the relevance criteria for scenic and importance criteria as irreplaceable (locally significant qualities/meaning). Meets the importance criteria for having more than locally significant qualities and fragile qualities. Mt. Garfield is an iconic land feature within the Grand Valley region of the field office, often used as a symbolic	0	5,695	5,695

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					feature of Grand Junction. The Mt. Garfield area was designated in the 1987 RMP as VRM Class 1.			
Nine-mile Hill Boulders *Staff Proposed*	Paleontological	3	2	**Yes**	Meets the relevance criteria for a natural process or system, and has significant paleontological values. Meets the importance criteria for qualities sensitive and exemplary as a World Class Paleontological Research and publicly interpreted visitation location. Pull-off areas between guard railings have a well-preserved theropod femur mold and other bone molds from the Burro Canyon Formation. There are also petrified wood stumps and impressions of other dinosaur bones nearby.	0	87	87
North Desert *Public Proposed*	Wildlife Plants	2 3	None None	No	Meets the relevance criteria for wildlife resources and a natural system. Does not meet importance criteria because wildlife habitat is not regionally significant. These areas provide habitat for the burrowing owl; however they are not regionally significant. The boundary proposed was fragmented into four distinct areas, making management difficult. Meets the relevance criteria, but does not meet the importance	0	2,407	0

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					criteria for rare plants. While the BLM special status plant species grand buckwheat may occur in the proposed ACEC, records indicate that very little buckwheat has been recorded in this area.			
The Palisade ACEC/ONA and Expansion *Existing* *Staff Proposed*	Plants	3	1 and 2	**Yes**	Meets the relevance criteria for scenic values and a natural system supporting rare plants. Meets the importance criteria for more than locally significant qualities and has qualities that make it fragile, irreplaceable, and vulnerable to adverse change. Recent plant inventories completed by CNHP have recorded rare plants around the base of the Palisade, and across the Dolores River. A larger area is needed to cover newly discovered plants, and to provide protection should the Wilderness Study Area designation change. Plants known to occur around the base of the Palisade, and across the Dolores River include: Dolores River skeleton plant *(Lygodesmia doloresensis)*, San Rafael milkvetch *(Astragalus rafaelensis)*, horseshoe milkvetch *(Astragalus equisolensis)*, Fisher Tower's milkvetch *(Astragalus piscator)*, tufted green gentian *(Frasera paniculata)*, and osterhouts	26,951	32,334	32,281
	Wildlife	2	2					
	Scenic	1	2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					catseye *(Cryptantha osterhoutii)*. Expanded area would protect nesting areas for peregrine falcons.			
Persigo Wash Potential *Public Proposed*	Fish	None	None	No	The criteria for relevance have not been met for cultural resources, fish and wildlife resources and a natural system. The criteria for importance have not been met, since the habitat within the proposed ACEC area is not of regional significance or has qualities of sensitivity. Previous cultural surveys have not indicated the presence of significant historic or cultural values nor are there cultural resources present of significant quality compared to similar resources in GJFO. The proposed area does not contain any fish bearing streams. The area contains artificial kit fox structures and includes the area with the last known den for kit fox in the field office, however these areas do not meet the importance criteria because kit fox have not been documented using the artificial structures nor have they been documented in the area in the past 10 years. Prairie dog release sites for the Mesa County Prairie Dog Relocation group occur in the area but they are not regionally significant	0	5,532	0
	Wildlife	None	None					
	Plants	None	None					
	Cultural	None	None					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					for the species and therefore do not meet the importance criteria. While some grand buckwheat is known to occur in the Mancos shale 'badlands' north to the town of Fruita, this area does not represent an outstanding occurrence, in size or quality.			
Plateau Creek *Staff Proposed*	Fish	2	1, 2, 3	Yes	Meets Relevance and Importance Criteria for BLM sensitive fish species. Protection would help implement implement the Range-Wide Conservation Agreement and Strategy to avoid federal listing under Endangered Species Act.	N/A	223	223
Prairie and South Canyons *Public Proposed*	Wildlife	None	None	No	The proposed ACEC does not contain lynx habitat. The area proposed contains several fragmented pieces, which makes potential management difficult.	0	6,081	0
Prairie Canyon (renamed from Baxter Ridge) *Public Proposed*	Wildlife Plants	2 and 3 3	2 1	**Yes** *with modified boundaries*	Meets the relevance criteria for wildlife resources and a natural system supporting breeding habitat for a variety of species and core habitat rare plants. Meets the importance criteria for supporting a unique assemblage of species that is of more than local significance and qualities that make it fragile and vulnerable to adverse change to rare plants.	0	19,853	6,866

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					The area provides a breeding habitat for the burrowing owl *(Athene cunicularia)*, long-billed curlew *(Numenius americanus)*, sage sparrow *(Amphispiza belli)*, kit fox *(Vulpes macrotis)*, long-eared owl *(Asio otus)*, Scott's oriole *(Icterus parisorum)*, and white-tailed prairie dog *(Cynomys leucums)*. The proposed boundary was very large and has been modified to include only core habitat for the species. The entire area could be considered for wildlife emphasis management. The area contains habitat for grand buckwheat, a rare plant within the planning area.			
Pyramid Rock ACEC/RNA *Existing* *Staff Proposed*	Plants Cultural	3 1	1 and 2 1 and 2	**Yes**	Meets the relevance criteria for the presence of significant cultural resource values that are important to Native Americans and the presence of a natural process or system that protects these resources. Meets the importance criteria because it has more than locally significant qualities compared to other resources in the planning area and these resources are rare, exemplary, unique, and vulnerable to adverse change. The proposed expansion makes the	551	1,265	1,257

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres**[1] *includes acres from 1987 RMP*	**Acres Carried Forward**[1]
					boundary of the existing ACEC more clearly defined by using existing roads or natural landform features. It also increases the area to accommodate better management and adequately protect sensitive plants and cultural resources. Rare plants known to occur within the existing ACEC are: Colorado hookless cactus (formerly Uinta Basin hookless cactus) (*Sclerocactus glaucus)*, DeBeque phacelia (*Phacelia scopulina* var. *submutica)*, DeBeque milkvetch *(Astragalus debequaeus)*, Naturita milkvetch *(Astragalus naturitensis)*, adobe thistle *(Cirsium perplexans)*, and aromatic Indian breadroot. The existing ACEC is a research site for Denver Botanic Gardens.			
Rabbit Valley-Rattlesnake Canyon Potential ACEC *Public Proposed*	Fish Wildlife Plants	N/A N/A N/A	N/A N/A N/A	N/A	ACEC is within the McInnis Canyon NCA; therefore it is beyond the scope of this planning effort.	0	18,276	0
Rapid Creek (renamed from Orchard Mesa Potential ACEC) *Public Proposed*	Fish Wildlife Plants	2 and 3 None 3	1 and 2 None None	**No**	During BLM's initial review of the area, it was believed that the portion of the proposed ACEC that includes Rapid Creek contained rainbow trout *(Oncorhynchus mykiss)*, cutthroat trout *(Oncorhynchus clarki)*, and roundtail chub *(Gila robusta)*. The	0	13,392	220

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					boundary was modified to encompass Rapid Creek without the other outlying areas of the original proposal. Upon further analysis and sampling it was determined that Rapid Creek does not contain these species. Therefore the proposed ACEC does not meet the relevance or importance criteria for fish. A portion of the proposed ACEC near Vincent Reservoir contains a small portion of potential lynx habitat, however these parcels are not significant for the species and therefore do not meet the importance criteria. While Horse Mountain, and the Orchard Mesa Potential Conservation Area contain recorded cacti locations, so few have been recorded in this area that it is not considered significant for the Colorado hookless cactus, and thus does not meet the importance criteria. The BLM special status plant species, narrowstem gilia *(Gilia stenothysra)*, is also known to occur at the base of the Bookcliffs; however the known population size in this area is not considered significant.			

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
Rattlesnake Canyon *Public Proposed*	Plants	N/A	N/A	N/A	ACEC is within the McInnis Canyon NCA; therefore it is beyond the scope of this planning effort.	0	4,628	0
Reeder Mesa *Staff and Public Proposed*	Plants	3	2	**Yes**	The portion of the proposed ACEC which includes Reeder Mesa contains a Colorado hookless cactus study site. The cactus is thought to have crossed with smallfower fishhook cactus *(Sclerocactus parviflorus)* resulting in a hooked central spine. Genetic studies are ongoing. This area of the proposed ACEC meets the importance criteria.	0	474	474
Roan and Carr Creeks *Staff and Public Proposed*	Riparian Habitat	3	2	**Yes**	Meets the relevance criteria for fish and wildlife resource and a natural system. Meets the importance criteria for having more than locally significant qualities and qualities that make it fragile, sensitive, rare, exemplary, and vulnerable to adverse change. CDOW manages and designates portions of Roan and Carr Creek drainages for genetically pure native cutthroat trout. Therefore the area meets the relevance and importance criteria for fish. CDOW performs successful spawn-	0	40,722	33,694
	Fish	2 and 3	1 and 2					
	Wildlife	None	None					
	Plants	2	None					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					take operations in these drainages, utilizing such to develop hatchery broodstock. Successful rearing of these fish in the hatchery results in stocking pure cutthroat trout in other waters in Colorado. BLM sensitive plant Piceance bladderpod and the sun-loving meadowrue *(Thalictrum heliophilum)* occur with the area; however, the proposed ACEC boundary does not contain the largest, nor most robust, bladderpod populations in the planning area.			
Rough Canyon ACEC/RNA *Existing Staff Proposed*	Plants	3	1	**Yes**	Meets the relevance criteria for the presence of significant cultural resources and resources important to Native Americans, wildlife resources, a natural system, and natural hazards. Meets the importance criteria for more than locally significant with cultural resources that are unique and vulnerable to adverse change. Expansion makes the boundary of this ACEC clearly defined by existing roads or natural landform features, increases area to accommodate better management of Gunnison sage-grouse *(Centrocercus minimus)* and adequately protect cultural resources.	2,737	2,778	2,778
	Wildlife	2	1 and 2					
	Scenic	1	None					
	Cultural	1	1 and 2					
	Geologic	1	1 and 2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					Federally listed spineless hedgehog cactus *(Echinocereus triglochidiatus* var. *inermis)* and BLM sensitive Grand Junction milkvetch *(Astragalus linifolius)* are found within the area. Grand Junction milkvetch. The rare plant Eastwood's desertparsley *(Lomatium eastwoodiae)* also occurs in the area. This area has some of the highest cultural densities in the planning area. The expansion would complement the management of cultural resources in the existing Rough Canyon ACEC. The area has unique and complex geologic structure displaying a large monocline and fault zones.			
Sinbad Valley *Staff and Public Proposed*	Geologic	3	2	**Yes**	Meets the relevance criteria for significant cultural values, historic landscape values and a natural system supporting rare plants. Meets the importance criteria for more than locally significant qualities and qualities that are sensitive, rare, and unique. Portions of Sinbad Valley that occur on BLM property contain a broad oval depression that is the exposed core of a breached anticline. As the salt (halite) layer in the center of the anticline was exposed to weathering	0	7,184	6,399
	Scenic	1	None					
	Cultural	1	2					
	Plants	3	1 and 2					

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
					and quickly dissolved, the entire structure collapsed on itself, leaving a valley floor ringed by faults and inward-facing escarpments on the valley rim. Rocks exposed in Sinbad Valley range in age from Pennsylvanian in the lower slopes and valley floor, to Lower Cretaceous in the upper part of the outer rim. The rim includes dramatic exposures of Wingate and Entrada sandstones. Recent rare plant surveys have mapped populations of the newly described and extremely rare Gypsum cateye *(Cryptantha gypsophila)*. This area meets the relevance criteria for the presence of significant cultural resources, historic landscape values, and resources important to Native Americans. Cultural Resource surveys within Sinbad Valley have resulted in recording sites important to the Ute Tribe, including wickiup camps and trails. Alignment and local historical accounts make it likely that the Ute trail, unique because of distinctive travois tread, continues into the proposed ACEC. Plant resources important to the Ute are also present in a high density that may be			

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
					attributable to historic cultural practices. Traditional use and heritage resources are more than locally significant and give this area special meaning to the Native Americans who traditionally used the area. Ute trails are exemplary to connecting modern visitors to this historic landscape.			
Sinbad Valley SRMA *Proposed by public as a Special Recreation Management Area (SRMA). Proposal did not include any information regarding relevant and important values for ACEC designation*	Recreation	None	None	No	Does not meet the relevance and importance criteria for ACEC designation. Does not meet the criteria for SRMA designation (recreation demand and issues, recreation setting characteristics, resolving use/user conflicts, compatibility with other resource uses and resource protection needs). Portions of the proposed area do meet the criteria for ACEC designation (Sinbad Valley, Dolores River Riparian, John Brown Canyon proposed ACECs), or SRMA designation (Dolores River Canyon proposed SRMA/ERMA)	0	42,731	0
South Shale Ridge-Cow Ridge RNA *Public Proposed*	Recreation	None	None	No	Portions of this proposal are included in the Coon Hollow/South Shale Ridge and Pyramid Rock ACECs and are being carried forward for further analysis. Areas in the Cow Ridge region are not being carried forward for further analysis	0	59,702	*See proposed Coon Hollow/ South Shale Ridge and Pyramid Rock ACECs*

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC ***Existing or Proposed***	**Values Assessed**	**Relevance Criteria** *see Section II for Relevance Criterion*	**Importance Criteria** *see Section II for Importance Criterion*	**Carried Forward for Analysis?**	**Comments**	**1987 RMP Acres**	**Proposed Acres[1]** *includes acres from 1987 RMP*	**Acres Carried Forward[1]**
					because they do not meet the relevance and importance criteria.			
South Shale Ridge Potential ACEC *Public Proposed*	Wildlife Plants	2 3	1 1 and 2	No	Portions of this proposal are included in the Coon Hollow/South Shale Ridge and Pyramid Rock ACECs and are being carried forward for further analysis. Areas in the Cow Ridge region are not being carried forward for further analysis because they do not meet the relevance and importance criteria.	0	47,341	*See proposed Coon Hollow/ South Shale Ridge and Pyramid Rock ACECs*
Unaweep-Maverick Canyon SRMA *Proposed by public as a Special Recreation Management Area (SRMA). Proposal did not include any information regarding relevant and important values for ACEC designation*	Recreation	None	None	No	Does not meet the relevance and importance criteria for ACEC designation. Does not meet the criteria for SRMA designation (recreation demand and issues, recreation setting characteristics, resolving use/user conflicts, compatibility with other resource uses and resource protection needs). Portions of the proposed area do meet the criteria for ACEC designation (Dolores River Riparian, Juanita Arch proposed ACECs); for SRMA designation (Dolores River Canyon proposed SRMA/ERMA); or contain wilderness characteristics (Unaweep and Maverick units).	0	29,917	0
Unaweep Seep ACEC/RNA *Public Proposed*	Fish and Wildlife Plants	2 and 3 3	2 1 and 2	**Yes**	Meets the relevance criteria for wildlife and a natural system that supports the Unaweep fritillary	78	84	84

Table D-2
Relevance and Importance Criteria Evaluation for Existing and Proposed ACECs

Name of ACEC *Existing or Proposed*	Values Assessed	Relevance Criteria *see Section II for Relevance Criterion*	Importance Criteria *see Section II for Importance Criterion*	Carried Forward for Analysis?	Comments	1987 RMP Acres	Proposed Acres[1] *includes acres from 1987 RMP*	Acres Carried Forward[1]
	Riparian Habitat	3	1 and 2		butterfly *(Speyeria nokomis)*. The importance criteria for more than locally significant qualities and the wetland complex is fragile, sensitive, rare, irreplaceable, unique, and very vulnerable to adverse change for wildlife and rare plants. The Unaweep Seep is an existing natural area recognized by the State of Colorado that possesses habitat for the Unaweep fratillary butterfly, which depends on a unique wetland complex comprised of twenty seeps occurring in concentration on a hillside in Unaweep Canyon and a research location for giant helleborine *(Epipactus gigantea)*. Large wetland complexes are extremely rare within the GJFO, particularly undisturbed sites such as this that support a large diversity of plants and animals.			
	Hydrologic	3	2					
Unaweep Seep Potential ACEC *Public Proposed*	Wildlife	2	2	No	Portions of the proposed ACEC are within both the existing Unaweep Seep and Palisade ACEC and are being analyzed separately. Areas outstanding do not meet the relevance and importance criteria and are not being carried forward for further analysis.	78	23,108	*See existing Unaweep Seep and Palisade ACECs*
	Hydrologic	3	2					

[1]Acreages include proposed expansions.

D.5 REFERENCES

BLM (US Department of the Interior, Bureau of Land Management). 1988. Manual 1613: Areas of Critical Environmental Concern. Rel. 1-1541. BLM, Washington, DC. September 29, 1988. 22 pp.

_____. Areas of Critical Environmental Concern Report on the Application of the Relevance and Importance Criteria. BLM, Grand Junction Field Office, Grand Junction, Colorado. January 2010. 84 pp.

This page intentionally left blank.

Appendix E

BLM Standards for Public Land Health and Guidelines for Livestock Grazing Management in Colorado

APPENDIX E
BLM STANDARDS FOR PUBLIC LAND HEALTH AND GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT IN COLORADO

STANDARDS FOR PUBLIC LAND HEALTH

Standards describe conditions needed to sustain public land health, and relate to all uses of the public lands. Standards are applied on a landscape scale and relate to the potential of the landscape.

Standard 1

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, land form, and geologic processes. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor, and minimizes surface runoff.

Indicators

- Expression of rills, soil pedestals is minimal.
- Evidence of actively-eroding gullies (incised channels) is minimal.
- Canopy and ground cover are appropriate.
- There is litter accumulating in place and is not sorted by normal overland water flow.
- There is appropriate organic matter in soil.
- There is diversity of plant species with a variety of root depths.
- Upland swales have vegetation cover or density greater than that of adjacent uplands.
- There are vigorous, desirable plants.

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. Riparian vegetation captures sediment, and provides forage, habitat and bio-diversity. Water quality is improved or maintained. Stable soils store and release water slowly.

Indicators

- Vegetation is dominated by an appropriate mix of native or desirable introduced species.
- Vigorous, desirable plants are present.
- There is vegetation with diverse age class structure, appropriate vertical structure, and adequate composition, cover, and density.
- Streambank vegetation is present and is comprised of species and communities that have root systems capable of withstanding high streamflow events.
- Plant species present indicate maintenance of riparian moisture characteristics.
- Stream is in balance with the water and sediment being supplied by the watershed (e.g., no headcutting, no excessive erosion or deposition).
- Vegetation and free water indicate high water tables.
- Vegetation colonizes point bars with a range of age classes and successional stages.
- An active floodplain is present.
- Residual floodplain vegetation is available to capture and retain sediment and dissipate flood energies.
- Stream channels with size and meander pattern appropriate for the stream's position in the landscape, and parent materials.
- Woody debris contributes to the character of the stream channel morphology.

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. Plants and animals at both the community and population level are productive, resilient, diverse, vigorous, and able to reproduce and sustain natural fluctuations, and ecological processes.

Indicators

- Noxious weeds and undesirable species are minimal in the overall plant community.

- Native plant and animal communities are spatially distributed across the landscape with a density, composition, and frequency of species suitable to ensure reproductive capability and sustainability.
- Plants and animals are present in mixed age classes sufficient to sustain recruitment and mortality fluctuations.
- Landscapes exhibit connectivity of habitat or presence of corridors to prevent habitat fragmentation.
- Photosynthetic activity is evident throughout the growing season.
- Diversity and density of plant and animal species are in balance with habitat/landscape potential and exhibit resilience to human activities.
- Appropriate plant litter accumulates and is evenly distributed across the landscape.
- Landscapes composed of several plant communities that may be in a variety of successional stages and patterns.

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.

Indicators

- All the indicators associated with the plant and animal communities standard apply.
- There are stable and increasing populations of endemic and protected species in suitable habitat.
- Suitable habitat is available for recovery of endemic and protected species.

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. Water Quality Standards for surface and ground waters include the designated beneficial uses, numeric criteria, narrative criteria, and anti-degradation requirements set forth under State law as found in (5 CCR 1002-8), as required by Section 303(c) of the Clean Water Act.

Indicators

- Appropriate populations of macroinvertabrates, vertebrates, and algae are present.
- Surface and ground waters only contain substances (e.g. sediment, scum, floating debris, odor, heavy metal precipitates on channel

substrate) attributable to humans within the amounts, concentrations, or combinations as directed by the Water Quality Standards established by the State of Colorado (5 CCR 1002-8).

GUIDELINES FOR LIVESTOCK GRAZING MANAGEMENT

Guidelines are the management tools, methods, strategies, and techniques (e.g., best management practices) designed to maintain or achieve healthy public lands as defined by the standards. Currently, the only guidelines for BLM Colorado that have been developed in concert with the Resource Advisory Councils are livestock grazing management guidelines.

1. Grazing management practices promote plant health by providing for one or more of the following:
    - periodic rest or deferment from grazing during critical growth periods;
    - adequate recovery and regrowth periods;
    - opportunity for seed dissemination and seedling establishment.

2. Grazing management practices address the kind, numbers, and class of livestock, season, duration, distribution, frequency and intensity of grazing use and livestock health.

3. Grazing management practices maintain sufficient residual vegetation on both upland and riparian sites to protect the soil from wind and water erosion, to assist in maintaining appropriate soil infiltration and permeability, and to buffer temperature extremes. In riparian areas, vegetation dissipates energy, captures sediment, recharges ground water, and contributes to stream stability.

4. Native plant species and natural revegetation are emphasized in the support of sustaining ecological functions and site integrity. Where reseeding is required, on land treatment efforts, emphasis will be placed on using native plant species. Seeding of non-native plant species will be considered based on local goals, native seed availability and cost, persistence of non-native plants and annuals and noxious weeds on the site, and composition of non-natives in the seed mix.

5. Range improvement projects are designed consistent with overall ecological functions and processes with minimum adverse impacts to other resources or uses of riparian/wetland and upland sites.

6. Grazing management will occur in a manner that does not encourage the establishment or spread of noxious weeds. In addition to mechanical, chemical, and biological methods of weed control, livestock may be used where feasible as a tool to inhibit or stop the spread of noxious weeds.

7. Natural occurrences such as fire, drought, flooding, and prescribed land treatments should be combined with livestock management practices to move toward the sustainability of biological diversity across the landscape, including the maintenance, restoration, or enhancement of habitat to promote and assist the recovery and conservation of threatened, endangered, or other special status species, by helping to provide natural vegetation patterns, a mosaic of successional stages, and vegetation corridors, and thus minimizing habitat fragmentation.

8. Colorado Best Management Practices and other scientifically developed practices that enhance land and water quality should be used in the development of activity plans prepared for land use.

This page intentionally left blank.

Appendix F

Wilderness Characteristics Inventory

APPENDIX F
WILDERNESS CHARACTERISTICS INVENTORY & PLANNING

INTRODUCTION

The BLM, GJFO, in accordance with the BLM policy on conducting wilderness characteristics inventories on BLM lands under Section 201 of the FLPMA (BLM Manual 6310, Conducing Wilderness Characteristics Inventory on BLM Lands), has updated its inventory of lands with wilderness character found within the GJFO planning area. This document highlights the findings of this inventory. The complete inventory report is available on the RMP Web site at http://www.blm.gov/co/st/en/fo/gjfo/rmp.html.

The original wilderness characteristics Inventory was conducted in 1979, resulting in the establishment of current wilderness study areas (WSAs) found in the GJFO. Some of the units analyzed as part of this inventory were part of the original inventory of 1979, or a supplemental inventory in 1999.

Process for Identifying Wilderness Character Inventory Units

In an effort to conduct the most thorough analysis of lands with wilderness characteristics, the GJFO established a process for identification of wilderness character inventory units. This process included identification of units through two avenues; 1) Citizens' Wilderness Proposals (CWPs), and 2) Internal identification:

1) Citizens' Wilderness Proposals: Between 2001 and 2009, the Colorado Environmental Coalition submitted CWPs for 14 units within the planning area. These proposals included inventory reports conducted by non-BLM personnel. Several organizations referenced these CWPs in their comments during scoping for the GJFO Resource Management plan revision. The portions of the CWP identified units that are not within existing WSAs were carried forward for this inventory.

2) In addition to CWPs, GJFO staff identified areas that may possess wilderness characteristics based on their field knowledge. Then during the inventory process, the BLM Washington Office issued IM 2011-154, Requirement to Conduct and Maintain Inventory Information for Wilderness Characteristics and to Consider Lands with Wilderness Characteristics in Land Use Plans. This guidance included a document titled "Policy on Conducting Wilderness Characteristics Inventory on BLM Lands." Guidance in the IM was later published in BLM Manual 6310, Conducting Wilderness Characteristics Inventory on BLM Lands.

   In accordance with the new policy document, the GJFO completed a spatial data analysis to identify all areas in the GJFO which hosted 5,000 or more roadless acres of land. This analysis used the GJFO route inventory data set. A comprehensive route inventory had been compiled through years of field inventory for use in travel management planning. The analysis for identifying potential lands with wilderness characteristics utilized this data, seeking out certain route classes (not including single track or ATV trails) in determining the roadless areas. The initial boundaries of the units potentially containing wilderness characteristics were formed using land status and Route Inventory data. This process proved effective as evidenced by the fact that the results of the analysis pointed to all existing WSAs and all previously identified inventory units including CWPs as areas that may include over 5,000 roadless acres. The additional units identified by the spatial analysis provided the starting point for field inventory.

Process for Conducting Wilderness Character Inventory

The process defined above identified 31 units (in addition to existing WSAs), totaling approximately 400,000 acres to be inventoried for the presence or absence of wilderness characteristics. The inventory was conducted using the process identified in BLM Manual 6310, Conducting Wilderness Characteristics Inventory on BLM Lands. The field inventory identified the presence or absence of the following characteristics:

- size;
- apparent naturalness;
- opportunities for solitude;
- opportunities for primitive or unconfined recreation; and
- supplemental values found for the unit.

The findings of past inventories (where applicable), including those provided in CWPs were compared to the current state of the units, analyzing changes in the landscape and levels of human impact, and were either confirmed or refuted

based on the analysis. The inventory write up for each unit also included a summary of major human uses, including valid existing rights (e.g. fluid mineral leases, mining claims), which could affect wilderness characteristics in the future.

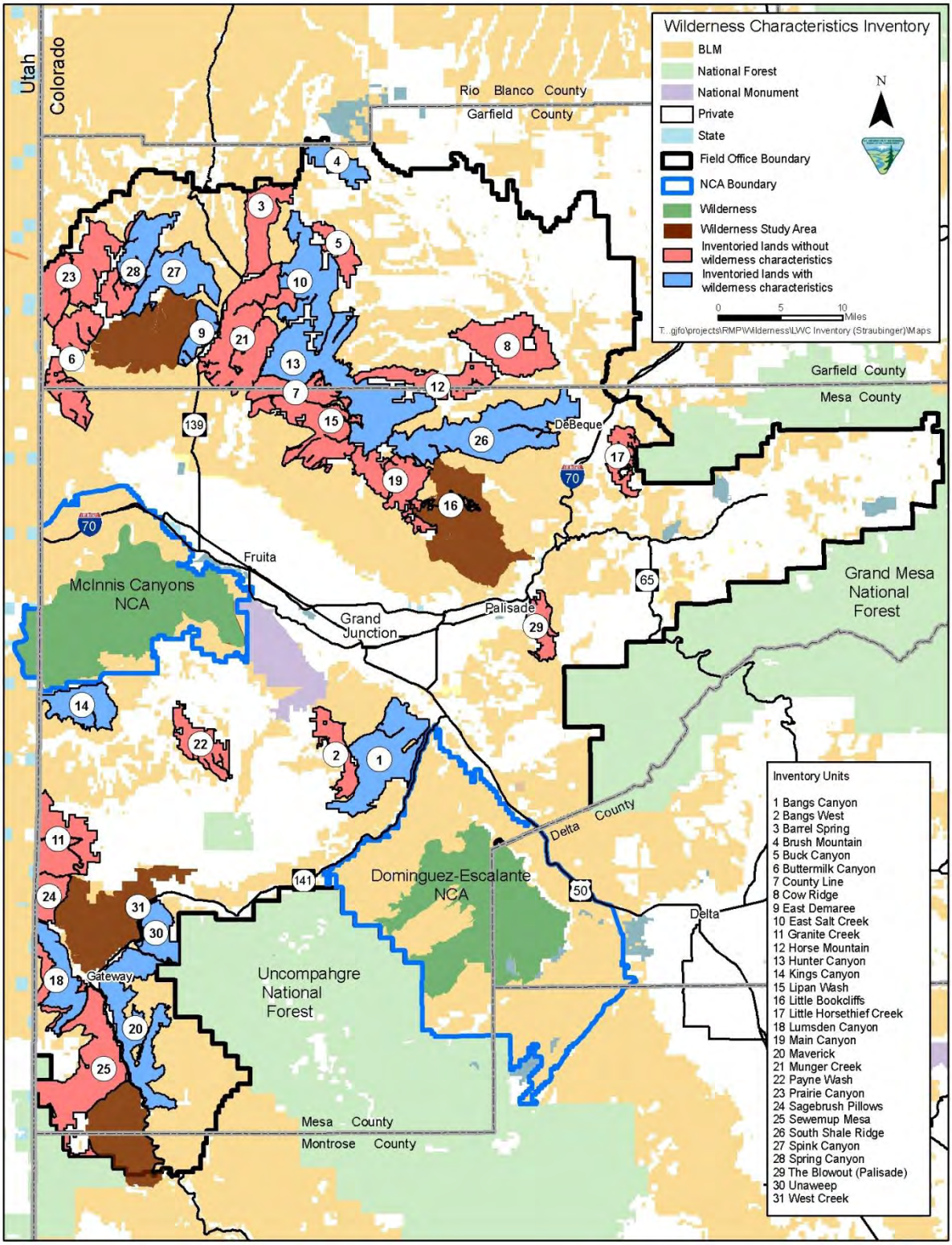
This inventory was conducted between 2009 and 2011, and in some cases involved validating previous inventories. Therefore specific descriptions (e.g. condition of a trail, acreage of the unit currently leased for fluid minerals, etc.) may no longer be exact, but offer a snapshot of conditions at the time of the inventory.

Table F-1, Summary of Findings, provides details for each wilderness characteristics inventory unit (WCIU). **Figure F-1**, Wilderness Characteristics Inventory, shows a map of all the units and the defining characteristics of each.

Table F-1
Summary of Findings

Unit Identifier	WCIU Name	Total Acreage of WCIU	WCIU Identified by External Proponent	WCIU Identified by BLM	WCIU Found to have Wilderness Character	Acres Found to Have Wilderness Character
1	Bang's Canyon	20,434	•	•	•	20,434
2	Bang's West	6,879		•		
3	Barrel Spring	10,169		•		
4	Brush Mountain	5,310		•		
5	Buck Canyon	5,009		•		
6	Buttermilk Canyon	14,086		•		
7	County Line	7,380		•		
8	Cow Ridge	15,721	•			
9	East Demaree	4,796	•	•	•	4,796
10	East Salt Creek	18,303		•	•	17,008
11	Granite Creek	14,048	•			
12	Horse Mountain	10,303		•		
13	Hunter Canyon	32,700	•		•	32,228
14	Kings Canyon	9,606	•	•	•	9,606
15	Lipan Wash	15,373		•		
16	Little Bookcliffs WSA Expansion	1,580	•			
17	Little Horsethief Creek	5,732		•		
18	Lumsden Canyon	13,764		•	•	10,072
19	Main Canyon	12,613		•		
20	Maverick	20,401	•	•	•	20,401
21	Munger Creek	23,801		•		
22	Payne Wash	8,153		•		
23	Prairie Canyon	17,569	•			
24	Sagebrush Pillows	5,127	•			
25	Sewemup Mesa	23,551	•			
26	South Shale Ridge	27,540	•	•	•	27,540
27	Spink Canyon	13,081		•	•	13,081
28	Spring Canyon	14,009		•	•	8,848
29	The Blowout	5,105		•		
30	Unaweep	9,494	•	•	•	7,154
31	West Creek	111	•	•	•	111

Figure F-1
Wilderness Characteristics Inventory



Procedures for Considering Lands with Wilderness Characteristics in Land Use Planning

BLM Manual 6320, Considering Lands with Wilderness Characteristics in the BLM Land Use Planning Process provides BLM Field Offices guidance for considering lands with wilderness characteristics in the land use planning process. In accordance with this guidance, the GJFO RMP alternatives consider a full range of reasonable alternatives for management of lands with wilderness characteristics. The alternatives range from no specific protections for lands with wilderness characteristics, to an alternatives that sets specific protections for all of the units with wilderness characteristics.

The alternatives were developed considering manageability and resource values and uses. The alternatives also include a range of management prescriptions for WSAs, should they be released from wilderness consideration by Congress. This range includes the management of the WSA areas for their wilderness characteristics.

The preferred alternative (Alternative B) would manage three lands with wilderness characteristics units for their wilderness characteristics.

- Maverick: A five-canyon complex and unique roadless area with outstanding opportunities for solitude given the topography, vegetation, and unique feature of Juanita Arch, which is the only natural bridge in Colorado. Mining claims are present at the boundaries of the unit but there has been no development of the claims. While there are existing oil and gas leases, the area is not within the area of current known potential for conventional or shale gas development and no past exploration or development for oil and gas has occurred.
- West Creek: Adjacent unit to Palisade WSA, acquired lands since original inventory was completed. Part of the unit would be difficult to manage for wilderness characteristics because of the existing powerline right-of-way. A 36-acre portion of the unit would be managed for wilderness characteristics because it has no conflicts with valid existing rights or other uses.
- Unaweep: This area has outstanding opportunities for solitude and primitive and unconfined recreation with the unit primarily affected by the forces of nature. It includes the 1,000-foot-deep Ute Creek Canyon with the sheer granite cliffs of Unaweep Canyon. There are no right-of-way conflicts, and no current mining claims. While there are approximately 100 acres of existing oil and gas leases, the area is not within the area of current known potential for conventional or shale gas development and no past exploration or development for oil and gas has occurred.

The remaining nine areas fall within the portion of the GJFO with known potential for natural gas development, and are largely leased for oil and gas development; or provide motorized and mechanized use opportunities. Under the Preferred Alternative and its corresponding travel management plan the manageability of these areas for wilderness characteristics would be compromised by valid existing rights, and/or motorized and mechanized use and these areas would be managed for other resources and resource uses. The impacts of the management alternatives on lands with wilderness characteristics can be found in Chapter 4 of the Draft EIS.

This page intentionally left blank.

Appendix G

Draft Air Resources Management Plan

TABLE OF CONTENTS

Section Page

This page intentionally left blank.

APPENDIX G
AIR RESOURCES MANAGEMENT PLAN

G.1 PURPOSE

The purposes of this Air Resources Management Plan (ARMP) are to:

1. Address air quality issues identified by the Bureau of Land Management (BLM) in its analysis of potential impacts on air quality resources for the Grand Junction Field Office (GJFO) Resource Management Plan and Environmental Impact Statement (RMP/EIS); and
2. Further clarify the air resources goals, objectives, and management actions set forth in Table 2-2 of the Draft RMP/EIS.

This ARMP describes air resources management actions and outlines BLM's commitments for managing air resources and authorized activities that have the potential to adversely impact air resources within the planning area. This plan also outlines specific requirements for proponents of projects that have the potential to generate air emissions and adversely impact air resources within the planning area.

G.2 GENERAL CONDITIONS

G.2.1 Modification of the ARMP

This ARMP may be modified as necessary to comply with law, regulation, and policy and to address new information and changing circumstances. Changes to the goals, objectives, or management actions set forth in the GJFO RMP/EIS would require maintenance or amendment of the RMP while changes to implementation, including modifying this ARMP, may be made without maintaining or amending the RMP.

G.2.2 BLM Responsibilities Under FLPMA and MLA

The BLM has the authority and responsibility under the Federal Land Policy and Management Act (FLPMA) to manage public lands in a manner that will protect the quality of air and atmospheric values. The BLM also has the responsibility under the Mineral Leasing Act (MLA) to implement the decisions of the GJFO DRMP/EIS in a manner that recognizes valid and existing leasing rights.

G.2.3 Actions to Protect Air Quality

The BLM may require specific actions and measures necessary to protect air resources and atmospheric values and in the absence of or in addition to effective control technologies, may manage the pace, place, density, and intensity of leasing and development to meet air quality goals and objectives.

G.2.4 Implementation of Control Measures

The BLM will ensure implementation of reasonable mitigation, control measures, and design features necessary to avoid significant impacts on air quality using appropriate mechanisms, including lease stipulations and conditions of approval, notices to lessees, and permit terms and conditions as provided for by law and consistent with lease rights and obligations.

G.2.5 Enforcement

The BLM will ensure air resource management strategies and control measures are enforceable by including implementation of this ARMP as a management action in the GJFO DRMP/EIS and by including project-specific conditions (both operator committed and required mitigation) in a Record of Decision (ROD) for each authorization.

G.2.6 National Air Quality MOU

The BLM will implement the provisions of this ARMP in accordance with the *Memorandum of Understanding Among the US Department of Agriculture, US Department of the Interior, and US Environmental Protection Agency, Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions Through the NEPA Process*, signed June 23, 2011.

G.3 Air Quality Issues Identified for the Grand Junction Field Office

The air analysis included in the Grand Junction RMP/EIS identified potential air quality issues within the planning area. Air quality currently meets the National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. However, air quality in this and neighboring airsheds and within this expanding oil and gas development region appears to be changing, as evidenced by recent ozone monitoring data from regulatory and non-regulatory monitors located within and north and northwest of the planning area. Visibility measurements near the planning area showed improved visibility conditions over the last several years. Atmospheric deposition monitoring has remained consistent over the last several years. However, the potential for future growth in mining and oil and gas development activities within the planning area from both BLM actions and non-

federal actions could adversely affect air quality in the region. The analysis identified the following specific issues:

- *Pollutants of Concern:* Elevated concentrations of $PM_{2.5}$ were measured within the planning area.[1]Elevated concentrations of ozone measured within the planning area have been observed in recent years. [2] In addition, the EPA issued a final rule April 30, 2012 designating Duchesne and Uintah counties of northwestern Utah as an ozone "unclassifiable" area. This designation implies that high background levels of ozone may be transported into the planning area and surrounding regions, and thus warrants the need for regional approaches to air quality management and ozone precursor mitigation.;
- *Magnitude of Estimated Emissions:* Significant increases in volatile organic compounds, NO_x, $PM_{2.5}$, and hazardous air pollutants were estimated to occur in the future from BLM authorized activities under Alternative D and for BLM and non-federal activities combined for all alternatives;
- *Emission Generating Activities:* Increases in emissions from coal mining, uranium mining, oil and gas development, and off-highway vehicle use were identified as having the potential to contribute to adverse air quality impacts;
- *Geographic Areas of High Potential:* Future oil and gas development and continued existing development is predicted to occur in the northwest portion of the planning area in the lower portion of the Piceance Basin. Existing and future development may expand in the northeast portions of the planning area with the advancement of drilling technologies. Emissions from these areas have the potential to add to elevated ozone concentrations being observed in the Piceance Basin as well as cause impacts at several Class I areas to the north and west. Potential future coal mining activities in the central portion of the planning area and uranium mining activities in several areas of high development potential could result in localized impacts from fugitive dust and could contribute to regional ozone formation.

G.4 ADAPTIVE MANAGEMENT FOR AIR RESOURCES

Adaptive management incorporates the principles of monitoring current conditions, predicting future impacts, and adapting management strategies to account for changing conditions. An adaptive air quality management approach allows the BLM to comply with NEPA and take the time necessary to complete

[1] Elevated concentrations are above background concentrations but below the NAAQS.
[2] At the Palisade monitor within the planning area and at the Rifle and Rangely monitors adjacent to the planning area, as at the Redwash and Ouray monitors nearby in Utah's Uintah Basin.

analyses to ensure that activity supported by a ROD avoids significant impacts, to air quality; while allowing for development of important domestic energy resources.

The BLM will implement the following adaptive management strategies to account for changing conditions and to protect air quality for the duration of the RMP. The strategy includes evaluating and addressing air quality on an on-going basis, including prior to the completion of supporting modeling. Components of this adaptive management strategy include 1) emissions tracking; 2) annual reviews of air resources management data; 3) annual analyses of current air resources management strategies; 4) identification and implementation of mitigation measures; (See Section G.8); and, 5) evaluation of the need for modifications to this ARMP.

G.4.1 Interim Air Resources Management Strategy

During the period between signing of the ROD for the GJFO Final RMP/EIS and the completion of the air resources modeling study to be conducted under Section G.9.0, the BLM commits to the following interim air resources management measures:

- BLM authorized oil and gas development activities within the planning area will not exceed development rates as averaged over the 5 year period immediately prior to signing of the ROD;
- If a monitored exceedance of a NAAQS or a CAAQS occurs at any State and Local Air Monitoring System (SLAMS) monitor located within the planning area, enhanced mitigation measures will be evaluated and selected as appropriate by the BLM, in cooperation with the CDPHE and EPA. The BLM will act to implement enhanced mitigation based on CDPHE's determination that the exceedance was not caused by an exceptional event and that federally authorized oil and gas activities caused or contributed to the exceedance. In this situation, the BLM will consider implementing the measures listed in Table G-1; and
- If a monitored exceedance of a NAAQS or CAAQS occurs at any SLAMS monitor located within the planning area, the BLM may request operators of oil and gas activities on federal lands within the planning area to implement contingency plans as described under G.8.3.

G.4.1 Emissions Tracking

Within one year of signing the ROD for the GJFO Final RMP/EIS, the BLM will establish and implement a mechanism to track annual emissions of criteria pollutant and volatile organic compound emissions from BLM authorized oil and gas activities within the planning area. The methods for tracking emissions will be developed in collaboration with the Colorado Department of Public Health and the Environment, Air Pollution Control Division (CDPHE) and with input from the Environmental Protection Agency (EPA) and the Colorado Oil and Gas

Conservation Commission (COGCC). The BLM will use reported emissions data to track total emissions from BLM authorized oil and gas and other activities within the planning area as a component of its adaptive management strategy.

G.4.2 Annual Review of Air Resources Data

Within one year of signing the ROD for the GJFO Final RMP/EIS, and annually thereafter, the BLM will conduct a review of relevant air resources management data in order to implement the adaptive management strategy included in this section. This annual review will include the following tasks:

a. Evaluation of current air monitoring data and trends from air monitoring sites located within the planning area or potentially affected area to determine the status of current air quality conditions within the planning area including measured concentrations approaching or exceeding National and Colorado Ambient Air Quality Standards (NAAQS and CAAQS);

b. Evaluation of current air monitoring data and trends from air monitoring sites located within the planning or potentially affected area to determine the status of current air quality conditions within the planning area including measured adverse impacts on air quality related values in Class I areas or sensitive Class II areas (as identified on a case-by-case basis by CDPHE, a federal land management agency, or tribal agency);

c. Initiate consultation with CDPHE, EPA, and other local, state, federal, and tribal agencies with responsibility for managing air resources to address appropriate responses to monitored exceedances of a NAAQS at any State and Local Air Monitoring System (SLAMS) monitor located within or affected by the planning area. Response to monitored exceedances may include modifications to this ARMP including additional modeling and mitigation requirements;

d. Review of annual emissions data from BLM authorized oil and gas activities within the planning area and comparison to emission levels analyzed in the GJFO RMP/EIS and the modeling study to be conducted under Section G.9.0, or the most recent interagency air impacts analysis;

e. Review of BLM authorized oil and gas activities within the planning area in the previous 12 months and comparison to the level of development analyzed in the GJFO RMP/EIS and the modeling study to be conducted under Section G.9.0, or the most recent interagency air impacts analysis, including number of wells drilled, number of producing wells, compressor stations installed, and centralized liquids gathering and gas treatment facilities constructed;

f. Evaluation of available oil and gas development projections received or identified within the planning area in the previous 12 months, for the coming three to five year period and comparison to the level of predicted future development analyzed in the GJFO RMP/EIS and the modeling study to be conducted under Section G.9.0, or the most recent interagency air impacts analysis; and,

g. Review of air quality modeling results from impact analyses conducted by BLM, CDPHE, or other federal or tribal agencies within the previous 12 months that affect or are affected by BLM-authorized activities within the planning area.

h. The BLM will provide a summary of the annual review analysis and make this available to the public.

G.4.3 Analysis of Current Air Resource Management Strategies

Based on the annual review of air resources management data (see Section G.4.2), the BLM, with input from other agencies involved in the authorization of oil and gas development activities or the management of air resources, will determine whether the air analysis conducted for the GJFO RMP/EIS and the modeling study conducted under Section G.9.0 (or the most recent interagency air impacts analysis) should be updated. Based on the emissions tracking, air monitoring data, air resources management modeling study, or other relevant air modeling data, and development projections, BLM will determine whether current air resources management strategies are meeting the goals and objectives established in the GJFO RMP/EIS. The BLM in collaboration with CDPHE and the EPA will adapt management strategies as necessary to effectively manage air resources within the planning area.

G.4.4 Modification of ARMP

Based on the annual review of air resources management data and evaluation of current strategies under Section G.4.3, BLM will determine whether this ARMP should be modified.

G.5 PERMITTING

G.5.1 Air Analysis for Authorized Activities

The BLM will, prior to authorization of any oil and gas development activity or other activity with the potential to generate emissions of regulated air pollutants, conduct an air analysis to determine the magnitude of potential emissions from the activity and address potential impacts on air quality.

G.5.2 Criteria for Informing Decisions

The BLM will consider the following criteria to identify pollutants of concern and inform decisions regarding the appropriate level of air analysis to be conducted for oil and gas development activities and may consider these criteria for other activities with the potential to generate emissions of regulated air pollutants:

a. magnitude of potential air emissions from the proposed activity;

b. duration of proposed activity;

c. proximity to a federally mandated Class I area, sensitive Class II area (as identified on a case-by-case basis by CDPHE or a federal land management or tribal agency), population center, or other sensitive receptor;

d. location within or adjacent to a non-attainment or maintenance area;

e. meteorological and geographic conditions;

f. existing air quality conditions including measured exceedances of NAAQS or CAAQS and measured adverse impacts on air quality related values;

g. intensity of existing and projected development in the area; and

h. issues identified during project scoping.

G.5.3 Emissions Inventory

The BLM will require the proponent of an oil and gas development activity as proposed in a permit application, plan of development, or Master Development Plan to submit an emissions inventory of direct and indirect emissions associated with the proposed project. BLM may require submittal of an emissions inventory for other proposed activities such as solid mineral development that have the potential to generate emissions of regulated air pollutants. The emissions inventory will include estimated emissions of regulated air pollutants from all sources related to the proposed activity, including fugitive emissions and greenhouse gas emissions, for each year for the life of the project. The BLM will review the emissions inventory to determine its completeness and accuracy. Emission control measures included in the emissions inventory assumptions and relied upon to determine project impacts, will become Operator Committed Measures in the Record of Decision for the authorized activity. If such emission control assumptions do not lend themselves to mitigation measures that can be enforced via stipulations, BLM will require other mitigation measures with a similar air quality benefit.

G.5.4 Emissions Reduction Plan

The BLM will require the proponent of an oil and gas development project that has the potential to emit any regulated air pollutant to provide an emissions reduction plan that includes a detailed description of operator committed measures to reduce project related air pollutant emissions including greenhouse gases and fugitive dust. BLM may require submittal of an emissions reduction plan for other proposed activities such as solid mineral development that have the potential to generate emissions of regulated air pollutants. Project proponents for oil and gas development projects should refer to **Appendix H**, Best Management Practices and Standard Operating Procedures, as a reference

for potential emission reduction technologies and strategies. The list is not intended to preclude the use of other effective air pollution control technologies that may be proposed. Details of operator committed measures submitted by the applicant will be included in and enforced as a condition of the BLM-issued authorization.

G.5.5 Submission of Actual Emissions Data

The BLM will include, as a Condition of Approval for an oil and gas authorization, a requirement that the proponent submit actual emissions data on a periodic basis for criteria pollutants, volatile organic compounds, hazardous air pollutants, and greenhouse gas emissions related to the authorized action if the air analysis results show that the project has the potential to cause adverse impacts. BLM may request this data from all oil and gas authorizations to evaluate progress in meeting air quality goals. Emissions data submitted to CDPHE as required in applicable air permits, drilling and production data provided to COGCC, and emissions data submitted to EPA under the Greenhouse Gas Reporting Rule (40 CFR Part 98 Subpart W) will be accepted. The BLM may require or request actual emissions submittals from other emission generating activities such as solid mineral development as determined on a case-by-case basis using the criteria in Section G.5.2.

G.6 MONITORING

The BLM recognizes that ambient air monitoring provides valuable data for determining current and background concentrations of air pollutants, describing long term trends in air pollutant concentrations, and evaluating the effectiveness of air control strategies. As part of a comprehensive air management plan for the planning area, the BLM commits to the measures described in this section with regards to ambient air monitoring.

G.6.1 Air Monitoring Network

The BLM will facilitate a cooperative effort with industry, CDPHE, Forest Service, National Park Service, EPA, local counties, or other entities to establish, fund, operate, and maintain a comprehensive air monitoring network within the planning area and potentially affected areas. The BLM will facilitate the sharing of air monitoring data collected by the air monitoring network with other agencies and the public.

G.6.2 Pre-Construction Air Monitoring

The BLM may require project proponents of oil and gas development proposals or proponents of other emission generating projects, such as solid mineral development, to submit pre-construction air monitoring data from a site within or adjacent to the proposed development area. The purpose of this air monitoring is to establish baseline air quality conditions prior to development at the site. The requirement for monitoring will be determined by BLM based on the absence of existing representative air monitoring data and the criteria listed in Section G.5.2 of this ARMP. If BLM determines that baseline monitoring is

necessary, the project proponent must provide a minimum of one year of baseline ambient air monitoring data for the pollutants of concern obtained from a site that meets CDPHE air monitoring standards within 50 km of the project boundary, and that covers the year immediately prior to the proposed project submittal. The project proponent will be responsible for siting, installing, operating, and maintaining any air monitoring equipment in the absence of existing representative air monitoring data.

G.6.3 Life of Project Air Monitoring

The BLM may require proponents or operators of oil and gas development projects or proponents of other emission generating projects such as solid mineral development to conduct air monitoring for the life of the project based on the absence of representative air monitoring data and the criteria listed in Section G.5.2 of this ARMP. The purpose of this air monitoring is to determine impacts attributable to the project over time and to determine the effectiveness of BLM's management actions related to the project. The project proponent will be responsible for siting, installing, operating, and maintaining any air monitoring equipment in the absence of existing representative air monitoring .

G.6.4 Collaboration with CDPHE on Air Monitoring Data

The BLM will work cooperatively with CDPHE to determine a mechanism to submit, track, and approve pre-construction and life of project air monitoring siting and operation and monitoring data. BLM will work with CDPHE to ensure that ambient air monitoring data collected as a condition of approval for BLM authorized activities will be made publicly available.

G.7 MODELING

The BLM recognizes that air dispersion and photochemical grid models are useful tools for predicting project-specific impacts on air quality, predicting the potential effectiveness of control measures and strategies, and for predicting trends in regional concentrations of air pollutants. As part of a comprehensive air management plan for the planning area, the BLM commits to the measures described in this section with regards to air quality modeling.

G.7.1 Modeling and Adaptive Management

The BLM has identified air modeling as a significant component of its adaptive management strategy for managing air resources as outlined in Section G.4.0 of this ARMP. The BLM will use regional air modeling as described in Section G.9.0 and project-specific modeling as determined necessary under Section G.7.2 in conjunction with other air analysis tools for developing air resource management strategies as part of its approach to fulfill responsibilities under FLPMA and to evaluate direct, indirect, and cumulative impacts under NEPA.

G.7.2 Project-specific Modeling

The BLM may require that project-specific air quality modeling be conducted to analyze potential impacts from a proposed oil and gas development project or other proposed activities such as solid mineral development that have the

potential to emit regulated air pollutants. Air quality modeling may be required for pollutants of concern in the absence of other available data to ensure compliance with laws and regulations or to determine the effectiveness of air emission control strategies. The BLM may allow project proponents to provide results from other modeling analyses that include the proposed project upon review and approval by BLM. The BLM will not require an air modeling analysis when the project proponent can demonstrate that the project will result in no net increase in emissions of the pollutants of concern. The decision for conducting air quality modeling will be based on criteria listed in Section G.5.2 of this ARMP.

G.7.3 Modeling Protocol

The BLM will determine the parameters required for a project-specific modeling analysis through the development of a modeling protocol for each analysis.

G.7.4 Regional Air Modeling

The BLM will support and participate in regional modeling efforts through multi-state and/or multi-agency organizations such as Western Governors' Association – Western Regional Air Partnership (WRAP) and the Federal Leadership Forum (FLF). In addition, BLM will, contingent upon available funding, conduct and facilitate regional air modeling as outlined in Section G.9.0.

G.8 MITIGATION

The BLM recognizes that many of the activities that it authorizes, permits, or allows generate air pollutant emissions that have the potential to adversely impact air quality. The primary mechanism to reduce air quality impacts is to reduce emissions (mitigation). Identification and implementation of appropriate emission reduction measures is effective at the project authorization stage where the proposed action is defined in terms of temporal and spatial characteristics and technological specifications. The project-specific information allows for the development of an emissions inventory and impact analysis which is used to determine effective mitigation in response to identified adverse impacts. The BLM commits to the measures described in this section for reducing emissions from its authorized activities.

G.8.1 Project-specific Mitigation

The BLM will require air quality mitigation measures and strategies within its authority (and in consultation with local, state, federal, and tribal agencies with responsibility for managing air resources) in addition to regulatory requirements and proponent committed emission reduction measures, and for emission sources not otherwise regulated by CDPHE or EPA, if the air quality analysis shows potential future impacts on NAAQS or CAAQS or impacts above specific levels of concern for air quality related values in Class I or sensitive Class II areas (as identified on a case-by-case basis by CDPHE or a federal land management or tribal agency) due to the proposed project.

Development Prior to Completion of Modeling

During the period between the signing of the ROD for the GJFO Final RMP/EIS and the completion of the regional air quality modeling study conducted under Section G.9.1, the BLM will not allow BLM authorized oil and gas development activities within the planning area to exceed development rates as averaged over the 5 year period immediately prior to signing the ROD.

G.8.2 Minimizing Air Emissions

The proponent of an oil and gas development project will be required to minimize air pollutant emissions by:

a. complying with all applicable state and federal regulations (including application of best available control technology);

b. submitting an emissions reduction plan (Section G.5.4); and

c. applying mitigation including but not limited to best management practices, emissions offsets, and other control technologies or strategies identified in an air quality analysis (Section G.5.1) or comprehensive interagency air resources management strategy (Section G.9.5.1) and as otherwise required by BLM if the regional air quality modeling study conducted under Section G.9.1 predicts significant cumulative impacts on air resources.

G.8.3 Contingency Plan

The BLM may require project proponents for oil and gas development projects, or other proposed activities with the potential to generate substantial air emissions, to submit a contingency plan that provides for reduced operations in the event of an air quality episode such as a monitored exceedance. Specific operations and pollutants to be addressed in the contingency plan will be determined by the BLM on a case-by-case basis taking into account existing air quality and pollutants emitted by the project. Examples of temporary episode response control measures that could be included in operator committed contingency plans and that may be appropriate to implement immediately after an air quality episode include:

- Temporarily reducing drilling operations during specified periods;
- Temporarily reducing completion or well stimulation operations during specified periods;
- Limiting or controlling blowdowns during specified periods; and
- Limiting other non-essential emission generating operations during specified periods.

BLM may require project proponents to include in the contingency plan, emission control measures that could be implemented in the event of a monitored ozone violation. Examples of violation response control measures

that may be appropriate to implement within one year of a monitored NAAQS violation include:

- Using improved (low emission) engine technology on drill rig, completion, and compressor engines;
- Constructing centralized gathering facilities for product treatment and storage;
- Installing plunger lift systems with smart automation;
- Employing a monthly FLIR program to reduce VOCs;
- Enhancing a direct inspection and maintenance program;
- Tank load out vapor recover; and
- Enhanced VOC emission controls on production equipment.

G.9 COMPREHENSIVE INTERAGENCY AIR RESOURCES MANAGEMENT STRATEGY

Based on the air emissions analysis conducted for this RMP, BLM has identified the potential for adverse impacts on air quality from BLM's projected oil and gas authorizations combined with projected oil and gas development outside of BLM's jurisdiction. The BLM will work collaboratively with other local, state, federal, and tribal agencies involved in the authorization of oil and gas development and the management of air resources to develop a comprehensive strategy to manage air quality impacts from oil and gas development in western Colorado.

G.9.1 Western Colorado Air Resources Management Modeling Study

BLM will conduct a regional air quality modeling study entitled the Western Colorado Air Resources Management Modeling Study (West-CARMMS), within 12 months of signing the GJFO Final RMP/EIS ROD, to assess predicted impacts on air quality from projected increases in oil and gas development.

a. The West-CARMMS will be funded and managed by BLM. The study will be designed and a modeling protocol developed with involvement from appropriate local, state, federal, and tribal agencies involved in the management of air resources and the authorization and regulation of oil and gas development.

b. The West-CARMMS will include potential impacts using projections of oil and gas development up to a maximum of ten years in the future to reflect realistic estimations of development projections and technology improvements.

c. The West-CARMMS results will include the predicted impacts from projected BLM oil and gas authorizations within the GJFO as well as cumulative impacts from all projected oil and gas development within the region.

d. The West-CARMMS results for the cumulative analysis of oil and gas development impacts will be made available to all agencies involved in oil and gas development and air resource management as a key component of developing the comprehensive air resources management strategy.

e. The West-CARMMS results and analysis will be made publicly available.

G.9.2 Interagency Evaluation of Modeling Results

The BLM will facilitate an interagency process to ensure that a comprehensive strategy is developed to manage air quality impacts from future oil and gas development within the region. The local, state, federal, and Tribal agencies involved in the regulation of air quality and the authorization of oil and gas development would evaluate modeling results from West-CARMMS or other future modeling studies and identify potential air quality concerns and necessary reductions in air emissions. If the modeling predicts significant impacts, these agencies would use their respective authorities to implement enhanced emission control strategies, operating limitations, equipment standards, and/or pacing of development as necessary to ensure continued compliance with applicable ambient air quality standards, including those Best Management Practices listed in section G.10.

G.9.3 Future Modeling Studies

Future updates to the West-CARMMS to assess impacts from oil and gas development may be conducted through a collaborative interagency funding and management mechanism for the study.

G.10 Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Table G-1 displays the emission reduction measures, their potential environmental benefits and liabilities, and feasibility.

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Control Strategies for Drilling and Compression			
Multi-well pad directional or horizontal drilling.	When compared to single pad vertical drilling, reduces construction related emissions, decreases surface disturbance, reduces habitat fragmentation.	Could result in higher air impacts in one area with longer sustained drilling times.	Depends on geological strata.

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Improved engine technology (Tier 2 or 4) for diesel drill rig engines.	Reduced NOx, PM, CO, and VOC emissions.		Dependent on availability of technology from engine manufacturers.
Selective Catalytic Reduction (SCR) for drill rig engines and/or compressors.	NO_x emissions reduction, potential decreased formation of visibility impairing compounds and ozone. NOx control efficiency of 95% achieved on drill rig engines. NOx emission rate of 0.1 g/hp-hr achieved for compressors.	Potential NH3 emissions and formation of visibility impairing ammonium nitrate. Regeneration/disposal of catalyst can produce hazardous waste.	Not applicable to 2-stroke engines.
Non-selective catalytic reduction (NSCR) for drill rig engines and/or compressors.	NOx emissions reduction, potential decreased formation of visibility impairing compounds, and ozone. NOx control efficiency of 80-90% achieved for drill rig engines. NOx emission rate of 0.7 g/hp-hr achieved for compressor engines greater than 100 hp.	Regeneration/disposal of catalysts can produce hazardous waste.	Not applicable to lean burn or 2-stroke engines.
Natural Gas fired drill rig engines.	NOx emissions reduction, potential decreased formation of visibility impairing compounds, and ozone.	May require construction of infrastructure (pipelines and/or gas treatment equipment). May require onsite gas storage. May require additional engines to supplement needed torque.	Requires onsite processing of field gas.
Electrification of drill rig engines and/or compressors	Decreased emissions at the source. Transfers emissions to more efficiently controlled source (EGU).	Displaces emissions to EGU. Temporary increase in emissions with construction of power lines.	Depends on availability of power and transmission lines.

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Improved engine technology (Tier 2, 3 or 4) for all mobile and non-road diesel engines.	Reduced NOx, PM, CO, and VOC emissions.		Dependent on availability of technology from engine manufacturers.
Reduced emission (a.k.a. "green") completions.	Reduction in VOC and CH4 emissions. Reduces or eliminate flaring and venting and associated emissions. Reduces or eliminates open pits and associated evaporative emissions. Increased recovery of gas to pipeline rather than atmosphere.	Temporary increase in truck traffic and associated emissions due to delivery of onsite equipment or due to construction of infrastructure.	Need adequate pressure and flow. Need onsite infrastructure (tanks/dehydrator). Availability of sales line. Green completion required where feasible per COGCC Rule 805(b)(3) and NSPS 40 CFR 63 OOOO.
Flaring of completion emissions	Reduces methane, VOC, and some HAP emissions	Converts CH4 to CO2	
Minimize/eliminate venting and/or use closed loop process where possible during "blow downs".	Reduces methane, VOC, and some HAP emissions		
Eliminate evaporation pits for drilling fluids.	Reduces VOC and GHG emissions. Reduces potential for soil and water contamination. Reduces odors.	May increase truck traffic and associated emissions. May increase pad size.	Requires tank and/or pipeline infrastructure.
Electrification of wellhead compression/ pumping.	Reduces local emissions of fossil fuel combustion and transfers to more easily controlled source.	Displaces emissions to EGU.	Depends on availability of power and transmission lines.
Wind (or other renewable) generated power for compressors.	Low or no emissions.	May require construction of infrastructure. Visual impacts. Potential wildlife impacts.	Depends on availability of power and transmission lines.
Compressor seals – replace wet with dry or use mechanical seal.	Reduce gas venting (VOC and GHG emissions).		May be costly or not mechanically feasible.

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Compressor rod packing system – use monitoring and replacement system.	Reduce gas leaks (VOC and GHG emissions).		Requires establishing a monitoring system and doing replacements.
Control Strategies Utilizing Centralized Systems			
Centralization (or consolidation) of gas processing facilities (e.g., separation, dehydration, sweetening).	Reduces vehicle miles traveled (truck traffic) and associated emissions. Reduced VOC and GHG emissions from individual dehydration/ separator units.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure.
Liquids Gathering systems (for condensate and produced water).	Reduces vehicle miles traveled and associated emissions. Reduced VOC and GHG emissions from tanks, truck loading/unloading, and multiple production facilities.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure.
Water and/or fracturing liquids delivery system.	Reduced long term truck traffic and associated emissions.	Temporary increase in construction associated emissions. Higher potential for pipe leaks/groundwater impacts.	Requires pipeline infrastructure. Not feasible for some terrain.
Control Strategies for Tanks, Separators, and Dehydrators			
Eliminate use of open top tanks.	Reduced VOC and GHG emissions.		
Capture and control of flashing emissions from all storage tanks and separation vessels with vapor recovery and/or thermal combustion units.	Reduces VOC and GHG emissions.	Pressure build up on older tanks can lead to uncontrolled rupture.	

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Capture and control of produced water, crude oil, and condensate tank emissions.	Reduces VOC and GHG emissions.		95% VOC control required by COGCC in some areas and by CDPHE statewide with applicability thresholds
Capture and control of dehydration equipment emissions with condensers, vapor recovery, and/or thermal combustion.	Reduces VOC, HAP, and GHG emissions.		90% VOC control required by COGCC in some areas and by CDPHE statewide with applicability thresholds
Use zero emissions dehydrators or use desiccants dehydrators.	Reduces VOC, HAP, and GHG emissions.	Requires desiccants (salt tablets and forms a brine solution that must be disposed of.	Can be as effective as Triethylene glycol (TEG) dehydration.
Control Strategies for Misc. Fugitive VOC Emissions			
Install plunger lift systems to reduce well blow downs.	Reduces VOC and GHG emissions.		Can be more efficient at fluids removal than other methods, must have adequate pressure.
Install and maintain low VOC emitting seals, valves, hatches on production equipment.	Reduces VOC and GHG emissions.		
Initiate equipment leak detection and repair program (e.g., including use of FLIR infrared cameras, grab samples, organic vapor detection devices, and/or visual inspection).	Reduction in VOC and GHG emissions.		
Install or convert gas operated pneumatic devices to electric, solar, or instrument (or compressed) air driven devices/controllers.	Reduces VOC and GHG emissions.	Electric or compressed air driven operations can displace or increase combustion emissions.	

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Use "low" or "no bleed" gas operated pneumatic devices/controllers.	Reduces VOC and GHG emissions.		Required by COGCC and by CDPHE in non-attainment area.
Use closed loop system or thermal combustion for gas operated pneumatic pump emissions.	Reduces VOC and GHG emissions.		
Install or convert gas operated pneumatic pumps to electric, solar, or instrument (or compressed) air driven pumps.	Reduces VOC and GHG emissions.	Electric or compressed air driven operations can displace or increase combustion emissions.	
Install vapor recovery on truck loading/unloading operations at tanks.	Reduces emissions of VOC and GHG emissions.	Pressure build up on older tanks can lead to uncontrolled rupture.	
Control Strategies for Fugitive Dust and Vehicle Emissions			
Unpaved surface treatments including watering, chemical suppressants, and gravel.	20% - 80% control of fugitive dust (particulates) from vehicle traffic.	Potential impacts to water and vegetation from runoff of suppressants.	
Use remote telemetry and automation of wellhead equipment.	Reduces vehicle traffic and associated emissions.		
Speed limit control and enforcement on unpaved roads.	Reduction of fugitive dust emissions.		
Reduce commuter vehicle trips through car pools, commuter vans or buses, innovative work schedules, or work camps.	Reduced combustion emissions, reduced fugitive dust emissions, reduced ozone formation, reduced impacts to visibility.		
Miscellaneous Control Strategies			
Use of ultra-low sulfur diesel (e.g., in engines, compressors, construction equipment).	Reduces emissions of particulates and sulfates.		Fuel not readily available in some areas.

Table G-1
Best Management Practices and Air Emission Reduction Strategies for Oil and Gas Development

Emission Reduction Measure	Potential Environmental Benefits	Potential Environmental Liabilities	Feasibility
Reduce unnecessary vehicle idling.	Reduced combustion emissions, reduced ozone formation, reduced impacts to visibility, reduced fuel consumption.		
Reduced pace of (phased) development.	Peak emissions of all pollutants reduced.	Emissions generated at a lower rate but for a longer period. LOP, duration of impacts is longer.	May not be economically viable or feasible if multiple mineral interests.

This page intentionally left blank.

Appendix H

Best Management Practices and Standard Operating Procedures

APPENDIX H
BEST MANAGEMENT PRACTICES AND STANDARD OPERATING PROCEDURES

INTRODUCTION

This appendix provides a list of common standard operating procedures and best management practices that are applicable to all alternatives in the resource management plan. Standard operating procedures are established guidelines that are followed by the BLM in carrying out management activities. While the list of standard operating procedures is complete, the list is not intended to be comprehensive; additional standard operating procedures could be developed and implemented to support achieving resource objectives.

Best management practices are state-of-the-art mitigation measures applied on a site-specific basis to avoid, minimize, reduce, rectify, or compensate for adverse environmental or social impacts. They are applied to management actions to aid in achieving desired outcomes for safe, environmentally responsible resource development, by preventing, minimizing, or mitigating adverse impacts and reducing conflicts. Best management practices can also be proposed by project applicants for activities on public lands (e.g., for gas drilling). Best management practices not incorporated into the permit application by the applicant may be considered and evaluated through the environmental review process and incorporated into the use authorization as conditions of approval or rights-of-way stipulations. Standard conditions of approval and rights-of-way stipulations are also provided in this appendix as appropriate. Additional best management practices, conditions of approval, and rights-of-way stipulations could be developed to meet resource objectives based on local conditions and resource specific concerns.

AIR QUALITY (A)

Air quality standards are governed by the Clean Air Act of 1990 (as amended) (42 United States [US] Code Chapter 85). The US Environmental Protection Agency is charged with setting National Ambient Air Quality Standards,

currently found at http://www.epa.gov/air/criteria.html (US Environmental Protection Agency 2009). At the state level, the Colorado Department of Public Health and Environment has established its standards (Colorado Department of Public Health and Environment 2009).

Standard Operating Procedures

A-1: The BLM has the authority and responsibility under the Federal Land Policy and Management Act to manage public lands in a manner that will protect the quality of air and atmospheric values. Therefore, the BLM may manage the pace, place, density, and intensity of leasing and development to meet air quality goals.

A-2: The proponent of a project will be required to minimize air pollutant emissions by complying with all applicable state and federal regulations (including application of best available control technology) and may be required to apply mitigation including but not limited to best management practices, and other control technologies or strategies identified by the BLM or CDPHE in accordance with delegated regulatory authority.

Best Management Practices

A-3: The BLM may require project proponents for oil and gas development projects to conduct pre-construction air monitoring within or adjacent to the proposed development area. The purpose of this monitoring is to establish baseline air quality conditions prior to development at the site. The requirement for monitoring will be determined by BLM based on the absence of existing monitoring; existing air quality conditions; magnitude of potential air emissions from the project or activity; magnitude of existing emission sources in the area; proximity to a federally mandated Class I area, sensitive Class II area, or population center; location within a non-attainment or maintenance area; meteorological or geographic conditions; project duration; or issues identified during project scoping. The project proponent will be required to provide a minimum of one year of baseline ambient air monitoring data for any pollutant(s) of concern as determined by BLM. If BLM determines that baseline monitoring is required, this pre-analysis data must meet CDPHE air monitoring standards, be obtained from a site within 50 km of the project boundary, and cover the year immediately prior to the proposed project submittal. The project proponent will be responsible for siting, installing, operating, and maintaining any required air monitoring.

A-4: The BLM may require project proponents for oil and gas development projects to conduct air monitoring for the life of the oil and gas development project depending on the magnitude of potential air emissions from the project or activity, proximity to a federally mandated Class I area, sensitive Class II area, or population center, location within a non-attainment or maintenance area, meteorological or geographic conditions, existing air quality conditions, magnitude of existing development in the area, or issues identified during project scoping. The purpose of this air monitoring is to determine impacts

attributable to the project over time. The project proponent will be responsible for siting, installing, operating, and maintaining any required air monitoring.

A-5: The BLM may require a project proponent to conduct air quality modeling for any pollutant(s) of concern in the absence of sufficient data to ensure compliance with laws and regulations or to determine the effectiveness of mitigation options, unless the project proponent can demonstrate that the project will result in no net increase in emissions of the pollutant(s) of concern. The requirement for modeling will be based on existing air quality conditions; magnitude of potential air emissions from the project or activity; magnitude of existing emission sources in the area; proximity to a federally mandated Class I area, sensitive Class II area, an area expected to exceed a NAAQs or PDS increment, population center, location within a non-attainment or maintenance area; meteorological or geographic conditions; project duration; or issues identified during project scoping. The BLM, in cooperation with an interagency review team, will determine the parameters for the modeling analysis through the development of a project specific modeling protocol.

A-6: The BLM may require project proponents for oil and gas development projects to submit a contingency plan that provides for reduced operations in the event of an air quality episode. Specific operations and pollutants to be addressed in the contingency plan will be determined by the BLM on a case-by-case basis taking into account existing air quality and pollutants emitted by the project.

A-7: Implement directional drilling techniques to reduce construction related emissions (dust and vehicle and construction equipment emissions).

A-8: Improve engine technology (Tier 2 or better) for diesel drill rig engines to reduce NOx, PM, CO, and VOC emissions.

A-9: Utilize natural gas fired drill rig engines to reduce NOx emissions and reduce formation of visibility impairing compounds and ozone.

A-10: Improve engine technology (Tier 2 or better) for all mobile and non-road diesel engines to reduce NOx, PM, CO, and VOC emissions.

A-11: Utilize "Green completion" (a.k.a. closed loop or flareless) technology to reduce VOC and CH4 emissions. This would also reduce or eliminate open pits and associated evaporative emissions.

A-12: Utilize "Green workovers" to reduce VOC and CH4 emissions. This would also reduce or eliminate open pits and associated evaporative emissions.

A-13: Eliminate evaporation pits for drilling fluids to reduce VOC and GHG emissions.

A-14: Electrification of wellhead compression/pumping to reduce local emissions of fossil fuel combustion and transfers to a more easily controlled source.

A-15: Utilize renewable power sources to provide energy for compressors, monitoring equipment, or pumps.

A-16: Replace wet compressor seals with dry seals or use mechanical seals to reduce gas venting (VOC and GHG emissions).

A-17: Centralize or consolidate gas processing facilities, liquids gathering systems (condensate and produced water), water and/or fracturing liquids delivery systems, to reduce VOC and GHG emissions from individual dehydration/separator units and to reduce vehicle emissions.

A-18: Eliminate the use of open top tanks to reduce VOC and GHG emissions.

A-19: Improve capture and control of flashing emissions from all storage tanks and separation vessels with vapor recovery and/or thermal combustion units.

A-20: Improve capture and control of produced water, crude oil, and condensate tank emissions to reduce VOC and GHG emissions.

A-21: Improve capture and control of dehydration equipment emissions with condensers, vapor recovery, and/or thermal combustion to reduce VOC, HAP, and GHG emissions.

A-22: Use zero emissions dehydrators or use desiccants dehydrators to reduce VOC, HAP, and GHG emissions.

A-23: Reduce miscellaneous fugitive VOC emissions by

- **a)** Installing plunger lift systems to reduce well blow downs
- **b)** Install and maintain low VOC emitting seals, valves, and hatches on production equipment.
- **c)** Initiate equipment leak detection and repair program (e.g., including use of FLIR infrared cameras, grab samples, organic vapor detection devices, and/or visual inspection).
- **d)** Install or convert Gas operated pneumatic devices to electric, solar, or instrument (or compressed) air driven devices/controllers.
- **e)** Use "low" or "no bleed" gas operated pneumatic devices/controllers.
- **f)** Use closed loop system or thermal combustion for gas operated pneumatic pump emissions.

g) Install or convert gas operated pneumatic pumps to electric, solar, or instrument (or compressed) air driven pumps.

h) Install vapor recovery on truck loading/unloading operations at tanks.

A-24: Utilize dust suppression techniques on unpaved surfaces including watering, chemical suppressants, and gravel.

A-25: Utilize remote telemetry and automation of wellhead equipment to reduce vehicle traffic and associated emissions.

A-26: Post and enforce speed limits to reduce air borne fugitive dust from vehicular traffic on unpaved roads.

A-27: Reduce commuter vehicle trips through car pools, commuter vans or buses, innovative work schedules, or work camps.

A-28: Use ultra-low sulfur diesel (e.g. in engines, compressors, construction equipment) to reduce emissions of particulates and sulfates.

A-29: Utilize best available technology and methods to degasify coal seams prior to mining. Capture methane gas from coal seams to obtain a market income. Modify methane drainage over time to ensure capture is optimal.

A-30: Reduce unnecessary vehicle idling to reduce combustion emissions, ozone formation, visibility impacts, and fuel consumption.

A-31: Reduce the pace of (phased) development to reduce the peak emissions of all pollutants.

A-32: Restrict surface disturbing activities to periods when wind speeds are less than 25 mph.

A-33: Keep soil and coal refuse moist while loading into dump trucks.

A-34: Keep soil and coal refuse loads below the freeboard of the truck.

A-35: Minimize drop heights when loaders dump soil and coal refuse into trucks.

A-36: Tighten gate seals on dump trucks.

A-37: Cover dump trucks before traveling on public roads.

A-38: Cover construction materials, stockpiled soils, and stockpiled coal refuse if they are a source of fugitive dust.

A-39: Train workers to handle construction materials and debris to reduce fugitive emissions.

A-40: Employ water injection or rotoclones on all overburden drills.

A-41: Use chutes, drapes, or other means to enclose conveyor transfer points, screens, and crushers; cover all conveyors.

A-42: Suppress and extinguish spoil and coal fires as soon as is reasonable and safely possible.

References

Colorado Department of Public Health and Environment. 2011. Air Quality Control Commission Regulations. Internet Web site: http://www.cdphe.state.co.us/regulations/airregs. Accessed on May 21, 2011.

Bureau of Land Management. 2009. Air Quality BMPs-Best Management Practices for Fluid Minerals. Updated 8-24-2009. Internet Web site: www.blm.gov/bmp.

US Environmental Protection Agency. 2009. National Ambient Air Quality Standards. Internet Web site: http://www.epa.gov/air/criteria.html. Accessed on October 14, 2009.

SOILS (S)

Standard Operating Procedures

S-1: All routes shall be built and maintained to BLM Manual Section 9113 standards for road shape and drainage features (BLM 2012a) or where appropriate BLM Manual Section 9115 standards for primitive roads (BLM 2012b). For drainage crossings, culverts should be sized for the 50 year storm event with no static head and to pass a 100-year event without failing. Site specific conditions may warrant BLM to require designs for larger events (e.g. 75-100 year storm events). Large culverts and bridges shall be designed and constructed per BLM Manual 9112 (large culverts and bridges) (BLM 2009). Large culverts and bridges shall be designed to pass a 100-year storm event (minimum).

S-2: When saturated soil conditions existing on access roads or location, or when road rutting becomes deeper than 3 inches, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils, roads and locations.

S-3: Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading or proposed sodding or seeding.

S-4: Topsoil shall only be used for reclamation and shall not be used as fill or to bed or pad the pipe during backfilling.

S-5: Topsoil stripping will include all growth medium present at a site (following initial clearing of large trees, etc.), as indicated by color or texture. Stripping and storage depth may be specified during the onsite inspection. All stripped topsoil/growth medium will be salvaged, segregated and stored in a manner that extends biological viability and protects it from loss. Topsoil and all growth medium will be replaced prior to seedbed preparation. No topsoil will be stripped or segregated when soils are saturated or frozen below the stripping depth.

S-6: A Winter Construction Plan will be submitted and approved by the BLM Authorized Officer before a Notice to Proceed will be authorized for construction activities in frozen soils.

S-7: Prohibit placing fill on a frozen foundation.

S-8: Slopes shall not be created so close to property lines as to endanger adjoining properties without adequate protection against sedimentation, erosion, slippage, settlement, subsidence or other related damages.

S-9: Surface disturbing actions will be sensitive to natural resource protection. When surface disturbance in sensitive areas is unavoidable, they will be minimized to the greatest extent practicable, especially near drainage features and on soils mapped as being saline (see Glossary).

S-10: Surface disturbing actions associated with development of fluid minerals will follow Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as The Gold Book)(BLM 2007b).

S-11: As detailed in the site plan for surface water management, drainage from disturbed areas will be confined or directed to minimize erosion, particularly within 100 feet of all drainages. No runoff, including that from roads, will be allowed to flow into intermittent or perennial waterways without first passing through sediment-trapping mechanisms such as vegetation, anchored bales or catchments.

S-12: Standard secondary containment shall hold 110 percent of the capacity the largest single tank it contains and be impervious to any oil, glycol, produced water, or other toxic fluid for 72 hours. Earthen berms must be compacted and of fine material that will prevent seepage of any spill to surrounding area.

S-13: All tanks with a capacity of ten (10) barrels or greater shall be labeled or posted with the following information: A. Name of operator; B. Operator's emergency contact telephone number; C. Tank capacity; D. Tank contents; and

E. National Fire Protection Association (NFPA) Label. Smaller chemical storage shall be labeled with contents and NFPA label.

S-14: Interim and final reclamation procedures shall utilize best available science and technology to protect natural resources from undue degradation.

Best Management Practices

S-15: To limit surface disturbance and associated impacts to natural resources, all actions will consider the character of the topography and landform. Deep vertical cuts, long or steep fill slopes and side cuts across steep slopes will be avoided. Rights-of-way will be shared, and structures and facilities will be grouped.

S-16: Consider site specific soil and vegetative characteristics and reclamation potential in project design and layout.

S-17: Native vegetation and soils will be protected and disturbance to them will be minimized.

S-18: Cleared vegetation smaller than four inches in diameter will be stockpiled, shredded, and salvaged with topsoil. Cleared vegetation larger than four inches in diameter will be scattered over disturbed areas to accomplish reclamation objectives. Excessive vegetation larger than four inches in diameter may be removed from public land or shredded in place to be salvaged with topsoil. A wood cutting permit may be purchased from BLM for material removed from the site.

S-19: Windrowing of Topsoil. [Use where appropriate based on topography – may not be appropriate for pads in steep areas or where pad size should be minimized.] Topsoil shall be windrowed around the perimeter of surface disturbance to create a berm that limits and redirects stormwater runoff and extends the viability of the topsoil per BLM Topsoil Best Management Practices (BLM 2009 PowerPoint presentation available upon request from the Grand Junction Field Office). Topsoil shall also be windrowed, segregated, and stored along disturbed surfaces or linear features for later spreading across the disturbed corridor during final reclamation. Topsoil berms shall be promptly seeded to maintain soil microbial activity, reduce erosion, and minimize weed establishment.

S-20: Where applicable, entrances to construction locations will be covered by gravel "track pads" to prevent sediment and weed seeds from being tracked in and out of the site.

S-21: In areas where all weather access is necessary, the operator would construct and maintain all-weather routes per BLM Manual Section 9113 standards. Graveling or other appropriate surfacing material would be required to reduce environmental resource damage and provide safe all-weather access.

S-22: Specialized low surface impact equipment (wide- or balloon-tired vehicles, all-terrain vehicles) or helicopters may be used for activities in off-road areas to protect fragile soils and or other resource values.

S-23: Standard secondary containment shall include a study corrugated metal wall to create a basin, be lined with a heavy impervious poly liner and be protected with a gravel surface. Small plastic hoppers shall be installed at all loadout connections to catch drips and small leaks.

References

BLM. 2009. H-9112-1 Bridges and Major Culverts Handbook. Bureau of Land Management, Washington, D.C.

BLM. 2012a. H-9113-1 Road Design Handbook. Bureau of Land Management, Washington, D.C.

BLM. 2012b. H-9115 Primitive Roads Manual. Bureau of Land Management, Washington, D.C.

United States Department of the Interior and United States Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

WATER RESOURCES (H)

Standard Operating Procedures

H-1: The operator/permittee shall adhere to all requirements under the Federal Water Pollution Control Act, as amended through P.L. 107-303, November 27, 2002.

H-2: For surface disturbing activities exceeding one acre in size, develop and implement Stormwater Pollution Prevention Plans to include site-specific design, systematic site monitoring, installation of run-on/off controls such as ditches or berms and installation of adaptive BMPs to reduce potential erosion and sediment production and transport. Stormwater will be dispersed to stabilized areas to slow velocity, prevent erosion and support infiltration into soils. Stormwater BMPs identified in the State approved Storm Water Pollution Prevention Plan shall be in place prior to any earth-disturbing activity. Additional BMPs will be installed if determined necessary by the BLM. All measures shall be maintained in good, functional condition. All temporary BMPs shall be removed once site stabilization and reclamation efforts have been deemed successful by the BLM.

H-3: All stream crossings affecting perennial streams or streams supporting riparian habitat shall be professionally engineered (design, construction, and maintenance).

H-4: Spoil material from clearing, grubbing, and channel excavation shall be disposed of in a manner that will not interfere with the function of the channel and in accordance with all local, state, and federal laws and regulations.

H-5: Surface disturbing actions associated with development of fluid minerals will follow Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as The Gold Book BLM 2007b).

H-6: Before activities take place, every pad, access road, or facility site will have an approved surface drainage plan for establishing positive management of surface water drainage, to reduce erosion and sediment transport. The drainage plan will include adaptive BMPs, monitoring, maintenance and reporting. BMPs may include run-on/run-off controls such as surface pocking or re-vegetation, ditches or berms, basins, and other control methods to reduce erosion. Pre-construction drainage BMPs will be installed as appropriate.

H-7: The operator will reduce potential for contaminating water resources where spills of drilling fluids are most vulnerable. Areas of vulnerability will include a 0.25-mile buffer around the following: mapped alluvial, colluvial, and glacial deposits; springs and perennial water sources, Source Water Protection Areas, and Municipal Watersheds). In these areas, the operator will:

a) Utilize closed loop drilling systems.

b) Utilize gas-blocker additives during the cementing process.

c) Contain flowback and stimulation fluids in tanks on well pad with secondary containment mats/blankets (or equivalent).

d) Install containment devices beneath and around crude oil, condensate and produced water storage tanks.

e) Collect baseline water quality data from downstream fresh water sources prior to drilling, mining, or storage of potentially harmful substances. Parameters to be analyzed will be determined on a site specific basis based on the nature of the proposed action. The operator will be responsible for submitting a list of parameters to BLM for approval prior to sampling.

f) Provide notification of potentially impacted Public Water Systems 15 miles downstream.

g) Develop an emergency spill and response program to be reviewed and approved by BLM prior to surface-disturbing activities.

H-8: Protection of drinking water supply sources within surface water supply areas (leased or made available for leasing) will concur with Colorado Oil and Gas Conservation Commission rule 317B and subsequent updates.

H-9: All routes shall be built and maintained to BLM Manual Section 9113 standards for road shape and drainage features (BLM 2012) or where appropriate BLM Manual Section 9115 standards for primitive roads (BLM 2012b). For drainage crossings, culverts should be sized for the 50 year storm event with no static head and to pass a 100-year event without failing. Site specific conditions may warrant BLM to require designs for larger events (e.g. 75-100 year storm events). Large culverts and bridges shall be designed and constructed per BLM Manual 9112 (large culverts and bridges) (BLM 2009). Large culverts and bridges shall be designed to pass a 100-year storm event (minimum).

H-10: Erosion control features shall be maintained through periodic inspection and maintenance, including cleaning dips and cross-drains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

H-11: Surface discharges shall comply with all regulatory requirements outlined in the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act), as amended through P.L. 107-303, November 27, 2002 Clean Water Act. Additionally, surface discharges should be made to well defined channels away from major erosional features. Furthermore, discharges should be limited to a volume less than or equal to the naturally occurring mean annual peak flow (which is roughly equivalent to a peak generated by a 2-year 24-hour storm event) and that can be handled by the natural channel under anticipated conditions.

H-12: To protect water quality, anti-backflow devices shall be utilized while drafting fresh water from streams, springs, reservoirs and wells.

H-13: Range improvements will conform to BLM Manual H 1740-2 and subsequent updates (BLM 2008).

H-14: Discharge of surface and groundwater to surface drainages will comply with the Federal Water Pollution Control Act (as amended through P.L. 107–303, November 27, 2002) and will be pre-approved by BLM and will meet the following criteria:

- **a)** Discharge operations will not negatively impact downstream beneficial uses.
- **b)** Discharge soil/water interactions will not facilitate the movement of water quality contaminants [e.g., salt, selenium (typically associated with Mancos shale derived soils), sediment, metals] above natural rates in surface and/or groundwater.

c) Water discharge shall be limited to well-defined major channels, to reduce potential of discharged water dissolving and transporting salts from the stream channel and to reduce concentration of salts in alluvium.

d) Discharges will be limited to a volume that can be handled by the natural channel and less than or equal to the naturally occurring mean annual peak flow (roughly equivalent to a two-year, 24-hour storm peak).

e) Discharge points will be located in stable channels or reservoirs away from any downstream head-cuts or other major erosional features (as determined by BLM). Outfall design may include discharge aprons and downstream stabilization of channel side slopes to prevent erosion and provide energy dissipation.

f) Subject to BLM approval, water quality thresholds for both surface and groundwater will be set and monitored during discharge operations in order that they will cease if thresholds were exceeded.

g) Surface and groundwater quantity and quality will be monitored during all discharge operations. Monitoring locations will be subject to BLM approval. Monitoring activities will continue for at least two water years following cessation of discharge.

H-15: Hazardous substances will not be used in drilling, testing, or completion operations, nor introduced at any time into the reserve or cuttings pit. Fluids will be confined to pits or tanks and all pits that may contain liquids will be lined to protect groundwater. Liners will be maintained in good condition, with no tears or holes, until they are removed when the reserve pit is closed.

H-16: Pits will be constructed so that water will not run into them. Fluid levels will be maintained below 2 feet of the lowest point of containment.

H-17: Interim and final reclamation procedures shall utilize best available science and technology to protect natural resources from undue degradation.

Best Management Practices

H-18: To limit surface disturbance and associated impacts to natural resources, all actions will consider the character of the topography and landform. Deep vertical cuts, long or steep fill slopes and side cuts across steep slopes will be avoided. Rights-of-way will be shared, and structures and facilities will be grouped.

H-19: Provide energy dissipaters (e.g., rock piles and logs) where necessary at the downstream end of ditch relief culverts to reduce the erosion energy of the emerging water.

H-20: The face of cut or fill slopes shall not be subject to any concentrated flows of surface water such as from natural drainage ways, graded swales, and downspouts.

H-21: Provide subsurface drainage where necessary to intercept seepage that would otherwise adversely affect slope stability or create excessively wet site conditions.

H-22: Grade road surfaces only as often as necessary to maintain a stable running surface and to retain the original surface drainage.

H-23: Avoid cutting the toe of cut slopes when grading roads or pulling ditches.

H-24: The operator will be responsible for keeping road inlet and outlet ditches, catch-basins, and culverts free of obstructions, particularly before and during spring runoff. Routine machine-cleaning of ditches shall be kept to a minimum during wet weather. Leave the disturbed area in a condition that provides drainage with no additional maintenance.

H-25: Remove all temporary stream crossings immediately after use and cross-ditch the ends of routes or rights-of-way to mitigate erosion from disturbed areas.

H-26: When designing protective/mitigation measures, consider the changes that may occur in the watershed hydrology and sedimentation over the design life of the measure. Moreover, design and construct roads that are self-maintaining and consider using road surfacing, such as gravel when year-long access may be necessary.

H-27: Design and construct stream crossings at right angles, in straight sections of stable reaches to handle (at a minimum) the 100-year flood, and consider culvert and bridge designs that facilitate aquatic life passage.

H-28: Where the access road crosses small drainages and intermittent streams not requiring culverts, low water crossings shall be used. The road will dip to the original streambed elevation of the drainage and the crossing will prevent any blockage or restriction of the existing channel. Material moved from the banks of the crossing will be stockpiled nearby for later use in reclamation. Gravel, riprap, or concrete bottoms may be required in some situations.

H-29: For pipeline crossings of drainage ways: Pipelines crossing at the surface must be constructed high enough to remain above the highest possible floodflows at each crossing. Pipeline crossings below the surface must be buried deep enough to remain undisturbed by scour and fill processes typically associated with passage of peak flows. A hydraulic analysis should be completed during the pipeline design phase to avoid repeated maintenance of such crossings and eliminate costly repairs and potential environmental degradation

associated with pipeline breaks at stream crossings (DOI 2007). Utilize horizontal directional boring techniques under perennial water bodies and/or wetland complexes when environmental circumstances allow.

H-30: Minimize crossing of streams (intermittent and perennial) and wetlands with vehicles and heavy machinery.

H-31: Time work in wetlands and watercourses to occur during low flow season when conditions are driest. High flows occur during late summer early fall as a result of high intensity convective thunderstorm events. Work in these areas must also be done in a manner consistent with BMPs for biological resources.

H-32: Exclude livestock and vehicles from spring sources and riparian areas where on-site evaluation and/or monitoring data indicate degrading conditions or potential to degrade spring or riparian function.

H-33: Avoid alteration of natural hydrologic function and condition in source areas for springs, seeps, fens, or other water developments. Relocate surface-disturbing activities away from these sensitive areas as site conditions warrant.

H-34: Limit consumptive water use from Federal point source water rights on public lands that are not sustainable and/or would jeopardize discharge to streams, springs, seeps, fens, or downstream senior water rights.

H-35: Manage and manipulate invasive stands of brush and weeds on forest, range, pasture land by mechanical, chemical, or biological means or by prescribed burning to improve watershed function and condition.

H-36: Limit surface disturbance near drainage features and minimize surface disturbance on steep slopes, fragile soils, saline soils, and Mancos shale derived soils.

H-37: When activity in streams, wetlands, or riparian areas is unavoidable, the operator will first employ best available technology such as eco-Matting to reduce impacts. The operator would then restore modified or damaged areas as close as practicable to natural conditions to protect banks, wetlands and to re-establish riparian vegetation.

H-38: Maintain to the greatest extent practicable natural flow rates and chemical and physical properties of surface and groundwater during work within stream channels, floodplains, and/or riparian areas.

H-39: Oil and gas drilling operations within municipal watersheds, source water protection areas, or locally important fresh water aquifers should utilize methods and materials that will prevent degradation of the underlying groundwater. This may include practices such as surface and intermediate casing

through potential fresh water zones, gas blocker additives to cement jobs, the use of green fracturing fluids, and pitless drilling - closed loop drilling. The use of "Green" fracturing fluids will be documented in the form of Material Safety Data Sheets which will be reviewed by the operator for compliance prior to use. Material Safety Data Sheets will remain on site at all times such chemicals are present.

H-40: Water from well production tests (water wells) or hydrostatic testing of pipelines shall be filtered of sediments prior to discharge into wetlands. Energy dissipating methods (e.g., straw-bails, waddles, vegetative buffers) shall be in place prior to discharge of production water or water used for hydrostatic testing.

H-41: Within portions of municipal watersheds and sourcewater protection areas available for fluid minerals development, the operator should develop and implement a watershed protection plan. This plan would include characterization and monitoring of baseline hydrologic/hydrogeologic conditions such as but not limited to: water quality, water quantity, groundwater flow patterns, connectivity between geologic formations, and communication between surface and groundwater. The operator should collaborate with all watershed stakeholders in development and implementation of the watershed protection plan.

H-42: Livestock feeding, and salting, shall be done in a manner to protect water quality. When possible, these developments or practices should be done at least 550 meters from riparian zones.

H-43: Maintain appropriate vegetative/riparian buffers around water features to slow runoff and trap sediments and protect water quality. A minimum buffer distance should be 200 meters or greater where site conditions warrant.

H-44: Surface disturbing actions should not permanently impair floodplain function.

H-45: No operations using chemical processes (except for vegetation management) or other pollutants in their activities will be allowed to occur within 200 feet of any water bodies. This includes staging equipment for refueling, and equipment maintenance.

H-46: Fill material will not be cast over hilltops or into drainages.

H-47: All pipeline welds within 100 feet of a perennial stream will be x-rayed to prevent leakage into the stream. Where pipelines cross streams that support Federal or State-listed threatened or endangered species or BLM-listed sensitive species, additional safeguards such as double-walled pipe, and remotely-actuated block or check valves on both sides of the stream may be used.

H-48: Baseline information of channel characteristics and riparian vegetation present must be documented before actions are permitted to disturb riparian areas and the stream channel.

H-49: Direct overflow from water developments back to the original natural drainage in a way that does not accelerate erosion or modify riparian habitats.

H-50: Avoid soil compaction or surface disturbing activities in recharge areas that could impair natural function of springs and/or seeps.

References

Federal Water Pollution Control Act, as amended through P.L. 107-303, November 27, 2002

United States Department of the Interior and United States Department of Agriculture. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development. BLM/WO/ST-06/021+3071/REV 07. Bureau of Land Management. Denver, Colorado. 84 pp.

BLM. 2009. H-9112-1 Bridges and Major Culverts Handbook. Bureau of Land Management, Washington, D.C.

BLM. 2012. H-9113-1 Road Design Handbook. Bureau of Land Management, Washington, D.C.

BLM. 2012b. H-9115 Primitive Roads Manual. Bureau of Land Management, Washington, D.C.

BLM. 2008. H-1740-2 Integrated Vegetation Management Handbook. Bureau of Land Management, Washington, D.C. Internet Web site: http://www.blm.gov/style/medialib/blm/wo/Information_Resources_Management/policy/blm_handbook.Par.59510.File.dat/H-1740-2.pdf. Accessed on May 18, 2012.

U.S. Department of the Interior. 2007. Hydraulic considerations for pipelines crossing stream channels. Technical Note 423. BLM/ST/ST-07/007+2880. Bureau of Land Management, National Science and Technology Center, Denver, CO. Internet Web site: http://www.blm.gov/nstc/library/techno2.htm. Accessed on May 18, 2012.

VEGETATION: RANGELAND (VR)

Guidance may come from various sources. See individual resources.

Standard Operating Procedures

VR-1: When making decisions about proposed projects/actions in known sagebrush habitat, existing plans and guidance will be used by interdisciplinary teams and considered in the decision making process. This guidance includes the conservation actions/guidelines identified in the Western Association of Fish and Wildlife Agencies – Conservation Assessment of Greater Sage-grouse and Sagebrush habitats (2004), and local working group population plans (Pinion Mesa population of Gunnison Sage Grouse and Parachute Piance Roan Population of Greater Sage Grouse).

VR-2: Utilize the techniques and methods for vegetation treatments identified in the Record of Decision for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007).

Best Management Practices

VR-3: Close and rehabilitate roads quickly once they are no longer needed.

VR-4: Close selected routes to protect special status species and significant plant communities.

VR-5: Build roads to the appropriate standard, no higher than necessary for use and safety, and utilize primitive or two-track roads rather than newly constructed roads where feasible.

VR-6: Pipelines (and electrical power lines when possible) shall be placed within road corridors to minimize disturbance.

VR-7: Minimize disturbance to soil and native vegetation as much as possible.

VR-8: Stockpile topsoil for use in final reclamation. Topsoil shall be stored separately from other fill materials.

VR-9: When timely natural regeneration of the native plant community is not likely to occur, carefully select species that will not compete with or exclude botanical resources for revegetation efforts. Bare sites shall be seeded as soon as appropriate to prevent establishment of undesirable plant species.

VR-10: Ensure that seed used for revegetation as well as straw and hay bales used for erosion control are certified free of noxious weeds.

VR-11: Monitor revegetation sites to ensure successful establishment of desired species.

VR-12: Monitor the long-term success of revegetation efforts to ensure successful establishment of desired species and detect any noxious weed infestations. If revegetation is unsuccessful, continue efforts to establish desired species in disturbed sites.

VR-13: In Salt Desert Shrub communities with biological soil crusts, require reclamation that includes but is not limited to: broadcasting bacterial inoculants, planting native grass, forbs, and shrubs seedlings, and exclosure fences.

References

BLM (US Department of Interior, Bureau of Land Management). 2007. Final Vegetation Treatment Using Herbicides on Bureau of Land Management Lands in 17 Western States, Programmatic Environmental Impact Statement. BLM, Nevada State Office, Reno, NV. June 2007.

Connelly, J.W., S.T. Knick, M.A. Schroeder, and S.J. Stiver. 2004. Conservation Assessment of Greater Sage-grouse and Sagebrush Habitat. Western Association of Fish and Wildlife Agencies. Unpublished Report. Cheyenne, Wyoming.

Elliott, B.A., S. Spackman Panjabi, B. Kurzel, B. Neely, R. Rondeau, and M. Ewing. 2009. Recommended Best Management Practices for Plants of Concern. Practices developed to reduce the impacts of oil and gas development activities to plants of concern. Unpublished report prepared by the Rare Plant Conservation Initiative for the National Fish and Wildlife Foundation.

VEGETATION: RIPARIAN HABITAT AND WETLANDS (VRW)

Standard Operating Procedures

VRW-1: Utilize the techniques and methods for vegetation treatments identified in the Record of Decision for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007).

VRW-2: Utilize the techniques and processes for protection of floodplains as identified in Executive Order 11988 – Floodplain Management.

VRW-3: Road crossings that will be used for longer than one year on perennial streams will be engineered and approved by the BLM Authorized Officer.

VRW-4: Do not locate roads or other facilities immediately parallel to streams. Where roads or facilities must cross streams, cross perpendicularly and immediately exit the buffer zone.

VRW-5: Armor low water stream crossings, place properly sized culverts, or span streams as appropriate to protect the riparian zone.

VRW-6: Maintain a minimum of six inch stubble height at the end of October or winter grazing rotation on stream bank (lotic) riparian. If stability of riparian system is depend upon riparian grasses and forbs maintain adequate stubble height to dissipate energy from spring runoff.

VRW-7: Maintain a minimum of four inch stubble height at the end of October on wet meadows (lentic) systems.

VRW-8: Roads and trails (off-highway vehicle, horse, bicycle, hiking) will avoid wetlands and if avoidance is not possible will be designed and constructed in accordance Technical Reference 2E22A68-NPS, Off-highway Vehicle Management.

Best Management Practices

VRW-9: Minimize crossing of streams (intermittent and perennial) and wetlands with vehicles, heavy machinery, and facilities (e.g. pipelines).

VRW-10: Locate residue piles (e.g., sawdust, field chipping residue, disposal ponds) away from drainages where runoff may wash residue into water bodies or wetlands.

VRW-11: Maintain appropriate vegetative/riparian buffers from ground disturbing or heavy use activities of at least 200 meters around riparian and wetland areas to protect and enhance the health and function of these systems.

VRW-12: Manage vegetation in riparian areas to provide wildlife habitat, adequate shade, sediment control, bank stability, and recruitment of wood into stream channels.

VRW-13: Locate project staging areas for refueling, maintenance equipment, materials, operating supplies, and boring in areas not designated as riparian and/or wetland areas.

VRW-14: Minimize surface disturbance within riparian areas and in wetlands.

VRW-15: Avoid late summer or early fall grazing in areas with declining willow populations. If grazing during these time periods must occur allow for at least one full year of rest between grazing rotations.

VRW-16: Utilize riparian pastures as appropriate to manage grazing activities in riparian areas. Vary the timing, duration, and frequency of grazing in riparian pastures.

VRW-17: Create off stream watering facilities when possible (e.g. stock tanks, stock ponds, nose pumps, etc.). Place grazing stock tanks and other watering facilities at least 550 meters from riparian zones.

VRW-18: Actively move cattle to and from riparian pastures or pastures containing riparian habitat. Do not allow for cattle to drift between pastures (BLM TR-1737-14 p. 33-34).

VRW-19: Low stress stockmanship methods should be used to encourage cattle grazing away from riparian areas. Cattle should be turned out away from

riparian areas when enter new pastures or allotments. Cattle should also be guided to appropriate bedding areas.

VRW-20: Cull cattle from the herd that congregate or preferentially graze riparian areas for extended periods of time.

VRW-21: Place salt, hay, grain, molasses, and other supplements on uplands at least 550 meters away from riparian and wetland areas to encourage cattle to graze uplands and move out of riparian areas. Supplementation sites should be at least 1,100 meters (1,200 yards) apart.

VRW-22: Phase the size and timing of vegetation removal treatments within riparian areas. Phasing treatments sizes and timing to reduce soil and water temperatures, maintain bank and soil stability, and retain adequate wildlife habitat for cover and nesting.

VRW-23: Phase the size and timing of vegetation removal treatments on uplands immediately adjacent to riparian areas, and buffer treatment boundaries away from riparian areas to reduce sedimentation and erosion in riparian zones. Allow for at least one 1 year between vegetation removal treatments in uplands and in riparian or wetland areas.

VRW-24: Relocate existing roads away from riparian areas as feasible during requested permitting or authorization of these routes. Reclaim abandoned portions of relocated roads back to natural conditions. Recontour routes back to natural slopes as feasible, rip compacted soils (except for in close proximity to desirable trees), and seed disturbed areas.

VRW-25: Fences should not be placed immediately on the edge of riparian areas. Place fences away from riparian or wetland areas to decrease impacts from trailing along fences.

References

BLM (US Department of Interior, Bureau of Land Management). 2007. Final Vegetation Treatment Using Herbicides on Bureau of Land Management Lands in 17 Western States, Programmatic Environmental Impact Statement. BLM, Nevada State Office, Reno, NV. June 2007.

National Riparian Service Team. Riparian Area Management. Technical Reference 1737-20.Grazing Management Processes and Strategies for Riparian-Wetland Areas. 2006.

NOXIOUS AND INVASIVE WEED PREVENTION (WEED)

This list incorporates many suggested practices under various land uses, and is designed to allow managers to pick and choose those practices that are most applicable and feasible for each situation. Standard Operating Procedures (**SOP**s) as established by policy or law are identified as such.

Site-Disturbing Projects

Pre-project Planning

WEED-1: Environmental analyses for projects and maintenance programs should assess weed risks, analyze high-risk sites for potential weed establishment and spread, and identify prevention practices.

WEED-2: Determine site-specific restoration and monitoring needs and objectives at the onset of project planning.

WEED-3: Learn to recognize noxious and invasive weeds.

WEED-4: Inventory all proposed projects for weeds prior to ground-disturbing activities. If weeds are found, they should be treated (if the timing is appropriate) or removed (if seeds are present) to limit weed seed production and dispersal.

WEED-5: Be cognizant of moving equipment and machinery *from* weed-contaminated areas *to* non-contaminated areas.

WEED-6: Locate and use weed-free project staging areas. Avoid or minimize travel through weed infested areas, or restrict travel to periods when spread of disseminules is least likely.

WEED-7: Identify sites where equipment can be cleaned. Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Seeds and plant parts should be collected and incinerated when possible.

WEED-8: If certified weed-free gravel pits become available in the county, the use of certified weed-free gravel will be required wherever gravel is applied to public lands (e.g., roads). **(SOP)**

WEED-9: Maintain stockpiled, non-infested material in a weed-free condition. Topsoil stockpiles should be promptly revegetated to maintain soil microbial health and reduce the potential for weeds.

WEED-10: Use competitive seed mixes when practical. A certified seed laboratory shall test each lot according to the Association of Official Seed Analysts standards (which include an all-state noxious weed list) and provide documentation of the seed inspection test. The seed shall contain no noxious, prohibited, or restricted weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. **(SOP)**

Project Implementation

WEED-11: Minimize soil disturbance. To the extent practicable, native vegetation should be retained in and around project activity areas, and soil disturbance kept to a minimum.

WEED-12: If a disturbed area must be left bare for a considerable length of time, cover the area with weed barrier until revegetation is possible.

Post-project

WEED-13: Clean all equipment before leaving the project site when operating in weed infested areas.

WEED-14: Inspect, remove, and properly dispose of weed seed and plant parts found on clothing and equipment. Proper disposal means bagging and incinerating seeds and plant parts or washing equipment in an approved containment area.

WEED-15: Revegetate disturbed soil where appropriate to optimize plant establishment for that specific site. Define revegetation objectives for each site. Revegetation may include topsoil replacement, planting, seeding, fertilization, and certified weed-free mulching as necessary. Use native material where appropriate and feasible.

WEED-16: Monitor sites where seed, hay, straw, or mulch has been applied. Eradicate weeds before they form seed. In contracted projects, contract specifications could require that the contractor control weeds for a specified length of time.

WEED-17: Inspect and document all ground-disturbing activities in noxious weed infested areas for at least three growing seasons following completion of the project. For ongoing projects, continue to monitor until reasonably certain that no weeds are present. Plan for follow-up treatments based on inspection results.

Roads and Utilities

Pre-project Planning

WEED-18: Communicate with contractors, local weed districts or weed management areas about projects and best management practices for prevention.

WEED-19: Remove mud, dirt, and plant parts from project equipment before moving it into a project area. Seeds and plant parts shall be collected and incinerated when practical, or washed off in an approved containment area. **(SOP)**

WEED-20: Avoid acquiring water for road dust abatement where access to water is through weed-infested sites.

WEED-21: Treat weeds on travel rights-of-ways before seed formation so construction equipment doesn't spread weed seed.

WEED-22: Schedule and coordinate blading or pulling of noxious weed-infested roadsides or ditches in consultation with the local weed specialist. When it is necessary to blade weed-infested roadsides or ditches, schedule the activity when disseminules are least likely to be viable.

Project Implementation

WEED-23: Retain shade to suppress weeds by minimizing the removal of trees and other roadside vegetation during construction, reconstruction, and maintenance; particularly on south aspects.

WEED-24: Do not blade or pull roadsides and ditches infested with noxious weeds unless doing so is required for public safety or protection of the roadway. If the ditch must be pulled, ensure weeds remain onsite. Blade from least infested to most infested areas.

Post-project

WEED-25: Clean all equipment (power or high-pressure cleaning) of all mud, dirt, and plant parts before leaving the project site if operating in areas infested with weeds. Seeds and plant parts shall be collected and incinerated when possible.

WEED-26: When seeding has been specified for construction and maintenance activities, seed all disturbed soil (except travel route) soon after work is completed.

WEED-27: Use a certified weed-free seed mix suitable for local environmental conditions that includes fast, early growing (preferably native) species to provide quick revegetation. Consider applying weed-free mulch with seeding. **(SOP)**

WEED-28: Periodically inspect roads and rights-of-way for noxious weeds. Train staff to recognize weeds and report locations to the local weed specialist. Follow-up with treatment when needed.

WEED-29: When reclaiming roads, treat weeds before roads are made impassable. Inspect and follow up based on initial inspection and documentation.

WEED-30: To avoid weed infestations, create and maintain healthy plant communities whenever possible, including utility rights-of-ways, roadsides, scenic overlooks, trailheads, and campgrounds.

Recreation Activities

WEED-31: Inspect and clean mechanized trail vehicles of weeds and weed seeds.

WEED-32: Wash boots and socks before hiking into a new area. Inspect and clean packs, equipment, and bike tires.

WEED-33: Avoid hiking through weed infestations whenever possible.

WEED-34: Keep dogs and other pets free of weed seeds.

WEED-35: Avoid picking unidentified "wildflowers" and discarding them along trails or roadways.

WEED-36: Maintain trailheads, campgrounds, visitor centers, boat launches, picnic areas, roads leading to trailheads, and other areas of concentrated public use in a weed-free condition. Consider high-use recreation areas as high priority sites for weed eradication.

WEED-37: Sign trailheads and access points to educate visitors on noxious and invasive weeds and the consequences of their activities.

WEED-38: In areas susceptible to weed invasion, limit vehicles to designated, maintained travel routes. Inspect and document travel corridors for weeds and treat as necessary.

WEED-39: Encourage use of pelletized feed for backcountry horsemen and hunters. Pelletized feed is unlikely to contain weed seed.

Watershed Management

WEED-40: Frequently and systematically inspect and document riparian areas and wetlands for noxious weed establishment and spread. Eradicate new infestations immediately since effective tools for riparian-area weed management are limited.

WEED-41: Promote dense growth of desirable vegetation in riparian areas (where appropriate) to minimize the availability of germination sites for weed seeds or propagules transported from upstream or upslope areas.

WEED-42: Address the risk of invasion by noxious weeds and other invasive species in watershed restoration projects and water quality management plans.

Grazing Management

WEED-43: Consider prevention practices and cooperative management of weeds in grazing allotments. Prevention practices may include:

a) Altering season of use

b) Minimizing ground disturbance

c) Exclusion

d) Preventing weed seed transportation

e) Maintaining healthy vegetation

f) Revegetation

g) Inspection

h) Education

i) Reporting

WEED-44: Provide certified weed-free supplemental feed in a designated area so new weed infestations can be detected and treated immediately. Pelletized feed is unlikely to contain viable weed seed.

WEED-45: If livestock may contribute to seed spread in a weed-infested area, schedule livestock use prior to seed-set or after seed has fallen.

WEED-46: If livestock were transported from a weed-infested area, annually inspect and treat entry units for new weed infestations.

WEED-47: Consider closing infested pastures to livestock grazing when grazing will either continue to exacerbate the condition or contribute to weed seed spread. Designate those pastures as unsuitable range until weed infestations are controlled.

WEED-48: Manage the timing, intensity (utilization), duration, and frequency of livestock activities to maintain the competitive ability of desirable plants and retain litter cover. The objective is to prevent grazers from selectively removing desirable plant species and leaving undesirable species.

WEED-49: Exclude livestock grazing on newly seeded areas with fencing to ensure that desired vegetation is well established, usually after 2-3 growing seasons. **(SOP)**

WEED-50: Reduce ground disturbance, including damage to biological soil crusts. Consider changes in the timing, intensity, duration, or frequency of livestock use; location and changes in salt grounds; restoration or protection of watering sites; and restoration of yarding/loafing areas, corrals, and other areas of concentrated livestock use.

WEED-51: Inspect areas of concentrated livestock use for weed invasion, especially watering locations and other sensitive areas that may be particularly susceptible to invasion. Inventory and manage new infestations.

WEED-52: Defer livestock grazing in burned areas until vegetation is successfully established, usually after 2-3 growing seasons. **(SOP)**

Outfitting / Recreation Pack and Saddle Stock Use

WEED-53: Allow only certified weed-free hay/feed on BLM lands. **(SOP)**

WEED-54: Inspect, brush, and clean animals (especially hooves and legs) before entering public land. Inspect and clean tack and equipment.

WEED-55: Regularly inspect trailheads and other staging areas for backcountry travel. Bedding in trailers and hay fed to pack and saddle animals may contain weed seed or propagules.

WEED-56: Tie or contain stock in ways that minimize soil disturbance and prevent loss of desirable native species.

WEED-57: Authorized trail sites for tying pack animals should be monitored several times per growing season to quickly identify and eradicate new weeds. Trampling and permanent damage to desired plants are likely. Tie-ups shall be located away from water and in shaded areas where the low light helps suppress weed growth.

WEED-58: Educate outfitters to look for and report new weed infestations.

Wildlife

WEED-59: Periodically inspect and document areas where wildlife concentrate in the winter and spring and cause excess soil disturbance.

WEED-60: Use weed-free materials for all wildlife management activities.

WEED-61: Incorporate weed prevention into all wildlife habitat improvement project designs.

Fire

Fire Management Plans

WEED-62: Prescribed fire plans should include pre-burn invasive weed inventory and risk assessment components as well as post-burn mitigation components.

WEED-63: Integrate prescribed fire and other weed management techniques to achieve best results. This may involve post-burn herbicide treatment or other practices that require careful timing.

WEED-64: Include weed prevention and follow-up monitoring in all prescribed fire activities. Include in burn plans the possibility for post-burn weed treatment.

Incident Planning

WEED-65: Increase weed awareness and weed prevention by providing training to new and/or seasonal fire staff on invasive weed identification and prevention.

WEED-66: For prescribed burns, inventory the project area and evaluate potential weed spread with regard to the fire prescription. Areas with moderate to high weed cover should be managed for at least 2 years prior to the prescribed burn to reduce the number of weed seeds in the soil. Continue weed management after the burn.

WEED-67: Ensure that a weed specialist is included on a Fire Incident Management Team when wildfire or prescribed operations occur in or near a weed-infested area. Include a discussion of weed prevention operational practices in all fire briefings.

WEED-68: Use operational practices to reduce weed spread (e.g., avoid weed infestations when locating fire lines).

WEED-69: Identify and periodically inspect potential helispots, staging areas, incident command posts, and base camps and maintain a weed-free condition. Encourage network airports and helibases to do the same.

WEED-70: Develop a burned-area integrated weed management plan, including a monitoring component to detect and eradicate new weeds early.

Fire-fighting

WEED-71: Ensure that all equipment (including borrowed or rental equipment) is free of weed seed and propagules before entering incident location.

WEED-72: When possible, use fire suppression tactics that reduce disturbances to soil and vegetation, especially when creating fire lines.

WEED-73: Use wet or scratch-lines where possible instead of fire breaks made with heavy equipment.

WEED-74: Given the choice of strategies, avoid ignition and burning in areas at high risk for weed establishment or spread.

WEED-75: Hose off vehicles on site if they have traveled through infested areas.

WEED-76: Inspect clothing for weed seeds if foot travel occurred in infested areas.

WEED-77: When possible, establish incident bases, fire operations staging areas, and aircraft landing zones in areas that have been inspected and are verified to be free of invasive weeds.

WEED-78: Cover weed infested cargo areas and net-loading areas with tarps if weeds exist and can't be removed or avoided.

WEED-79: Flag off high-risk weed infestations in areas of concentrated activity and show weeds on facility maps.

WEED-80: If fire operations involve travel or work in weed infested areas, a power wash station should be staged at or near the incident base and helibase. Wash all vehicles and equipment upon arrival from and departure to each incident. This includes fuel trucks and aircraft service vehicles.

WEED-81: Identify the need for possible fire rehab to prevent or mitigate weed invasion during fire incident and apply for funding during the incident.

Post-fire Rehabilitation

WEED-82: Have a weed specialist review burned area rehabilitation reports to ensure proper and effective weed prevention and management is addressed.

WEED-83: Thoroughly clean the undercarriage and tires of vehicles and heavy equipment before entering a burned area.

WEED-84: Treat weeds in burned areas. Weeds can recover as quickly as 2 weeks following a fire.

WEED-85: Schedule inventories 1 month and 1 year post-fire to identify and treat infestations. Eradicate or contain newly emerging infestations.

WEED-86: Restrict travel to established roads to avoid compacting soil that could hinder the recovery of desired plants.

WEED-87: Determine soon after a fire whether revegetation is necessary to speed recovery of a native plant community, or whether desirable plants in the burned area will recover naturally. Consider the severity of the burn and the proportion of weeds to desirable plants on the land before it burned. In general, more severe burns and higher pre-burn weed populations increase the necessity of revegetation. Use a certified weed-free seed mix. **(SOP)**

WEED-88: Inspect and document weed infestations on fire access roads, equipment cleaning sites, and staging areas. Control infestations to prevent spread within burned areas.

WEED-89: Seed and straw mulch to be used for burn rehabilitation (e.g., for wattles, straw bales, dams) shall be certified weed-free. **(SOP)**

WEED-90: Replace soil and vegetation right side up when rehabbing fire line.

FISH AND WILDLIFE MANAGEMENT AND SPECIAL STATUS SPECIES (FWS)

Standard Operating Procedures

FWS-1: To minimize the spread of aquatic nuisance species including but not limited to zebra mussels, New Zealand mud snails, quagga mussels, rusty crayfish, and whirling disease vectors, personnel working in water will do the following:

a) Before leaving a particular water, inspect and clean gear used in the water, including watercraft (boats, canoes, kayaks, rafts, etc.), trailers, oars, nets, waders, wading boots, sandals, and life jackets. Remove vegetation, mud, grit, algae, etc. and drain water from boats and other gear.

b) Prior to entering another water body, clean your gear by spraying with 409 or a similar soap or bleach solution and let equipment dry in the hot sun for several hours, or use hot tap water that drains onto the ground, not down a drain or into another water course.

FWS-2: Fences constructed will comply with applicable wildlife fence standards, such as those described in BLM Handbook H-1741-1, Fencing (BLM 1989). Current standards for fencing cattle out in deer and elk range is a four strand fence, 40 inches high with a spacing of wires from ground to top of 60"(smooth bottom wire), 6" (second wire barbed), 6" (third wire barbed), 12" (top wire preferably smooth but may need to be barbed in areas of intense cattle use).

FWS-3: The GJFO will consult agency species management plans and other conservation plans as appropriate to guide management and devise mitigation measures when needed. Examples of these plans include but are not limited to the Colorado Wildlife Action Plan, Colorado Sagebrush: A Conservation Assessment and Strategy, National, Rangewide, statewide and local working group conservation plans for Gunnison and greater sage grouse, Sharing the land with pinyon-juniper birds, Birds in a sagebrush sea: managing sagebrush habitats for bird communities, North American Landbird Conservation Plan, North American Waterbird conservation Plan, National and Colorado Partners in flight Bird Conservation Plans, Colorado Gunnison's and White-tailed Prairie Dog Conservation Strategy and Recovery plans for federally listed species.

FWS-4: Lessees will be notified that a lease parcel contains potential habitat for threatened (T), endangered (E), proposed (P), candidate (C) and BLM sensitive (S) plants, fish and wildlife.

FWS-5: Existing plant location records will be consulted and site inventories will be conducted to identify suitable habitat[1] for these plants. Surveys for occupied suitable habitat will be performed prior to any ground disturbance.

Surveys will take place when the plants can be positively identified, during the appropriate flowering periods. Surveys will be performed by qualified field botanists/biologists who will provide documentation of their qualifications, experience and knowledge of the species prior to starting work.

FWS-6: In complex linear or split-estate actions early coordination with private landowners will facilitate the process the BLM must complete prior to authorizing the action. To comply with the Endangered Species Act, the BLM must consider the effects to listed species on private land that result from a Federal action, such as linear rights-of-way or constructing a well pad on private land to drill to federal lease. Before an applicant can contract a biological survey, the private surface owner must allow the biological consultant access. Projects can be authorized without completing biological surveys on private lands but this may lead to lengthy delays while the BLM completes consultation.

FWS-7: For Colorado hookless cactus and other T, E, P, and C species surface-disturbing activities will be avoided within 200 meters of occupied plant habitat[1] wherever possible and where geography and other resource concerns allow[2]. Fragmentation of existing populations and identified areas of suitable habitat will be avoided wherever possible.

FWS-8: For BLM sensitive species surface-disturbing activities will be avoided within 100 meters of occupied plant habitat[1] wherever possible and where geography and other resource concerns allow[2]. Fragmentation of existing populations and identified areas of suitable habitat will be avoided wherever possible.

FWS-9: Where development is allowed within 100 meters of occupied habitat for T, E, P and C species or BLM sensitive species, unauthorized disturbance of plant habitat will be avoided by on-site guidance from a biologist, and by fencing the perimeter of the disturbed area, or such other method as agreed to by the Fish and Wildlife Service. In such instances, a monitoring plan approved by the Service will be implemented for the duration of the project to assess impacts to the plant population or seed bank. If detrimental effects are detected through monitoring, corrective action will be taken through adaptive management.

FWS-10: Surface disturbance closer than 20 meters to a listed plant will be considered an adverse effect. Mitigating measures within this narrow buffer are very important and helpful to individual plants, but we do not expect that all

[1] Occupied habitat includes areas historically or currently supporting plants and/or soils containing a viable seed bank. Suitable habitat is defined as an area that contains or exhibits the specific components or constituents necessary for plant persistence, as determined by existing maps plus field inspection and/or surveys. It may or may not be occupied by plants or a seed bank. Potential habitat is defined as an area that satisfies the broad criteria of the species' habitat description. It is usually determined by preliminary in-house assessment.

[2] An avoidance buffer helps to minimize dust transport, weed invasion, unauthorized vehicular activities, chemical and produced-water spills; and helps to protect pollinator habitat.

adverse effects can be fully mitigated within this distance. Some adverse effects due to dust, dust suppression, loss of pollinator habitat, and toxic spills will likely remain. There are two possible exceptions to this rule of thumb: 1) The new disturbance is no closer to a listed plant than preexisting disturbance and no new or increased impacts to the listed plant are expected; or 2) the listed plant is screened from the proposed disturbance (e.g., tall, thick vegetation or a berm acts as a screen or effective barrier to fugitive dust and other potential impacts).

FWS-11: Transplantation of potentially affected plants will not be used as a rationale to defend a "not likely to adversely affect" or a "no effect" determination for listed plant species.

FWS-12: For drilling pads and other installations, surveys will extend beyond the edge of disturbance by at least 200 meters for T, E, P and C species. For linear features such as roads and pipelines, surveys will extend at least 100 meters beyond the edge of the proposed ground disturbance along each side of the right of way. If special status plants are found within the survey area, the contractor will endeavor to determine the complete areal extent of the occurrence and the approximate number of individuals within the occurrence.

FWS-13: Documentation will include individual plant locations and suitable habitat distributions. Prior to conducting plant surveys, the operator will provide maps (as hard-copy and Geographic Information System files) of all proposed areas of disturbance to BLM. Maps will include existing and proposed roads, pipelines, well pads, pits, parking lots, and all other work areas. Post-construction or as-built maps will also be submitted to account for any deviations from pre-project maps. Specific polygons where rare plant surveys have been conducted will be included, along with the results of those surveys (positive or negative). The locations of any monitoring plots established to measure the status of rare plants and habitat in the vicinity of project activities will also be displayed.

FWS-14: Protect pollinator species for endangered or threatened species by incorporating the standard operating procedures found in the Final Programmatic Environmental Impact Statement for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007).

FWS-15: Conduct development on existing or previously disturbed surface locations to reduce impacts on undisturbed areas and minimize impact on wildlife habitat.

FWS-16: To protect nesting raptors, raptor surveys shall be conducted prior to activities that could impact nesting activities. Based on the survey results the following mitigation measures may be applied:

a) Protect nest sites from human disturbances by implementing CPW and USFWS recommended buffers around known nest sites.

b) Provide perching and nesting structures as mitigation where disturbances are impacting raptors.

c) Apply guidance from *Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006* (Avian Power Line Interaction Committee 2006) and *Avian Protection Plan (APP) Guidelines* (Avian Power Line Interaction Committee and US Fish and Wildlife Service 2005) or most current guidance for new power line construction (including upgrades and reconstruction) to prevent electrocution of raptors.

FWS-17: Implement drilling technology improvements, such as horizontal drilling, to maximize resource recovery and minimize environmental impacts.

FWS-18: Install pipelines adjacent to roads wherever possible.

FWS-19: Strategically apply fugitive dust control measures to reduce coating of vegetation and deposition in water sources, including enforcing established speed limits on BLM and private roads.

FWS-20: Ensure that ponds containing mining or other wastes are closed off to exclude birds, bats and other wildlife attracted to the water.

FWS-21: When placing culverts on streams containing fish or amphibians, design culverts to maintain or improve aquatic organism passage.

FWS-22: In wildland fire situations work with Fire Resource Advisors during suppression efforts in the GJFO when considering dipping water from ponds, reservoirs, and lakes throughout the Grand Valley. Select reservoirs, ponds, and lakes harbor native and/or endangered fishes and should be avoided if at all possible. If these waters must be used, screen water intakes with ¼ inch mesh to avoid entrainment of fish.

FWS-23: When obtaining water from any live stream or river the following actions should be taken:

a) The best method to avoid entrainment of fish is to pump from off-channel locations (e.g., ponds, lakes, and diversion ditches), not directly connected to the mainstem rivers even during high spring flows;

b) If the pump head must be located in the river channel where larval fish are known to occur, the following measures apply:

1. Do not situate the pump in a low-flow or no-flow area as these habitats tend to concentrate larval or young-of-year fishes. Instead place the pump into fast moving/riffle habitat;
2. limit the amount of pumping, to the greatest extent possible, during that period of the year when larval fish may be present (June 1 to August 15); and
3. avoid pumping, to the greatest extent possible, during the pre-dawn hours (two hours prior to sunrise) as larval fish drift studies indicate that this is a period of greatest daily activity.

c) Screen all pump intakes with ¼-inch or finer mesh material.

d) Report any fish impinged on any intake screens to the Fish and Wildlife Service (970.243.2778) or the Colorado Division of Wildlife:

Northwest Region
711 Independent Ave., Grand Junction, CO 81505
Phone: (970) 255-6100

Southwest Region
415 Turner Dr., Durango, CO 81303
Phone: (970) 375-6700

Best Management Practices

FWS-24: Design lighting required for recreation, oil and gas, and other programs to be directing downward, using shielded lights, and only the minimum illumination required, utilize green lights in areas that require illumination at night and prevent skyward projection of lighting that may disorient night migrating birds. Sodium vapor lights, widely used for streetlights and security lighting, should not be used because they have been shown to attract night-flying birFWS-20- Coordinate with CPW on migratory bird inventories when migratory bird inventories are proposed by BLM or required of third parties.

FWS-25: Limit flaring operations when well pads are within 100 m of occupied T, E, C, P and sensitive species habitat.

FWS-26: Control noxious weeds using integrated techniques. Limit chemical control in areas with rare plant species to avoid damage to non-target species. Mechanical or chemical control in and near rare plant habitat shall only be implemented by personnel familiar with the rare plants.

FWS-27: Prohibit collection of rare plants or plant parts, except as permitted by the BLM Authorized Officer for scientific research.

FWS-28: The use of deicers and dust suppressants within 100 meters (328 feet) of road-side occurrences of special status plant species will require prior approval from the BLM.

FWS-29: Herbicide application shall be kept at least 200 meters from known plant populations, except in instances where weed populations threaten habitat integrity or plant populations. Great care shall be used to avoid pesticide drift in those cases.

FWS-30: Use temporary water delivery lines laid on the surface of the ground to reduce truck traffic.

FWS-31: Retain existing snags for wildlife use in places where they will not create a human hazard.

FWS-32: Where linear disturbance is proposed edges of vegetation shall be feathered to avoid long linear edges of habitat and allow for greater habitat complexity for wildlife.

FWS-33: Protect existing temporary pools to providing breeding and hibernating habitat for amphibians.

FWS-34: Avoid fragmentation of wildlife habitat especially in wildlife migration and movement corridors.

FWS-35: Encourage the use of a variety of BMPs, as defined by the most recent version of "Best Management Practices for Oil and Gas Development on Public Lands," http://www.blm.gov/bmp/.

FWS-36: Identify in-channel features (e.g., culverts, water diversion structures) that block aquatic organism movement and/or impair stream connectivity and replace, modify, or remove these impediments as they are identified and as opportunities allow. Consider and address aquatic organism passage and appropriate life-stage requirements when designing new or modifying existing stream crossings.

FWS-37: Where construction of in-channel barriers will benefit aquatic species by limiting access from competitive species and/or disease vectors, consider barriers as a management tool on a site-specific basis.

FWS-38: In critical and sever winter range for deer and elk avoid recurring transportation activity within two hours before and after sunrise and sunset to avoid disturbing wintering wildlife between Dec1 and May1 (excluding emergencies).

FWS-39: For intensive activities within winter range for wildlife use carpooling for activities like crew rotations and shift changes.

FWS-40: For intensive activities within winter range for wildlife monitor and enforce speed limits

FWS-41: For intensive activities within winter range for wildlife prohibit pets and possession of fire arms on the site by employees or contractors.

FWS-42: Implement closed-loop drilling systems on all active rigs, using only a small cuttings mixing area on each location.

FWS-43: Optimize completion operations to minimize impact. Techniques include:

a) Simultaneous drilling and completion operations minimize the operating time on the well pad, where space and safety restrictions permit the use of this technique.

b) Remote completion operations using nearby existing well pads minimize overall surface disturbance.

FWS-44: Reuse water whenever possible for drilling and completion activities. Recycle all water used in completion activities to meet water needs for completion of subsequent wells on location; this will reduce fresh water consumption and reduce truck traffic.

FWS-45: Expand the water distribution system to efficiently move water in pipelines, reducing truck traffic for drilling and completion activities.

FWS-46: Reduce visits to well sites through remote monitoring (i.e. SCADA) and the use of multi-function contractors.

FWS-47: Use solar panels as an alternative energy source for on location production equipment, to limit trips to the location for production maintenance.

FWS-48: Use dual-fuel natural gas/diesel systems, reducing diesel delivery to the well site by as much as 70 percent.

FWS-49: Use existing roads instead of new construction segments wherever feasible.

FWS-50: Seed all access roads and facilities other than well pads in a timely manner after construction has been completed. Seed all topsoil from pad construction.

FWS-51: Noise reduction techniques and designs will be used to reduce noise from compressors or other motorized equipment.

FWS-52: Where new roads are constructed seasonal restrictions on public vehicular access will be evaluated where there are wildlife conflict or road damage/maintenance issues.

FWS-53: Install multiple pipelines in a single trench, to minimize disturbance.

FWS-54: Install trench plugs (sloped to allow wildlife or livestock to exit the trench should they enter) at known wildlife or livestock trails to allow safe crossing on long spans of open trench.

FWS-55: Coordinate with the Colorado Parks and Wildlife (CPW) on BLM projects and BLM-authorized projects that are proposed within 0.5-mile of a small capacity water development and 2.0-mile of a large capacity wildlife water development. Projects determined to have a detrimental effect on wildlife using wildlife water developments will be avoided or rerouted if possible.

References

Avian Power Line Interaction Committee. 2006. Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 1996. Edison Electric Institute, Avian Power Line Interaction Committee, and the California Energy Commission. Washington, DC, and Sacramento, CA.

Avian Power Line Interaction Committee and US Fish and Wildlife Service. 2005. Avian Protection Plan (APP) Guidelines, April 2005. Washington, DC.

BLM (United States Department of the Interior, Bureau of Land Management). 1989. Handbook H-1741-1: Fencing. Release 1-1572. BLM, Washington, DC. December 6, 1989. 58pp.

_____. 2007. Final Vegetation Treatment Using Herbicides on Bureau of Land Management Lands in 17 Western States, Programmatic Environmental Impact Statement. BLM, Nevada State Office, Reno, NV. June 2007.

US Fish and Wildlife Service and BLM Recommendations for Avoiding Adverse Effects on Threatened, Endangered, Proposed, Candidate and BLM Sensitive Plants on BLM Lease Lands in Colorado; Draft. July 25, 2008.

USDA Forest Service. Designing for Aquatic Organism Passage at Road-Stream Crossings. 2007.

Elliott, B.A., S. Spackman Panjabi, B. Kurzel, B. Neely, R. Rondeau, and M. Ewing. 2009. Recommended Best Management Practices for Plants of Concern. Practices developed to reduce the impacts of oil and gas development activities to plants of concern. Unpublished report prepared by the Rare Plant Conservation Initiative for the National Fish and Wildlife Foundation.

WILDLIFE DAMAGE MANAGEMENT (WDM)

Standard Operating Procedures

WDM-1: Control activities conducted by the US Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services will be coordinated with the GJFO on an annual basis, including review of authorized control areas and annual submittal of control activities on GJFO lands.

WDM-2: US Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services will notify the GJFO before any damage control activity is implemented within the restricted area(s), and exceptions will be approved on a case-by-case basis.

WDM-3: All US Environmental Protection Agency use restrictions and requirements for toxicants are to be followed where control devices are employed on public lands. The GJFO must be notified before any toxicants are deployed and a map of the treatment area must be provided. Adequate signage must be provided and maintained.

WDM-4: All aerial control activities in the wild horse area must be conducted in compliance with all applicable Colorado State Statutes, the provisions of the 1971 Wild and Free-Roaming Horses and Burros Act, as amended, and its associated regulations (43 Code of Federal Regulations 4700). No harassment of wild horses and burros is permitted under these provisions; maliciously or negligently causing the injury of a wild horse or burro is also expressly prohibited.

WDM-5: Any aerial control activities in the wild horse area will require notification of and prior approval from the GJFO.

WDM-6: During the foaling season (March 1-June 30), a flyover survey to determine whether wild horses are present will be conducted prior to commencing any wildlife damage management activities. This survey will be conducted at a minimum of 500 feet above ground level. If wild horses are determined to be present, flyover surveys will be adjusted as needed to prevent any disturbance or harassment of the animals present, and wildlife damage activities that would result in disturbance or harassment of these animals will not take place.

WDM-7: All persons involved with wildlife damage management activities shall be briefed on the regulations and penalties relating to harassment of wild horses prior to commencing animal control operations.

WDM-8: The GJFO will identify through the US Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services annual work plan process areas of public lands considered special resource use areas on which control activities be avoided except as requested by CPW, or other protective

restrictions may apply. Examples may include special status species habitats (e.g., sage-grouse leks and nesting areas, and bald eagle nests).

WDM-9: Interim Management Policies must be adhered to at all times in Wilderness Study Areas and the GJFO must be notified before any wildlife damage management activity is implemented. Wildlife damage management activities in Wilderness Study Areas must be directed at the offending animal. Aerial hunting may be allowed in Wilderness Study Areas as long as those actions do not impair wilderness characteristics.

WILD HORSES (WH)

Standard Operating Procedures

WH-1: Wild Horse and/or Burro Gathers Standard Operating Procedures.

WH-2: Wild Horse Fertility Control Treatment Standard Operating Procedures.

WH-3: All new or reconstructed exclosures within herd management areas will follow the horse fencing standards.

WH-4: Any new facilities shall be a minimum of 0.25-mile from water sources to avoid hindrance of use by wild horses.

WH-5: Any new facilities shall be designed to avoid injury to horses or fenced to prevent wild horse access.

WH-6: Require rebar to be welded between the rails of cattle guards if the cattle guard or similar device is to be installed in or near herd management areas to decrease the risk of wild horse and/or burro entrapment.

WH-7: All new or reconstructed fences on the perimeter of the wild horse range will be comprised of materials that would reduce injury to wild horses. (e.g., wooden poles, smooth wire)

WH-8: Seed mixes for projects within the wild horse range shall benefit wild horses (emphasis on palatable grasses) while meeting land health standards.

WH-9: If a project involves heavy or sustained traffic; require road signs for safety and protection of wild horses.

WH-10: Above ground facilities requiring painting will be designed to blend in with local environment.

WH-11: Disturbed areas will be contoured to blend with the natural topography. Blending is defined as reducing form, line, and color contrast associated with the surface disturbance.

WH-12: Still or motion picture photography for personal use is permitted; however, photography for commercial purposes may require a permit. Contact the local BLM office.

WH-13: Feed weed-free certified hay or pellet feed (refer to www.weedfreefeed.com for more information).

WH-14: For guide/outfitters and recreationists: The permittee shall inform all staff and clients that wild horses protected by federal law and will prevent harassment of wild horses from permitted activities. Prohibited acts include but are not limited to: maliciously injuring or harassing a wild horse; chasing wild horses, removing or attempting to remove a wild horse from public lands; destroying a wild horse; selling or attempting to sell a wild horse; and, commercially exploiting a wild horse. Crimes are punishable by fine and/or imprisonment. Examples of violations might include harassment by all-terrain vehicle, injury or death by a bullet or arrow, and illegal capture.

Best Management Practices

WH-15: Adequate water for livestock and dogs may not be available along your route. Springs and other water sources identified on maps may be dry at any time.

WH-16: Bring a sufficient quantity of drinking water for your riding stock (15 gallons or more per day, per animal)

WH-17: Secure your riding stock adequately (use portable panels or corrals).

WH-18: Be sure your domestic riding stocks are current with annual vaccinations.

WH-19: Do not bring sick or diseased riding animals into herd management areas. Wild horses on the range are not vaccinated against any diseases.

WH-20: Do not drive across, camp on, or stake riding stock out to graze on riparian areas.

WH-21: Water riding stock only at springs or streams with stable banks and dry soils.

WH-22: Keep riding stock secured away from dispersed camp sites and spread manure before leaving.

WH-23: Explore the area prior to hauling in a trailer to assess access. Pulling horse or other trailers off of State or County designated roads shall only be done with prior operator knowledge of the road. Many roads are narrow, rough, steep, or impassable. Turning around may be difficult or impossible, especially with a trailer**.**

WH-24: In the event that a foaling mare or newborn foal is encountered, every effort shall be made to stay away from that location. Do not attempt to help the mare or foal.

WH-25: Stay at least 100 feet away from wild horses.

WH-26: Try not to place yourself between members of a band or between adjoining bands.

WH-27: Observe wild horses quietly so wild behavior is not disrupted.

WH-28: If you are approached by wild horses while riding horseback, stay calm, maintain control of your animal, and leave the area as soon as you can. Ride with others whenever possible.

WH-29: Mares, especially if in season, may attract wild stud horses to you or your camp. Keep domestic horses secure at all times. Ride with others who are experienced and skilled at resolving unwanted wild horse or burro interactions.

WH-30: Do not feed or try to attract animals towards you.

WH-31: Keep dogs under control so they do not disturb or chase wild horses.

WH-32: Report sick or injured animals, or violations, to the BLM.

WH-33: Please do not attempt to assist or handle sick or injured animals**.**

CULTURAL RESOURCES (CR)

Standard Operating Procedures

CR-1: Evaluation of all BLM activities and BLM authorized activities shall be made in compliance with BLM Manual 8100, The Foundations for Managing Cultural Resources (BLM 2004a), and subsequent 8100 series (BLM 2004b, 2004c, 2004d, 2004e, 2004f, 2004g, and 2004h); Handbook of Guidelines and Procedures for Inventory, Evaluation, and Mitigation of Cultural Resources (BLM 1998, rev. 2007); and the current State Protocol Agreement between the Colorado BLM and the Colorado State Historic Preservation Office.

CR-2: In complex linear or split-estate actions early coordination with private landowners will facilitate the process the BLM must complete prior to authorizing the action. To comply with the National Historic Preservation Act, the BLM must consider the effects to cultural resources on private land that result from a Federal action, such as linear rights-of-way or constructing a well pad on private land to drill to federal lease. Before an applicant can contract a cultural survey, the private surface owner must allow the cultural consultant access. Projects can be authorized without completing cultural surveys on

private lands but this may lead to lengthy delays while the BLM completes consultation.

CR-3: The holder of a BLM authorization to carry out land use activities on Federal lands, including all leases and permits, must notify the BLM, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony (43 Code of Federal Regulations [CFR] 10.4(g)). Activities must stop in the immediate vicinity of the discovery. The discovery must be protected from the authorized activity for a period of 30 days or unless otherwise notified by the (43 CFR 10.4(c) and (d)).

CR-4: The National Historic Preservation Act, as amended, requires that if newly discovered historic or archaeological materials or other cultural resources are identified during project implementation, work in that area must stop and the BLM Authorized Officer must be notified immediately. Within five working days the BLM Authorized Officer will inform the proponent as to:

a) Whether the materials appear eligible for the National Register of Historic Places;

b) The mitigation measures the proponent will likely have to undertake before the site could be used (assuming in situ preservation is not practicable), (36 CFR 800.13); and

c) A timeframe for the BLM Authorized Officer to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Office, that the BLM Authorized Officer's findings were correct and mitigation was appropriate.

CR-5: A standard Education/Discovery stipulation for cultural resource protection shall be attached to the land use authorization. The operator or its contractor is responsible for informing all persons who are associated with the project operations that Federal laws protect cultural resources and they will be subject to prosecution for disturbing or destroying any historic or archaeological sites, or collecting any cultural objects, prehistoric or historic from federal lands.

CR-6: Strict adherence to the confidentiality of information concerning the nature and location of archeological resources will be required of any company issued a land use authorization and all of their subcontractors (Archaeological Resource Protection Act, 16 US Code 470hh).

CR-7: When a NEPA document specifically stipulates the need for an archaeological monitor during construction or a project is located in areas that require an archaeological monitor to be present (see conditions of approval polygons for Sunnyside, Grand Mesa Slopes, and Indian Creek) it is the applicant's responsibility to contract an archaeological consultant holding a

current Colorado BLM permit and authorized to work in the GJFO. Fieldwork authorizations are required prior to any construction monitoring Cultural Resource monitoring where resources are present or reasonably expected is permitted only when the ground surface is free of snow, unfrozen, and dry.

CR-8: A cultural resource must be allocated to public use prior to:

a) authorizing or implementing any Heritage Tourism project;

b) when Special Recreation Permits are issued that will use a cultural resource; or

c) a BLM recreation project is proposed that involves the use or interpretation of a cultural resource.

Best Management Practices

CR-9: BLM specialists shall complete a File Search Request form (find at S:\blm share\CRM_for_FO\ File Search Request) and submit to the Field Office Archaeologist as soon as there is proposed BLM activity or BLM authorized activity that will require preparation of a NEPA document. This will provide the specialist with immediate information as to the need for Class III inventory, whether that will be contracted or in-house, or the presence of Cultural Resources that may preclude or impede their project.

CR-10: Once it has been determined that a project will require contracted cultural inventory the BLM specialists shall complete a *Request for CR Compliance* form *(find at S:\blm share\CRM_for_FO\ CR Compliance)* and submit to the Field Office Archaeologist as soon as they have a final design for a BLM proposed project or activity.

CR-11: When possible, locate projects in areas that are previously disturbed. To comply with the National Historic Preservation Act the BLM must identify significant cultural resources. Under the current regulations and guidelines the BLM may decide that no inventory needs to be conducted because the proposed action is located in an environment where ground disturbance has modified the surface so extensively that the likelihood of finding intact cultural resources is negligible.

CR-12: Where proposed projects or development will adversely affect a cultural resource, testing, data recovery or full excavation to recover scientific information may be required as mitigation. The applicant or operator bears the full cost of mitigation and is encouraged to consider avoiding adverse effects through project relocation or redesign rather than mitigating adverse effects.

CR-13: A *File Search Request* form *(find at the BLM's network: S:\blm share\CRM_for_FO\ File Search Request*) must be submitted to the Field Office Archaeologist identifying the site and the proposed use so the allocation to public use can be confirmed.

References

BLM (United States Department of the Interior, Bureau of Land Management). 1998. Handbook of Guidelines and Procedures for Inventory, Evaluation, and Mitigation of Cultural Resources. Rev. 2007. BLM, Colorado State Office, Lakewood, CO.

_____. 2004a. Manual 8100: The Foundations for Managing Cultural Resources. Release 8-72. BLM, Washington, DC. December 3, 2004.

_____. 2004b. Manual 8110: Identifying and Evaluating Cultural Resources. 8-73. BLM, Washington, DC. December 3, 2004.

_____. 2004c. Manual 8120: Tribal Consultation Under Cultural Resources. 8-74. BLM, Washington, DC. December 3, 2004.

_____. 2004d. Manual 8120-1: General Procedural Guidance for Native American Consultation. 8-75. BLM, Washington, DC. December 3, 2004.

_____. 2004e. Manual 8130: Planning for Uses of Cultural Resources. 8-76. BLM, Washington, DC. December 3, 2004.

_____. 2004f. Manual 8140: Protecting Cultural Resources. 8-77. BLM, Washington, DC. December 3, 2004.

_____. 2004g. Manual 8150: Permitting Uses of Cultural Resources. 8-78. BLM, Washington, DC. December 3, 2004.

_____. 2004h. Manual 8170: Interpreting Cultural Resources for the Public. 8-79. BLM, Washington, DC. December 3, 2004.

TRIBAL CONSULTATION (TC)

Standard Operating Procedures

TC-1: The BLM has a responsibility to develop a government-to-government relationship with the tribes: the formal relationship that exists between the Federal Government and tribal governments under United State laws. Tribal governments are considered dependent domestic sovereignties with primary and independent jurisdiction (in most cases) over tribal lands. Concerning proposed BLM plans and actions, at least the level of consideration and consistency review provided to State governments must be afforded to tribal governments.

TC-2: The BLM is responsible for consultation under General Authorities defined as "laws, executive orders, and regulations that are not considered "cultural resource authorities". The regulations implementing both Federal Land Policy and Management Act and NEPA require Native American consultation.

The American Indian Religious Freedom Act and the Indian Sacred sites order (Executive Order 13007) pertain to the free exercise clause of the First Amendment (BLM Manual 8120-1 Guidelines for Conducting Tribal Consultation [BLM 2004], Federal Land Policy and Management Act Title II, NEPA Section 102, 40 CFR 1501.2 and 1501.7)

TC-3: Tribes must be consulted whenever other governmental entities or the public are formally involved in the BLM's environmental review process in any NEPA documentation that entails public involvement or initial discussions with local or state governments (BLM Handbook H-1790-1, National Environmental Policy Act [BLM 2008]).

TC-4: NHPA Section 106 consultations for cultural resources that are significant to Indian tribes. Consultation with an Indian tribe must recognize the government-to-government relationship between the Federal Government and Indian tribes. The agency official shall consult with representatives designated or identified by the tribal government. Consultation shall be conducted in a manner sensitive to the concerns and needs of the Indian tribe. (36 CFR 800.2(c)(2)(ii)(C).

Best Management Practices

TC-5: Notification is conducted by simple one-way written means. Consultation is generally construed to mean direct, two-way communication.

TC-6: When publishing notices or open letters to the public indicating that the BLM is contemplating an action and that comments are welcome, managers shall send individual letters, certified mail or delivery confirmed to tribes requesting their input on actions being considered. If this is an opening dialogue, prior to having developed a strong working relationship with the tribe, if a timely response is not received the manager shall follow up with personal telephone calls.

TC-7: For the benefit of both parties, managers are encouraged to strive for the most efficient and effective method of consultation. Whatever method is chosen, all consultation activities shall be carefully documented in the official record.

TC-8: Consultation roles can be facilitated but may not be transferred to others. Cultural resource consulting firms working for land use applicants cannot negotiate, make commitments, or otherwise give the appearance of exercising the BLM's authority in consultations.

TC-9: Owing to their status as self-governing entities, tribes shall be notified and invited to participate at least as soon as (if not earlier than) the Governor, state agencies, local governments, and other federal agencies.

TC-10: Tribal consultation means dialogue between a BLM manager and an American Indian Tribe. The BLM managers are encouraged to visit tribal councils and appropriate tribal leaders on a recurring basis. This face-to-face meeting helps to develop relationships that can reduce the time and effort spent in later consultation or individual projects. This government-to-government consultation shall be treated with appropriate respect and dignity of position.

References

BLM (United States Department of the Interior, Bureau of Land Management). 2004. Manual 8120: Tribal Consultation Under Cultural Resources. 8-74. BLM, Washington, DC. December 3, 2004.

_____. 2004. Manual 8120-1: General Procedural Guidance for Native American Consultation. 8-75. BLM, Washington, DC. December 3, 2004.

_____. 2008. Handbook H-1790-1: National Environmental Policy Act. Washington, DC. January 2008.

PALEONTOLOGY (P)

Standard Operating Procedures

P-1: Attach lease notices, stipulations, and other requirements to permitted activities to prevent damage to paleontological resources.

P-2: Prior to any surface disturbing activities, an inventory of paleontological resources (fossils) may be required. Mitigation may be required upon the discovery of any vertebrate fossil or other scientifically-important paleontological resource. Mitigation of scientifically important paleontological resources may include avoidance, monitoring, collection, excavation, or sampling. Mitigation of discovered scientifically important paleontological resources might require the relocation of the disturbance over 100 meters. This and any subsequent mitigation work shall be conducted by a BLM-permitted paleontologist.

P-3: The lessee/operator shall bear all costs for inventory and mitigation (WO IM-2009-011).

P-4: The lessee is prohibited from surface occupancy and surface-disturbing activities within 100 meters around all known scientifically important paleontological resources.

(Locality-specific name)

This stipulation is to protect scientific information that may be damaged from inadvertent or authorized uses.

Exception: The Authorizing Officer may: (1) allow for paleontological excavation and (2) change the protection boundary on a case-by-case basis, taking into account topographical barriers, the design of the proposed action, and the characteristics of the paleontological resource.

Modification: None

Waiver: Destruction of all the physical characteristics of a paleontological resource.

P-5: A standard Education/Discovery stipulation for paleontological resource protection shall be attached to the land use authorization. The operator or its contractor is responsible for informing all persons who are associated with the project operations that Federal laws protect paleontological resources and they will be subject to prosecution for disturbing or destroying any vertebrate fossils or paleontological sites, or collecting any fossilized bones, tracks or any other vertebrate trace fossils from federal lands.

P-6: The Paleontological Resources Preservation Act (PRPA) [16 U.S.C. 470aaa] requires the lessee/operator to immediately suspend activities in the vicinity of a vertebrate fossil discovery, protect the discovery from damage and notify the BLM Authorized Officer of any paleontological resources discovered as a result of operations under this authorization. The Authorized Officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the Authorized Officer after consulting with the operator. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (1) following the Authorized Officer's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (2) following the Authorized Officer's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

VISUAL RESOURCES (V)

Standard Operating Procedures

V-1: All new surface-disturbing projects or activities, regardless of size or potential impact, will incorporate visual design considerations during project design as a reasonable attempt to meet the Visual Resource Management (VRM) class objectives for the area and minimize the visual impacts of the proposal. Visual design considerations will be incorporated by:

a) Using the VRM contrast rating process (required for proposed projects in highly sensitive areas, high impact projects, or for other projects where it appears to be the most effective design or assessment tool), or by

b) Providing a brief narrative visual assessment for all other projects that require an environmental assessment or environmental impact statement.

c) Measures to mitigate potential visual impacts could include the use of natural materials, screening, painting, project design, location, or restoration (See Appendix H; BLM Handbook H-8431-1, Visual Resource Contrast Rating; or online at http://www.blm.gov/nstc/VRM/8431.html, for information about the contrast rating process).

V-2: All new roads will be designed and constructed to a safe and appropriate standard, "no higher than necessary" to accommodate intended vehicular use. Roads will follow the contour of the land where practical. Existing oil and gas roads that are in eroded condition or contribute to other resource concerns will be brought to BLM standards within a reasonable period of time.

Best Management Practices

V-3: Impacts to dark night skies will be prevented or reduced through the application of specific mitigation measures identified in activity level planning and NEPA level review. These measures may include directing all light downward, using shielded lights, using only the minimum illumination necessary, using lamp types such as sodium lamps (less prone to atmospheric scattering), using circuit timers, and using motion sensors.

V-4: Any facilities authorized will use the best technology available to minimize light emissions

V-5: Any new permits/authorizations, including renewals, will be stipulated to use the best technology available to minimize light emissions as compatible with public health and safety.

V-6: Restrict visual intrusion in VRM Class I and II areas and within 0.25-mile of historic trails.

V-7: Screening facilities from view and avoiding placement of production facilities on steep slopes, hilltops, and ridgelines.

V-8: Paint all facilities a color that best allows the facility to blend with the background (Operator-committed BMP).

V-9: Gravel of road color shall be similar to adjacent dominant soil colors.

V-10: Reduce impacts on visual resource management class II and class III areas.

V-11: Bury distribution powerlines and flow lines in or adjacent to access roads.

V-12: Repeat form, line, color, and texture elements to blend facilities with the surrounding landscape

V-13: All aboveground facilities including power boxes, building doors, roofs, and any visible equipment will be painted a color selected from the latest national color charts that best allows the facility to blend into the background.

V-14: Perform final reclamation recontouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography.

V-15: To the extent opportunities are practicable, extreme visual contrast created by past management practices or human activities will be minimized. Examples include right-of-way amendments, mineral material sites, abandoned mines, and areas impacted by unauthorized off-road driving.

V-16: Reclaim unused well pads within one year.

V-17: Final reclamation of all oil and gas disturbance will involve re-contouring of all disturbed areas, including access roads, to the original contour or a contour that blends with the surrounding topography and revegetating all disturbed areas

V-18: The use of submersible pumps will be strongly encouraged, especially in VRM Class I, II or III areas or any area visible by the visiting public.

V-19: The use of partial or completely below-grade wellheads will be strongly encouraged in high visibility areas as well as VRM Class I, II or III areas.

V-20: The placement of production facilities on hilltops and ridgelines will be prohibited where they are highly visible.

WILDLAND FIRE ECOLOGY AND MANAGEMENT (WFM)

Standard Operating Procedures

Fire Suppression

WFM-1: Resource Advisors and other applicable specialists shall be utilized to advise the Incident Commander and suppression resources on the natural resource values during the suppression effort.

WFM-2: Avoid applying fire retardant in or near drinking water sources.

WFM-3: Avoid the application of retardant or foam within 300 feet of a waterway or stream channel. Deviations from this procedure are acceptable if life or property is threatened.

WFM-4: Fire lines will not be constructed by heavy equipment within riparian stream zones. If construction is necessary due to threats to life or property, control lines shall terminate at the edge of the riparian zone at a location determined appropriate to meet fire suppression objectives based on fire behavior, vegetation/fuel types, and fire fighter safety.

WFM-5: For streams currently occupied by Cutthroat Trout or other aquatic special status species, extractions of water from ponds or pools shall not be allowed if stream inflow is minimal and extraction of water will lower the existing pond or pool level.

WFM-6: Lands will be temporarily closed to other uses in areas where fire suppression is being implemented.

WFM-7: Stream flow shall not be impounded or diverted by mechanical means in order to facilitate extraction of water from the stream for fire suppression efforts.

WFM-8: If it is determined that use of retardant or surfactant foam within 300 feet of a waterway or stream channel is appropriate due to threats to life or property; alternative line construction tactics are not feasible because of terrain constraints, congested areas, or lack of ground personnel; or potential damage to natural resources outweighs possible loss of aquatic life, the unit administrator shall determine whether there have been any adverse effects to federally listed species. If the action agency determines that adverse effects were incurred by federally listed species or their habitats, then the action agency must consult with the Service, as required by 50 CFR 402.05, as soon as practicable.

WFM-9: Avoid whenever possible burning out unburned islands of native vegetation, specifically sagebrush communities.

WFM-10: Minimize/mitigate impacts to cultural resources and pristine vegetative communities.

WFM-11: Prior to use on BLM-administered lands, thoroughly rinse to remove mud and debris from all fire suppression equipment from off-district or out of state and used to extract water from lakes, ponds, streams, or spring sources. Examples of this equipment are helicopter buckets, draft hoses, and screens. After cleaning the equipment, disinfect it to prevent the spread of invasive aquatic species. Do not rinse equipment with disinfectant solutions within 100 feet of natural water sources. GJFO suppression equipment used to extract water from sources known to be contaminated with invasive aquatic species, as identified by the US Fish and Wildlife Service and Colorado Parks and Wildlife, also shall be disinfected beforehand on lands administered by the GJFO.

WFM-12: Vehicle and equipment shall be washed before being assigned to fires to minimize the spread of noxious weeds. Larger fires with incident management teams assigned may need to have a weed wash station.

Emergency Stabilization and Rehabilitation

WFM-13: Stabilize areas that have low potential to naturally revegetate and that have high wind and soil erosion potential. Treatments include the following:

- **a)** Installing water bars and other drainage diversions, culverts along fire roads, dozer lines, and other cleared areas;
- **b)** Seeding and planting to provide vegetative cover;
- **c)** Spreading mulch to protect bare soil and discourage runoff;
- **d)** Repairing damaged roads and drainage facilities;
- **e)** Clearing stream channels of structures or debris that is deposited by suppression activities;
- **f)** Installation of erosion control structures;
- **g)** Installation of channel stabilization structures;
- **h)** Fence or restrict areas to livestock and wild horse and burro grazing to promote success of natural revegetation or establishment of seeded species;
- **i)** Lands may be temporarily closed to other uses during emergency stabilization and rehabilitation practices if activities inhibit treatment;
- **j)** Repair or replace range improvements and facilities; and
- **k)** Monitor emergency stabilization and rehabilitation treatments.

Best Management Practices

Fuels Management

WFM-14: Construct fuel breaks or green strips to protect wildland-urban interface communities and provide for firefighter safety by using mechanical, chemical, biological, and prescribed fire treatment methods.

WFM-15: Construct fuel breaks and green strips in areas containing a good understory of native perennials in order to successfully compete with and deter the establishment and spread of annual species.

WFM-16: Seed fuels treatments in areas that do not have a good understory of desirable native perennials that can successfully compete with annual weed species.

WFM-17: Where practicable, use large-scale landscape planning to connect fuel treatments and avoid small piecemeal projects.

WFM-18: Plan for maintenance cycles and maintain fuel treatments to ensure effectiveness.

WFM-19: Prevent seeded species from being grazed during the first two growing seasons (>18 months) following seeding, or until site-specific analysis and/or monitoring data indicates that vegetation cover, species composition and litter accumulation are adequate to support and protect watershed values, meet vegetation objectives and sustain grazing use

WFM-20: Provide fire prevention and mitigation outreach information and education to communities within the GJFO.

WILDERNESS, WILDERNESS STUDY AREAS, AND LANDS WITH WILDERNESS CHARACTERISTICS (WSA)

Standard Operating Procedure

WSA-1: All Wilderness Study Areas will be managed in accordance with BLM Handbook H-8550-1, Interim Management Policy and Guidelines for Lands Under Wilderness Review (BLM 1995).

References

BLM (United States Department of the Interior, Bureau of Land Management). 1995. Handbook H-8550-1. Interim Management Policy and Guidelines for Lands Under Wilderness Review. Release 8-66. BLM, Washington, DC. July 5, 1995. 74 pp.

FORESTRY (F)

Standard Operating Procedures

F-1: No fuel wood cutting of live trees will be allowed for cottonwood, willow, alder; unless resource objectives allow otherwise.

F-2: No forestry harvest or collection of products will be allowed during the winter closure timing restraints (November 30 – May 1).

F-3: Trees marked for wildlife protection and/or "Seed Tree Do Not Fall" will not be allowed to be harvested for any type of forestry products.

F-4: Harvest plans will be completed on all commercial sales within woodlands and forests, showing access roads, decks and skid trail locations. Approval of these plans by the BLM Authorized Officer is required before harvest can start.

Best Management Practices

F-5: The closure of new roads will be considered and planned for during sale preparation in accordance with existing policy.

F-6: Clear cuts will be considered for use in the pinyon-juniper and aspen types in critical big game winter ranges and other areas where economically feasible.

F-7: Clear cuts will be considered for use in restoring aspen sites.

F-8: Cuts that thin the pinyon-juniper canopy cover to 20 percent or less will be favored for use in bighorn sheep ranges. These cuts will focus on the smaller trees in the stand,

F-9: Large conifer seed trees (three to seven trees per acre) will be left where practical as wildlife shelter on south facing slopes of big game winter ranges to ensure the succession of quality snags.

F-10: An average of three to seven trees per acre of the largest nonhazardous snags, particularly those adjacent to openings and open water will be left on commercial sale areas.

F-11: Sale areas with less than 15 percent ground cover in the understory on critical deer and elk winter ranges will be seeded using a mixture of grasses, forbs, and shrubs and will be paid for with wildlife funds.

F-12: Minimum of 180 year rotation will be allowed for pinyon-juniper stands. Other species will be managed on a rotation of sufficient length to produce cavity trees for flickers and small owls.

F-13: A minimum 50 foot buffer will be maintained along all riparian areas.

F-14: Snags with existing cavities or nests will be priority for retention.

F-15: Snag diameter for retention will be the largest class on site and will be retained in clusters if possible.

F-16: If site potential allows, will retain 5-7 snags per acre, preferably in a clumped configuration.

F-17: If possible, will retain at least 15 live trees per acre for future snag recruitment. Recruitment snags will not have to be structurally superior; live tree with forked and broken tops may be preferred.

F-18: Do not disturb or destroy active or inactive nests of raptors which are reused.

F-19: Avoid heavy equipment use in stands of cottonwood, willow, and alder. If heavy equipment use is necessary, allow on a case by case basis and mitigate for adverse impacts.

F-20: Allow dead and down collection of cottonwood for personal use.

F-21: Protect seed and important wildlife habitat trees in pinyon-juniper stands.

F-22: Allow removal of pinyon-juniper encroachment utilizing mechanical, biological, and chemical treatments. Allow tree harvesting for Christmas trees and transplants other woodland products and biomass reduction.

F-23: Minimize disturbance to the soil such that surface runoff does not result in sediment transport into waterbodies. Concentrate skidding on as few skid trails as needed.

F-24: Limit primary skid trails to 10 percent of the total working area.

F-25: Avoid widespread or random skidding patterns with repeated passes.

F-26: Minimize placement and use of skid trails in ephemeral drainages. If skid trails must be within or cross an ephemeral drainage, additional BMPs are needed to protect water quality.

F-27: Minimize the extent of gouges or trenches upon the ground surface that are created by the skidding of trees or logs.

F-28: On sloping terrain, skid trails shall follow along the land contours and shall be kept to 25 percent grade or less when practical.

F-29: Establish decks at locations where soil disturbance is minimized.

F-30: Maintain as close to normal (pre-construction) streamflow by maintaining depth, width, gradient and capacity of the stream channel at the crossing.

F-31: Perform construction, installation, and removal work during low-water flow if circumstances allow.

F-32: Stabilize the approachways and/or stream crossing locations so sediment is not transported into the stream.

F-33: Approaches to the stream are relatively flat to better control runoff.

F-34: The crossing can be installed at a right-angle (90 degrees) to the stream channel so crossing distance is minimized.

F-35: Any trees removed during these processes will be purchased by the applicant prior to construction. The applicant is responsible for a per-cord fee.

Guidelines for Christmas Tree and Firewood Harvesting

F-36: Vehicle use is restricted to existing roads and trails. Do not drive off road.

F-37: Do not damage adjacent trees.

F-38: When cutting down standing trees, cut the stump 12 inches or less, or as close to the ground as possible.

F-39: Scatter lopped branches at least 50 feet from the stump.

F-40: Do not top a larger tree to obtain a Christmas tree.

F-41: Do not harvest any trees within 100 feet of a spring or creek unless trees are identified for selective removal to meet resource objectives.

F-42: Please pack out your trash as well as trash left by others.

F-43: No harvesting when soils are saturated to a depth of 3 inches to prevent damage to roads.

F-44: The GJFO closes annually to firewood harvesting on November 30. Firewood harvesting reopens in the spring based on road conditions.

LIVESTOCK GRAZING

Standard Operating Procedures

LG-1: Follow the Grazing Guidelines established along with the Colorado Standards for Rangeland Health.

LG-2: Protect seedings from grazing for one full year and through the growing season of the second year. Some seedings established during adverse weather cycles may need protection for a longer period.

LG-3: New fences shall be constructed to BLM standards allowing for the appropriate wildlife passage. Fences constructed will comply with applicable wildlife fence standards, such as those described in BLM Handbook H-1741-1, Fencing (BLM 1989).

LG-4: Bird and wildlife ramps shall be installed in all troughs.

LG-5: Access routes to functioning range improvements shall be retained to allow for periodic maintenance and prevent cross country travel.

LG-6: Continue to maintain range improvement projects to support proper livestock management including optimal distribution.

LG-7: Rangeland and vegetation monitoring will be conducted to detect changes in grazing use, trend, and range conditions. These data will be used to support and direct grazing management decisions. These efforts will help ensure that livestock grazing meets objectives for rangeland health and resolves conflicts with wildlife or other resources.

LG-8: Grazing management decisions will be based on inventory and monitoring data, both short-term and long-term, which will be jointly developed by grazing permittees and the appropriate federal land management agency.

LG-9: All water development activities for livestock grazing use that exceed the minimum depletion level established by US Fish and Wildlife Service must comply with all US Fish and Wildlife Service fees and prescribed mitigations to offset water depletion in the Colorado River.

LG-10: Surface-disturbing activities will be coordinated with livestock grazing permittees to minimize the effects of the surface disturbance on other approved operations. To the maximum extent practicable, this effort will include consulting on scheduling of operations to mutually minimize effects.

LG-11: Any damage to the function of range improvements (e.g., fence damage, cattle guard cleaning, livestock loss) from other approved operations will be repaired immediately or remedied by the operator causing the damage.

LG-12: Well pads, pits, and other facilities that could be hazardous to livestock will be fenced to keep livestock out and the fences maintained in functioning condition.

Best Management Practices

LG-13: Development of springs and seeps or other projects affecting water and associated resources shall be designed to maintain the associate riparian area and assure attainment of standards.

LG-14: Disturbance to established rangeland study sites shall be avoided to provide for the continuation of monitoring efforts which involves comparisons of data to previous records of that site.

LG-15: Facilities shall be constructed a minimum of 0.125-mile from livestock gathering spots such as water sources and gathering facilities to prevent disruption of the use of these facilities and potential damage to the facility by livestock.

LG-16: Exclosures may be established in areas where the vegetative potential of the area is questionable or to compare the effectiveness of grazing management.

LG-17: Livestock grazing could be used as an intensively managed prescriptive grazing practice to control cheatgrass and noxious or invasive weeds.

LG-18: Use grazing systems that contain rotation, deferment, and rest to produce a mosaic of habitat patches and increases the density, height and distribution of native plants.

LG-19: Rotate livestock use areas year to year – avoid grazing in the same place at the same time each year.

LG-20: Avoid re-grazing the same plants in one growing season.

LG-21: Adjust grazing seasons to benefit both warm and cool season grass species by providing periodic rest from grazing for each type.

LG-22: Avoid grazing an area during the spring and fall period in one year's time.

LG-23: Allow for adequate litter cover following grazing use to protect soil surface and enhance soil moisture retention.

LG-24: For spring grazing ensure livestock are removed early enough so that sufficient soil moisture remains for plant recovery.

LG-25: Allow for rest/recovery periods before or after grazing during critical growth periods. Recovery shall include the production of seed to allow for the regeneration of desirable plant species.

LG-26: Occasional grazing use during the dormant season will provide rest during the growing season and will allow plants to recover.

LG-27: Adjust intensity, timing and/or duration of grazing during periods of drought.

LG-28: Manage livestock grazing, including dormant season use, to ensure adequate residual grass cover remains when soil moisture or wildlife habitat is of concern.

LG-29: Proper utilization allows stubble for root and crown protection, litter accumulation for organic matter contribution to the soil, cover and habitat for wildlife and forage availability for grazing animals utilizing the area. Generally utilization levels shall be based upon recovery periods and other resource objectives. Suggested utilization guidelines would be:

a) In areas Not Meeting Land Health Standards and cattle grazing is a causative factor, limit utilization on key species to 30 percent during the critical growth period and 40percent during the dormant season.

b) In areas Meeting Land Health Standards limit utilization on key species to 40 percent during the critical growth period and 50 percent during the dormant season.

c) If wildlife/livestock conflicts exist annual utilization would be read before the next seasons growth begins to account for all uses and demands on the plants.

d) The exception to these guidelines is if the permittee can convince the authorized officer that they have the knowledge, ability and commitment to implement a grazing system that should result in improvements to the ecosystem.

LG-30: Limit use in areas of valuable woody plants during times when they are selected.

LG-31: Avoid the following grazing management practices:

a) Long seasonal use with no recovery time;

b) Heavy use that stresses plants;

c) Little or no re-growth before winter - little stubble for root crown protection;

d) Use at the same time every year - repeating the stress;

e) No rest or growing season recovery - little recovery with long seasons of use;

f) Little or ineffective herding;

g) Salt placed in the same locations year after year;

h) Livestock left behind after pasture moves; and

i) Grazing during the critical growth period year after year.

LG-32: When using livestock to control noxious or invasive weeds, match animal dietary preference or tolerance to the target species.

LG-33: Use the target weed's phenology when developing a grazing strategy.

LG-34: Manage heavy grazing on target weed species to account for any intermixed desirable species.

Vegetation/Riparian Zone Grazing Management Guidelines

LG-35: To reduce negative impacts to grazing, determine the critical period(s) of a riparian site, and then limit grazing during the critical period(s) to no more often than once every three or four years. Critical periods and impacts are likely to be either in late spring-early summer, when stream banks are more easily broken down by trampling; or late summer-early fall, when excessive browsing man damage vegetation. Each site has its own critical period that shall be individually determined. Important critical period variables are soil moisture, plant species composition, and animal behavior patterns. Site may be grazed every year if use does not occur during the critical period(s). Extended periods of rest or deferment from grazing may be needed to enable recovery of badly degraded sites. Graze earlier in the season when cattle use uplands (Mosley et al. 1997)

LG-36: To maintain stream bank stability, limit cattle access to surface water when adjacent stream banks and shorelines are overly wet and susceptible to trampling and sloughing. Stream bank trampling can often be reduced by capitalizing on the natural foraging behavior of cattle. Cattle generally avoid grazing excessively wet sites or in cold-air pockets. Cattle seek out wind-swept ridges, and they graze on upland forage when it is more palatable than forage in riparian areas. Avoid hot season grazing of riparian areas. (Mosley et al. 1997)

LG-37: To graze a site more than once per growing season, moisture and temperature conditions shall be conducive to plant growth. For such sites, allow a recovery period of at least 30 to 60 days, depending on vegetation type, before re-grazing within the same growing season. Grazing more often and for shorter periods-that is, 3 weeks or less at a time-is preferable to fewer and longer grazing periods. (Mosley et al. 1997)

LG-38: To control the timing, frequency, and intensity of cattle grazing, consider creating smaller riparian pastures with similar, or homogonous, features. Adjusting timing, frequency, and intensity of grazing in individual pasture units is more important than adopting a formalized grazing season. (Mosley et al. 1997)

LG-39: To protect stream banks, prevent cattle from congregation near surface waters; fencing, supplemental feeding, and herding methods work best. Provide remote watering systems for cattle. Manage the riparian area as a separate and unique pasture. Inappropriate cattle grazing will usually first be evidenced by excessive physical disturbance to stream banks and shorelines (Mosley et al. 1997)

LG-40: On riparian areas that are determined to be non-functioning or functioning at risk as a result of livestock grazing impacts, limits of bank disturbance will be determined and included within the *Terms and Conditions* of the Grazing Permit.

LG-41: In general, utilization standards in riparian areas should be no more than 30 percent use of current the year's growth on woody species and a minimum of 4 inches of stubble height shall remain at the end of the grazing period.

LG-42: To protect stream banks, discourage trailing up and down the channel by placing logs across trails, perpendicular to the stream channel.

LG-43: Adjust intensity, timing and/or duration of grazing during periods of drought.

References

BLM Handbook H-1741-1, Fencing (BLM 1989)

Mosley, J.C., P.C. Cook, A.J. Griffis, and J. O'Laughlin. 1997. Guidelines for Managing Cattle Grazing in Riparian Areas to Protect Water Quality: Review of Research and Best Management Practices Policy. Report No. 15. University of Idaho, Moscow, ID. December 1997.

RECREATION (REC)

Standard Operating Procedures

REC-1: Special Recreation Permits will contain noxious weed management stipulations (e.g., pre-event inventories to avoid infested areas, event management to avoid or isolate activities that could cause weed introduction or spread, monitoring and treatment of infestations exacerbated by the activity, and other appropriate noxious weed management stipulations).

REC-2: Lands may be temporarily closed to other uses during recreation events performed under special recreation permit (e.g., equestrian endurance rides or motorcycle events).

REC-3: New recreation roads and trails (off-highway vehicle, horse, bicycle, and hiking) will be designed using the guidelines established in the GJFO "Trail Design Criteria" document and its subsequent revisions (BLM 2005).

REC-4: Develop and maintain recreation visitor use data monitoring systems to track visitor use trends.

Best Management Practices

REC-5: Provide clear, consistent, and standardized messaging to the public regarding recreation opportunities and regulations on BLM-managed public lands. This messaging should be included in digital communications (websites, social media), print media (brochures, kiosk displays), signage, and personal contacts with recreation customers (office visits, phone calls, field contacts).

REC-6: Promote the seven standard principles of Leave No Trace (www.lnt.org) outdoor ethics through print and electronic media, and through personal communications with recreationists participating in non-motorized recreation activities on BLM-managed public lands.

REC-7: Promote the principles of Tread Lightly (www.treadlightly.org) outdoor ethics through print and electronic media, and through personal communications with recreationists participating in recreation activities on BLM-managed public lands.

REC-8: Develop and maintain partnerships with recreation-based organizations and service providers. These partnerships should engage partners in the planning, implementation and monitoring of recreation opportunities and facilities on BLM-managed public lands.

References

BLM. Grand Junction Field Office. 2005. "Trail Design Criteria."

LANDS AND REALTY (LR)

Standard Operating Procedures

LR-1: Power lines shall be constructed in accordance to standards outlined in "Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996" (Avian Power Line Interaction Committee 2006). Right-of-way applicants shall assume the burden and expense of proving that proposed pole designs not shown in the above publication are "raptor safe." Such proof shall be provided by a raptor expert approved by the BLM Authorized Officer.

LR-2: Rights-of-way and other lands and realty authorizations, including power lines, pipelines, transmission corridors, energy development sites and related development, and gravel pits, will contain noxious and invasive plant management terms or stipulations for all ground-disturbing actions. These will include conducting a pre-disturbance noxious weed inventory, designing to avoid or minimize vegetation removal and weed introduction or spread, managing weeds during the life of the right-of-way or authorization to prevent or minimize weed introduction or spread, abandoning the right-of-way or authorization to establish competitive vegetation on bare ground areas, and monitoring revegetation success and weed prevention and control for a reasonable number of years.

LR-3: Rights-of-way will be constructed to avoid physical damage to range improvements and rangeland study areas.

LR-4: The right-of-way holder shall notify the BLM Authorized Officer at least 48 hours prior to the commencement construction, reclamation, maintenance, or any surface-disturbing activities under this grant. LR

LR-5: Copies of the right-of-way grant with the stipulations shall be kept on site during construction and maintenance activities. All construction personnel shall review the grant and stipulations before working on the right-of-way or permitted area.

LR-6: All facilities shall be labeled with the authorization number, operator, and contact information.

LR-7: No signs or advertising devices shall be placed on the premises or on adjacent public lands, except those posted by or at the direction of the BLM Authorized Officer.

LR-8: The Holder shall promptly remove and dispose of all waste caused by its activities. The term "waste" as used herein means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, petroleum products,

ashes, and equipment. No burning of trash, trees, brush, or any other material shall be allowed.

LR-9: The Proponent (applying for new ROW) shall notify all existing right-of-way holders in the project area prior to beginning any surface-disturbance or construction activities. The Holder shall obtain an agreement with any existing right-of-way holders or other parties with authorized facilities that cross or are adjacent to those of the holder to assure that no damage to an existing right-of-way or authorized facility will occur. The agreement(s) shall be obtained prior to any use of the right-of-way or existing facility.

LR-10: The Holder shall participate in the formation of a Road User's Association for the road if new rights-of-way are granted for use of the existing road. All new users will be required to join the association.

LR-11: The Holder will provide a performance bond for the authorized facility, acceptable to the BLM Authorized Officer, in the amount of $(_) that must be maintained in effect until restoration of the right-of-way has been accepted by the BLM Authorized Officer. The bond shall be furnished by the holder within 30 days of signing the grant (___) and shall be applied to all additional authorizations associated with the project as necessary.

LR-12: Incorporate conditions of approval and mitigation measures from the Final Programmatic EIS on Wind Energy Development on BLM-administered Lands in the Western US, as applicable (BLM 2005).

LR-13: Incorporate conditions of approval and mitigation measures from the Solar Energy PEIS, as applicable (*pending completion of Solar PEIS*).

LR-14: All construction activities shall be confined to the minimum area necessary. The exterior boundaries of the construction area shall be clearly flagged prior to any surface-disturbing activities.

LR-15: Existing roads will be used wherever possible. Additional roads shall be kept to the minimum. Route locations must be approved by the BLM prior to construction.

LR-16: When blasting is necessary, the following precautions will be used:

- **a)** In areas of human use, blasting blankets will be used.
- **b)** Landowners or tenants in close proximity to the blasting will be notified in advance of the blasting so that livestock and other property can be adequately protected.
- **c)** Access to the blasting area will be restricted by construction personnel stationed at each end of the area to be blasted.

d) Blasting within 0.25-mile of federally-owned or controlled springs and flowing water wells must be approved in writing by the area manager.

e) No blasting will be permitted within 0.25-mile of historic trails, natural areas, identified archaeological sites, and recreation areas.

f) Powder magazines will be located out of sight or at least 0.5-mile from roads. Loaded shot holes will not be left unattended. Approval from the area manager will be obtained for the magazine locations.

LR-17: Roads will be constructed and maintained to BLM road standards [BLM Manual 9113 (BLM 2012)]. All vehicle travel will be within the approved driving surface.

Standard Operating Procedures for Pipeline Projects

LR-18: A preconstruction field conference shall be requested by the grantee at least five working days prior to any construction activities unless otherwise agreed upon by the BLM Authorized Officer.

LR-19: Once the pipeline is constructed, the grantee/operator shall restore the existing roadway to meet or exceed conditions prior to construction. The preconstruction width of the driving surface shall also be restored and erosion control structure installed subject to approval of the BLM Authorized Officer. The grantee/operator shall be responsible for road maintenance from the beginning to completion of operations. This may include, but not be limited to, blading the roadway, cleaning ditches and drainage facilities, dust abatement, or other requirements as directed by the BLM Authorized Officer.

LR-20: Construction width shall include the existing road. The pipeline shall be located two to three feet from the edge of the ditch along the existing road. The existing road shall be on the working side of the trench.

LR-21: The grantee shall accomplish the crossing of the pipeline owned by (company name) in accordance with an agreement between the grantee/operator.

LR-22: Pipeline location warning signs shall be installed within five days of construction completion. Each sign shall be permanently marked with the right-of-way serial number.

Standard Operating Procedures for Geophysical Exploration

LR-23: The operator will furnish a map with the Notice of Intent showing approximate line to be used. A map will also be filed with the Notice of Completion showing the completed line. The map will be of a minimum scale of 0.5-inch equals 1.0 mile.

LR-24: Rehabilitation of disturbed areas is to be done concurrent with the geophysical operations.

LR-25: Blasting or vibrating within 0.25-mile of federally-owned or controlled springs and flowing water wells or cultural resource sites must be approved in writing by the area manager.

LR-26: Plugging of drill holes will conform to the Colorado Reclamation Standards Abandoned Drill Holes Act. Drill hole cuttings will be returned to the hole.

LR-27: No blading or other dirt work will be allowed without written permission from the area manager.

LR-28: Standard Terms and Conditions described in BLM Handbook H-3150-1: Onshore Oil and Gas Geophysical Exploration Surface Management Requirements (BLM 1994 Rev. 2007).

Best Management Practices

LR-29: Coordinate with the Colorado Parks and Wildlife early in the sale process on proposals to sell public land encumbered by a small capacity wildlife water development.

References

BLM. 2012. H-9113-1 Road Design Handbook. Bureau of Land Management, Washington, D.C.

_____. 1994. BLM Handbook H-3150-1: Onshore Oil and Gas Geophysical Exploration Surface Management Requirements. BLM, Washington, DC. Rev. 2007.

_____. 2005. Bureau of Land Management Final Programmatic Environmental Impact Statement on Wind Energy Development on BLM-Administered Lands in the Western United States. BLM, Washington, DC. June 2005.

Avian Power Line Interaction Committee. 2006. Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute, Avian Power Line Interaction Committee, and the California Energy Commission. Washington, DC, and Sacramento, CA.

MINERALS AND ENERGY (M&E)

Actions involving minerals and energy are governed by:

- Minerals Leasing Act of 1920 (30 U.S.C 181 *et seq*);
- Federal Oil and Gas Royalty Management Act (30 U.S.C. 1718(b));
- Federal Onshore Oil and Gas Leasing Reform Act (30 U.S.C. 226(g));

- 43 CFR 8900 et seq.
- Federal On Shore Orders 1-7
- 43 CFR 3809 Regulations (Locatable Minerals Management)

Standard Operating Procedures

Standard Operating Procedures are measures that are required in most circumstances. Some are based on laws and policy while others are specific to the planning area to achieve resource management objectives.

Geophysical Exploration

M&E-1: If operations open an existing fence, temporary gates will be installed for use during the course of operations, or the fence will be immediately repaired. On completion of operations, fences will be restored to their original condition or better.

M&E-2: When saturated soil conditions exist on access roads or location, or when road rutting becomes deeper than 3 inches, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils, roads, and locations.

M&E-3: For geophysical operations, specialized low surface impact equipment (wide- or balloon-tired vehicles, all-terrain vehicles) or helicopters may be used for activities in off-road areas to protect fragile soils and or other resource values.

M&E-4: Prohibit the use of subsurface explosives and vibrosis buggies within 0.25 miles of all spring sources and perennial streams.

M&E-5: Powder magazines will be located at least a mile from traveled roads, unless otherwise authorized after analysis or review. Loaded shot holes and charges will be attended at all times.

M&E-6: Materials or equipment related to project activities (e.g., trash, flagging, lath) will be removed to an authorized disposal site.

M&E-7: Project materials which could be a hazard to public health, safety or resource values will be stored in appropriate secondary containment. No oil or lubricants will be drained onto the ground surface.

M&E-8: Shot-hole cuttings will be returned to the hole, or an alternative plan will be submitted for BLM approval.

Reducing Fluid Mineral Development Footprint

M&E-9: Surface disturbing actions will be sensitive to natural resource protection. When surface disturbance in sensitive areas is unavoidable, they will

be minimized to the greatest extent practicable, especially near drainage features and on soils mapped as being saline (see Glossary).

M&E-10: Utilities such as gas and water lines, power lines and roads will be located in common corridors where practicable.

Administrative / General and Planning

M&E-11: Consider site specific soil and vegetative characteristics and reclamation potential in project design and layout.

M&E-12: Design and construct energy service roads to a safe and appropriate standard, no higher than necessary to accommodate their intended use.

M&E-13: Locate and construct roads and other linear facilities to follow the contour of the landform or mimic lines in the vegetation.

M&E-14: A pre-construction meeting will be held with the BLM before and to facilitate implementation of plans and ensure compliance with stipulations or conditions of approval. The BLM will be notified at least 48 hours prior to construction or reclamation work.

M&E-15: By November 1 each year, companies will provide georeferenced spatial data depicting as-built locations of all facilities, wells, roads, pipelines, power lines, reservoirs, discharge points, and other related facilities to the BLM for all Master Development Plans where construction and development have been completed.

M&E-16: Where winter range areas are not protected by lease stipulations, operations such as construction, drilling, completion, work-overs and other intensive activities will be avoided from January 1 to March 1 to minimize impacts to wintering big game.

M&E-17: Before activities take place, every pad, access road, or facility site will have an approved surface drainage plan (storm water management plan) for establishing positive management of surface water drainage, to reduce erosion and sediment transport. The drainage plan will include adaptive BMPs, monitoring, maintenance and reporting. BMPs may include run-on/run-off controls such as surface pocking or revegetation, ditches or berms, basins, and other control methods to reduce erosion. Pre-construction drainage BMPs will be installed as appropriate.

M&E-18: Before surface disturbance, agreements will be obtained with all existing rights-of-way holders, authorized users and pipeline operators affected by permitted activities. If Agreement cannot be reached, the operator will comply with the law or regulations.

M&E-19: Disclosure of hydraulic fracture fluids per COGCC rule 205A will be done using FracFocus.org 30 days following the conclusion of the hydraulic fracturing treatment and in no case later than 90 days after the commencement of such hydraulic fracturing treatment.

Pre-Construction

M&E-20: Stakes, snow fence or flagging will be installed to mark boundaries of permitted areas of disturbance, including pre-construction BMPs and soils storage areas and be maintained in place until final construction cleanup is completed.

M&E-21: Pre-construction drainage BMPs will be installed as appropriate, per the approved surface/storm drainage water management, plan to protect stream drainages and to reduce erosion and sediment transport.

M&E-22: Surveys for raptor nests, sensitive plant and animal species and cultural resources will be conducted prior to construction activities following BLM survey standards. Survey results will be submitted to the BLM for analysis and recommendations before project approval.

Construction

M&E-23: All routes shall be built and maintained to BLM Manual Section 9113 standards for road shape and drainage features (BLM 2009b) or where appropriate BLM Manual Section 9116 standards for primitive roads. For drainage crossings, culverts should be sized for the 50 year storm event with no static head and to pass a 100-year event without failing. Site specific conditions may warrant BLM to require designs for larger events (e.g. 75-100 year storm events). Large culverts and bridges shall be designed and constructed per BLM Manual 9112 (large culverts and bridges) (BLM 2009a). Large culverts and bridges shall be designed to pass a 100-year storm event (minimum).

M&E-24: As detailed in the site plan for surface/storm water management, drainage from disturbed areas will be confined or directed to minimize erosion, particularly within 100 feet of all drainages. No runoff, including that from roads, will be allowed to flow into intermittent or perennial waterways without first passing through sediment-trapping mechanisms such as vegetation, anchored bales or catchments.

M&E-25: Topsoil stripping will include all growth medium present at a site (following initial clearing of large trees, etc.), as indicated by color or texture. Stripping and storage depth may be specified during the onsite inspection. All stripped topsoil /growth medium will be salvaged, segregated and stored in a manner that extends biological viability and protects it from loss. Topsoil and all growth medium will be replaced prior to seedbed preparation. No topsoil will be stripped or segregated when soils are saturated or frozen below the stripping depth.

M&E-26: Access roads requiring construction with cut and fill will minimize surface disturbance and consider the character of the landform's contours, visual contrasts, the cut materials, the depth of cut, where the fill material will be deposited and other resource concerns.

M&E-27: Fill material will not be cast over hilltops or into drainages without BLM approval.

M&E-28: When saturated soil conditions existing on access roads or location, or when road rutting becomes deeper than 3 inches, construction shall be halted until soil material dries out or is frozen sufficiently for construction to proceed without undue damage and erosion to soils, roads and locations.

M&E-29: Construction activities at drainage crossings (e.g., burying pipelines, installing culverts) will be timed to avoid high flow conditions. Construction activities that affect stream flow will consist of either a piped stream diversion or the use of a coffer dam and pump to divert flow around the disturbed area.

M&E-30: When activity in a wetland is unavoidable, the operator will reduce impacts through the use of oak or HDP mats and will restore all temporarily disturbed wetlands or riparian areas, consulting with the BLM to determine appropriate mitigation, including verification of native plant species to be used in restoration.

M&E-31: All stream crossings affecting perennial streams or streams supporting riparian habitat shall be professionally engineered (design, construction, and maintenance).

M&E-32: Where the access road crosses small drainages and intermittent streams not requiring culverts, low water crossings shall be used. The road will dip to the original streambed elevation of the drainage and the crossing will prevent any blockage or restriction of the existing channel. Material moved from the banks of the crossing will be stockpiled nearby for later use in reclamation. Gravel, riprap, or concrete bottoms may be required in some situations.

M&E-33: All pipeline welds within 100 feet of a perennial stream will be x-rayed to prevent leakage into the stream. Where pipelines cross streams that support Federal or State-listed threatened or endangered species or BLM-listed sensitive species, additional safeguards such as double-walled pipe, and remotely-actuated block or check valves on both sides of the stream may be used.

M&E-34: Water from hydrostatic testing of pipelines will be filtered of sediments prior to discharge. Energy dissipating methods such as straw-bales, wattles, and vegetative buffers will be in place before any discharge of water.

M&E-35: Baseline information of channel characteristics and riparian vegetation present must be documented before actions are permitted to disturb riparian areas and the stream channel.

Drilling

M&E-36: Pits that may contain liquid, such as reserve pits, produced water pits, frac-water pits, cuttings trenches (if covered by water/fluid), and evaporation pits, will install and maintain netting to prevent entry or use by migratory birds. They will be fenced on three sides before drilling activity and closed off on the fourth side after drilling is completed.

M&E-37: If any pit that may contain liquid is constructed with a slope steeper than 3:1, or if the pit is lined, escape ramps will be installed every 50 feet along the pit slope and at each corner to allow escape by livestock and wildlife

M&E-38: Fluids will be confined to pits and all pits that may contain liquids will be lined to protect groundwater. Liners will be maintained in good condition, with no tears or holes, until they are removed when the reserve pit is closed.

M&E-39: Pits will be constructed so that water will not run into them. Fluid levels will be maintained below 2 feet of the lowest point of containment.

Utilization and Production

M&E-40: Operations will not damage, disrupt or interfere with water flows and/or improvements associated with springs, wells, or impoundments.

M&E-41: Regularly scheduled road maintenance will include, but not be limited to, crown or slope reconstruction, clean-out of ditches, culverts and catchments, replacement of the road surface and dust abatement.

M&E-42: Well pads and facilities will be kept free of unnecessary equipment, trash and other materials not in current use.

M&E-43: Pits will be promptly drained, tested, closed and reclaimed according to local state and federal regulations.

M&E-44: Dust from vehicular traffic, equipment operations, or wind events will be controlled as needed. No application of surfactants or dust agents will proceed without BLM approval. In areas with soils mapped as Mancos shale, application of water on native road surfaces will be limited, to minimize mobilization of selenium. In such areas, alternate dust abatement measures such as proper road surfacing and maintenance, and speed limits will be used, subject to BLM approval.

M&E-45: Noise will be minimized by methods such as closed compressor buildings to comply with COGCC standards for noise.

M&E-46: Pipeline warning signs permanently marked with the operator's and owner's names (emergency contact) and purpose (product) of the pipeline will be installed within five days of construction completion and before use of the pipeline for transportation of product.

M&E-47: All production equipment with a chimney, vent, or stack shall be fitted with a device to prevent birds from entering or perching on the chimney, such as an excluder cone or equivalent.

M&E-48: Production facilities will be located and arranged to facilitate safety and maximize areas to be reclaimed.

M&E-49: All above ground facilities should be painted a natural color selected from the BLM Standard Environmental Color Chart to minimize contrast with adjacent vegetation and/or rock outcrops. Color(s) should be selected in the field at the proposed project location and should be planned for the season with the greatest number of viewers. Selected color(s) should be one to two shades darker than those naturally occurring in the background landscape (this will also help with the effects of fading over time). The operator may need to paint drill rig anchors and those minor working tips and edges of production facilities that are subject to OSHA safety requirements a red, yellow, or orange color.

M&E-50: Standard secondary containment shall hold 110 percent of the capacity the largest single tank it contains and be impervious to any oil, glycol, produced water, or other toxic fluid for 72 hours. Earthen berms must be compacted and of fine material that will prevent seepage of any spill to surrounding area.

M&E-51: All tanks with a capacity of ten (10) barrels or greater shall be labeled or posted with the following information: A. Name of operator; B. Operator's emergency contact telephone number; C. Tank capacity; D. Tank contents; and E. National Fire Protection Association (NFPA) Label. Smaller chemical storage shall be labeled with contents and NFPA label.

M&E-52: All liquids management hoses will be stored inside secondary containment when not in use.

M&E-53: All open top tanks, catchments or secondary containment vessels will be equipped with sturdy metal screening to prevent access to wildlife of all sizes to prevent entrapment and drowning of small wildlife.

Site Stabilization, Reclamation and Monitoring

M&E-54: Road and pipeline reclamation, including seedbed prep and seeding of temporarily disturbed areas will be completed within 30 days following completion of construction.

M&E-55: Following completion of pad construction, topsoil storage piles, stormwater control features, and cut-and-fill slopes will be temporarily seeded, to stabilize the materials, maintain biotic soil activities, and minimize weed infestations. When this is not feasible, disturbed surfaces must be stabilized using other methods like hydro-mulch or erosion matting while vegetation is establishing. Seedbed preparation is not generally required for topsoil storage piles or other areas of temporary seeding.

M&E-56: Interim reclamation includes recontouring and revegetating the entire portion of the disturbed area except that part of the well pad needed for production activities.

a) It will be completed within six months following completion of the last well planned for the pad or after a year has passed with no new wells drilled on the pad. All areas unnecessary to production activities will be revegetated, including the area within the remaining rig anchors. In special cases, an exception to this will be requested.

b) Before interim reclamation is scheduled, the operator will meet with BLM to inspect the disturbed area, review the existing reclamation plan, and agree upon any revisions to it.

c) All parts of the area unnecessary for long-term operations will be reshaped to blend with natural topography, covered evenly with topsoil and a seedbed prepared.

d) For cut-and-fill slopes, initial reclamation will typically consist of moving fill material back into cuts, back-filling and reshaping to achieve the configuration specified in the reclamation plan. Compacted areas will be well ripped in two passes at perpendicular directions. In fragile or loose soils, compaction techniques such as tread-walking may be necessary to prevent high erosion hazard. Topographic contours will be reshaped to blend with natural topography. These may include berms and swales to manage water drainage, support revegetation, mitigate visual impacts and maximize natural appearances.

M&E-57: Seedbed Preparation. Good seedbed preparation is key to soil stabilization, moisture infiltration, and improving the chances for revegetation success.

a) Following contouring, backfilled or ripped surfaces will be covered evenly with topsoil.

b) Within 24 hours of broadcast seeding, the spread topsoil will be roughened by a method such as pitting, raking or harrowing before seeding, to break up any crust that has formed and ensure good seed-to-soil contact.

c) To control erosion and enhance vegetative establishment on slopes steeper than 3:1, or to create a more natural looking landscape in areas of visual sensitivity, seedbed preparation may include pocking or pitting the soil material to form microbasins scaled to the site and materials. These microbasins will be constructed in irregularly spaced and irregularly aligned rows with an orientation perpendicular to the natural flow of runoff down a slope.

d) Requests to use soil amendments, including fertilizer and soil conditioners, will be submitted to the BLM for approval. Submittal will include basic information on the amendment and the purpose of its use.

M&E-58: Seed Mixes. Seed mixes will typically consist of native, early-succession species, or species with the ability to establish quickly in disturbed soil areas. Non-native species considered desirable under special circumstances, such as sterile non-native grasses will be submitted to the BLM for approval before use.

a) Seed mix composition will be calculated based on the number of Pure Live Seed per pound rather than percentage by weight. Seeding rate in pounds per acre will be based on the total number of Pure Live Seeds per square foot.

b) Weed free seed will be used. It will contain no noxious, prohibited, or restricted weed seeds and no more than 0.5 percent by weight of any other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. To maintain quality, purity, germination, and yield, only tested, certified seed for the current year, with a minimum germination rate of 80 percent and a minimum purity of 90 percent will be used unless otherwise approved by BLM in advance of purchase. Seed shall be viability-tested in accordance with State law(s) and within nine months before purchase.

c) Seed mixes for temporary use may contain one or more sterile hybrid grasses or other non-native cover crop in addition to native perennial species, if pre-approved by BLM.

d) For private surfaces, BLM-approved seed mixes will be recommended, but the surface landowner has ultimate authority over the seed mix to be used in reclamation.

e) Seed tags or other official documentation of the seed mix will be supplied to the BLM for approval at least 14 days before the date of proposed seeding. Seed that does not meet the above criteria will not be applied to public lands. A Sundry Notice describing the

completed work, the weed-free certification, and the seed tag(s) will be submitted BLM within 30 days after seeding.

M&E-59: Seeding Procedures

a) Seeding will be conducted no more than 24 hours following completion of final seedbed preparation (see Seedbed Prep).

b) Where practical, seed will be planted by drill-seeding to a depth of 0.25 to 0.5 inch along the contour of the site. Drill seeding will be followed by culti-paction to enhance seed-to-soil contact and prevent losses of both. Where drill-seeding is impracticable, seed may be installed by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover. Hydro-seeding and hydro-mulching may be used in temporary seeding or in areas where drill-seeding or broadcast-seeding/ raking are impracticable. Hydro-seeding and hydro-mulching must be conducted in two separate applications to ensure adequate seed-to-soil contact.

c) If interim revegetation is unsuccessful, reseedings will be repeated annually until satisfactory vegetative cover has been achieved. Requirements for reseeding of temporary areas will be considered on a case-by-case basis. Seeding will be considered successful when the site is protected from erosion and revegetated with a vigorous, self-sustaining, and diverse cover of native (or otherwise approved) plant species. BLM shall not require reseeding during periods that have proven less than optimal.

M&E-60: Mulch

a) Mulch will be applied within 24 hours following completion of seeding. Where areas have been drill- or broadcast-seeded and raked, certified weed-free straw or certified weed-free native grass hay mulch will be crimped into the soil. Hydro-mulching may be used in areas of interim reclamation where crimping is impractical, in areas of interim reclamation that were hydroseeded, and in areas of temporary seeding regardless of seeding method.

b) Mulch will not be applied in areas where erosion potential necessitates use of a biodegradable erosion-control blanket (straw matting).

M&E-61: Cut and fill slopes will be protected against erosion by contour grading, microbasins or other measures approved by the BLM. Well anchored BMPs such as biodegradable matting, weed-free bales or wattles may also be used on cut-and-fill slopes and along drainages to protect against soil movement.

M&E-62: The reclaimed pad will be protected from disturbance by a fence to exclude livestock grazing for the first two growing seasons or until seeded species are firmly established, whichever comes later. Seeded species will be considered firmly established when perennial grass and forb species are at least 80 percent cover of that of the surrounding or reference area.

M&E-63: Monitoring. Because weed and reclamation management activities are components of a long-term process, monitoring and reporting are integral to and long-term commitment to land health.

a) All sites considered as "operator reclamation in progress" will be routinely monitored for reclamation success. Reports will be submitted to the BLM by December 1 of each year. Annual reports will include whether accomplishment of objectives appears likely and of not, what corrective actions are proposed.

b) All sites will be routinely monitored for the presence of noxious weeds or other undesirable plant species as set forth in the joint BLM/US Forest Service Noxious and Invasive Weed Management Plan for Oil and Gas Operators. Pesticide Use Proposals will be approved by the BLM before application of herbicides. Annual weed monitoring reports shall be submitted to the BLM by December 1. They will include weed species found (listed by common names), total acres infested with weeds, total acres treated, treatment methods, and total pounds of active ingredient of pesticides applied. All Noxious Weed Inventory and Pesticide Application records for that year will be included with the report.

M&E-64: Visual Resources

a) Every proposal will include a detailed, site-specific description and plan of how it will meet the VRM Class of the area where it is proposed. As much as possible all proposed features will be located and placed to avoid or minimize visibility from travel corridors, residential areas, and other sensitive observation points.

b) To the extent practical, existing vegetation shall be preserved when clearing and grading for pads, roads, and pipelines. Cleared trees and rocks may be salvaged for redistribution over reshaped cut-and-fill slopes or along linear features.

c) Above-ground facilities will be painted a non-reflective natural color selected to minimize contrast with adjacent vegetation or rock outcrops. Colors may be specified by the BLM on a project-by-project basis.

d) Adaptive management techniques may be applied before or after construction to mitigate straight-line visual contrast effects of pad margins, cut and fill slopes, pipeline alignments or other cleared

vegetation. This could include additional tree removal along contrasting edges, to create irregularly shaped openings or more natural-looking mosaic patterns, or treating surfaces to mitigate visual contrasts in color or surface texture.

Best Management Practices

BMPs are adaptive state-of-the-art mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. Numerous BMPs for oil and gas development are also incorporated into the general oil and gas development requirements. These include minimizing the number and size of pads through use of multiple well designs and directional drilling; centralizing fracing and water management; minimizing road footprints; centralized support facilities such as tank batteries; collocating utilities and pipelines in common corridors and aligning them along roadways; and implementing intensive interim reclamation practices. The BLM encourages applicants to include in their proposals BMPs such as those identified. If not, BLM will likely require them. Actual BMPs proposed or required during the permitting process to mitigate impacts are expected to vary according to technologies and site-specific needs. BMPs will also be expected to change over the life of a project, being adaptively updated in response to monitoring and changing project conditions. Additional practices could be required or withdrawn, or modified in response to changing activities or future planning. Such adaptive changes to BMPs may generally be implemented without further review or land use planning, but will be analyzed during the NEPA analysis associated with the permitting process. Monitoring and adaptive management practices will help to refine and clarify needed BMPs, consistent with the goals and objectives of this plan.

The listed BMPs are not intended to be complete but to simply offer operators and resource staff examples of commonly used methods to reduce impacts that sometimes result when fluid mineral development occurs. More fluid mineral development BMPs can be found at blm.gov/bmp.

Geophysical Exploration

M&E-65: Specialized low surface impact equipment (wide- or balloon-tired vehicles, all-terrain vehicles) or helicopters may be used for activities in off-road areas to protect fragile soils and or other resource values.

M&E-66: Pre-mobilization inspection will be performed to insure that all construction equipment and vehicles are clean and free of weeds, weed seed, soil and vegetative material prior to moving onto public lands. Driving through or parking on noxious weed infestations will be avoided.

Reducing Fluid Mineral Development Footprint

M&E-67: The operator will co-locate multiple wells on well pads and use directional drilling to reduce the number of pads and roads.

M&E-68: The operator will use centralize completions to reduce the number of truck trips, expense, exhaust emissions and fugitive dust.

M&E-69: To minimize construction disturbance, truck traffic, dust and other impacts to air quality, soils and wildlife, centralized production facilities will be used for all natural gas liquids and produced water.

M&E-70: Telemetry will be used to remotely monitor producing wells and facilities to reduce vehicular traffic. During winter closures, unavoidable monitoring and or maintenance activities will be conducted between 9 a.m. and 3 p.m., to the extent practical.

Administrative / General and Planning

M&E-71: To limit surface disturbance and associated impacts to natural resources, all actions will consider the character of the topography and landform. Deep vertical cuts, long or steep fill slopes and side cuts across steep slopes will be avoided. Rights-of-way will be shared, and structures and facilities will be grouped.

M&E-72: Drilling will be done with 'closed loop' systems as much as possible, particularly in areas where water resources are most vulnerable, including: soils mapped as alluvial, colluvial, and glacial deposits; near springs and perennial water sources; in important groundwater recharge areas; and within municipal watersheds.

M&E-73: Chemicals used in the fracturing process will be biodegradable, non-toxic, pH neutral, residual free, non-corrosive, non-polluting and non-hazardous in the forms and concentrations being used. Documentation in the form of Material Safety Data Sheets will be reviewed by operator for compliance prior to use and Material Safety Data Sheets will remain on site at all times such chemicals are present.

M&E-74: In municipal watersheds, the operator will develop and implement a Watershed Protection Plan. This plan will characterize baseline hydrologic and hydrogeologic conditions such as but not limited to: water chemistry, water quantity, groundwater flow patterns, connectivity between geologic formations, and communication between surface and groundwater. The operator will collaborate with all watershed stakeholders in development of the plan.

M&E-75: Adopt BMPs per the BLM and US Forest Service Noxious and Invasive Weed Management Plan for Oil and Gas Operators (BLM and US Forest Service 2007).

M&E-76: Incorporate BMPs and conditions of approval from the Final Programmatic EIS for Geothermal Leasing in the Western US, as applicable (BLM and US Forest Service 2008).

Pre-Construction

M&E-77: Pre-mobilization inspections will be performed to be sure that all construction equipment and vehicles are clean and free of soils, weeds, weed seed and vegetative material prior to moving onto public lands. Driving through or parking on noxious weed infestations will be avoided.

Construction

M&E-78: Surface disturbing actions associated with development of fluid minerals will follow Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (commonly referred to as The Gold Book)(BLM 2007b).

M&E-79: Where feasable, entrances to construction locations will be covered by gravel "track pads" to prevent sediment and weed seeds from being tracked in and out of the site.

M&E-80: In areas of mapped Mancos Shale, saline soils, or fragile soils, groundwater will not be discharged to surface water drainages, to minimize mobilization and transport of selenium, salts and sediment within the Colorado River Basin.

M&E-81: Where linear disturbance is proposed, edges of vegetation removal will be 'feathered,' to avoid long linear habitat edges and support habitat complexity for wildlife. Additional trees will be removed along such edges to create irregularly shaped openings and more natural mosaic habitat.

M&E-82: Cleared vegetation smaller than four inches in diameter will be stockpiled, shredded, and salvaged with topsoil. Cleared vegetation larger than four inches in diameter will be scattered over disturbed areas to accomplish reclamation objectives. Excessive vegetation larger than four inches in diameter may be removed from public land or shredded in place to be salvaged with topsoil. A wood cutting permit will be purchased from BLM for material removed from the site.

M&E-83: Windrowing of Topsoil. [Use where appropriate based on topography – may not be appropriate for pads in steep areas or where pad size should be minimized.] Topsoil shall be windrowed around the perimeter of surface disturbance to create a berm that limits and redirects stormwater runoff and extends the viability of the topsoil per BLM Topsoil Best Management Practices (BLM 2009 PowerPoint presentation available upon request from the Grand Junction Field Office). Topsoil shall also be windrowed, segregated, and stored along disturbed surfaces or linear features for later spreading across the disturbed corridor during final reclamation. Topsoil berms shall be promptly seeded to maintain soil microbial activity, reduce erosion, and minimize weed establishment.

M&E-84: Cattle guards will be installed and maintained whenever access roads intersect existing gates or fences.

Drilling

M&E-85: Catalytic converters will be installed on all internal combustion engines to minimize emissions to Tier 3 levels.

M&E-86: Hazardous substances will not be used in drilling, testing, or completion operations, nor introduced at any time into the reserve or cuttings pit.

Utilization and Production

M&E-87: Secondary containment shall include a study corrugated metal wall to create a basin, be lined with a heavy impervious poly liner and be protected with a gravel surface. Small hoppers or drip pans shall be installed at all loadout connections to catch drips and small leaks.

M&E-88: When special resource values are at risk, such as crucial wildlife areas, companies controlling access into these areas will gate and lock roads or restrict use to authorized users.

M&E-89: Speed control measures will be in place on all project related unpaved roads to reduce fugitive dust.

M&E-90: Use enclosed tanks instead of open tanks or pits to reduce fugitive VOC emissions.

M&E-91: Use vapor recovery units on oil, condensate, and produced water storage tanks to reduces fugitive VOCs and recovers BTU-rich vapors for sale or use on site.

M&E-92: Use and maintain proper hatches, seals, and valves to minimize VOC emissions.

M&E-93: Optimize glycol circulation and Install Flash Tank Separator (FTS) to capture methane and reduce VOC emissions on glycol dehydrators.

M&E-94: Replace wet seals with dry seals in centrifugal compressors. Centrifugal wet seal compressor emissions from the seal oil degassing vent can be reduced by the replacement of wet seals with dry seals that emit less methane and have lower power requirements.

M&E-95: Reduce gas leaks and emissions from reciprocating compressors by the economic replacement of rod packing at frequent intervals.

M&E-96: Reduce methane and VOC emissions by installing or replacing high-bleed pneumatic devices with low-bleed pneumatic devices.

M&E-97: Reduce methane emissions by installing plunger lifts and smart automation systems which monitor well production parameters.

M&E-98: Implement a Direct Inspection & Monitoring Program which identifies and cost effectively fixes fugitive gas leaks using Leak Detection, Infrared Camera, Organic Vapor Analyzer, Soap Solution, Ultrasonic Leak Detectors, Measurement, Calibrated Bagging, Rotameters, and/or High Volume Samplers.

Site Stabilization, Reclamation and Monitoring

M&E-99: During interim reclamation contour land forming will be used to create a visual barrier to the permanent structures location on the site.

M&E-100: Re-topsoil and revegetate access road cut & fill slopes, backslopes and road shoulders, and borrow ditches. Also, revegetating the travel surface of surfaced roads and turnarounds, where practical. With low traffic roads, this will result in a hardpan, two-track road that is stable and requires less maintenance.

References

BLM. 2012. H-9113-1 Road Design Handbook. Bureau of Land Management, Washington, D.C.

_____. 1992. Handbook H-3042-1: Solid Minerals Reclamation. Release 3-275. BLM, Washington, DC. February 2, 1992. 104 pp.

_____. 2002. Handbook H-3600-1: Mineral Materials Disposal. Release 3-315. BLM, Washington, DC. February 22, 2002. 171 pp.

BLM and US Forest Service (United States Department of the Interior, Bureau of Land Management, and United States Department of Agriculture, National Forest Service). 2007. Noxious and Invasive Weed Management Plan for Oil and Gas Operators: Grand Junction Field Office and Grand Valley Ranger District. BLM, Grand Junction Field Office, Grand Junction, CO. March 2007.

_____. 2007. Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development – The Gold Book. BLM/WO/ST-06/021+3071/REV 07. BLM, Denver, CO. 84 pp.

_____. 2008. Record of Decision, Programmatic Environmental Impact Statement for Geothermal Leasing in the Western United States – Appendix B. BLM Washington Office. December 2008.

RENEWABLE ENERGY (RE)

Standard Operating Procedures

RE-1: Authorize rights-of-way by applying appropriate BMPs from the BLM Record of Decision for Implementation of a Wind Energy Development Program (BLM 2005), land use restrictions, stipulations, and mitigation measures.

References

BLM (United States Department of the Interior, Bureau of Land Management). 2005. Record of Decision for Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments. BLM, Washington, DC. December 15, 2005.

TRANSPORTATION AND ACCESS (TA)

Standard Operating Procedures

TA-1: Continue coordination with counties and other agency road entities to promote utilization of best management practices for road maintenance they perform within GJFO boundaries.

Maintain an inventory of existing road and trail systems.

TA-2: BLM Manual 9113, Roads (BLM 2012) and BLM Handbook 9113-2, Roads – Inventory and Maintenance (BLM 2012) will be used to guide all maintenance and road construction designs and requirements. Include definitions for functional road classification and maintenance levels for BLM roads.

TA-3: All highway rights-of-way and other road authorizations will contain noxious and invasive weed stipulations that include prevention, inventory, treatment, and revegetation or rehabilitation. Road abandonment will include at least three years of post-abandonment monitoring and treatment.

TA-4: All travel management decisions will concur with the Bureau of Land Management, Grand Junction Field Office Travel Management Plan.

Best Management Practices

TA-5: In order to ensure public access and safety, the GJFO shall continue an active road maintenance program employing the use of redesign, blading, brush removal for sight distance as appropriate, scarification, graveling, water barring, low water crossings, spur ditching, seeding and installation/cleaning of culverts.

TA-6: NEPA Requirements – No new NEPA analysis will be required for road maintenance activities within the defined maintenance disturbance/easement footprint, which is defined as previously disturbed or maintained. Disturbance outside of the defined maintenance disturbance/easement footprint or road realignment will be subject to additional NEPA compliance.

References

BLM. 2012. H-9113-1 Road Design Handbook. Bureau of Land Management, Washington, D.C.

BLM. Grand Junction Field Office Travel Management Plan (See Appendix L, Travel Management Plan, in the Grand Junction Field Office Draft RMP/EIS)

RECLAMATION (R)

The objectives of interim reclamation are to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize loss of habitat, forage, and visual resources during the life of the well or facilities.

The long-term objective of final reclamation is to return the land to a condition approximating that which existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, standards will be enforced to meet objectives for site stability, visual quality, hydrological function, and vegetative productivity.

Standard Operating Procedures

R-1: A reclamation plan will be provided to the BLM with the original proposed action or when activities are needed. The plan will follow the BLM Colorado Northwest District Template for Reclamation Plans (BLM 2012). Reclamation plans will discuss interim and final reclamation activities. The plan will include provisions for

- **a)** Reclamation Timeline
- **b)** Pre-disturbance Planning recommendations if applicable
- **c)** Vegetation Monitoring Plan
- **d)** Stabilization and Stormwater
- **e)** Dust Abatement
- **f)** Vegetation Clearing
- **g)** Topsoil Management
- **h)** Pit Closures if applicable
- **i)** Recontouring and Seedbed Preparation
- **j)** Application of Topsoil & Revegetation
- **k)** Fencing
- **l)** Management of Invasive, Noxious, and Non-Native Species

Best Management Practices

R-2: Trees and vegetation will be left along the edges of the pads whenever feasible to provide screening.

R-3: To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, debris, and rock over recontoured cut and fill slopes.

R-4: To reduce the view of production facilities from visibility corridors and private residences, facilities will not be placed in visually exposed locations (such as ridgelines and hilltops).

R-5: Production facilities will be clustered and placed away from cut and fill slopes to allow the maximum recontouring of cut and fill slopes.

R-6: All long-term above ground structures will be painted [Covert Green] (from the BLM "Supplemental Environmental Colors" chart) to blend with the natural color of the late summer landscape background.

R-7: Projects should be located to take advantage of existing vertical features, such as landforms or existing stands of vegetation to provide visually screening.

R-8: Projects should not be located in visually exposed locations, such as ridgelines and hilltops.

R-9: Projects should be located in areas that will minimize the amount of cut-and-fill needed to meet natural grade.

R-10: Linear disturbances (roads and pipelines) should follow the natural contours of the landscape as much as possible.

R-11: Project design should take into consideration any existing vegetation surrounding the project that can be used for visual screening. Care should be taken to preserve the integrity of the vegetation and the vegetation should remain standing and undamaged when the cut-and-fill slopes are recontoured.

R-12: Thinning and feathering of existing vegetation may also be used in areas where clearing within dense vegetation is required. Thinning and feathering will reduce the hard line between new construction and existing vegetation and will emulate the forms of natural clearings.

R-13: Production facilities should be placed to maximize recontouring of the cut-and-fill slopes and interim reclamation. Facilities should be oriented in the direction that is least visually obtrusive and should be clustered to reduce the overall impact and the area that will need to be visually mitigated. Facilities should be located away from the cut-and-fill slopes and, if possible, near the

access road or entrance to the pad to maximize the total surface area that can be reclaimed.

R-14: Cut-and-fill slopes should be recontoured to the approximate original contour or consistent with the adjacent topography so that the reclaimed landscape features blend into the natural surroundings.

R-15: Berms may be utilized to provide visual screening, but should be used only when it makes sense when viewing the surrounding natural environment and should blend with the adjacent topography.

R-16: Cleared vegetation and rocks salvaged during construction should be salvaged and redistributed over reshaped cut-and-fill slopes or along linear features to emulate the color and texture closer to that of the natural landscape and to help create microclimates to encourage vegetation growth. The material should be placed so that it appears to be naturally deposited.

R-17: Above ground facilities should be painted a natural color selected from the BLM Standard Environmental Color Chart to minimize contrast with adjacent vegetation and/or rock outcrops. Color(s) should be selected in the field at the proposed project location and should be planned for the season with the greatest number of viewers. Selected color(s) should be one to two shades darker than those naturally occurring in the background landscape (this will also help with the effects of fading over time).

References

BLM (United States Department of the Interior, Bureau of Land Management). 1985a. BLM Manual 9113: Roads. Release 9-247. BLM, Washington DC. June 7, 1985. 83 pp.

_____. 1985b. BLM Handbook 9113-2, Roads – Inventory and Maintenance. Release 9-250. BLM, Washington DC. December 19, 1985. 18 pp.

_____. 2012. Draft BLM Colorado Northwest District Template for Reclamation Plans – (Final expected June 2012).

Appendix I

Cultural Resource Allocation to Use Categories

APPENDIX I
CULTURAL RESOURCES ALLOCATION TO USE CATEGORIES

Allocations to Use Categories are made in land use plans and may be applied to both individual properties and classes of properties. Categorizing cultural resources according to their potential uses is a result of the identification process and a tool for protection and utilization decisions. The following tables identify the suitable uses for cultural properties by considering the properties' characteristics, condition, setting, location, and accessibility, and their perceived values and potential uses. This allocation list is based on available cultural information used to prepare the Class I Cultural Resource Overview and as such is a "snap-shot", where the data record was current to March 2009.

Table I-1, Relationship Among Use Categories, National Register Eligibility, and Preservation/National Register Nomination, serves as a general guide to consider the relationship between National Register evaluation and allocation to use categories. In addition each category includes a description of the criteria used to evaluate the sites. As previously recorded sites are reevaluated and newly recorded sites are received these criteria will be use to assign allocation. Previous allocations may be reevaluated and revised using these, as appropriate, when circumstances change or new data become available thus precluding the need for a plan amendment (BLM Manual 8110, Identifying and Evaluating Cultural Resources, Section .41, Allocation to Use Categories [BLM 2004]).

The following defines use categories for sites in the Grand Junction Field Office RMP planning area. Italicized sections are quoted from BLM Manual 8110, Identifying and Evaluating Cultural Resources (BLM 2004).

Table I-1
Relationship Among Use Categories, National Register Eligibility, and Preservation/National Register Nomination

Cultural Resource Use Category	National Register Eligibility	Preservation/National Register Nomination
Scientific Use	Usually eligible	Long-term preservation not critical; medium National Register nomination priority
Conservation for Future Use	Always eligible	Long-term preservation is required; highest nomination priority
Traditional Use	May be eligible	Long-term preservation is desirable; nomination priority is determined in consultation with the appropriate cultural group(s).
Public Use	Usually eligible	Long-term preservation is desirable; high nomination priority
Experimental Use	May be eligible	Long-term preservation is not anticipated; low nomination priority.
Discharged from Management	Not eligible	Long-term preservation and management are not considerations; nomination is inappropriate

Source: BLM 2004

I.1 SCIENTIFIC USE

This category applies to any cultural property determined to be available for consideration as the subject of scientific or historical study at the present time, using currently available research techniques. Study includes methods that would result in the property's physical alteration or destruction. This category applies almost entirely to prehistoric and historic archaeological properties, where the method of use is generally archaeological excavation, controlled surface collection, and/or controlled recordation (data recovery). Recommendations to allocate individual properties to this use must be based on documentation of the kinds of data the property is thought to contain and the data's importance for pursuing specified research topics. Properties in this category need not be conserved in the face of a research or data recovery (mitigation) proposal that would make adequate and appropriate use of the property's research importance.

Additional criteria can be applied in consideration of assigning Isolated Finds to this category. Unless otherwise determined at the time of submitting a project to the SHPO IFs will be allocated to Scientific use. When allocating IFs recorded in the past one should consider the following:

- Some isolated finds represent a period in prehistory where little is known, in the RMPPA this applies to Paleoindian artifacts.

- IFs have been recorded where the environmental setting is conducive to a prehistoric ground surface being preserved, where the site is actually at a depth not discernible by surface inventory and the few artifacts recorded on the surface as an IF are the result of mechanical or biological displacement. These isolates may actually represent sites and therefore may be included in this category. These cultural resources would require sub-surface inventory (trench or other surface disturbing construction monitoring) as mitigation for any surface disturbing projects or evaluative testing for proposed actions that would remove them from federal ownership (e.g. lease or exchanges).
- In the past some isolated prehistoric features or historic sites, were recorded as Isolated Finds when they should have been recorded as sites. These need to be reevaluated if they are in the Area of Potential Effect or if they meet a particular research proposal.

One thousand five hundred seventy-four (1,574) cultural resources are allocated to this category which includes 27 isolated features/isolated finds (see **Table I-2**, Scientific Use Sites, at the end of this appendix).

I.2 CONSERVATION FOR FUTURE USE

This category is reserved for any unusual cultural property which, because of scarcity, a research potential that surpasses the current state of the art, singular historic importance, cultural importance, architectural interest, or comparable reasons, is not currently available for consideration as the subject of scientific or historical study that would result in its physical alteration. A cultural property included in this category is deemed worthy of segregation from all other land or resource uses, including cultural resource uses, that would threaten the maintenance of its present condition or setting, as pertinent, and will remain in this use category until specified provisions are met in the future. No additional criteria were applied.

Four (4) cultural resources are allocated to this category as a primary allocation and three sites with this use allocation as a secondary use (see **Table I-3**, Conservation for Future Use Sites, at the end of this appendix).

I.3 TRADITIONAL USE

This category is to be applied to any cultural resource known to be perceived by a specified social and/or cultural group as important in maintaining the cultural identity, heritage, or well being of the group. Cultural properties assigned to this category are to be managed in ways that recognize the importance ascribed to them and seek to accommodate their continuing traditional use. Although a few cultural resources have been attributed to Shoshone and Navajo in the Grand Junction Field Office, most protohistoric and historic Native American Indian sites are affiliated to the Ute. 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. These sites include wickiup camps and open camps with definitive Ute occupation (associated to Ute rock art, artifact assemblages and/or trails), isolated Ute rock art, Culturally Modified Trees (e.g. scarred and prayer trees) and Ceremonial features (e.g. eagle traps, vision circles, and special structures). This list is in no way intended to be a comprehensive list and may continue to grow through consultation.

Traditional Use sites with known associated burials will have a secondary allocation to Conservation Use, precluding the disturbance of these sites or the option of mitigation of these sites through data recovery. Other sites that are identified through consultation as inappropriate for Scientific or Public Use would also have a secondary allocation to Conservation Use to further emphasize the protection of the site. Consultation would be required to assign a secondary use prior to authorizing actions at a Traditional Use. Examples of this situation would be secondary allocation to Public use in response to a request to use a site for a heritage tourism or recreation opportunity (e.g. rock art or trails) or secondary allocation to Scientific use and a request to conduct any evaluative testing (excavation of small test units that are under the threshold that would require consultation under an ARPA permit) or using a rock art site to conduct a field school to teach rock art recording. At the current time there are no anticipated projects that would qualify a secondary use allocation of Experimental Use at a Traditional Use site. If there is such a proposal in the future it would require consultation and unless it was something proposed or approved by a tribe it would not be authorized.

One hundred thirty-five (135) cultural resources are allocated to this category (see **Table I-4**, Traditional Use Sites, at the end of this appendix).

I.4 PUBLIC USE

This category may be applied to any cultural property found to be appropriate for use as an interpretive exhibit in place, or for related educational and recreational uses by members of the general public. The category may also be applied to buildings suitable for continued use or adaptive use, for example as staff housing or administrative facilities at a visitor contact or interpretive site, or as shelter along a cross-country ski trail.

Sites allocated to public use often require the completion of scientific investigation and preparation and accommodations for public health and safety prior to being made available for public use. Their allocation to this category is only the first step in this process. In many cases sites may not meet National Register criteria but they are part of the historic landscape and may be important to residents and for heritage tourism.

Prehistoric and historic routes, trails, abandoned railroad grades, and roads, may be assigned to Public Use category. Where these segments are accessible to the public and could be used or are currently used for travel/transportation the method of use will be appropriate to their National Register eligibility, the effect

of the proposed use (is it consistent with the historical use of the property?) and will be designated through Travel Management. Active railroads are assigned to this category. Historic mining sites are allocated to this use as a primary use. Visual integrity needs to be considered when projects are proposed by the Abandoned Mine Lands program where reclamation for public health and safety is the priority. The criterion of visual historic landscape for Public Use allocation is also applied to cabins, homesteads, and other ranching/agricultural sites. Also included in this category are sites that as an overall site type may not be appropriate for "use by the general public". One example of this type of allocation is the functioning irrigation ditches, canals, and other water control features. As a whole the irrigation systems are what made the settlement and agricultural development of areas in the RMPPA possible, and they contribute to the development of the historic landscape, but alone we may be managing only a segment of ditch across an isolated BLM parcel. They are interpretable and in some locations may even be appropriate for on-site information; this is the rationale for their designation to Public Use.

Ninety-five (95) cultural resources are allocated to this category (see **Table I-5**, Public Use Sites, at the end of this appendix).

I.5 EXPERIMENTAL USE

This category may be applied to a cultural property judged well suited for controlled experimental study, to be conducted by BLM or others concerned with the techniques of managing cultural properties, which would result in the property's alteration, possibly including loss of integrity and destruction of physical elements. Committing cultural properties or the data they contain to loss must be justified in terms of specific information that would be gained and how it would aid in the management of other cultural properties. Experimental study should aim toward understanding the kinds and rates of natural or human caused deterioration, testing the effectiveness of protection measures, or developing new research or interpretation methods and similar kinds of practical management information. It should not be applied to cultural properties with strong research potential, traditional cultural importance, or good public use potential, if it would significantly diminish those uses.

A group of sites that have been officially determined not eligible to the National Register have been allocated to this use through the plan. They are located in a variety of environments and represent sites that have been affected by grazing, mechanical vegetation treatments, wildland fire, and recreation development. If there are new research proposals outside of studying the effects of these impacts, or proposals where these sites would not meet the research needs a research plan would be required. Other conditions for archaeological research may apply. In the past it was common to completely surface collect sites, leaving no visible trace of the site. Decades later these sites may have new surface evidence. Another case is where there are sites in depositional environments where the setting is conducive to a prehistoric ground surface being preserved, where the site is actually at a depth not discernible by surface inventory and the

few artifacts on the surface are the result of mechanical or biological displacement. A cultural management plan needs to be prepared to identify sites that would fit this experimental category with a secondary use of Scientific. Findings would result in a reallocation based on the site's new determined potential.

Seventy-nine (79) cultural resources are allocated to this category (see **Table I-6**, Experimental Use Sites, at the end of this appendix).

I.6 DISCHARGED FROM MANAGEMENT

This category is assigned to cultural properties that have no remaining identifiable use. Most often these are prehistoric and historic archaeological properties, such as small surface scatters of artifacts or debris, whose limited research potential is effectively exhausted as soon as they have been documented. Also, more complex archaeological properties that have had their salient information collected and preserved through mitigation or research may be discharged from management, as should cultural properties destroyed by any natural event or human activity. Properties discharged from management remain in the inventory, but they are removed from further management attention and do not constrain other land uses. Particular classes of unrecorded cultural properties may be named and described in advance as dischargeable upon documentation, but specific cultural properties must be inspected in the field and recorded before they may be discharged from management.

Archives (site record, cultural plat, database entry, and curation if applicable) continue to be maintained for all Discharge Use category sites. Isolated Finds are not automatically allocated to this category. This category should not be used to retire an assigned site number based on a lack of information in the original site recording. It should be used as a management decision for sites that the BLM has managed in the past that now meet the following criteria: 1) they have been removed from federal ownership either through land exchange, lease patent, or removal of a patent reservation; 2) they have been totally excavated; 3) they are destroyed to a point that no physical evidence remains (e.g. a wooden fence is burned in a fire or a flood removes all traces of a site). This is not meant to be an exhaustive list of events that could lead to this allocation but is meant to guide future decisions for discharge use. Justification should always become part of the record for a discharge use site.

Seven (7) cultural resources are allocated to this category (see **Table I-7**, Sites Discharged from Management, at the end of this appendix).

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5GF.1051		Mining	Need data (F)	Book Cliffs	
5GF.1055	Sheltered camp		Not eligible (F)	Book Cliffs	
5GF.1056		Habitation/ homestead	Not eligible (F)	Grand Valley	
5GF.1063	Open camp		Not Eligible (O)	Book Cliffs	
5GF.1065	Open lithic		Not eligible (F)	Roan Creek	
5GF.1067	Isolated feature-hearth		Not eligible (F)	Roan Creek	
5GF.1068	Isolated feature-hearth		Not eligible (O)	Roan Creek	
5GF.1074	Sheltered camp		Need data (F)	Book Cliffs	
5GF.1075		Habitation/ homestead	Not eligible (F)	Book Cliffs	
5GF.1076		Habitation/ homestead	Need data (F)	Book Cliffs	
5GF.1077	Open camp		Not eligible (F)	Roan Creek	
5GF.1079	Sheltered camp		Need data (F)	Book Cliffs	
5GF.1081	Open lithic		Need data (F)	Roan Creek	
5GF.1082	Open lithic		Need data (F)	Roan Creek	
5GF.1083	Open camp		Need data (F)	Roan Creek	
5GF.1084	Isolated find – Paleoindian		Not Eligible (F)	Grand Valley	
5GF.1124	Open lithic		Need data (F)	Roan Creek	
5GF.1127	Open lithic		Not eligible (F)	Grand Valley	
5GF.1130		Farm/ranch	Not eligible (F)	Book Cliffs	
5GF.114	Open camp		Need data (F)	Book Cliffs	
5GF.1152		Isolated feature	Not eligible (F)	Book Cliffs	
5GF.1155		Farm/ranch	Not eligible (F)	Book Cliffs	
5GF.116	Open camp		Need data (F)	Book Cliffs	
5GF.1171	Open camp		Need data (F)	Grand Valley	
5GF.1204	Open camp		Eligible (F)	Book Cliffs	
5GF.1223	Open lithic		Not eligible (F)	Roan Creek	
5GF.1335	Open camp		Not Eligible (O)	Grand Valley	
5GF.1336	Open camp		Need data (F)	Book Cliffs	
5GF.1337	Open camp		Not Eligible (O)	Grand Valley	
5GF.1340	Open camp		Need data (F)	Book Cliffs	
5GF.1341	Open camp		Need data (F)	Book Cliffs	
5GF.1342	Open lithic		Need data (F)	Book Cliffs	
5GF.1343	Open camp		Need data (F)	Book Cliffs	
5GF.1344	Open lithic		Need data (F)	Book Cliffs	
5GF.1345	Open lithic		Need data (F)	Book Cliffs	
5GF.1346	Open camp		Need data (F)	Book Cliffs	
5GF.1347	Sheltered camp		Need data (F)	Book Cliffs	
5GF.1348	Sheltered camp		Need data (F)	Book Cliffs	
5GF.1349	Sheltered camp		Need data (F)	Book Cliffs	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5GF.1443		Isolated feature	Not eligible (F)	Roan Creek	
5GF.1444		Isolated feature	Not eligible (F)	Roan Creek	
5GF.1459	Open camp		No assessment	Book Cliffs	
5GF.1475		Camp	Not eligible (F)	Grand Valley	
5GF.1550		Farm/ranch	Not Eligible (O)	Book Cliffs	
5GF.157	Sheltered lithic		Not eligible (F)	Book Cliffs	
5GF.1589.1		Road	Not Eligible (O)	Roan Creek	
5GF.174	Open lithic		Eligible (F)	Roan Creek	
5GF.183	Open camp		Not Eligible (O)	Roan Creek	
5GF.221		Trash scatter/ dump	Not eligible (F)	Book Cliffs	
5GF.222		Camp	Not Eligible (O)	Book Cliffs	
5GF.223		Camp	Not eligible (F)	Book Cliffs	
5GF.224	Open camp		Not eligible (F)	Book Cliffs	
5GF.225	Open camp		Need data (F)	Grand Valley	
5GF.226	Open lithic		Not eligible (F)	Grand Valley	
5GF.2292	Open camp		Eligible (O)	Grand Valley	
5GF.2293	Open camp		Eligible (O)	Grand Valley	
5GF.2701	Open camp		Eligible (F)	Grand Valley	
5GF.271	Sheltered lithic	Trash scatter/ dump	Not Eligible (O)	Book Cliffs	
5GF.274	Open camp		Not eligible (F)	Book Cliffs	
5GF.2785		Trash scatter/ dump	Not Eligible (O)	Roan Creek	
5GF.2797	Open camp		Not Eligible (O)	Roan Creek	
5GF.283		Farm/ranch	Not eligible (F)	Book Cliffs	
5GF.284		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5GF.2947		Rock feature	Not eligible (F)	Roan Creek	
5GF.3101	Isolated find – Paleoindian		Not Eligible (F)	Book Cliffs	
5GF.3183	Open camp		Eligible (O)	Roan Creek	
5GF.3184	Open camp		Eligible (O)	Roan Creek	
5GF.3234		Isolated feature	Not eligible (F)	Roan Creek	
5GF.345	Open lithic		No assessment	Roan Creek	
5GF.3577	Open lithic		Need data (O)	Book Cliffs	
5GF.3579	Open lithic		Not Eligible (O)	Book Cliffs	
5GF.3672		Habitation/ homestead	Not Eligible (O)	Roan Creek	
5GF.3876	Open lithic		Not Eligible (O)	Grand Valley	
5GF.3877	Open lithic	Farm/ranch	Not eligible (F)	Grand Valley	
5GF.3878	Open lithic		Eligible (F)	Grand Valley	
5GF.3879	Open camp		Eligible (F)	Grand Valley	
5GF.3880	Open camp		Eligible (F)	Grand Valley	
5GF.395		Building	Not Eligible (O)	Book Cliffs	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5GF.3951	Open lithic		Not eligible (F)	Book Cliffs	
5GF.399		Camp	Not eligible (F)	Book Cliffs	
5GF.403		Camp	Not eligible (F)	Grand Valley	
5GF.4048	Open camp		Not eligible (F)	Roan Creek	
5GF.4049	Open camp		Need data (F)	Roan Creek	
5GF.4230	Open camp		Eligible (F)	Roan Creek	
5GF.4243	Open architectural	Brush Fence	Not Eligible (O)	East Salt Creek, Book Cliffs	Public Use
5GF.4244	Isolated feature		Eligible (F)	Grand Valley	
5GF.435	Open lithic		Not eligible (F)	Roan Creek	
5GF.442	Open lithic		Need data (F)	Roan Creek	
5GF.443	Open camp		Need data (F)	Roan Creek	
5GF.454	Open lithic		Not eligible (F)	Book Cliffs	
5GF.487		Habitation/ homestead	Not eligible (F)	Roan Creek	
5GF.622		Inscription	Need data (F)	Book Cliffs	
5GF.640		Farm/ranch	Eligible (O)	Book Cliffs	
5GF.641		Rock feature	Not eligible (F)	Book Cliffs	Public Use
5GF.741	Sheltered camp		Need data (O)	Book Cliffs	
5GF.745		Logging	Not eligible (F)	Roan Creek	
5GF.826		Camp	Not eligible (F)	Roan Creek	
5GF.841	Open camp		Need data (F)	Roan Creek	
5GF.954		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5GF.959	Open camp	Trash scatter/ dump	Eligible (O)	Roan Creek	
5GF.960	Open lithic		Not Eligible (O)	Roan Creek	
5GF.962	Isolated feature		Need data (O)	Roan Creek	
5GF.966		Farm/ranch	Not eligible (F)	Roan Creek	
5GF.967		Farm/ranch	Not Eligible (O)	Roan Creek	
5GF.969	Open camp		Need data (F)	Roan Creek	
5GF.986	Open lithic		Not eligible (F)	Roan Creek	
5ME.1004	Quarry		Not eligible (F)	Plateau Valley	
5ME.1019	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1056	Open camp		Eligible (O)	Plateau Valley	
5ME.1059	Open lithic		Need data (F)	Grand Mesa Slopes	
5ME.106	Open lithic		Not eligible (F)	Grand Valley	
5ME.1062	Open camp		Eligible (O)	Grand Valley	
5ME.1063	Open architectural	Camp	Not eligible (F)	Grand Valley	
5ME.1066	Open lithic		Need data (F)	Gateway	
5ME.110	Open lithic		No assessment	Plateau Valley	
5ME.11033	Open lithic		Need data (F)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.11034			Need data (F)	Glade Park	
5ME.11037	Open camp		Need data (F)	Book Cliffs	
5ME.11044	Open lithic		Eligible (O)	Glade Park	
5ME.11065	Open camp		Eligible (O)	Roan Creek	
5ME.11085	Open camp	Habitation/ homestead	Eligible (O)	Gateway	
5ME.111	Open camp		Need data (O)	Plateau Valley	
5ME.112	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.11223	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11224	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11225	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11265		Camp	Not Eligible (O)	Grand Mesa Slopes	
5ME.11266		Trash scatter/ dump	Not Eligible (O)	Grand Mesa Slopes	
5ME.11269	Open camp		Need data (O)	Gateway	
5ME.11270	Open camp		Need data (O)	Gateway	
5ME.113	Open camp		No assessment	Plateau Valley	Public Use
5ME.11367	Open camp		Eligible (O)	Glade Park	
5ME.11373	Open lithic		Not Eligible (O)	Glade Park	
5ME.11383	Open camp		Eligible (O)	Gateway	
5ME.11387	Open camp		Eligible (O)	Gateway	
5ME.11390	Open camp		Eligible (O)	Gateway	
5ME.11391	Open camp	Trash scatter/ dump	Eligible (O)	Glade Park	
5ME.11396	Open lithic		Not Eligible (O)	Gateway	
5ME.11400	Sheltered camp		Eligible (O)	Glade Park	
5ME.11451	Open lithic		Need data (F)	Plateau Valley	
5ME.11469	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.1148	Open camp		Need data (F)	Plateau Valley	
5ME.11526	Open lithic		Need data (O)	Grand Mesa Slopes	
5ME.11527	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.11534	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.1155	Sheltered camp		Need data (O)	Bangs Canyon	
5ME.1156	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.1157	Sheltered camp	Rock feature	Need data (F)	Bangs Canyon	
5ME.11576	Open lithic		Not Eligible (O)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.11579	Open lithic		Not Eligible (O)	Gateway	
5ME.1158	Sheltered camp	Camp	Need data (F)	Bangs Canyon	
5ME.11580	Open camp		Not Eligible (O)	Gateway	
5ME.11588		Mining	Eligible (O)	Bangs Canyon	
5ME.11590		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11608		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11609		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11610		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11611		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11612		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11613		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11614		Mining	Not Eligible (O)	Grand Valley	
5ME.11615		Camp	Not Eligible (O)	Grand Valley	
5ME.11616		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11617		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11618		Trash scatter/ dump	Not Eligible (O)	Book Cliffs	
5ME.11619		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.11624		Farm/ranch	Not eligible (F)	Grand Valley	
5ME.11626		Isolated feature	Not eligible (F)	Grand Valley	
5ME.1163	Open camp		Eligible (F)	Plateau Valley	
5ME.11630		Isolated feature	Not eligible (F)	Grand Valley	
5ME.11636		Isolated feature	Not eligible (F)	Book Cliffs	
5ME.11639	Open camp		Not Eligible (O)	Roan Creek	
5ME.1164		Building	Not eligible (F)	Gateway	
5ME.11652	Open lithic		Not Eligible (O)	Glade Park	
5ME.11660	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.11661	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.11662	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11663	Open camp		Not Eligible (O)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.11667	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.1167		Camp	Not eligible (F)	Grand Valley	
5ME.11670	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.11671	Open camp	Trash scatter/ dump	Eligible (O)	Grand Mesa Slopes	
5ME.11673	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11674	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.11675	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11679	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.1168		Habitation/ homestead	Not eligible (F)	Grand Valley	
5ME.11692	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.11693	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.11714	Open camp		Need data (F)	Roan Creek	
5ME.11717	Open camp		Need data (O)	Roan Creek	
5ME.11720	Open lithic		Need data (O)	Gateway	
5ME.11721	Open lithic		Need data (O)	Gateway	
5ME.11723	Open lithic		Eligible (O)	Gateway	
5ME.11724	Open camp		Eligible (O)	Gateway	
5ME.11725	Open lithic		Eligible (O)	Gateway	
5ME.1178		Mining	Not Eligible (O)	Grand Mesa Slopes	
5ME.1179	Unknown		No assessment	Grand Valley	
5ME.11793		Camp	Not Eligible (O)	Grand Valley	
5ME.118	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.11801	Open camp		Need data (O)	Plateau Valley	
5ME.11852	Open camp		Not Eligible (O)	Plateau Valley	
5ME.11894	Open lithic		Not Eligible (O)	Grand Valley	
5ME.11918	Open camp		Eligible (O)	Bangs Canyon	
5ME.1192	Open camp		Eligible (F)	Gateway	
5ME.11920	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.11922	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.11923		Trash scatter/ dump	Not Eligible (O)	Bangs Canyon	
5ME.11976	Open camp		Not Eligible (O)	Glade Park	
5ME.11977	Open lithic	Trash scatter/ dump	Not Eligible (O)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.11997	Isolated find – Early Archaic		Not Eligible (F)	Glade Park	
5ME.12000	Open camp		Need data (O)	Glade Park	
5ME.12001	Open camp		Need data (O)	Glade Park	
5ME.12022	Open camp		Eligible (O)	Glade Park	
5ME.12024	Sheltered camp		Not Eligible (O)	Glade Park	
5ME.12026	Open camp		Eligible (O)	Glade Park	
5ME.12027	Open camp		Need data (O)	Glade Park	
5ME.12028	Sheltered architectural		Eligible (O)	Glade Park	
5ME.1203	Open camp		Not Eligible (O)	Plateau Valley	
5ME.12030	Sheltered camp		Eligible (O)	Glade Park	
5ME.12051	Isolated find-Paleoindian		Not Eligible (F)	Glade Park	
5ME.1207	Open lithic	Camp	Need data (F)	Grand Mesa Slopes	
5ME.1210	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.1211	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.1214	Open camp		Need data (F)	Grand Valley	
5ME.12142	Open camp		Eligible (O)	Glade Park	
5ME.12143	Open camp		Eligible (O)	Glade Park	
5ME.12146	Open camp		Need data (O)	Roan Creek	
5ME.12147	Open camp		Need data (O)	Roan Creek	
5ME.1215		Camp	Not eligible (F)	Grand Valley	
5ME.1217	Open architectural	Trash scatter/ dump	Need data (F)	Grand Valley	
5ME.12207	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.12208		Trash scatter/ dump	Not Eligible (O)	Bangs Canyon	
5ME.12217	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.12218	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.12219	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.12243	Open camp		Not Eligible (O)	Gateway	
5ME.12249	Open camp		Need data (O)	Bangs Canyon	
5ME.12250	Sheltered camp		Eligible (O)	Bangs Canyon	
5ME.12280	Open camp		Not Eligible (O)	Roan Creek	
5ME.123	Open lithic		Need data (F)	Glade Park	
5ME.1232	Open camp		Not Eligible (O)	Glade Park	
5ME.12357	Open camp		Not Eligible (O)	Roan Creek	
5ME.12362	Open camp		Eligible (F)	Gateway	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.12363	Open camp		Eligible (F)	Gateway	
5ME.12365	Open camp		Eligible (F)	Gateway	
5ME.12366	Open camp		Eligible (F)	Gateway	
5ME.12368	Open lithic		Eligible (F)	Gateway	
5ME.12373	Open lithic		Not eligible (F)	Gateway	
5ME.12374	Open lithic		Not eligible (F)	Gateway	
5ME.12377	Open lithic		Eligible (F)	Gateway	
5ME.12378	Open lithic		Not eligible (F)	Gateway	
5ME.12379		Rock feature	Not eligible (F)	Gateway	
5ME.12383	Open lithic		Not eligible (F)	Gateway	
5ME.12384	Open camp		Eligible (F)	Gateway	
5ME.12385	Open camp		Eligible (F)	Gateway	
5ME.12387	Open lithic		Not eligible (F)	Gateway	Scientific
5ME.12388	Open camp		Eligible (F)	Gateway	
5ME.12390	Open camp		Eligible (F)	Gateway	
5ME.12395	Open camp		Eligible (F)	Gateway	
5ME.12397	Open camp		Eligible (F)	Gateway	
5ME.12398	Open camp		Not eligible (F)	Gateway	
5ME.12399	Open lithic		Eligible (F)	Gateway	
5ME.12401	Open lithic		Eligible (F)	Gateway	
5ME.12402	Open camp		Eligible (F)	Gateway	
5ME.12405	Open lithic		Not eligible (F)	Gateway	
5ME.1241	Open camp	Camp	Eligible (F)	Grand Mesa Slopes	
5ME.12410	Open camp		Eligible (F)	Gateway	
5ME.12412	Open lithic		Not eligible (F)	Gateway	
5ME.12413	Open camp		Eligible (F)	Gateway	
5ME.12414	Open camp		Eligible (F)	Gateway	
5ME.12415	Open camp		Eligible (F)	Gateway	
5ME.12417	Open camp		Not eligible (F)	Gateway	
5ME.12418	Open camp		Not eligible (F)	Gateway	
5ME.12419	Open camp		Not eligible (F)	Gateway	
5ME.1242	Open camp		Need data (F)	Grand Mesa Slopes	
5ME.12420	Open lithic		Eligible (F)	Gateway	
5ME.12422	Open camp		Need data (O)	Plateau Valley	
5ME.12423	Open camp		Need data (O)	Plateau Valley	
5ME.1243	Open camp		Not Eligible (O)	Glade Park	
5ME.1244	Open camp		No assessment	Bangs Canyon	
5ME.12482		Building	Within Potential District-Contributing	Roan Creek	
5ME.12485		Habitation/ homestead	Within Potential District-Contributing	Roan Creek	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.12497	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.12500	Open camp		Need data (O)	Roan Creek	
5ME.12501	Sheltered camp		Need data (O)	Roan Creek	
5ME.12517	Open camp		Not Eligible (O)	Glade Park	
5ME.12526	Open camp		Need data (O)	Glade Park	
5ME.12527	Open lithic		Not Eligible (O)	Glade Park	
5ME.12534	Open camp		Need data (O)	Glade Park	
5ME.12548	Open camp		Need data (O)	Glade Park	
5ME.12562	Open camp		Not Eligible (O)	Glade Park	
5ME.12565	Open camp		Not Eligible (O)	Gateway	
5ME.12567		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5ME.12568		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5ME.12569		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5ME.12641	Open camp		Eligible (O)	Plateau Valley	
5ME.12642	Open camp		Eligible (O)	Plateau Valley	
5ME.12645	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.12646	Sheltered camp		Not Eligible (O)	Bangs Canyon	
5ME.12647	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.12648	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.12662	Open camp		Need data (O)	Roan Creek	
5ME.12736	Open camp		Not Eligible (O)	Glade Park	
5ME.12737	Open lithic		Not Eligible (O)	Glade Park	
5ME.12738	Open lithic		Not Eligible (O)	Glade Park	
5ME.12739	Open lithic		Not Eligible (O)	Glade Park	
5ME.12740	Open camp		Not Eligible (O)	Glade Park	
5ME.12741	Open lithic		Not Eligible (O)	Glade Park	
5ME.12742	Open lithic		Need data (O)	Glade Park	
5ME.12743	Open lithic		Not Eligible (O)	Glade Park	
5ME.12744	Open camp		Need data (O)	Glade Park	
5ME.12745	Open camp		Need data (O)	Glade Park	
5ME.12746	Open camp		Need data (O)	Glade Park	
5ME.12747	Open camp		Not Eligible (O)	Glade Park	
5ME.12748	Open lithic		Need data (O)	Glade Park	
5ME.12749	Open camp		Need data (O)	Glade Park	
5ME.12750	Open camp		Not Eligible (O)	Glade Park	
5ME.12751	Open camp		Need data (O)	Glade Park	
5ME.12752	Open lithic		Not Eligible (O)	Glade Park	
5ME.12753	Open lithic		Not Eligible (O)	Glade Park	
5ME.12754	Open lithic		Not Eligible (O)	Glade Park	
5ME.12755	Open lithic		Not Eligible (O)	Glade Park	
5ME.12756	Open camp		Not Eligible (O)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.12757	Open camp		Need data (O)	Glade Park	
5ME.12759	Open lithic		Need data (O)	Glade Park	
5ME.12760	Open camp		Not Eligible (O)	Glade Park	
5ME.12761	Open lithic		Not Eligible (O)	Glade Park	
5ME.12762	Open camp		Need data (O)	Glade Park	
5ME.12763	Open lithic		Not Eligible (O)	Glade Park	
5ME.12764	Open camp		Not Eligible (O)	Glade Park	
5ME.12765	Open camp		Not Eligible (O)	Glade Park	
5ME.12766	Open camp		Need data (O)	Glade Park	
5ME.12767	Open camp		Need data (O)	Glade Park	
5ME.12768	Open camp		Not eligible (F)	Glade Park	
5ME.12786	Open camp		Eligible (O)	Gateway	
5ME.12788	Open camp		Need data (O)	Gateway	
5ME.12789	Open camp		Eligible (O)	Gateway	
5ME.12790	Open camp		Eligible (O)	Gateway	
5ME.12792	Open camp		Need data (O)	Gateway	
5ME.12793	Open camp		Need data (O)	Gateway	
5ME.12794	Open camp		Need data (O)	Gateway	
5ME.12795	Open camp		Eligible (O)	Gateway	
5ME.12796	Open camp		Eligible (O)	Gateway	
5ME.12797	Open camp		Eligible (O)	Gateway	
5ME.12798	Open camp		Eligible (O)	Gateway	
5ME.12799	Open camp		Eligible (O)	Gateway	
5ME.12800	Open camp		Eligible (O)	Gateway	
5ME.12802	Open camp		Need data (O)	Gateway	
5ME.12804	Open lithic		Not Eligible (O)	Gateway	
5ME.12806	Open camp	Trash scatter/ dump	Eligible (O)	Gateway	
5ME.12808	Open camp	Trash scatter/ dump	Need data (O)	Gateway	
5ME.12809		Camp	Not Eligible (O)	Plateau Valley	
5ME.12810	Open camp		Not Eligible (O)	Plateau Valley	
5ME.12811	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.12812	Open camp		Need data (O)	Glade Park	
5ME.12813	Open camp		Not Eligible (O)	Glade Park	
5ME.12860		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.12872	Open camp		Not Eligible (O)	Gateway	
5ME.12873	Open camp		Need data (O)	Gateway	
5ME.12875	Open camp		Not Eligible (O)	Gateway	
5ME.12879	Open lithic		Not Eligible (O)	Gateway	
5ME.12883	Open camp		Not Eligible (O)	Gateway	
5ME.12886	Open camp		Need data (O)	Gateway	
5ME.12893	Open lithic		Not Eligible (O)	Gateway	
5ME.12894	Open camp		Not Eligible (O)	Gateway	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.12895	Open camp		Need data (O)	Gateway	
5ME.12896	Open camp		Not Eligible (O)	Gateway	
5ME.12897	Open lithic		Not Eligible (O)	Gateway	
5ME.12898	Open lithic		Not Eligible (O)	Gateway	
5ME.12899	Open lithic		Not Eligible (O)	Gateway	
5ME.12916	Open lithic		Not Eligible (O)	Gateway	
5ME.12917	Open lithic		Not Eligible (O)	Gateway	
5ME.12918	Open lithic		Not Eligible (O)	Gateway	
5ME.12919	Open camp		Not Eligible (O)	Gateway	
5ME.12920	Open lithic		Not Eligible (O)	Gateway	
5ME.12921	Open lithic		Not Eligible (O)	Gateway	
5ME.12961		Farm/ranch	Not Eligible (O)	Bangs Canyon	
5ME.12970	Open camp	Camp	Need data (O)	Bangs Canyon	
5ME.12971	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.12972	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.12973	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.12978	Open camp	Camp	Need data (O)	Bangs Canyon	
5ME.12979	Open camp		Need data (O)	Bangs Canyon	
5ME.1298	Open camp		Eligible (F)	Plateau Valley	
5ME.12980	Open camp		Eligible (O)	Bangs Canyon	
5ME.12981	Open camp		Need data (O)	Bangs Canyon	
5ME.12982	Open camp	Camp	Need data (O)	Bangs Canyon	
5ME.12983	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.12984	Open lithic		Need data (O)	Bangs Canyon	
5ME.12985	Open lithic		Need data (O)	Bangs Canyon	
5ME.12991		Trash scatter/ dump	Not eligible (F)	Bangs Canyon	
5ME.12992		Trash scatter/ dump	Not eligible (F)	Bangs Canyon	
5ME.12993		Trash scatter/ dump	Not eligible (F)	Bangs Canyon	
5ME.13007	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.13008	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.13009	Open camp		Need data (O)	Bangs Canyon	
5ME.13018		Trash scatter/ dump	Not eligible (F)	Bangs Canyon	
5ME.13023	Open camp	Camp	Need data (O)	Bangs Canyon	
5ME.13040		Inscription	Not eligible (F)	Bangs Canyon	
5ME.13042	Open camp		Need data (O)	Bangs Canyon	
5ME.13075	Open lithic		Not Eligible (O)	Glade Park	
5ME.13076	Open lithic		Not Eligible (O)	Glade Park	
5ME.13077	Open camp		Not Eligible (O)	Glade Park	
5ME.13078	Open camp		Not Eligible (O)	Glade Park	
5ME.13079	Open camp		Not Eligible (O)	Glade Park	
5ME.131	Open lithic		Need data (F)	Bangs Canyon	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.13101	Isolated find – Paleoindian		Not Eligible (F)	Glade Park	
5ME.13108	Isolated find – Paleoindian		Not Eligible (F)	Glade Park	
5ME.13127	Open camp		Eligible (O)	Plateau Valley	
5ME.13131	Open camp		Not Eligible (O)	Plateau Valley	
5ME.13136	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.13140	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.13143	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.13186	Open camp		Not Eligible (O)	Plateau Valley	
5ME.13191	Sheltered camp		Eligible (O)	Bangs Canyon	
5ME.13192		Building	Not Eligible (O)	Bangs Canyon	
5ME.13193	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.13196	Open lithic		Not Eligible (O)	Gateway	
5ME.13233	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.13236	Open lithic	Trash scatter/ dump	Not Eligible (O)	Bangs Canyon	
5ME.13237	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.13239		Trash scatter/ dump	Not Eligible (O)	Roan Creek	
5ME.13240	Open camp		Not Eligible (O)	Roan Creek	
5ME.13241	Sheltered camp		Eligible (O)	Roan Creek	
5ME.13310	Open camp		Need data (O)	Book Cliffs	
5ME.13313	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.13314	Open lithic		Not Eligible (O)	Gateway	
5ME.13315	Open lithic		Not Eligible (O)	Glade Park	
5ME.13323	Isolated find – Paleoindian		Not Eligible (F)	Glade Park	
5ME.13328	Open lithic		Not eligible (F)	Roan Creek	
5ME.13353	Open camp		Need data (O)	Bangs Canyon	
5ME.1339	Open lithic		No assessment	Roan Creek	
5ME.13422		Trash scatter/ dump	Not Eligible (O)	Bangs Canyon	
5ME.1348	Open camp		Eligible (F)	Roan Creek	
5ME.1357	Open camp		Eligible (F)	Gateway	
5ME.1358	Open camp		Eligible (F)	Glade Park	
5ME.1360	Open camp	Camp	Not Eligible (O)	Glade Park	
5ME.1362	Open lithic		Need data (F)	Gateway	
5ME.13656	Open lithic		Eligible (O)	Plateau Valley	
5ME.13658	Sheltered camp		Eligible (O)	Glade Park	
5ME.13661	Open camp		Eligible (O)	Glade Park	
5ME.13664	Open camp		Eligible (O)	Glade Park	
5ME.13665	Open camp		Eligible (O)	Glade Park	
5ME.13666	Open camp	Trash scatter/ dump	Not Eligible (O)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.13668	Open lithic		Not eligible (F)	Glade Park	
5ME.13694	Open camp		Not Eligible (O)	Roan Creek	
5ME.13695	Open camp		Eligible (O)	Roan Creek	
5ME.13707		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13708		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13709	Open camp		Not Eligible (O)	Glade Park	
5ME.1371	Open camp	Isolated feature	Need data (O)	Glade Park	
5ME.13710		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13711		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13712	Open lithic		Not Eligible (O)	Glade Park	
5ME.13713	Open lithic		Not Eligible (O)	Glade Park	
5ME.13714	Open lithic		Not Eligible (O)	Glade Park	
5ME.13715		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13716		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13717	Open camp		Eligible (O)	Glade Park	
5ME.1373	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.1374		Habitation/ homestead	Need data (O)	Roan Creek	
5ME.1375		Trash scatter/ dump	Not eligible (F)	Roan Creek	
5ME.1376	Open camp		Eligible (F)	Plateau Valley	
5ME.13797	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.13798	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.13800	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.13801	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.13802	Open camp		Need data (O)	Grand Mesa Slopes	
5ME.13828	Open camp		Eligible (O)	Glade Park	
5ME.13829	Open camp		Not Eligible (O)	Glade Park	
5ME.1385			Not eligible (F)	Roan Creek	
5ME.1386	Open lithic		Need data (F)	Grand Valley	
5ME.13886	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.1389	Open camp		Eligible (F)	Plateau Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.13894	Open lithic		Not Eligible (O)	Roan Creek	
5ME.13897	Open lithic		Not Eligible (O)	Glade Park	
5ME.13898	Open camp	Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13899		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13900		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.13960	Open camp		Not Eligible (O)	Plateau Valley	
5ME.13961	Open camp		Need data (O)	Plateau Valley	
5ME.13962	Open camp		Need data (O)	Plateau Valley	
5ME.13963	Open architectural		Not Eligible (O)	Plateau Valley	
5ME.13964	Open camp		Eligible (O)	Plateau Valley	
5ME.13965	Open camp		Not Eligible (O)	Plateau Valley	
5ME.13966	Open camp		Not Eligible (O)	Plateau Valley	
5ME.13969		Camp	Not eligible (F)	Plateau Valley	
5ME.14002	Open lithic		Not eligible (F)	Plateau Valley	
5ME.14009	Open lithic		Not eligible (F)	Glade Park	
5ME.14045	Open camp		Not Eligible (O)	Glade Park	
5ME.14049	Open lithic		Not Eligible (O)	Glade Park	
5ME.14093		Trash scatter/ dump	Not Eligible (O)	Plateau Valley	
5ME.14102	Open camp		Eligible (O)	Roan Creek	
5ME.14105	Open camp		Not Eligible (O)	Roan Creek	
5ME.1412	Open lithic		Need data (F)	Plateau Valley	
5ME.14123	Open camp		Not Eligible (O)	Roan Creek	
5ME.14132	Open camp		Need data (O)	Glade Park	
5ME.14133	Open camp		Not Eligible (O)	Glade Park	
5ME.1414	Open lithic		No assessment	Plateau Valley	
5ME.14141	Open lithic		Not Eligible (O)	Roan Creek	
5ME.14142	Open camp		Eligible (O)	Roan Creek	
5ME.14143	Open camp		Eligible (O)	Roan Creek	
5ME.14144	Open camp		Eligible (O)	Roan Creek	
5ME.14148			Not eligible (F)	Roan Creek	
5ME.1419		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5ME.1420	Open camp	Trash scatter/ dump	No assessment	Grand Valley	
5ME.14208	Open camp		Not Eligible (O)	Glade Park	
5ME.14221	Open camp		Not Eligible (O)	Glade Park	
5ME.14222	Open lithic		Not Eligible (O)	Glade Park	
5ME.1424	Open lithic		No assessment	Plateau Valley	
5ME.1425	Open camp		Not eligible (F)	Roan Creek	
5ME.14261	Sheltered camp		Need data (O)	Bangs Canyon	Experimental

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.14264	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14265		Camp	Not Eligible (O)	Bangs Canyon	
5ME.14266	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14267	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14268	Open camp		Eligible (O)	Bangs Canyon	
5ME.14269		Camp	Not Eligible (O)	Bangs Canyon	
5ME.14270	Open camp		Eligible (O)	Bangs Canyon	
5ME.14271	Sheltered camp		Need data (O)	Bangs Canyon	
5ME.14272	Open camp		Eligible (O)	Bangs Canyon	
5ME.14273	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.14274	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14275	Sheltered lithic		Need data (O)	Bangs Canyon	
5ME.14276	Sheltered camp		Need data (O)	Bangs Canyon	
5ME.14277	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14278	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14279	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14280	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14282	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.14283	Sheltered camp		Not Eligible (O)	Bangs Canyon	
5ME.14284	Sheltered camp		Need data (O)	Bangs Canyon	
5ME.14287	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.1429	Open lithic		No assessment	Plateau Valley	
5ME.1430	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.14301	Open camp		Eligible (O)	Gateway	
5ME.14303	Open lithic		Not Eligible (O)	Gateway	
5ME.14304	Open camp		Not Eligible (O)	Gateway	
5ME.14308	Open camp		Not Eligible (O)	Gateway	
5ME.14309	Open lithic		Not Eligible (O)	Gateway	
5ME.14310	Open lithic		Not Eligible (O)	Gateway	
5ME.1433	Open lithic		No assessment	Plateau Valley	
5ME.1434	Open camp		No assessment	Plateau Valley	
5ME.14341	Open camp		Eligible (F)	Bangs Canyon	
5ME.14342	Open camp		Eligible (F)	Bangs Canyon	
5ME.14352	Open camp		Not Eligible (O)	Glade Park	
5ME.14353	Open camp		Eligible (O)	Glade Park	
5ME.14356	Open lithic		Not Eligible (O)	Glade Park	
5ME.14361	Open lithic		Not Eligible (O)	Glade Park	
5ME.14362	Open lithic		Not Eligible (O)	Glade Park	
5ME.1437	Open lithic		No assessment	Plateau Valley	
5ME.14370	Open camp		Not Eligible (O)	Glade Park	
5ME.14371	Open camp		Eligible (O)	Glade Park	
5ME.1438	Open lithic		No assessment	Plateau Valley	
5ME.14383	Open lithic		Not Eligible (O)	Glade Park	
5ME.14385	Open lithic		Not Eligible (O)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.14424	Open camp		Eligible (O)	Gateway	
5ME.14425	Open lithic		Not Eligible (O)	Gateway	
5ME.14426	Open camp		Not Eligible (O)	Gateway	
5ME.14427	Open camp		Not Eligible (O)	Gateway	
5ME.14428	Open lithic		Not Eligible (O)	Gateway	
5ME.14429	Open lithic		Not Eligible (O)	Gateway	
5ME.14438	Open camp		Not Eligible (O)	Gateway	
5ME.14439	Open camp		Not Eligible (O)	Gateway	
5ME.14440	Open lithic		Not Eligible (O)	Gateway	
5ME.14441	Open camp		Not Eligible (O)	Gateway	
5ME.14442	Open lithic		Not Eligible (O)	Gateway	
5ME.14443	Open camp		Not Eligible (O)	Gateway	
5ME.14444	Open camp		Not Eligible (O)	Gateway	
5ME.14449	Open camp		Not Eligible (O)	Gateway	
5ME.14450	Open camp		Not Eligible (O)	Gateway	
5ME.14455	Open camp		Not Eligible (O)	Glade Park	
5ME.1446	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1448	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1449	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1450	Open lithic		No assessment	Grand Mesa Slopes	
5ME.14507	Open camp		Not Eligible (O)	Plateau Valley	
5ME.14515	Open lithic	Camp, road	Not Eligible (O)	Plateau Valley	
5ME.1457	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.1458	Isolated find – Early Archaic		Not Eligible (F)	Grand Mesa Slopes	
5ME.1459	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.146	Open camp		Need data (F)	Gateway	
5ME.1462	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1463	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1465	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1471	Open camp		No assessment	Plateau Valley	
5ME.1472	Open camp		Not eligible (F)	Plateau Valley	
5ME.1476	Open lithic	Camp	No assessment	Grand Mesa Slopes	
5ME.1478	Isolated find – Paleoindian		Not Eligible (F)	Grand Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.148	Open camp		Not eligible (F)	Gateway	
5ME.1486	Open lithic		No assessment	Grand Mesa Slopes	
5ME.1489	Open lithic		Not eligible (F)	Plateau Valley	
5ME.149	Open camp		Need data (F)	Gateway	
5ME.1491	Open lithic		No assessment	Roan Creek	
5ME.15005		Camp	Not Eligible (O)	Grand Mesa Slopes	
5ME.15006		Camp	Not Eligible (O)	Grand Mesa Slopes	
5ME.15007		Camp	Not Eligible (O)	Grand Mesa Slopes	
5ME.1501	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.1506	Open camp		Not Eligible (O)	Plateau Valley	
5ME.15105	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.15106	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.15107	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.1512	Open lithic		Not eligible (F)	Plateau Valley	
5ME.1514	Open lithic		No assessment	Plateau Valley	
5ME.15148	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.1515	Open lithic		No assessment	Plateau Valley	
5ME.15157	Open camp		Eligible (O)	Gateway	
5ME.15159	Open lithic		Eligible (O)	Gateway	
5ME.15198	Open lithic		Need data (O)	Glade Park	
5ME.1520	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.15215	Open camp		Not eligible (F)	Plateau Valley	
5ME.1523	Open camp		Eligible (F)	Plateau Valley	
5ME.1525		Camp	Eligible (F)	Plateau Valley	
5ME.1526	Open camp		Eligible (F)	Plateau Valley	
5ME.1527	Open camp		Eligible (F)	Plateau Valley	
5ME.15305	Open camp		Need data (O)	Roan Creek	
5ME.15306	Open camp		Eligible (O)	Roan Creek	
5ME.15307	Open camp		Not Eligible (O)	Roan Creek	
5ME.15371	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.15375	Open lithic		Not Eligible (O)	Roan Creek	
5ME.15397	Open lithic		Not Eligible (O)	Grand Valley	
5ME.15398	Open lithic		Eligible (O)	Grand Valley	
5ME.1545	Open camp		No assessment	Glade Park	
5ME.15456		Pole cache	Not Eligible (O)	Plateau Valley	
5ME.15457	Open camp		Eligible (O)	Plateau Valley	
5ME.1546	Open lithic		Need data (F)	Gateway	
5ME.15462	Open camp		Not Eligible (O)	Plateau Valley	
5ME.15464	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.15468		Pole cache	Not Eligible (O)	Plateau Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.15470	Open lithic		Need data (O)	Plateau Valley	
5ME.15498		Trash scatter/ dump	Not Eligible (O)	Grand Valley	
5ME.15503	Open lithic		Need data (O)	Grand Mesa Slopes	
5ME.15505	Open lithic		Need data (O)	Grand Mesa Slopes	
5ME.15506	Open lithic		Eligible (O)	Grand Mesa Slopes	
5ME.1553	Open camp		Need data (F)	Plateau Valley	
5ME.1554	Open lithic		Not Eligible (O)	Grand Valley	
5ME.1555	Open lithic		Not eligible (F)	Grand Valley	
5ME.15568		Mining	Eligible (F)	Bangs Canyon	
5ME.15589	Open lithic		Need data (O)	Bangs Canyon	
5ME.15592	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.15594	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.15596	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.15597	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.15599	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.1561	Open lithic		Not Eligible (O)	Glade Park	
5ME.15631	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.15636	Sheltered camp		Eligible (O)	Plateau Valley	
5ME.1566	Open lithic		Not eligible (F)	Plateau Valley	
5ME.1567	Open lithic		Eligible (F)	Plateau Valley	
5ME.15709	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15710	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15716	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15717	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15718	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15719	Open camp		Not eligible (F)	Plateau Valley	
5ME.15721	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15722	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15723	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15724	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15725	Open lithic		Not eligible (F)	Plateau Valley	
5ME.15726	Open camp		Not eligible (F)	Plateau Valley	
5ME.1574	Open lithic		Need data (F)	Roan Creek	
5ME.15765	Open camp		Eligible (O)	Gateway	
5ME.15769	Open lithic		Not Eligible (O)	Gateway	
5ME.15770	Sheltered camp		Eligible (O)	Gateway	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.15771	Sheltered camp		Eligible (O)	Gateway	
5ME.15772		Isolated feature	Not Eligible (O)	Gateway	
5ME.15786	Open camp		Eligible (O)	Roan Creek	
5ME.15787		Camp, rock feature	Not Eligible (O)	Roan Creek	
5ME.15795	Open lithic		Not Eligible (O)	Gateway	
5ME.1580	Open camp		No assessment	Roan Creek	
5ME.1581	Sheltered camp		Not eligible (F)	Roan Creek	
5ME.1588		Farm/ranch	Not eligible (F)	Roan Creek	
5ME.15908	Open camp		Eligible (O)	Gateway	
5ME.15909	Open camp		Eligible (O)	Gateway	
5ME.15910	Open lithic		Not Eligible (O)	Gateway	
5ME.15912	Open camp		Eligible (F)	Gateway	
5ME.15913	Open camp		Eligible (O)	Gateway	
5ME.15930	Open lithic		Need data (O)	Bangs Canyon	
5ME.15931	Open lithic		Eligible (F)	Bangs Canyon	
5ME.15932	Open lithic		Eligible (O)	Bangs Canyon	
5ME.15934	Open lithic		Eligible (O)	Bangs Canyon	
5ME.15935	Open lithic		Eligible (O)	Bangs Canyon	
5ME.16051	Open camp		Eligible (F)	Bangs Canyon	
5ME.16052	Open camp		Eligible (F)	Bangs Canyon	
5ME.16096	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.16098	Open camp		Eligible (O)	Plateau Valley	
5ME.16100	Open camp		Eligible (O)	Plateau Valley	
5ME.16101	Open lithic		Not eligible (F)	Plateau Valley	
5ME.16102	Open camp		Eligible (O)	Plateau Valley	
5ME.16103	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.16138	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.16141	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.16142	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.16143	Isolated feature		Not eligible (F)	Grand Mesa Slopes	
5ME.16144	Open lithic	Camp	Not eligible (F)	Grand Mesa Slopes	
5ME.16145	Open lithic	Trash scatter/ dump	Not eligible (F)	Grand Mesa Slopes	
5ME.16147	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.16148		Camp	Not eligible (F)	Grand Mesa Slopes	
5ME.16149	Open lithic		Not eligible (F)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.16150	Quarry		Not eligible (F)	Grand Mesa Slopes	
5ME.16151	Quarry		Not eligible (F)	Grand Mesa Slopes	
5ME.16152	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.16153	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.16154	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.16257		Trail	Not Eligible (O)	Bangs Canyon	
5ME.16258	Open camp		Need data (O)	Bangs Canyon	
5ME.16295	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16296	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16297	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16298	Isolated feature		Eligible (F)	Bangs Canyon	
5ME.16299	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.16300	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16301	Open lithic		Need data (F)	Bangs Canyon	
5ME.16302	Open camp		Need data (F)	Bangs Canyon	
5ME.16303	Sheltered lithic		Need data (F)	Bangs Canyon	Public Use
5ME.16304	Open lithic		Need data (F)	Bangs Canyon	
5ME.16305	Open camp		Need data (F)	Bangs Canyon	
5ME.16306	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16307	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16308	Open camp		Eligible (F)	Bangs Canyon	
5ME.16309	Open camp		Eligible (F)	Bangs Canyon	
5ME.16310	Sheltered lithic		Need data (F)	Bangs Canyon	
5ME.16311	Open lithic		Need data (F)	Bangs Canyon	
5ME.16312	Open camp		Eligible (F)	Bangs Canyon	
5ME.16313	Open camp		Need data (F)	Bangs Canyon	
5ME.16314	Sheltered camp		Need data (F)	Bangs Canyon	Public Use
5ME.16315	Open camp		Need data (F)	Bangs Canyon	
5ME.16316	Open lithic		Need data (F)	Bangs Canyon	
5ME.16317	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16318	Open lithic		Need data (F)	Bangs Canyon	
5ME.16319	Open lithic		Need data (F)	Bangs Canyon	
5ME.16321	Open camp		Eligible (F)	Bangs Canyon	
5ME.16322	Open lithic		Need data (F)	Bangs Canyon	
5ME.16323	Open camp		Eligible (F)	Bangs Canyon	
5ME.16324	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16324	Sheltered camp		Eligible (O)	Bangs Canyon	
5ME.16325	Sheltered camp		Eligible (F)	Bangs Canyon	
5ME.16326	Open camp		Need data (F)	Bangs Canyon	
5ME.16327	Open lithic		Not eligible (F)	Bangs Canyon	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.16328	Open camp		Need data (F)	Bangs Canyon	
5ME.16329	Open camp		Need data (F)	Bangs Canyon	
5ME.16330			Need data (F)	Bangs Canyon	
5ME.16332	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16334	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16335	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16336	Open lithic		Need data (F)	Bangs Canyon	
5ME.16337	Open camp		Eligible (F)	Bangs Canyon	
5ME.16338	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16339	Open lithic		Need data (F)	Bangs Canyon	
5ME.16340	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16341	Open lithic		Need data (F)	Bangs Canyon	
5ME.16342	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16343	Open camp		Eligible (F)	Bangs Canyon	
5ME.16344	Open lithic		Eligible (F)	Bangs Canyon	
5ME.16345	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16346	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16347	Sheltered camp		Not eligible (F)	Bangs Canyon	
5ME.16348	Open camp		Eligible (F)	Bangs Canyon	
5ME.16349	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16350	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16351	Open camp		Need data (F)	Bangs Canyon	
5ME.16352	Open lithic		Need data (F)	Bangs Canyon	
5ME.16353		Trash scatter/ dump	Not eligible (F)	Bangs Canyon	
5ME.16354	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16355		Trash scatter/ dump	Not eligible (F)	Bangs Canyon	
5ME.16356	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16357	Open lithic		Not eligible (F)	Bangs Canyon	Public Use
5ME.16358	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16359	Open camp		Eligible (F)	Bangs Canyon	
5ME.16360		Camp	Not eligible (F)	Bangs Canyon	
5ME.16361	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.16362	Open camp		Need data (F)	Bangs Canyon	
5ME.16380	Open lithic		Not eligible (F)	Plateau Valley	
5ME.16381	Open camp		Not eligible (F)	Plateau Valley	
5ME.16409	Open lithic		Not eligible (F)	Plateau Valley	
5ME.16411	Open lithic		Not eligible (F)	Plateau Valley	
5ME.1642	Open camp		Need data (F)	Gateway	
5ME.16426	Open lithic		Not eligible (F)	Plateau Valley	
5ME.1643	Open camp		Not Eligible (O)	Glade Park	
5ME.16437	Open lithic		Not eligible (F)	Plateau Valley	
5ME.1644	Open camp		Not Eligible (O)	Glade Park	
5ME.16466	Open lithic		Not eligible (F)	Plateau Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.16501	Open lithic		Not eligible (F)	Gateway	
5ME.16525	Open lithic		Not eligible (F)	Gateway	
5ME.16547		Habitation/ homestead	Not eligible (F)	Plateau Valley	
5ME.16552	Open camp		Eligible (F)	Gateway	
5ME.16553	Open camp		Not eligible (F)	Gateway	
5ME.16576	Open lithic		Need data (F)	Plateau Valley	
5ME.16577	Open camp		Need data (F)	Plateau Valley	
5ME.16578	Open camp		Need data (F)	Plateau Valley	
5ME.166	Quarry		Need data (F)	Gateway	
5ME.16640	Open lithic	Camp	Not eligible (F)	Gateway	
5ME.16642	Open lithic		Eligible (F)	Bangs Canyon	
5ME.16643	Open lithic		Need data (F)	Bangs Canyon	
5ME.16644	Open lithic		Need data (F)	Bangs Canyon	
5ME.16645	Open lithic		Need data (F)	Bangs Canyon	
5ME.16679		Water control feature	Eligible (F)	Grand Valley	
5ME.16680		Water control feature	Eligible (F)	Grand Valley	
5ME.16681		Water control feature	Eligible (F)	Grand Valley	
5ME.16781				Roan Creek	
5ME.169	Sheltered camp		No assessment	Gateway	
5ME.170	Quarry		Need data (F)	Gateway	
5ME.171	Sheltered camp		Need data (F)	Gateway	
5ME.172	Sheltered camp		Need data (F)	Gateway	
5ME.177	Open lithic		Need data (F)	Gateway	
5ME.205		Camp	Need data (F)	Grand Valley	
5ME.214	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.265	Open camp	Farm/ranch	Eligible (O)	Grand Mesa Slopes	
5ME.269	Open lithic	Trash scatter/ dump	Eligible (O)	Grand Mesa Slopes	
5ME.270	Open camp		Eligible (F)	Plateau Valley	
5ME.271	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.272	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.274	Open lithic		Not Eligible (O)	Grand Valley	
5ME.275	Open lithic		Eligible (F)	Grand Mesa Slopes	
5ME.276	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.277	Open camp		Eligible (F)	Plateau Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.278	Open camp		Eligible (F)	Plateau Valley	
5ME.280	Sheltered camp		Eligible (F)	Plateau Valley	
5ME.283	Open camp		Eligible (F)	Plateau Valley	
5ME.284	Open camp	Trash scatter/dump	Eligible (F)	Grand Mesa Slopes	
5ME.285	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.286	Open camp		Eligible (F)	Plateau Valley	
5ME.288	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.289	Open lithic		Not Eligible (O)	Grand Valley	
5ME.293	Open lithic		Need data (F)	Plateau Valley	
5ME.295	Open camp		Need data (F)	Plateau Valley	
5ME.303	Open lithic		Not eligible (F)	Grand Valley	
5ME.306	Open camp		Need data (F)	Grand Valley	
5ME.311	Open lithic		Need data (F)	Gateway	
5ME.312	Open camp		Need data (F)	Glade Park	
5ME.322	Open lithic		Eligible (F)	Bangs Canyon	
5ME.323	Open camp		Need data (F)	Bangs Canyon	
5ME.324	Open camp		Eligible (F)	Bangs Canyon	
5ME.326	Open lithic		Eligible (F)	Bangs Canyon	
5ME.327	Open camp		Need data (O)	Bangs Canyon	
5ME.333	Open camp		Eligible (O)	Bangs Canyon	
5ME.334	Open architectural		Eligible (F)	Glade Park	
5ME.338	Open camp		Need data (F)	Glade Park	
5ME.339	Open camp		Need data (F)	Glade Park	
5ME.340	Open camp		Eligible (F)	Glade Park	
5ME.341	Open camp		Need data (F)	Glade Park	
5ME.342	Open camp		Need data (F)	Glade Park	
5ME.343	Open camp		Need data (F)	Glade Park	
5ME.344	Open lithic		Need data (F)	Glade Park	
5ME.346	Open camp		Need data (F)	Gateway	
5ME.3647	Open lithic		Eligible (O)	Grand Mesa Slopes	
5ME.3648	Open lithic		Eligible (O)	Grand Mesa Slopes	
5ME.3649	Open lithic	Trash scatter/ dump	Eligible (O)	Grand Mesa Slopes	
5ME.3650	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.3651	Open lithic		Need data (F)	Roan Creek	
5ME.3663	Open camp		No assessment	Bangs Canyon	
5ME.3668	Open camp		Need data (O)	Plateau Valley	
5ME.3670	Open lithic		Need data (F)	Plateau Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.3671	Open camp, quarry		Need data (F)	Plateau Valley	
5ME.3672	Open lithic		Need data (F)	Plateau Valley	
5ME.3673	Open lithic		Eligible (F)	Plateau Valley	
5ME.3685	Sheltered camp		Need data (F)	Plateau Valley	
5ME.3686	Open camp		Eligible (F)	Plateau Valley	
5ME.3687	Open camp		Need data (F)	Plateau Valley	
5ME.3688	Open camp		Need data (F)	Plateau Valley	
5ME.3689	Quarry		Not eligible (F)	Plateau Valley	
5ME.3690	Open lithic	Trash scatter/ dump	Need data (F)	Plateau Valley	
5ME.3693	Open camp		Eligible (F)	Plateau Valley	
5ME.3695	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.3696	Open lithic, quarry		Not Eligible (O)	Plateau Valley	
5ME.3698	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.3709	Open camp		Need data (F)	Plateau Valley	
5ME.3710	Open camp		Need data (F)	Plateau Valley	
5ME.3711	Open camp		Need data (F)	Plateau Valley	
5ME.3712	Open camp		Need data (F)	Plateau Valley	
5ME.3713	Open camp		Need data (F)	Plateau Valley	
5ME.3714	Open camp		Need data (F)	Plateau Valley	
5ME.3716	Open camp		Need data (F)	Plateau Valley	
5ME.3728	Open camp		Need data (F)	Plateau Valley	
5ME.3730	Open camp		Not eligible (F)	Plateau Valley	
5ME.3732		Farm/ranch	Not eligible (F)	Roan Creek	
5ME.3733	Isolated feature		Not eligible (F)	Roan Creek	
5ME.3735			Not eligible (F)	Roan Creek	
5ME.3771	Open camp		Need data (F)	Glade Park	
5ME.3775	Open camp		Need data (F)	Plateau Valley	
5ME.3776	Open lithic		Need data (F)	Plateau Valley	
5ME.3783	Open camp		Need data (F)	Plateau Valley	
5ME.3788	Open camp		Need data (F)	Plateau Valley	
5ME.3789	Open architectural	Habitation/ homestead	Need data (F)	Bangs Canyon	
5ME.3802	Open camp		Not eligible (F)	Grand Valley	
5ME.3803	Open camp	Mining	Not eligible (F)	Grand Valley	
5ME.3806	Open camp		Need data (F)	Bangs Canyon	
5ME.3807	Open camp		Not Eligible (O)	Glade Park	
5ME.3808	Open camp		Need data (F)	Plateau Valley	
5ME.3809	Open camp		Not eligible (F)	Plateau Valley	
5ME.3810	Open lithic		Need data (F)	Plateau Valley	
5ME.3818	Open lithic		Not eligible (F)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.3819		Trash scatter/ dump	Not eligible (F)	Grand Mesa Slopes	
5ME.3824	Open lithic		Not eligible (F)	Plateau Valley	
5ME.3825	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.3837	Open camp		Not eligible (F)	Plateau Valley	
5ME.3839	Open lithic		Not eligible (F)	Plateau Valley	
5ME.3840	Open lithic		Not eligible (F)	Plateau Valley	
5ME.3844	Open camp		Not eligible (F)	Plateau Valley	
5ME.3845	Open camp		Eligible (F)	Plateau Valley	
5ME.3859	Open camp		Not eligible (F)	Roan Creek	
5ME.386		Habitation/ homestead	Eligible (F)	Grand Mesa Slopes	
5ME.3860	Open camp		Not eligible (F)	Roan Creek	
5ME.3861	Open camp		Not eligible (F)	Roan Creek	
5ME.3863	Open camp		Not eligible (F)	Roan Creek	
5ME.3864	Open camp		Not eligible (F)	Roan Creek	
5ME.3865	Sheltered camp		Not eligible (F)	Roan Creek	
5ME.3866	Open camp		Need data (F)	Roan Creek	
5ME.3874		Fence	Not eligible (F)	Roan Creek	
5ME.3876	Open camp		Not eligible (F)	Roan Creek	
5ME.388		Water control feature	Eligible (F)	Grand Mesa Slopes	
5ME.3880	Open lithic	Trash scatter/ dump	Need data (F)	Grand Valley	
5ME.3886	Open lithic		No assessment	Glade Park	
5ME.389	Open lithic		Eligible (F)	Grand Mesa Slopes	
5ME.3895	Open camp		Not eligible (F)	Plateau Valley	
5ME.3899	Open camp		Not eligible (F)	Plateau Valley	
5ME.390	Open lithic		Eligible (F)	Grand Mesa Slopes	
5ME.3907	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.391	Open lithic		Eligible (O)	Grand Mesa Slopes	
5ME.3911	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.3912	Open camp		Not eligible (F)	Roan Creek	
5ME.3915	Open lithic		Need data (F)	Plateau Valley	
5ME.3916	Open lithic		Need data (F)	Plateau Valley	
5ME.3917	Open lithic		Need data (F)	Plateau Valley	
5ME.392	Open lithic		Eligible (F)	Grand Mesa Slopes	
5ME.3921		Trash scatter/ dump	Not eligible (F)	Grand Valley	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.3924		Camp	Not eligible (F)	Grand Valley	
5ME.3925		Camp	Not eligible (F)	Grand Valley	
5ME.3929		Camp	Not eligible (F)	Grand Valley	
5ME.393	Open lithic		Eligible (O)	Grand Mesa Slopes	
5ME.3930		Camp	Not eligible (F)	Grand Valley	
5ME.3932		Camp	Not eligible (F)	Grand Valley	
5ME.3933		Camp	Not eligible (F)	Grand Valley	
5ME.3935		Camp	Not eligible (F)	Grand Valley	
5ME.3937		Camp	Not eligible (F)	Grand Valley	
5ME.3939		Camp	Not eligible (F)	Grand Valley	
5ME.394	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.3941		Camp	Not eligible (F)	Grand Valley	
5ME.3942		Camp	Not eligible (F)	Grand Valley	
5ME.3943		Camp	No assessment	Grand Valley	
5ME.3944		Camp	Not eligible (F)	Grand Valley	
5ME.3945		Camp	Not eligible (F)	Grand Valley	
5ME.3946		Camp	Not eligible (F)	Grand Valley	
5ME.3947		Camp	Not eligible (F)	Grand Valley	
5ME.3948		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5ME.3949		Camp	Not eligible (F)	Grand Valley	
5ME.3950		Camp	Not eligible (F)	Grand Valley	
5ME.396	Open lithic		Not Eligible (O)	Grand Valley	
5ME.397	Open lithic		Not Eligible (O)	Grand Valley	
5ME.3970	Open camp	Water control feature	Need data (F)	Roan Creek	
5ME.3971		Camp	Not eligible (F)	Roan Creek	
5ME.3977	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.3978	Sheltered camp		Not Eligible (O)	Roan Creek	
5ME.399	Open camp		Eligible (F)	Plateau Valley	
5ME.400	Open camp		Eligible (F)	Plateau Valley	
5ME.4000		Farm/ranch	Not eligible (F)	Roan Creek	
5ME.401	Open camp		Eligible (F)	Plateau Valley	
5ME.4010		Farm/ranch	Not eligible (F)	Roan Creek	
5ME.4011	Sheltered camp		Need data (O)	Roan Creek	
5ME.4018	Open camp		Need data (F)	Glade Park	
5ME.402	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.4020	Open lithic		Not eligible (F)	Glade Park	
5ME.4021		Farm/ranch	Eligible (O)	Roan Creek	
5ME.4031	Open lithic		Not eligible (F)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4032	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.4033	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.4034	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.4044	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4045	Open camp		Not eligible (F)	Plateau Valley	
5ME.4046	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4047	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4048	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4049	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.405	Open camp		Eligible (F)	Plateau Valley	
5ME.4050	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4051	Open lithic		Need data (F)	Grand Mesa Slopes	
5ME.4052	Open camp		Need data (F)	Plateau Valley	
5ME.4053	Open lithic		Not eligible (F)	Plateau Valley	
5ME.4054	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4055	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4056	Open lithic		No assessment	Grand Mesa Slopes	
5ME.4057		Habitation/ homestead	Need data (F)	Gateway	
5ME.4058	Open lithic		Need data (F)	Gateway	
5ME.4059	Open camp		Need data (F)	Gateway	
5ME.4060	Open camp		Not Eligible (O)	Glade Park	
5ME.4061	Open lithic		Need data (F)	Bangs Canyon	
5ME.4064	Open architectural		Not Eligible (O)	Gateway	
5ME.408	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.4082	Sheltered camp	Camp	Need data (O)	Bangs Canyon	
5ME.4083	Open lithic		Need data (F)	Bangs Canyon	
5ME.4084	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.4085	Open lithic		Need data (F)	Bangs Canyon	
5ME.4086	Open lithic		Need data (F)	Bangs Canyon	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4087	Sheltered camp	Camp	Need data (F)	Bangs Canyon	
5ME.4088	Open lithic		Need data (F)	Bangs Canyon	
5ME.4089	Open lithic		Need data (F)	Bangs Canyon	
5ME.409		Fence	Eligible (F)	Plateau Valley	
5ME.4090	Open lithic		Need data (F)	Bangs Canyon	
5ME.4092	Open lithic		Need data (F)	Bangs Canyon	
5ME.4093	Open lithic		Need data (F)	Bangs Canyon	
5ME.4094	Open lithic		Need data (F)	Bangs Canyon	
5ME.4095	Open lithic		Need data (F)	Bangs Canyon	
5ME.4096	Open lithic		Need data (F)	Bangs Canyon	
5ME.4097	Open camp		Need data (O)	Bangs Canyon	
5ME.4098	Open lithic		Need data (F)	Bangs Canyon	
5ME.4099	Open camp		Need data (O)	Bangs Canyon	
5ME.410	Open lithic		Eligible (F)	Grand Mesa Slopes	
5ME.4100	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4104	Open lithic		Not eligible (F)	Gateway	
5ME.4105	Open camp		Need data (F)	Roan Creek	
5ME.4106	Open camp		Need data (F)	Roan Creek	
5ME.4107	Open lithic		Not eligible (F)	Gateway	
5ME.4108	Open lithic		Need data (F)	Gateway	
5ME.4109	Open lithic		Not eligible (F)	Gateway	
5ME.411	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.4116		Water control feature	Not Eligible (O)	Grand Valley	
5ME.412	Open architectural		Not Eligible (O)	Grand Mesa Slopes	
5ME.413	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.414	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.415	Open camp		Eligible (O)	Plateau Valley	
5ME.418	Open camp		Eligible (F)	Grand Valley	
5ME.419	Open lithic		Eligible (F)	Grand Valley	
5ME.420	Open camp		Need data (O)	Grand Valley	
5ME.4200	Isolated find – Paleoindian		Not Eligible (F)	Book Cliffs	
5ME.4201	Open camp		Need data (F)	Book Cliffs	
5ME.4206	Open lithic		Need data (F)	Bangs Canyon	
5ME.4207	Open lithic		Need data (F)	Bangs Canyon	
5ME.4208	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4209	Open lithic		Need data (F)	Bangs Canyon	
5ME.4210	Open lithic		Need data (F)	Bangs Canyon	
5ME.4211	Open lithic		Need data (F)	Bangs Canyon	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4212	Open lithic		Need data (F)	Bangs Canyon	
5ME.4213	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4214	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4215	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4216	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4217	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4218	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4219	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.422	Open camp		Eligible (O)	Grand Valley	
5ME.4220	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.4221	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4222	Open lithic		Need data (F)	Bangs Canyon	
5ME.4223	Open lithic		Need data (F)	Bangs Canyon	
5ME.423	Open lithic		Need data (F)	Grand Valley	
5ME.4232	Open lithic		Not eligible (F)	Glade Park	
5ME.4234	Open lithic		Not eligible (F)	Glade Park	
5ME.4235	Open lithic		Not eligible (F)	Glade Park	
5ME.4236	Open lithic		Not eligible (F)	Glade Park	
5ME.4237	Sheltered camp		Need data (F)	Glade Park	
5ME.4238	Open camp		Not eligible (F)	Glade Park	
5ME.4239	Open camp		No assessment	Glade Park	
5ME.4240	Open camp		Not eligible (F)	Glade Park	
5ME.4241	Open lithic		Not eligible (F)	Glade Park	
5ME.4242	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4243	Open lithic		Not eligible (F)	Gateway	
5ME.4244	Open camp		Need data (F)	Bangs Canyon	
5ME.4245	Open lithic		Need data (F)	Bangs Canyon	
5ME.4246	Open lithic		Need data (F)	Bangs Canyon	
5ME.4247	Open lithic		Need data (F)	Bangs Canyon	
5ME.4248	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4249	Open lithic		Need data (F)	Bangs Canyon	
5ME.4250	Open lithic		Need data (F)	Bangs Canyon	
5ME.4251	Open lithic		Need data (F)	Bangs Canyon	
5ME.4252	Open lithic		Need data (F)	Bangs Canyon	
5ME.4253	Open lithic		Need data (F)	Bangs Canyon	
5ME.4254	Open camp		Need data (F)	Bangs Canyon	
5ME.4255	Open lithic		Need data (F)	Bangs Canyon	
5ME.4256	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4257	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4258	Open lithic		Need data (F)	Bangs Canyon	
5ME.4259	Open lithic		Need data (F)	Bangs Canyon	
5ME.4260	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4261	Open lithic		Need data (F)	Bangs Canyon	
5ME.4262	Open lithic		Need data (F)	Bangs Canyon	
5ME.4263	Open lithic		Need data (F)	Bangs Canyon	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4264	Open lithic		Need data (F)	Bangs Canyon	
5ME.4265	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4266	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4267	Open lithic		No assessment	Bangs Canyon	
5ME.4268	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4269	Open lithic		Need data (F)	Bangs Canyon	
5ME.427	Open lithic, quarry		Not eligible (F)	Grand Mesa Slopes	
5ME.4270	Open lithic		No assessment	Bangs Canyon	
5ME.4271	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4272	Quarry		Not eligible (F)	Bangs Canyon	
5ME.4273	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4274	Open lithic		Need data (F)	Bangs Canyon	
5ME.4275	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4276	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4277	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4278	Open lithic		Need data (F)	Bangs Canyon	
5ME.4279	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4280	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4297	Open lithic		Need data (F)	Gateway	
5ME.4298	Open lithic		Need data (F)	Gateway	
5ME.4299	Sheltered camp		Need data (F)	Roan Creek	
5ME.4300	Open camp		Need data (F)	Grand Valley	
5ME.4301	Open lithic		Not eligible (F)	Grand Valley	
5ME.4302	Open camp		Not eligible (F)	Grand Valley	
5ME.4303	Open lithic		Not eligible (F)	Roan Creek	
5ME.4318	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.4333	Open camp	Camp	Need data (F)	Roan Creek	
5ME.4334	Open lithic		Need data (F)	Grand Valley	
5ME.4335	Open lithic		Need data (F)	Gateway	
5ME.4336	Open lithic		Not eligible (F)	Gateway	
5ME.4337	Open lithic		Need data (F)	Grand Valley	
5ME.4338	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.4339	Open camp		Not eligible (F)	Gateway	
5ME.4340	Open camp		Not eligible (F)	Roan Creek	
5ME.4341	Open lithic		Not eligible (F)	Roan Creek	
5ME.4342	Open camp		Not eligible (F)	Bangs Canyon	
5ME.4343	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.4344	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4349		Habitation/ homestead	Need data (F)	Roan Creek	
5ME.4350	Open lithic		Need data (F)	Roan Creek	
5ME.4355	Sheltered lithic		Not Eligible (O)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4385	Sheltered lithic		Need data (F)	Bangs Canyon	
5ME.4386	Open lithic		Need data (F)	Bangs Canyon	
5ME.4387	Open camp		Need data (F)	Roan Creek	
5ME.4392	Open lithic		Need data (F)	Roan Creek	
5ME.4395		Camp	Not eligible (F)	Grand Valley	
5ME.4396		Camp	Not eligible (F)	Grand Valley	
5ME.4413	Open lithic		Not eligible (F)	Plateau Valley	
5ME.4416	Open lithic		Need data (F)	Plateau Valley	
5ME.4419			Need data (F)	Roan Creek	
5ME.4420	Open camp		Eligible (F)	Roan Creek	
5ME.4421		Habitation/ homestead	Not eligible (F)	Roan Creek	Public Use
5ME.4422	Open camp		Not eligible (F)	Roan Creek	
5ME.4423	Isolated feature-hearth		Not eligible (F)	Roan Creek	
5ME.4424	Open camp		Need data (F)	Roan Creek	
5ME.4429	Open lithic		Need data (F)	Roan Creek	
5ME.4431	Open camp		Eligible (O)	Roan Creek	
5ME.4432	Sheltered camp		Eligible (O)	Roan Creek	
5ME.4434	Sheltered camp		Not eligible (F)	Roan Creek	
5ME.4435	Open lithic		Not eligible (F)	Roan Creek	
5ME.4437	Open camp		Not Eligible (O)	Roan Creek	
5ME.4438	Open camp		Need data (F)	Roan Creek	
5ME.4439	Open lithic		Not eligible (F)	Roan Creek	
5ME.4440	Open camp		Eligible (F)	Roan Creek	
5ME.4441	Open camp		Not eligible (F)	Roan Creek	
5ME.4452	Open camp		Not eligible (F)	Grand Valley	
5ME.4453	Open lithic		Not eligible (F)	Grand Valley	
5ME.4454	Open camp		Eligible (F)	Grand Valley	
5ME.4455	Open camp		Not Eligible (O)	Grand Valley	
5ME.4456	Open lithic		Not eligible (F)	Grand Valley	
5ME.4479	Open camp		Not eligible (F)	Grand Valley	
5ME.4488		Mining	Eligible (F)	Book Cliffs	
5ME.4491	Quarry		Need data (F)	Bangs Canyon	
5ME.4492	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.4494	Quarry		Need data (F)	Bangs Canyon	
5ME.4495	Open lithic		Need data (F)	Bangs Canyon	
5ME.4497	Open camp	Camp	Eligible (F)	Roan Creek	
5ME.4500	Isolated find – Paleoindian		Not Eligible (F)	Grand Mesa Slopes	
5ME.4503	Sheltered camp		Not eligible (F)	Plateau Valley	
5ME.4509		Mining	Need data (F)	Book Cliffs	
5ME.4510		Mining	Need data (F)	Roan Creek	
5ME.4512		Mining	Need data (F)	Book Cliffs	
5ME.4513		Mining	Need data (F)	Book Cliffs	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4514		Mining	Not eligible (F)	Book Cliffs	
5ME.4519	Open camp		Not Eligible (O)	Grand Valley	
5ME.4521	Open camp		Eligible (O)	Plateau Valley	
5ME.456	Open camp		Need data (F)	Bangs Canyon	
5ME.4632	Open lithic		Need data (F)	Plateau Valley	
5ME.4634	Open camp		Eligible (F)	Plateau Valley	
5ME.4635	Open camp		Need data (F)	Plateau Valley	
5ME.4638	Open camp		Eligible (F)	Plateau Valley	
5ME.4643	Open camp		Eligible (O)	Plateau Valley	
5ME.4644	Open lithic		Not Eligible (O)	Book Cliffs	
5ME.4646	Open camp		Not Eligible (O)	Plateau Valley	
5ME.4648	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.4649	Open camp		Need data (F)	Plateau Valley	
5ME.4663		Camp	Not eligible (F)	Grand Valley	
5ME.4664		Camp	Not eligible (F)	Grand Valley	
5ME.4684			Not eligible (F)	Grand Valley	
5ME.4699	Sheltered camp		Not Eligible (O)	Bangs Canyon	
5ME.4702	Open lithic		Need data (F)	Grand Mesa Slopes	
5ME.4705	Sheltered lithic		Need data (F)	Bangs Canyon	
5ME.4709	Open lithic		Need data (F)	Gateway	
5ME.471	Open camp	Farm/ranch	Not Eligible (O)	Plateau Valley	
5ME.4710	Open lithic		Need data (F)	Gateway	
5ME.4713	Open camp		Not eligible (F)	Plateau Valley	
5ME.4719	Open lithic		Need data (F)	Glade Park	
5ME.472	Open camp		Eligible (F)	Plateau Valley	
5ME.4725	Open camp		Need data (F)	Plateau Valley	
5ME.473	Open camp		Eligible (O)	Plateau Valley	
5ME.4732	Open lithic		Not eligible (F)	Grand Valley	
5ME.4733	Open lithic		Not eligible (F)	Grand Valley	
5ME.4735	Open camp		Eligible (F)	Book Cliffs	
5ME.4736	Open lithic		Not eligible (F)	Grand Valley	
5ME.4737	Open camp		Not eligible (F)	Grand Valley	
5ME.4738	Open lithic		Not eligible (F)	Grand Valley	
5ME.4739	Open camp		Not Eligible (O)	Grand Valley	
5ME.474	Open lithic		Eligible (F)	Plateau Valley	
5ME.4740	Open lithic		Not eligible (F)	Grand Valley	
5ME.4741	Open camp		Not Eligible (O)	Grand Valley	
5ME.4742	Open camp		Not Eligible (O)	Grand Valley	
5ME.4743	Open lithic		Not eligible (F)	Grand Valley	
5ME.4765	Open lithic		No assessment	Bangs Canyon	
5ME.4776	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.4778	Open lithic		Not Eligible (O)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4779	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.4780	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.480	Open camp		Need data (F)	Gateway	
5ME.4805	Isolated find – Paleoindian		Not Eligible (F)	Plateau Valley	
5ME.481	Open lithic		Need data (F)	Gateway	
5ME.4812		Farm/ranch	Not eligible (F)	Glade Park	
5ME.482		Water control feature	Eligible (F)	Plateau Valley	
5ME.4830	Open lithic		Not eligible (F)	Glade Park	
5ME.4833	Open lithic		Not eligible (F)	Glade Park	
5ME.4836	Open lithic		No assessment	Glade Park	
5ME.4837		Building	No assessment	Glade Park	
5ME.4838	Sheltered camp		No assessment	Glade Park	
5ME.4847	Open lithic		No assessment	Bangs Canyon	
5ME.4851		Camp	Not Eligible (O)	Bangs Canyon	
5ME.4857	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.4862	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.4889	Open lithic		Not Eligible (O)	Grand Valley	
5ME.4890	Open camp		Eligible (O)	Grand Valley	
5ME.4891	Open lithic		Need data (F)	Grand Valley	
5ME.4892	Isolated find – Early Archaic		Not Eligible (F)	Grand Valley	
5ME.4917	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.4919		Habitation/ homestead	Not Eligible (O)	Grand Mesa Slopes	
5ME.4926		Water control feature	Eligible (O)	Grand Mesa Slopes	
5ME.4928		Mining	Not Eligible (O)	Roan Creek	
5ME.4941	Sheltered camp		Need data (F)	Bangs Canyon	Public Use
5ME.4942	Sheltered camp		Not eligible (F)	Bangs Canyon	
5ME.4943	Sheltered lithic		Not eligible (F)	Bangs Canyon	
5ME.4944	Sheltered lithic		Not eligible (F)	Bangs Canyon	
5ME.4955	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.4959	Open camp		Eligible (O)	Plateau Valley	
5ME.4961	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.4962	Open lithic	Camp	Not Eligible (O)	Grand Mesa Slopes	
5ME.4963		Camp	Eligible (F)	Grand Mesa Slopes	
5ME.4972	Open lithic		Not Eligible (O)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.4973	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.4974	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.4981			Not eligible (F)	Plateau Valley	
5ME.5119	Open camp		Not Eligible (O)	Gateway	
5ME.5140	Open lithic		Not eligible (F)	Gateway	
5ME.5148	Open camp		Not eligible (F)	Gateway	
5ME.5163	Open camp		Not eligible (F)	Gateway	
5ME.5165	Open lithic		Not eligible (F)	Gateway	
5ME.5168	Open lithic		Not eligible (F)	Gateway	
5ME.5175	Isolated find – Paleoindian		Not Eligible (F)	Roan Creek	
5ME.5178	Sheltered architectural		Need data (O)	Bangs Canyon	
5ME.5214	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.5215	Open lithic		Not eligible (F)	Glade Park	
5ME.5216		Mining	Not eligible (F)	Grand Mesa Slopes	
5ME.5227	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.5228	Open camp	Building	Not eligible (F)	Gateway	
5ME.5231	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.5233	Open lithic		Not eligible (F)	Gateway	
5ME.5234			Not eligible (F)	Plateau Valley	
5ME.5240	Open lithic		Need data (F)	Bangs Canyon	
5ME.5243	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.5244	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.5249	Open camp		No assessment	Grand Mesa Slopes	
5ME.5260	Quarry		Not eligible (F)	Grand Valley	
5ME.5261	Open lithic		Not eligible (F)	Grand Valley	
5ME.5262	Sheltered camp		Need data (F)	Bangs Canyon	
5ME.5296	Isolated find – Paleoindian		Not Eligible (F)	Grand Valley	
5ME.5381	Open camp		Not eligible (F)	Gateway	
5ME.548	Open camp		Eligible (F)	Gateway	
5ME.549	Open camp		Need data (F)	Gateway	
5ME.550	Open camp		Need data (F)	Bangs Canyon	
5ME.5762	Isolated find – Paleoindian		Not Eligible (F)	Grand Mesa Slopes	
5ME.5829			Not eligible (F)	Bangs Canyon	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.5866	Open camp		Not eligible (F)	Glade Park	
5ME.5867	Open camp		Not eligible (F)	Bangs Canyon	
5ME.5898	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.5903	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.5905	Open lithic		Not eligible (F)	Glade Park	
5ME.5936	Open camp		Eligible (O)	Gateway	
5ME.5979	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.6010	Open lithic		Need data (O)	Bangs Canyon	
5ME.6011	Open lithic, quarry		Need data (O)	Bangs Canyon	
5ME.6012	Open camp		Not Eligible (O)	Bangs Canyon	
5ME.6015	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.6016	Open lithic		Not Eligible (O)	Bangs Canyon	
5ME.6017	Open lithic		Need data (O)	Bangs Canyon	
5ME.6019	Open lithic, quarry		Need data (O)	Bangs Canyon	
5ME.6021	Open lithic		Not eligible (F)	Grand Valley	
5ME.6023	Open lithic		Not eligible (F)	Grand Valley	
5ME.6028	Open lithic		Not eligible (F)	Grand Valley	
5ME.6029	Open lithic		Not eligible (F)	Grand Valley	
5ME.6031	Open lithic	Camp	Not eligible (F)	Grand Valley	
5ME.6073		Trash scatter/ dump	Not eligible (F)	Grand Valley	
5ME.617	Open lithic		Not eligible (F)	Plateau Valley	
5ME.6170	Open lithic	Farm/ranch	Not Eligible (O)	Gateway	
5ME.6173	Open camp		Eligible (O)	Gateway	
5ME.6217	Sheltered lithic		Need data (O)	Bangs Canyon	
5ME.625	Open camp		Eligible (O)	Plateau Valley	
5ME.628	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.632		Habitation/ homestead	Not Eligible (O)	Grand Mesa Slopes	
5ME.633		Farm/ranch	Eligible (F)	Grand Mesa Slopes	
5ME.634	Sheltered camp		Eligible (F)	Plateau Valley	
5ME.6346	Open camp		Eligible (F)	Glade Park	
5ME.6347	Open lithic		Not eligible (F)	Glade Park	
5ME.6348	Open lithic		Not eligible (F)	Glade Park	
5ME.6349	Open lithic		Not eligible (F)	Glade Park	
5ME.635	Open camp		Eligible (F)	Plateau Valley	
5ME.6350	Sheltered camp		Eligible (F)	Glade Park	
5ME.6351	Sheltered camp		Eligible (F)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.6352	Open camp		Eligible (F)	Glade Park	
5ME.6356	Isolated find – Paleoindian				
5ME.636	Open camp		Need data (F)	Grand Valley	
5ME.6360	Open lithic		Not eligible (F)	Glade Park	
5ME.6370	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6379	Open camp		Need data (O)	Glade Park	
5ME.6383	Open lithic		Eligible (O)	Plateau Valley	
5ME.6384	Open lithic		Eligible (O)	Plateau Valley	
5ME.6385	Open camp		Eligible (O)	Plateau Valley	
5ME.6386	Open camp		Eligible (O)	Plateau Valley	
5ME.6388	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6389	Open camp		Eligible (O)	Plateau Valley	
5ME.6390	Open lithic		Eligible (O)	Plateau Valley	
5ME.6391	Open camp		Eligible (O)	Plateau Valley	
5ME.6392	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6393	Open lithic		Eligible (O)	Plateau Valley	
5ME.6394	Open lithic		Eligible (O)	Plateau Valley	
5ME.6395	Open camp		Eligible (O)	Plateau Valley	
5ME.6396	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6397	Open camp		Eligible (O)	Plateau Valley	
5ME.6398	Open camp		Eligible (O)	Plateau Valley	
5ME.6399	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.640	Sheltered camp		Need data (F)	Plateau Valley	
5ME.6400	Open camp		Eligible (O)	Plateau Valley	
5ME.6401	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.642		Building	Eligible (O)	Plateau Valley	
5ME.6436	Open lithic		Not Eligible (O)	Roan Creek	
5ME.6443	Sheltered camp		Eligible (F)	Roan Creek	
5ME.6444	Open camp		Eligible (F)	Roan Creek	
5ME.6445	Open camp		Eligible (O)	Roan Creek	
5ME.6458	Open lithic		Not eligible (F)	Grand Mesa Slopes	
5ME.6459	Open lithic	Water control feature	Not eligible (F)	Grand Mesa Slopes	
5ME.6460	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6461	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.6472	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.6474	Open camp		Eligible (O)	Roan Creek	
5ME.6475	Open lithic		Not Eligible (O)	Roan Creek	
5ME.6478	Open camp		Not Eligible (O)	Gateway	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.6479	Open lithic		Not Eligible (O)	Gateway	
5ME.6480	Isolated find – Early Archaic		Not Eligible (F)	Gateway	
5ME.6484	Open camp		Need data (O)	Roan Creek	
5ME.6485	Open camp		Not Eligible (O)	Roan Creek	
5ME.6494	Open lithic		Need data (O)	Grand Mesa Slopes	
5ME.6495	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6538	Open camp		Need data (O)	Roan Creek	
5ME.6540	Open camp		Not Eligible (O)	Roan Creek	
5ME.6541	Open camp		Need data (O)	Roan Creek	
5ME.6543	Open lithic		Not Eligible (O)	Roan Creek	
5ME.6659	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6660	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6661	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6662	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.6674		Camp	Eligible (O)	Plateau Valley	
5ME.6693	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6694	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6702	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6703	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6704	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6705	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6706	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.6707	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6708	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6709	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.6713	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6715	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.6716	Open lithic		Not Eligible (O)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.6717	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6729	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6730	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.6731	Open camp	Habitation/ homestead	Eligible (O)	Grand Mesa Slopes	
5ME.6744	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6759	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6760	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6773	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.6774	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.6778	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.682		Camp	Not eligible (F)	Roan Creek	
5ME.6828		Habitation/ homestead	Not Eligible (O)	Grand Mesa Slopes	
5ME.684	Open lithic		Need data (F)	Gateway	
5ME.6844		Mining	Not Eligible (O)	Bangs Canyon	
5ME.6845		Mining	Not Eligible (O)	Bangs Canyon	
5ME.6846		Mining	Not Eligible (O)	Bangs Canyon	
5ME.686	Open lithic		Need data (F)	Gateway	
5ME.689	Open lithic		No assessment	Roan Creek	
5ME.691	Unknown		No assessment	Roan Creek	
5ME.692	Unknown		No assessment	Roan Creek	
5ME.693	Unknown		No assessment	Roan Creek	
5ME.6934	Isolated find – Paleoindian		Not Eligible (F)	Grand Valley	
5ME.6938	Sheltered camp		Need data (O)	Plateau Valley	
5ME.6939	Sheltered camp		Need data (O)	Plateau Valley	
5ME.6942	Open camp		Need data (O)	Plateau Valley	
5ME.6951	Open camp		Need data (O)	Plateau Valley	
5ME.6960	Open lithic		Need data (O)	Plateau Valley	
5ME.697	Open lithic		Not eligible (F)	Glade Park	
5ME.699	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.7004	Open camp	Trash scatter/ dump	Eligible (O)	Roan Creek	
5ME.7005	Open camp		Need data (O)	Roan Creek	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.701	Open lithic		Need data (F)	Gateway	
5ME.7030	Open camp		Need data (O)	Bangs Canyon	Public Use
5ME.708	Sheltered camp		No assessment	Roan Creek	
5ME.7121	Open camp		Need data (O)	Roan Creek	
5ME.714	Sheltered camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.715	Open lithic		Need data (F)	Plateau Valley	
5ME.716	Open lithic		Need data (F)	Grand Mesa Slopes	
5ME.717		Camp	Need data (O)	Roan Creek	
5ME.720	Open camp		Need data (F)	Gateway	
5ME.7297	Open camp		Eligible (O)	Plateau Valley	
5ME.7298	Open lithic		Not Eligible (O)	Plateau Valley	
5ME.7305	Open camp		Eligible (O)	Plateau Valley	
5ME.7306	Open camp		Eligible (O)	Plateau Valley	
5ME.7308	Sheltered camp		Eligible (O)	Plateau Valley	
5ME.7326	Open lithic		Eligible (O)	Grand Valley	
5ME.7327	Open lithic		Eligible (O)	Grand Valley	
5ME.7328	Open lithic		Eligible (O)	Grand Valley	
5ME.734	Open camp		Not eligible (F)	Grand Mesa Slopes	
5ME.7352	Sheltered camp, open camp		Eligible (O)	Plateau Valley	
5ME.7354	Open lithic		Not eligible (F)	Roan Creek	
5ME.7355	Open camp		Not eligible (F)	Roan Creek	
5ME.736	Open lithic		No assessment	Roan Creek	
5ME.737		Mining	No assessment	Roan Creek	
5ME.7372		Mining	Not Eligible (O)	Bangs Canyon	
5ME.7373		Mining	Not Eligible (O)	Bangs Canyon	
5ME.738	Unknown		No assessment	Roan Creek	
5ME.752		Farm/ranch	Not Eligible (O)	Roan Creek	
5ME.753		Habitation/ homestead	No assessment	Roan Creek	
5ME.757		Habitation/ homestead	No assessment	Plateau Valley	
5ME.760		Farm/ranch	Eligible (O)	Grand Mesa Slopes	
5ME.770		Water control feature	Need data (F)	Grand Mesa Slopes	
5ME.7740	Open lithic		Not Eligible (O)	Glade Park	
5ME.7741	Open camp		Not Eligible (O)	Glade Park	
5ME.7742	Open camp		Not Eligible (O)	Glade Park	
5ME.776			No assessment	Roan Creek	
5ME.782	Open lithic		No assessment	Roan Creek	
5ME.787	Open camp		Need data (F)	Roan Creek	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.788	Sheltered camp		Need data (F)	Roan Creek	
5ME.789	Open camp		No assessment	Glade Park	
5ME.790	Open lithic		Not Eligible (O)	Glade Park	
5ME.791	Open lithic		Not Eligible (O)	Glade Park	
5ME.7961	Open camp		Eligible (O)	Roan Creek	
5ME.7963	Open camp		Eligible (O)	Glade Park	
5ME.7964	Open camp		Eligible (O)	Glade Park	
5ME.7965	Open camp		Need data (O)	Glade Park	
5ME.7966	Open lithic		Need data (O)	Glade Park	
5ME.7967	Open camp		Need data (O)	Glade Park	
5ME.7968	Sheltered camp		Eligible (F)	Glade Park	
5ME.7969	Open lithic		Need data (O)	Glade Park	
5ME.797	Open camp		Need data (F)	Roan Creek	
5ME.7970	Open lithic		Need data (O)	Glade Park	
5ME.7971	Open camp		Need data (O)	Glade Park	
5ME.7972	Open lithic		Need data (O)	Glade Park	
5ME.7973	Open camp		Need data (O)	Glade Park	
5ME.7974	Open camp		Eligible (O)	Glade Park	
5ME.7975	Open lithic		Need data (O)	Glade Park	
5ME.7976	Sheltered camp		Eligible (O)	Glade Park	
5ME.7977	Open camp		Eligible (O)	Glade Park	
5ME.7978	Open camp		Eligible (O)	Glade Park	
5ME.7979	Open camp		Eligible (O)	Glade Park	
5ME.7980	Open camp		Need data (O)	Glade Park	
5ME.7982	Open camp		Need data (O)	Glade Park	
5ME.799	Open lithic		Need data (F)	Glade Park	
5ME.8005	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8006	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.8033	Open camp		Eligible (F)	Grand Mesa Slopes	
5ME.8035		Road	Not eligible (F)	Grand Mesa Slopes	
5ME.8037	Open camp		Eligible (O)	Grand Mesa Slopes	
5ME.8042	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8047	Rock art, open camp		Eligible (O)	Grand Mesa Slopes	
5ME.8048	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.8049	Open lithic		Not Eligible (O)	Grand Mesa Slopes	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.8057	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8058	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8059	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8060	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.8061	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.8072	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8073	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.8074	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.8075	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8076	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.8077	Open lithic		Not Eligible (O)	Grand Mesa Slopes	
5ME.8078	Open camp		Not Eligible (O)	Grand Mesa Slopes	
5ME.808	Sheltered camp		Need data (F)	Roan Creek	
5ME.809	Sheltered camp		Need data (F)	Roan Creek	
5ME.811	Open lithic		Eligible (F)	Gateway	Public Use
5ME.816		Farm/ranch	No assessment	Gateway	
5ME.819	Open lithic		Need data (F)	Gateway	
5ME.820	Open camp	Trash scatter/ dump	Need data (F)	Gateway	
5ME.822	Open lithic		Need data (F)	Gateway	
5ME.823	Open lithic		Need data (F)	Gateway	
5ME.824	Open camp		Not eligible (F)	Gateway	
5ME.825	Open lithic		Need data (F)	Gateway	
5ME.826	Open lithic		Need data (F)	Gateway	
5ME.827	Open lithic		Need data (F)	Gateway	
5ME.828	Open lithic		Need data (F)	Gateway	
5ME.829	Open lithic		Not eligible (F)	Gateway	
5ME.83	Sheltered lithic		No assessment	Roan Creek	
5ME.837	Open camp	Isolated feature	Eligible (F)	Roan Creek	
5ME.839	Sheltered architectural		No assessment	Bangs Canyon	
5ME.842	Open camp		Eligible (F)	Glade Park	
5ME.843	Open lithic		Need data (F)	Gateway	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.844	Sheltered camp		Not eligible (F)	Plateau Valley	
5ME.845	Sheltered camp		Not eligible (F)	Plateau Valley	
5ME.846	Sheltered camp		Need data (F)	Plateau Valley	
5ME.854	Unknown		No assessment	Bangs Canyon	
5ME.857	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.858	Open lithic		Not eligible (F)	Bangs Canyon	
5ME.859	Open camp		Need data (F)	Glade Park	
5ME.863	Open lithic		No assessment	Roan Creek	
5ME.8669	Open lithic		Need data (O)	Glade Park	
5ME.8670	Open lithic		Not Eligible (O)	Glade Park	
5ME.8671	Open camp		Need data (O)	Glade Park	
5ME.8672	Open lithic	Habitation/ homestead	Need data (O)	Glade Park	
5ME.8674	Open camp		Need data (O)	Glade Park	
5ME.8676	Open lithic		Not Eligible (O)	Glade Park	
5ME.8677	Open lithic		Not Eligible (O)	Glade Park	
5ME.8679	Open lithic		Not Eligible (O)	Glade Park	
5ME.8680	Open lithic		Not Eligible (O)	Glade Park	
5ME.8681	Open camp		Need data (O)	Glade Park	
5ME.8682	Open lithic		Not Eligible (O)	Glade Park	
5ME.8683	Open lithic		Not Eligible (O)	Glade Park	
5ME.8685	Open camp		Need data (O)	Glade Park	
5ME.8689	Open lithic		Not Eligible (O)	Glade Park	
5ME.8690	Open camp		Need data (O)	Glade Park	
5ME.8691	Open lithic		Not Eligible (O)	Glade Park	
5ME.8692	Open camp		Not Eligible (O)	Glade Park	
5ME.8693	Open lithic		Need data (O)	Glade Park	
5ME.8694	Open lithic		Not Eligible (O)	Glade Park	
5ME.8695	Open lithic		Not Eligible (O)	Glade Park	
5ME.8696		Trash scatter/ dump	Not Eligible (O)	Glade Park	
5ME.8697	Open lithic		Not Eligible (O)	Glade Park	
5ME.8698	Open lithic	Camp	Need data (O)	Glade Park	
5ME.8699	Open lithic		Not Eligible (O)	Glade Park	
5ME.8700		Habitation/ homestead	Not Eligible (O)	Glade Park	
5ME.8701	Open lithic		Not Eligible (O)	Glade Park	
5ME.8703	Open lithic		Not Eligible (O)	Glade Park	
5ME.8704	Open lithic		Not Eligible (O)	Glade Park	
5ME.8705	Open lithic		Need data (O)	Glade Park	
5ME.8706	Open lithic		Not Eligible (O)	Glade Park	
5ME.8707	Open lithic		Need data (O)	Glade Park	
5ME.8708	Open lithic		Not Eligible (O)	Glade Park	
5ME.8709	Open lithic		Not Eligible (O)	Glade Park	
5ME.8711	Open camp		Not Eligible (O)	Glade Park	

Table I-2
Scientific Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.8712	Open lithic		Not Eligible (O)	Glade Park	
5ME.8767	Open lithic		Not Eligible (O)	Glade Park	
5ME.930		Habitation/ homestead	Need data (F)	Bangs Canyon	
5ME.931		Water control feature	Not eligible (F)	Roan Creek	
5ME.934	Open camp		Need data (F)	Plateau Valley	
5ME.939	Open camp	Habitation/ homestead	Eligible (F)	Plateau Valley	
5ME.944	Open camp	Farm/ranch, trash scatter	Need data (F)	Plateau Valley	
5ME.946		Farm/ranch	Need data (F)	Plateau Valley	
5ME.948	Open lithic		Eligible (F)	Plateau Valley	
5ME.949	Open camp		Eligible (F)	Plateau Valley	
5ME.950	Open camp		Need data (F)	Plateau Valley	
5ME.954	Sheltered camp		Need data (F)	Roan Creek	
5ME.970			Not eligible (F)	Plateau Valley	
5ME.973			Not eligible (F)	Plateau Valley	
5ME.975			Not eligible (F)	Plateau Valley	
5MN.2143	Open camp		Need data (F)	Gateway	
5MN.2144	Open lithic		Need data (F)	Gateway	
5MN.2145	Open lithic		Need data (F)	Gateway	
5MN.3734	Open camp		Eligible (O)	Gateway	
5MN.3735	Open lithic		Not Eligible (O)	Gateway	
5MN.5381	Open camp		Eligible (O)	Gateway	
5MN.5382	Open camp		Not Eligible (O)	Gateway	
5MN.6236	Open camp		Eligible (O)	Gateway	
5MN.6850	Open lithic		No assessment	Gateway	
5MN.7956	Open lithic	Habitation/ homestead	Not eligible (F)	Gateway	
5MN.805	Open camp		Need data (F)	Gateway	

Table I-3
Conservation for Future Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.82	DeBeque Rock Shelter - Sheltered camp		Eligible (O)	Plateau Valley	
5ME.213	Watershed Rockshelter -Rock art, sheltered camp	Camp	Eligible (O)	Grand Mesa Slopes	
5ME.465	Rock art		Eligible (O)	Glade Park	Traditional Use
5ME.12851	Rock art, sheltered camp		Eligible (O)	Bangs Canyon	Traditional Use

Table I-4
Traditional Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.15376	Burial		Eligible (O)	Roan Creek	Conservation Use
5ME.16500	Ceremonial	Mining	Eligible (F)	Gateway	Scientific Use
5ME.14046	Culturally scarred tree		Eligible (O)	Glade Park	Scientific Use
5ME.14047	Culturally scarred tree		Eligible (O)	Glade Park	Scientific Use
5ME.16646	Culturally scarred tree		Eligible (F)	Gateway	Scientific Use
5ME.6060	Culturally scarred tree		Not eligible (F)	Grand Valley	Scientific Use
5ME.6018	Culturally scarred tree, open camp		Need data (O)	Bangs Canyon	Scientific Use
5GF.1080	Open architectural		Need data (F)	Roan Creek	Scientific Use
5GF.1128	Open architectural		Eligible (F)	Grand Valley	Scientific Use
5GF.115	Open architectural		Eligible (F)	Book Cliffs	Scientific Use
5GF.1217	Open architectural		Need data (F)	Roan Creek	Scientific Use
5GF.327	Open architectural		Need data (F)	Grand Valley	Scientific Use
5GF.4251	Open architectural		Eligible (F)	Roan Creek	Scientific Use
5ME.11726	Open architectural		Eligible (O)	Gateway	Scientific Use
5ME.12031	Open architectural		Not Eligible (O)	Glade Park	Scientific Use
5ME.12407	Open architectural		Eligible (F)	Gateway	Scientific Use
5ME.13062	Open architectural		Eligible (O)	Gateway	Scientific Use
5ME.13959	Open architectural		Eligible (O)	Plateau Valley	Scientific Use
5ME.14071	Open architectural		Eligible (O)	Glade Park	Scientific Use
5ME.14103	Open architectural		Eligible (O)	Roan Creek	Scientific Use
5ME.14104	Open architectural		Eligible (O)	Roan Creek	Scientific Use
5ME.14198	Open architectural	Brush Fence	ONE	Plateau Valley	Public Use
5ME.14199	Open architectural		Need data (O)	Plateau Valley	Scientific Use

Table I-4
Traditional Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.14302	Open architectural		Eligible (O)	Gateway	Scientific Use
5ME.14307	Open architectural		Eligible (O)	Gateway	Scientific Use
5ME.1524	Open architectural		Eligible (O)	Plateau Valley	Scientific Use
5ME.15309	Open architectural		Eligible (O)	Roan Creek	Scientific Use
5ME.15325	Open architectural		Eligible (O)	Roan Creek	Scientific Use
5ME.15461	Open architectural		Eligible (O)	Plateau Valley	Scientific Use
5ME.15827.1	Open architectural	Brush Fence	OND	Plateau Valley	Public Use
5ME.16331	Open architectural		Eligible (F)	Bangs Canyon	Scientific Use
5ME.176	Open architectural		Need data (F)	Gateway	Scientific Use
5ME.244	Open architectural		Need data (F)	Bangs Canyon	Scientific Use
5ME.325	Open architectural		Eligible (O)	Bangs Canyon	Scientific Use
5ME.330	Open architectural		Eligible (O)	Bangs Canyon	Scientific Use
5ME.332	Open architectural		Eligible (O)	Bangs Canyon	Scientific Use
5ME.3910	Open architectural	Camp	Need data (F)	Grand Mesa Slopes	Scientific Use
5ME.4651	Open architectural		Not Eligible (O)	Plateau Valley	Scientific Use
5ME.470	Open architectural		Eligible (F)	Plateau Valley	Scientific Use
5ME.4734	Open architectural		Not Eligible (O)	Grand Valley	Scientific Use
5ME.5226	Open architectural		Not eligible (F)	Grand Mesa Slopes	Scientific Use
5ME.6022	Open architectural	Trash scatter/ dump	Eligible (F)	Grand Valley	Scientific Use
5ME.6387	Open architectural		Eligible (O)	Plateau Valley	Scientific Use
5ME.694	Open architectural		No assessment	Plateau Valley	Scientific Use
5ME.719	Open architectural		No assessment	Roan Creek	Scientific Use
5ME.807	Open architectural	Ute Trail	No assessment	Roan Creek	Public Use
5ME.84	Open architectural		Eligible (F)	Plateau Valley	Scientific Use
5ME.8667	Open architectural		Not Eligible (O)	Bangs Canyon	Scientific Use
5MN.6235	Open architectural		Eligible (O)	Gateway	Scientific Use
5GF.1460	Open architectural, ceremonial		Eligible (F)	Book Cliffs	Scientific Use
5ME.5962	Open architectural, culturally scarred trees		Eligible (O)	Gateway	Scientific Use
5ME.3768	Open architectural, rock art		Eligible (F)	Grand Mesa Slopes	Scientific Use
5ME.7089	Open camp		Eligible (O)	Roan Creek	Scientific Use
5ME.974	Open camp, culturally scarred trees		Eligible (F)	Plateau Valley	Scientific Use
5GF.1078	Rock art		Not eligible (F)	Book Cliffs	Scientific Use
5GF.1436	Rock art		Not eligible (F)	Book Cliffs	Scientific Use
5GF.168	Rock art	Inscription	Eligible (F)	Book Cliffs	Scientific Use
5GF.332	Rock art	Inscription	Not eligible (F)	Book Cliffs	Scientific Use
5GF.333	Rock art		Not eligible (F)	Book Cliffs	Scientific Use

Table I-4
Traditional Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5GF.342	Rock art		Need data (F)	Book Cliffs	Scientific Use
5GF.518	Rock art		Not eligible (F)	Book Cliffs	Scientific Use
5GF.742	Rock art		Eligible (O)	Book Cliffs	Scientific Use
5ME.11361	Rock art		Eligible (O)	Glade Park	Scientific Use
5ME.11376	Rock art		Eligible (O)	Glade Park	Scientific Use
5ME.11380	Rock art		Eligible (O)	Glade Park	Scientific Use
5ME.11399	Rock art		Eligible (O)	Glade Park	Scientific Use
5ME.1637	Rock art		No assessment	Bangs Canyon	Public Use
5ME.165	Rock art		Need data (F)	Gateway	Scientific Use
5ME.237	Rock art		No assessment	Gateway	Scientific Use
5ME.279	Rock art		Eligible (F)	Plateau Valley	Scientific Use
5ME.398	Rock art		Eligible (F)	Grand Mesa Slopes	Scientific Use
5ME.459	Rock art		Need data (F)	Bangs Canyon	Scientific Use
5ME.4661	Rock art		Not eligible (F)	Gateway	Scientific Use
5ME.6218	Rock art		Need data (O)	Bangs Canyon	Scientific Use
5ME.705	Rock art		Eligible (O)	Gateway	Scientific Use
5ME.706	Rock art		No assessment	Gateway	Scientific Use
5ME.729	Rock art		No assessment	Gateway	Scientific Use
5ME.786	Rock art		No assessment	Glade Park	Scientific Use
5ME.79	Rock art		No assessment	Plateau Valley	Scientific Use
5ME.8673	Rock art		Not Eligible (O)	Glade Park	Scientific Use
5ME.8686	Rock art	Inscription	Eligible (O)	Glade Park	Public Use
5ME.1550	Rock art		Eligible (O)	Roan Creek	Scientific Use
5ME.450	Rock art, open camp		Eligible (F)	Glade Park	Scientific Use
5ME.4502	Rock art, open camp		Eligible (F)	Plateau Valley	Scientific Use
5ME.15720	Rock art, open lithic		Eligible (F)	Plateau Valley	Conservation Use
5ME.328	Rock art, open lithic		Eligible (O)	Bangs Canyon	Scientific Use
5ME.329	Rock art, open lithic		Eligible (O)	Bangs Canyon	Public Use
5GF.1509	Rock art, sheltered camp		Eligible (O)	Book Cliffs	Scientific Use
5GF.931	Rock art, sheltered camp		Need data (O)	Book Cliffs	Scientific Use
5ME.11250	Rock art, sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.11368	Rock art, sheltered camp		Eligible (O)	Glade Park	Scientific Use
5ME.11369	Rock art, sheltered camp		Eligible (O)	Glade Park	Scientific Use
5ME.11377	Rock art, sheltered camp		Eligible (O)	Glade Park	Scientific Use

Table I-4
Traditional Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.1548	Rock art, sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.1635	Rock art, sheltered camp		Need data (F)	Roan Creek	Scientific Use
5ME.168	Rock art, sheltered camp		Need data (F)	Gateway	Scientific Use
5ME.3731	Rock art, sheltered camp		Eligible (F)	Plateau Valley	Scientific Use
5ME.4091	Rock art, sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.468	Rock art, sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.4947	Rock art, sheltered camp		Eligible (O)	Grand Mesa Slopes	Public Use
5ME.718	Rock art, sheltered camp		Eligible (O)	Bangs Canyon	Scientific Use
5ME.11334	Rock art, sheltered camp		Eligible (O)	Glade Park	Scientific Use
5ME.6026	Sheltered architectural		Eligible (F)	Grand Valley	Scientific Use
5GF.1147	Sheltered architectural, rock art		Eligible (O)	Book Cliffs	Scientific Use
5ME.241	Sheltered architectural, rock art		Eligible (O)	Bangs Canyon	Scientific Use
5GF.341	Sheltered camp		Need data (F)	Book Cliffs	Scientific Use
5GF.768	Sheltered camp		Need data (O)	Book Cliffs	Scientific Use
5ME.1053	Sheltered camp		Need data (F)	Glade Park	Scientific Use
5ME.11374	Sheltered camp		Eligible (O)	Glade Park	Scientific Use
5ME.11669	Sheltered camp	Camp	Eligible (O)	Grand Mesa Slopes	Scientific Use
5ME.11800	Sheltered camp		Eligible (F)	Glade Park	Scientific Use
5ME.13659	Sheltered camp	Inscription	Eligible (O)	Glade Park	Scientific Use
5ME.13958	Sheltered camp		Eligible (O)	Plateau Valley	Scientific Use
5ME.245	Sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.268	Sheltered camp		Eligible (F)	Plateau Valley	Scientific Use
5ME.281	Sheltered camp		Eligible (F)	Plateau Valley	Scientific Use
5ME.317	Sheltered camp		No assessment	Plateau Valley	Scientific Use
5ME.3838	Sheltered camp		Not Eligible (O)	Plateau Valley	Scientific Use
5ME.395	Sheltered camp		Listed NR	Bangs Canyon	Scientific Use
5ME.4009	Sheltered camp		Not eligible (F)	Roan Creek	Scientific Use
5ME.404	Sheltered camp		Eligible (F)	Grand Mesa Slopes	Scientific Use

Table I-4
Traditional Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Secondary Allocation
5ME.406	Sheltered camp		Eligible (F)	Grand Mesa Slopes	Scientific Use
5ME.407	Sheltered camp		Eligible (F)	Plateau Valley	Scientific Use
5ME.4433	Sheltered camp		Eligible (F)	Roan Creek	Scientific Use
5ME.4698	Sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.4716	Sheltered camp		Not eligible (F)	Glade Park	Scientific Use
5ME.6341	Sheltered camp		Need data (F)	Bangs Canyon	Scientific Use
5ME.687	Sheltered camp		Eligible (F)	Glade Park	Scientific Use
5ME.99	Sheltered camp		Need data (F)	Glade Park	Scientific Use
5GF.608	Sheltered camp, open camp		Not Eligible (O)	Book Cliffs	Scientific Use
5ME.7307	Sheltered camp, open camp		Eligible (O)	Plateau Valley	Scientific Use
5MN.1144	Sheltered camp, open camp		Eligible (F)	Gateway	Scientific Use
5ME.504	Trail	Trail	No assessment	Gateway	Public Use
5MN.1170	Trail	Mining	Need data (F)	Gateway	Scientific Use
5MN.7955	Trail		Need data (F)	Gateway	Public Use

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5GF.11859		Water control	Not Eligible (O)	Plateau Valley	Bluestone Valley Ditch, functioning ditch, mostly private
5GF.1510		Cadastral marker	Not Eligible (O)	Roan Creek	1924 cadastral monument
5GF.1511		Water control and a road	Not Eligible (O)	Roan Creek	This needs to be reevaluated and recorded as two distinct sites. The segment of the Gibler Ditch is on Clear Creek, the road is to the east.
5GF.1588		Road	Not Eligible (O)	Roan Creek	Conn Creek Road, modern use of historic alignment
5GF.2778		Water control feature	Not Eligible (O)	Big Salt Wash	Middle Camp Ditch No. 1, must be abandoned, current plot shows it in wash
5GF.282		Road	Not eligible (F)	Book Cliffs	Trail Canyon Trail, extant trail/road along modern alignment of Douglas Pass Road
5GF.3889		Communicatio n	Need data (F)	Book Cliffs-Grand Valley	two segments of abandoned telegraph line recorded on BLM
5GF.3982		Water control	Need data (F)	Roan Creek	Newman Ditch, functioning ditch, mostly private
5GF.4110		Water control	Not Eligible (F)	Roan Creek	Conwell Ditch, abandoned historic irrigation system
5GF.4220		Water control feature	Need data (O)	Clear Creek	Himebaugh Ditch - abandoned and possible active segments, mostly on Private
5GF.4221		Water control	Need data (F)	Roan Creek	Clear Creek Ditch, functioning ditch, mostly private
5GF.4222		Water control	Need data (F)	Roan Creek	Roan Ck. Ditch No.3, functioning ditch, mostly private
5GF.4224		Road	Not Eligible (F)	Roan Creek	Clear Creek Road, modern use of historic alignment
5GF.4245		Cadastral marker	Not eligible (F)	Grand Valley	abandoned cadastral marker, documents error in Township Survey

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5GF.4259		Road	Not Eligible (F)	Roan Creek	Bowdish Gulch Pack Trail-modern use of historic alignment
5GF.621		Historic Wagon Road	Need data (O)	Baxter Pass	Baxter Pass - Roan Divide Wagon Road? abandoned. This alignment mapped at smaller scale by GLO in late 1800's
5GF.642		Railroad	Need data (F)	Book Cliffs	Historic Uintah railroad grade and Baxter Pass Road in Garfield County and associated sites (Atchee on private)
5GF.879		Water control feature	Not eligible (O)	East Salt Creek - Book Cliffs	Davenport Ditch - East Salt Creek abandoned irrigation ditch off
5GF.881		Fence	Not eligible (F)	Demaree WSA	range fence at the end of the Demaree Cherry stem, assoc. with historic road 5GF.882
5GF.882		Road	No assessment	Grand Valley	Demaree cherry stem, portions of the historic alignment appear on aerial, modern use on remaining
5ME.1018		Mining	Need data (F)	Gateway	Loading chute on Hwy 141 near Gateway
5ME.11086		Mining	Not Eligible (O)	Gateway	Upper North Larsen Canyon Uranium Camp Historic mining on Tenderfoot Mesa
5ME.11696		Road	Eligible (O)	Grand Valley	abandoned historic road assoc. with D&RGW abandoned RR grade at Utah border
5ME.11803		Road	Listed NR	Plateau Valley	Colorado River Bridge - CDOT No. G-04-A
5ME.11853		Road	Not Eligible (O)	Plateau Valley	abandoned historic road south of Moffatt Gulch
5ME.1187		Trail	Not Eligible (F)	Grand Mesa Slopes	two track road on BLM at USFS boundary
5ME.1194		Mining	Not Eligible (O)	Gateway	Outlaw Mines-Within Potential NRHP District-
5ME.1196		Mining	Not Eligible (O)	Gateway	Peach Mines Within Potential NRHP District-

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5ME.12225	Sheltered camp		Eligible (O)	Bangs Canyon	Experimental Use
5ME.12288		Mining	Eligible (F)	Gateway	Bonanza Claim Century Tunnel -Within Potential District-Contributing
5ME.12289		Mining	Not eligible (F)	Gateway	Newhiesel Mine- Within Potential District-Contributing
5ME.12480	Sheltered camp		Not Eligible (O)	Bangs Canyon	Experimental Use
5ME.12483		Water control feature	Within Potential District-Contributing	Roan Creek	Associated with Grand Valley Diversion Dam on the Colorado River
5ME.12484		Habitation/ homestead	Within Potential District-Contributing	Roan Creek	Associated with Grand Valley Diversion Dam on the Colorado River
5ME.12566	Open lithic	Mining	Not Eligible (O)	Gateway	Arrowhead Mine Landscape Within Potential NRHP District-
5ME.13044		Road	Eligible (F)	Unaweep Canyon	Highway 141 modern use in original alignment
5ME.13124		Mining	Eligible (O)	Gateway	Historic Mining landscape associated with the Climax Mines on Outlaw Mesa Within Potential NRHP District-
5ME.14048		Water control	Not Eligible (O)	Glade Park - Mud Springs	Fruita Aqueduct - abandoned segment of water supply pipe
5ME.14281		Rock feature	Not Eligible (O)	Bangs Canyon	Cadastral marker
5ME.14306		Mining	Not Eligible (O)	Gateway	Historic mining associated with the Maverick Mines Within Potential NRHP District-
5ME.15160	Open lithic	Mining	Not Eligible (O)	Gateway	Historic mining in the Blue Mesa area Within Potential NRHP District-
5ME.15161	Open lithic	Mining	Not Eligible (O)	Gateway	Historic mining in the Blue Mesa area Within Potential NRHP District-

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5ME.15176	Open lithic	Mining	Not Eligible (O)	Gateway	Historic mining associated with the Maverick Mines Within Potential NRHP District-
5ME.15177		Mining	Not Eligible (O)	Gateway	Maverick Mines-Within Potential NRHP District-
5ME.15178	Open camp	Mining	No assessment	Gateway	Arrowhead Mine Landscape Within Potential NRHP District-
5ME.15179		Mining	Not Eligible (O)	Gateway	Historic mining associated with the Calamity Mines
5ME.15370		Trail	Not Eligible (O)	Bangs Canyon	Historic abandoned trail-Rough Canyon ACEC
5ME.15463		Road	Not Eligible (O)	Plateau Valley	Horse Canyon Road, modern use of historic alignment
5ME.15499		Water control feature	Need data (O)	Grand Valley	Salinity Control Project retention dam in the N. Fruita Desert
5ME.15500		Road	Eligible (F)	Grand Valley	Hwy 139 - modern use in original alignment
5ME.1556		Brush Fence	Not Eligible (F)	Dolores Point	This historic sites needs to be reevaluated, recorded as a site, and photographed
5ME.15590.1		Water control	Not Eligible (F)	Grand Mesa Slopes	Laurent Ditch -functioning ditch, BLM & private
5ME.15882		Water control feature	Not Eligible (F)	south of the town of DeBeque	abandoned irrigation ditch off an unnamed drainage
5ME.16136.1		Water control	Not Eligible (F)	Grand Mesa Slopes	Extension of the Bauer Ditch, abandoned ditch, mostly BLM in this segment
5ME.16137.1		Water control	Eligible (F)	Grand Mesa Slopes	Kannah Creek Aqueduct - buried historic water pipe, still in use
5ME.16155		Fence -Stone	Not Eligible (F)	Grand Mesa Slopes	associated with cleared field at historic homestead
5ME.16535		Road	Not Eligible (F)	Grand Mesa Slopes	Lands End CCC Trail segment, abandoned section of Lands End Road near USFS boundary
5ME.16587.1		Historic powerline	Not Eligible (O)	DeBeque cut-off road	abandoned powerline

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5ME.301		Water control feature	Listed NR	Colorado River DeBeque Canyon	Grand Valley Diversion Dam on the Colorado River
5ME.4022		Fence	Not eligible (F)	Roan Creek	Log fence, recorded as possible homestead boundary fence, on private BLM boundary
5ME.4436		Fence	Not Eligible (O)	Roberts Canyon Bunkwater Ridge	range fence
5ME.4676		Water control feature	Eligible (O)	Grand Valley	Government Highline Canal, ditch and associated features, mostly on private land
5ME.4677		Water control feature	Eligible (O)	Grand Mesa Slopes	Old Mill Road aka in this location as Tabeguache Trail. Historic road, modern recreation use
5ME.4680	segment .3 is private and .15 is on BLM	Water control	Within District (Not Contributing)	Grand Valley	Kiefer Extention Canal, functioning ditch, mostly private
5ME.4846		Road	No assessment	Bangs Canyon	historic road house associated with Unaweep Canyon wagon road
5ME.511		Mining	No assessment	Gateway	Copper Rivet Mine - Within Potential NRHP District-
5ME.513		Mining	No assessment	Gateway	Pyramid Copper Mine and Mills-Within Potential NRHP District-
5ME.5265	Open lithic	Mining	Eligible (O)	Gateway	Calamity Camp Within Potential NRHP District-
5ME.644		Historic Wagon Road	Eligible (O) with non contributing segments	Una Valley to Collbran	DeBeque & Upper Plateau County Wagon Road, abandoned wagon road
5ME.6840		Road	Not Eligible (O)	Grand Mesa Slopes	abandoned historic spur road to the historic Hogback Road (5ME.923)
5ME.7022		Mining	Eligible (O)	Gateway	Rajah 30 Mine-Within Potential NRHP District-

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5ME.7023		Mining	Not Eligible (O)	Gateway	Rajah 30 Mine (Area B)-Within Potential District-
5ME.7024		Mining	Eligible (O)	Gateway	Cherokee Camp Within Potential NRHP District-
5ME.7025		Mining	Eligible (O)	Gateway	Pack Rat Mine - Within Potential NRHP District-
5ME.7026		Mining	Need Data (O)	Gateway	Hubbard Mine - Within Potential NRHP District-
5ME.7028		Mining	Not Eligible (O)	Gateway	New Verde Mine Within Potential NRHP District-
5ME.7351		Railroad	Eligible (O)	Grand Valley	Abandoned railroad grade, Dener & Rio Grande Western
5ME.7415.1		Historic Wagon Road	Not Eligible (O)	Plateau Valley	Plateau Creek Wagon Road, abandoned road, plotted segment is mostly on private
5ME.7428		Mining	Not Eligible (O)	Gateway	Liberty Bell No. 2 Mine Within Potential NRHP District-
5ME.7429		Mining	Not Eligible (O)	Gateway	Protector/Lincoln Mine Within Potential NRHP District-
5ME.751		Habitation/ homestead	Not eligible (F)	Roan Creek	Latham Cabin - Historic homestead
5ME.764		Water control feature	Eligible (O)	Grand Mesa Slopes	Redlands Hydroelectric Power Comples & Dam on the Gunnison River
5ME.767		Railroad	Eligible (O)	Grand Valley	Uintah RR grade along Mesa County Road 4
5ME.768		Railroad	Need data (O)	Grand Valley	Carpentar Railroad grade
5ME.8044		Water control	Not Eligible (O)	Grand Mesa Slopes	Lander Extension Ditch - abandoned historic ditch, private & BLM
5ME.8079		Water control		Grand Mesa Slopes	Long Mesa Ditch-abandoned historic ditch, this segment recorded on BLM
5ME.815	Trail	Road	Not eligible (F)	Plateau Valley	Scientific Use - Historic abandoned trail-this site needs a reevaluation to correct errors in the record

Table I-5
Public Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Description *(and secondary allocation if any)*
5ME.821		Mining	Not eligible (F)	Gateway	Chado Mines- Within Potential NRHP District-
5ME.923		Road	Eligible (F)	Palisade to Mesa, up Rapid Creek down Nate Creek	Hogback Road-modern use of historic alignment, no public access
5ME.924		Historic Road		Colorado River DeBeque Canyon	Roan Ck. Toll, functioning ditch, mostly private
5ME16588.1		Water control feature		DeBeque cut-off road	abandoned irrigation ditch off an unnamed drainage
5ME775		Historic Routes	No assessment	Plateau Valley, Grand Valley, Grand Mesa Slopes	Needs reevaluation. This one number records five historic routes, the Whitman, Gunnison, and Pattie surveys, the N. Branch of the Old Spanish Trail, and the Salt Lake Wagon Road (a Designated National Historic Trail).
5MN.1171		Historic Trail		Dolores River Canyon - Sewemup Mesa	McCarty Canyon Trail, abandoned trail associated with local historic figure,
5MN.6048		Road	Eligible (F)	Gateway	Highway 141 modern use in original alignment

Table I-6
Experimental Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Allocation (Secondary)
5ME.13337	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13338	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13339	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13340	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13341	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13342	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13343	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13344	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13345	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13346	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13347	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13348	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13349	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13350	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13351	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13352	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13354	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13355	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.13356	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.11933	Open lithic		Not Eligible (O)	Gateway	Scientific
5ME.12785	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.12787	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.12791	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.12801	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.12803	Open lithic		Not Eligible (O)	Gateway	Scientific
5ME.12805	Open lithic		Not Eligible (O)	Gateway	Scientific
5ME.12807	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.15158	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.5116	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.5117	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.5902	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.11975	Open lithic		Not Eligible (O)	Glade Park	Scientific
5ME.12002	Open lithic		Not Eligible (O)	Glade Park	Scientific
5ME.12023	Open lithic		Not Eligible (O)	Glade Park	Scientific
5ME.12025	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12029	Open lithic		Not Eligible (O)	Glade Park	Scientific
5ME.12519	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12520	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12523	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12528	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12530	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12531	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12532	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12533	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12536	Open camp		Not Eligible (O)	Glade Park	Scientific

Table I-6
Experimental Use Sites

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Allocation (Secondary)
5ME.12545	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12555	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12556	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12557	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12558	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.12559	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.13657	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.13660	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.13662	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.13663	Open camp		Not Eligible (O)	Glade Park	Scientific
5ME.15502	Open lithic		Not Eligible (O)	Grand Mesa Slopes	Scientific
5ME.15504	Open lithic		Not Eligible (O)	Grand Mesa Slopes	Scientific
5ME.15507	Open lithic		Not Eligible (O)	Grand Mesa Slopes	Scientific
5ME.6027	Open lithic		Not Eligible (O)	Grand Valley	Scientific
5ME.6785	Open lithic		Not Eligible (O)	Grand Valley	Scientific
5ME.4781		Farm/ranch	Not Eligible (O)	Plateau Valley	Scientific
5ME.14944		Farm/ranch	Not Eligible (O)	Plateau Valley	Scientific
5ME.4954	Open lithic		Not Eligible (O)	Plateau Valley	Scientific
5ME.14089	Open lithic		Not Eligible (O)	Plateau Valley	Scientific
5ME.4864	Open lithic		Not Eligible (O)	Plateau Valley	Scientific
5ME.4865	Open lithic		Not Eligible (O)	Plateau Valley	Scientific
5ME.14947	Open lithic		Not Eligible (O)	Plateau Valley	Scientific
5ME.14948	Open lithic		Not Eligible (O)	Plateau Valley	Scientific
5ME.11722	Open lithic		Not Eligible (O)	Gateway	Scientific
5ME.14423	Open camp		Not Eligible (O)	Gateway	Scientific
5ME.14435	Open lithic		Not Eligible (O)	Gateway	Scientific
5ME.14436	Open lithic		Not Eligible (O)	Gateway	Scientific
5ME.11919	Open camp		Not Eligible (O)	Bangs Canyon	Scientific
5ME.11921	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.14285		Camp	Not Eligible (O)	Bangs Canyon	Scientific
5ME.14262	Open lithic		Not Eligible (O)	Bangs Canyon	Scientific
5ME.14263		Camp	Not Eligible (O)	Bangs Canyon	Scientific
5ME.12926	Open camp		Not Eligible (O)	Bangs Canyon	Scientific
5ME.14286		Camp	Not Eligible (O)	Bangs Canyon	Scientific

Table I-7
Sites Discharged from Management

Site No.	Prehistoric Site Type	Historic Site Type	Eligibility	RMP Planning Area	Justification
5ME.4715	wooden fence		Not eligible (O) 2000	Gateway	burned in Cone Mountain Fire
5ME.239	Rock Art		Not eligible (O) 2008	Gateway	not relocated, likely destroyed by Hwy. construction
5GF.322	Open lithic		Not eligible (O) 2009	Roan Creek	destroyed by construction
5ME.3998	Open lithic		Not eligible (O) 2010	Glade Park	land exchange, retained in patent reservation, released by data recovery
5ME.5997	Open camp	Homestead	Not eligible (O) 2010	Glade Park	land exchange, retained in patent reservation, released by data recovery
5ME.6141	Open camp		Not eligible (O) 2010	Glade Park	land exchange, retained in patent reservation, released by data recovery
5ME.6144	Open camp		Not eligible (O) 2010	Glade Park	land exchange, retained in patent reservation, released by data recovery

I.7 REFERENCES

BLM. 2004. BLM Manual 8110: Identifying and Evaluating Cultural Resources. Rel. 8-73. BLM, Washington, DC. December 3, 2004. 42pp.

Appendix J

Allotments and Allotment Management Levels

APPENDIX J
ALLOTMENTS AND ALLOTMENT MANAGEMENT LEVELS

Additional detail regarding proposed management actions and allowable uses for the livestock grazing program is provided in Chapter 2.

The following allotments would remain closed to livestock grazing under Alternative A:

- Wildhorse (in the LBCWHR) due to steep slopes and lack of water or forage; and
- Sewemup Mesa due to steep slopes and lack of water or forage.

The following allotments would be closed to livestock grazing under Alternative B:

- Baldridge Mesa: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Bevan: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Boulder Canyon: Category M allotment, conflicts with unfenced developed private land, recreation issues;
- Browns Place: Category C allotment, conflicts with unfenced developed private land;
- Brush Creek: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Clifton: Category C allotment, conflicts with unfenced developed private land;

- Clover Gulch: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Coon Creek: Category C allotment with a small amount of public land, wildlife issues;
- Dead Horse: Category C allotment, conflicts with unfenced developed private land;
- Dry Kimball: Category C allotment with a small amount of public land, wildlife issues;
- Eby Point: Category C allotment with a small amount of public land, unsuitable for livestock;
- Erven; Category C allotment with a small amount of public land and riparian issues;
- Etcheverry: Category C allotment with a small amount of isolated public land, unsuitable for livestock;
- Heely: Land Health and threatened and endangered species issues;
- Hight: Category C allotment with a small amount of public land;
- Horizon: Category C allotment with a small amount of public land;
- Hunter: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Logan Wash: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Parkes Place: Category C allotment with a small amount of isolated public land;
- Plateau Creek: Category C allotment with a small amount of public land and riparian issues;
- Red Mountain: Category C allotment with a small amount of public land;
- Webber: Category C allotment with a small amount of isolated public land, unsuitable for livestock, wildlife issues;
- Webb Isolated Tracts: Category C allotment with a small amount of isolated public land; and
- Whitewater Hill: Category C allotment, conflicts with unfenced developed private land.

Under Alternative B, the following criteria would be used to periodically evaluate whether to close other allotments or portions of allotments to livestock grazing:

- Areas identified as BLM disposal tracts;

- Lack of administrative access to public land;
- Small percentage of forage in allotment is contributed by BLM lands in allotment (less than 15 percent);
- Areas not accessible to livestock grazing (e.g., steep slopes);
- "C" category allotments that are relinquished and determined to be impractical for the administration of livestock grazing by the Authorized Officer;
- Major impact to wildlife or threatened and endangered species (e.g., competition for forage, winter range, sage-grouse habitat), or sensitive fish habitat, as determined by data analysis;
- Public health and safety;
- High intensity recreation areas or facilities;
- Resource objectives for municipal watersheds;
- Impacts to cultural resources; and
- Conflicts with adjoining private lands (development).

The following allotments would be closed to livestock grazing under Alternative C:

- Same as Alternative B, plus:
  - 4A Ind: Category C allotment with a small amount of isolated public land;
  - Ames: Category C allotment with a small amount of isolated public land and wildlife issues;
  - Badger Wash: Category I allotment in limited precipitation zone and rare plant issues;
  - Baker Canyon: Category C allotment with a small amount of isolated public land, riparian issues;
  - Berthoud Place: Category C allotment with a small amount of isolated public land;
  - B Hawkins: Category C allotment with a small amount of isolated public land;
  - Charlesworth: Category C allotment with a small amount of isolated public land;
  - Conn Mountain Common: Category C allotment with a small amount of isolated public land;
  - Davis Amp: Category I allotment in limited precipitation zone and rare plant issues;

- East of Collbran: Category C allotment with a small amount of isolated public land;
- EHL: Category C allotment with a small amount of isolated public land;
- Fetters: Category C allotment with a small amount of isolated public land;
- Guthrie Place: Category C allotment with a small amount of isolated public land;
- Hamilton: Category M allotment riparian and public safety issues;
- Highway 50: Category C allotment in limited precipitation zone and rare plant issues;
- J.L.: Category C allotment with a small amount of public land that is impractical to administer;
- Kannah Creek Individual: Category C allotment with a small amount of isolated public land in limited precipitation zone and rare plant issues;
- Lloyd: Within Palisade Municipal Watershed;
- Lorimor: Category C allotment with a small amount of isolated public land;
- Lower Rapid-Cottonwood: Within Palisade Municipal Watershed;
- Mogensen: Category M allotment in limited precipitation zone;
- Molina Place: Category C allotment with a small amount of isolated public land;
- Mule Trail Draw: Category C allotmentwith a small amount of isolated public land;
- Robbins: Category C allotment with a small amount of isolated public land;
- Tom Casto: Category C allotment with a small amount of isolated public land;
- West Creek: Category C allotment with a small amount of isolated public land; and
- West Logan Wash: Category M allotment with a small amount of isolated public land.

Alternative C would also close portions of the following allotments because they are located in limited precipitation zones (below 6,000 feet). Some entire

allotments would also be identified for closure based on the resource issues identified in the previous list. Closing portions of the following allotments in limited precipitation zones would mitigate land health, riparian, and rare plant issues:

- Ames
- Badger Wash
- Beaver Mesa
- Berry Homestead
- Big Park
- Big Salt
- Blue Mesa
- Bull Draw Commons
- Casto-Lines Commons
- Coon Hollow Commons
- Cottonwood
- Davis Amp
- Dolores River
- Dry Canyon-Demaree
- East Salt
- EHL
- Garr Mesa
- GML
- Hamilton
- Highway 50
- Hunter Wash
- Jerry Gulch
- J.L.
- Kannah Creek Commons
- Little Salt
- Logan Gulch
- Lower Rapid-Cottonwood
- Lyons/Anderson
- Mogensen
- Mt. Garfield

- Mule Trail Draw
- North Fork Kannah Creek
- Salt Wash
- Sinbad Valley Commons
- Sunnyside Commons
- Tom Casto (entire allotment is below 6,000 feet and would be closed)
- Ute Creek Commons
- West Salt Commons
- West Spears
- Whitewater Commons
- Wild Country
- Winter Flats-Deer Park

Under Alternative C, the following criteria would be used to periodically evaluate whether to close other allotments or portions of allotments to livestock grazing:

- Same as Alternative B, plus:
  - ACECs; and
  - All "C" category allotments.

The following allotments would remain closed to livestock grazing under Alternative D:

- Same as Alternative A.

There is no similar action under Alternatives A and D regarding periodically evaluating whether to close other allotments or portions of allotments to livestock grazing.

The following table provides a complete list of all allotments managed by the Grand Junction Field Office; their proposed permitted AUMs by alternative, type of livestock, season of use, proposed acreage by alternative, and management category.

Where an allotment would be mostly closed due to resource concerns (contained a large percentage of limited precipitation zone, sage grouse habitat), the entire allotment would be closed. Where an allotment would be mostly open (contained a small percentage of limited precipitation zone, sage grouse habitat), the entire allotment was left open.

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
28 Hole	06126	56	56	0	56	Cattle	11/10	1/20	663	0	663	663	0	663	I
							4/10	6/7							
4-A Individual	06756	22	22	0	22	Cattle	9/1	9/30	206	1	206	206	0	206	C
4-A Mountain	06725	308	308	0	308	Cattle	6/16	10/15	926	1,039	926	926	0	926	M
						Horse	6/16	10/15							
4-A Place	06755	12	12	12	12	Cattle	9/1	9/30	91	197	91	91	91	91	C
Ames	06413	21	21	0	21	Cattle	1/15	4/1	257	318	257	257	0	257	C
B. Hawkins	16825	45	45	0	45	Cattle	2/1	2/28	87	273	87	87	0	87	C
							3/1	4/30							
Badger Wash	06601	429	429	0	429	Cattle	3/1	4/30	7,688	289	7,688	7,688	0	7,688	I
							12/2	12/30							
Baker Canyon	06731	10	10	0	10	Cattle	4/25	5/24	171	0	171	171	0	171	C
							11/15	12/15							
Bald Hill Common	16802	100	100	100	100	Cattle	6/15	7/3	781	15	781	781	781	781	M
Baldridge Mesa	06851	15	0	0	15	Cattle	04/10	2/12	766	792	766	0	0	766	C
Bangs	06116	1,563	1,563	0	1,563	Cattle	3/1	5/29	23,072	875	23,072	23,072	0	23,072	I
							11/1	2/28							
Bar-X[3]	05808								8,667						
Battleship	06167	19	19	19	19	Cattle	5/20	6/20	1,090	2,572	1,090	1,090	1,090	1,090	C
							10/25	12/1							
Bear Gulch	06701	58	58	58	58	Cattle	5/25	7/20	1,163	1,672	1,163	1,163	1,163	1,163	C
							10/16	11/20							
Beaver Mesa	06404	40	40	0	40	Cattle	11/25	1/18	1,026	85	1,026	1,026	0	1,026	I
Beehive	16807	177	177	177	177	Cattle	5/16	6/30	3,932	382	3,932	3,932	3,932	3,932	I
							10/1	10/8							
		321	321	321	321	Cattle	5/16	6/30							
							10/1	10/8							
Beeman	06432	33	33	33	33	Cattle	4/16	5/31	853	807	853	853	853	853	C
							10/16	11/15							
Beezer	06165	251	251	251	251	Cattle	5/1	6/1	1,126	12	1,126	1,126	1,126	1,126	I
							11/16	11/30							
Berg's North Mesa	06424	202	202	202	202	Cattle	5/10	11/16	1,704	616	1,704	1,704	1,704	1,704	M
Berry Homestead	06702	108	108	0	108	Cattle	5/1	5/31	2,913	124	2,913	2,913	0	2,913	I
							11/15	12/31							
		73	73	0	73	Cattle	5/1	5/31							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
							11/15	12/31							
		37	37	0	37	Cattle	5/1	5/31							
							11/15	12/31							
Berthod Place	06848	19	19	0	19	Cattle	7/10	9/18	162	166	162	162	0	162	C
Bevan	16816	18	0	0	18	Cattle	6/15	9/15	196	1,007	196	0	0	196	C
Big Park	06843	759	759	0	759	Cattle	4/15	6/10	11,658	8,088	11,658	11,658	0	11,658	M
Big Salt	16501	1,299	1,299	1066	1,299	Cattle	3/1	5/5	27,117	2,906	27,117	27,117	21,350	27,117	I
							5/1	11/15							
							11/15	2/28							
Blue Mesa	06406	1,114	1,114	1064	1,114	Cattle	3/1	5/31	41,878	375	41,878	41,878	34,605	41,878	I
							11/1	02/28							
Boulder Canyon	06157	132	0	0	132	Cattle	5/16	6/15	2,473	10	2,473	0	0	2,473	I
Brink Pedigo Gulch	6703	111	111	111	111	Cattle	4/26	6/25	5,621	2,626	5,621	5,621	5,621	5,621	I
							11/20	12/30							
Browns Place	06850	8	0	0	8	Cattle	3/28	4/27	810	643	810	0	0	810	C
Brush Creek	06708	10	0	0	10	Cattle	4/1	5/1	856	3,253	856	0	0	856	C
Brush Mountain Comm.	06705	624	624	0	624	Cattle	7/1	9/30	1,869	86	1,869	1,869	0	1,867	I
		15	15	0	15	Cattle	7/1	9/30							
Buckhorn[3]	05863								2,438						
Bull Draw Comm.	06402	100	100	0	100	Cattle	4/26	5/26	4,857	121	4,857	4,857	0	4,857	I
							11/1	11/15							
Bull Hill-Mav Comm.	06407	564	564	564	564	Cattle	5/5	5/27	14,611	0	14,611	14,611	10,018	14,611	I
							10/16	11/15							
Burdick E. of Ranch	06706	90	90	0	90	Cattle	11/1	11/30	1,284	125	1,284	1,284	0	1,284	I
Burdick Homestead	06707	21	21	0	21	Cattle	6/27	11/1	75	714	75	75	0	75	C
Burford Individual	06153	29	29	29	29	Cattle	6/20	7/14	493	838	493	493	493	493	C
Carbon	06722	415	415	415	415	Cattle	5/31	10/31	1,363	912	1,363	1,363	1,104	1,363	M
Carns Point	06149	10	10	10	10	Cattle	6/1	6/7	50	37	50	50	50	50	C
							10/15	10/21							
Carr Creek	06709	145	145	100	145	Cattle	10/1	12/14	614	732	614	614	437	614	C
Casto-Lines Comm.	06408	105	105	0	105	Cattle	4/16	5/15	1,694		1,694	1,694	0	1,694	I
							11/1	12/30							
		28	28	0	28	Cattle	11/1	12/31							
							4/16	5/24							
Cathedral Bluffs[4]															

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
Chalk Mountain	06845	70	70	70	70	Cattle	5/20	10/31	1,588	0	1,588	1,588	1,588	1,588	C
Charlesworth Iso. Tra.	06855	7	7	0	7	Cattle	4/16	7/30	117	0	117	117	0	117	C
Clarks Bench	06122	106	106	106	106	Cattle	5/9	6/15	2,467	603	2,467	2,467	2,467	2,467	I
Clifton	06817	26	0	0	26	Cattle	4/16	5/15	490	1,207	490	0	0	490	C
						Cattle	1/1	1/31							
Clover Gulch	06827	35	0	0	35	Cattle	4/16	6/16	714		714	0	0	714	C
Coal Gulch	16502	303	303	303	303	Cattle	6/15	10/15	23,528	160	23,528	23,528	23,528	23,528	I
Coates Creek	06161	26	26	26	26	Cattle	5/1	5/10	378	252	378	378	378	378	C
							11/15	11/22							
Collier[5]	06839	121	121	121	121	Cattle	6/8	6/30	945	249	945	945	945	945	C
							10/1	10/14							
Conn Creek/McCurdy	06710	136	136	0	136	Cattle	5/1	5/30	1,643	349	1,643	1,643	0	1,643	I
Conn Mtn Common	06711	70	70	0	70	Cattle	6/1	10/31	166		166	166	0	166	C
		10	10	0	10	Cattle	5/16	10/15							
		10	10	0	10	Cattle	6/1	10/30							
Cook Canyon	06159	18	18	18	18	Cattle	4/1	12/31	126	112	126	126	126	126	C
Coon Creek	16804	15	0	0	15	Cattle	5/25	6/18	357	18	357	0	0	357	C
Coon Hollow Common	06712	120	120	0	120	Cattle	4/15	6/10	19,219	1,059	19,219	17,965	0	17,965	I
		100	100	0	100	Cattle	4/15	6/10							
Corcoran Wash	06704	1,296	1,296	1,296	1,296	Cattle	5/1	6/15	9,972	1,357	9,972	9,972	9,972	9,972	I
							10/16	12/31							
Cottonwood	06431	222	222	0	222	Cattle	3/1	5/10	2,649	316	2,649	2,649	0	2,649	C
							1/11	2/28							
Cow Mountain	06751	686	686	686	686	Cattle	6/16	9/30	1,992	523	1,992	1,992	1,992	1,992	I
Davis	16818	35	35	0	35	Cattle	5/1	5/15	483	207	483	483	0	483	C
							9/25	10/9							
Davis Amp	06201	290	290	0	290	Cattle	4/15	5/20	4,274	1,134	4,274	4,274	0	4,274	I
							12/4	1/13							
Dead Horse	16119	22	0	0	22	Cattle	1/1	1/30	1,202	0	1,202	0	0	1,202	C
Dierich Ranch	16112	54	54	53	54	Cattle	5/20	5/23	1,388	1,345	1,388	1,388	1,292	1,388	C
							11/10	11/19							
Dolores Point[6]	06429	821	821	821	821	Cattle	5/1	6/20	7,590	37	7,590	7,590	7,590	7,590	I
							10/17	10/31							
							11/1	12/20							
							12/20	12/31							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
Dolores River	06411	160	160	0	160	Cattle	4/16	5/25	3,535	437	3,535	3,535	0	3,535	I
							11/25	1/5							
Dougherty Gulch	06714	140	140	140	140	Cattle	6/1	11/2	3,384	1,261	3,384	3,384	33,384	3,384	I
Dry Canyon-Demaree	16608	272	272	136	272	Cattle	1/1	2/28	10,419	591	10,419	10,419	6,436	10,419	M
Dry Fork	06715	564	564	564	564	Cattle	3/1	2/28	10,941	3,180	10,941	10,941	10,941	10,941	M
Dry Kimball	16834	11	0	0	11	Cattle	5/26	6/15	830	212	830	0	0	830	C
Dugway	06403	296	296	0	296	Cattle	4/15	5/9	6,097	41	6,097	6,097	0	6,097	I
							11/20	1/19							
Duval	16127	57	57	57	57	Cattle	10/24	11/7	658	0	658	658	658	658	M
Duvall Bottom	02777	29	29	29	29	Cattle	4/10	6/15	1,173	0	1,173	1,173	1,173	1,173	C
							10/15	2/28							
East End Cow Mtn	06716	101	101	101	101	Cattle	6/1	7/30	386	31	386	386	386	386	M
East of Collbran	6854	84	84	0	84	Cattle	5/1	11/30	642		642	642	0	642	C
East Salt[7]	16602	3,852	3,852	2995	3,852	Cattle	3/1	2/28	110,366	6,137	110,366	110,366	79,541	110,366	I
East Toms Can Comm.	16106	137	137	137	137	Cattle	4/20	6/2	3,681	211	3,681	3,681	3,681	3,681	I
							11/15	12/9							
		68	68	68	68	Cattle	5/1	5/31							
							10/9	10/17							
Eby Gulch	06717	32	32	32	32	Cattle	5/6	5/16	1,546	172	1,546	1,546	1,546	1,546	C
							12/1	12/30							
Eby Point	06719	63	0	0	63	Cattle	6/16	10/14	639	8	639	0	0	639	C
EHL	06423	1	1	0	1	Cattle	2/1	2/28	193	123	193	193	0	193	C
Erven	16819	6	0	0	6	Cattle	5/1	10/31	24	0	24	0	0	24	C
Etcheverry	06720	50	0	0	50	Cattle	2/1	2/28	572	1,970	572	0	0	572	C
Fessler	16113	63	63	63	63	Cattle	5/1	6/1	888	166	888	888	888	888	C
Fetters[8]	16821	12	12	0	12	Cattle	5/1	10/30	44	306	44	44	0	44	C
Fish Canyon	06164	180	180	180	180	Cattle	5/1	5/31	3,659	24	3,659	3,659	3,659	3,659	I
							12/1	12/31							
Flat Rock	06139	114	114	114	114	Cattle	7/1	11/1	705	1,455	705	705	705	705	C
G-M-L Allotment	06420	132	132	0	132	Cattle	3/1	3/31	3,381	14	3,381	3,381	0	3,381	M
							12/1	12/31							
Gapter	06820	84	84	84	84	Cattle	5/1	6/15	576	49	576	576	576	576	C
							10/16	11/30							
Garr Mesa	16503	334	334	0	334	Cattle	3/1	5/1	6,224	3,932	6,224	6,224	0	6,224	M
							10/21	2/28							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
Grassy Gulch Common	16803	17	17	17	17	Cattle	6/1	6/15	431	9	431	431	431	431	M
		25	25	25	25	Cattle	6/1	6/15							
		17	17	17	17	Cattle	6/1	6/15							
Guthrie Place	16814	18	18	0	18	Cattle	6/1	7/31	143	123	143	143	0	143	C
Halfway House	16823	54	54	0	54	Cattle	5/1	5/31	964	261	964	964	0	964	M
Hall	06162	15	15	15	15	Cattle	5/1	6/19	73	18	73	73	73	73	C
Hamilton	06433	49	49	0	49	Cattle	1/1	3/15	635	207	635	635	0	635	M
Hawxhurst Common	16805	166	166	166	166	Cattle	5/20	6/8	3,818	1,595	3,818	3,818	3,818	3,818	M
		89	89	89	89	Cattle	5/20	7/4							
		54	54	54	54	Cattle	5/20	7/4							
Head of Carr Creek	06721	250	250	250	250	Cattle	6/16	11/1	4,115	2,140	4,115	4,115	4,115	4,115	I
Heely	16837	6	0	0	6	Cattle	4/20	5/31	2,327	214	2,327	0	0	2,327	I
Henderson Ridge Comm.	06723	81	81	81	81	Cattle	6/16	10/30	1,153	385	1,153	1,153	355	1,153	M
		39	39	39	39	Cattle	6/16	10/13							
		99	99	99	99	Cattle	6/16	10/30							
Hight	16828	4	0	0	4	Cattle	6/1	7/30	39		39	0	0	39	C
Highway 50	16204	77	77	0	77	Cattle	5/20	5/25	885	308	885	885	0	885	C
							11/15	12/7							
Hill Creek-Flats	06166	710	710	404	710	Cattle	6/1	7/10	5,470	597	5,470	5,470	3,183	5,470	I
							11/1	11/15							
Hittle Place Ind.	06841	75	75	75	75	Cattle	5/16	10/15	433	20	433	433	433	433	C
Homestead	06740	210	210	210	210	Cattle	5/10	7/1	4,566	739	4,566	4,566	4,566	4,566	M
Horizon	16830	14	0	0	14		5/16	9/30	118		118	0	0	118	C
Horse Mountain	06726	100	100	100	100	Cattle	6/16	10/15	556	339	556	556	556	556	M
Hubbard[6]	06419	621	621	621	621	Cattle	4/1	11/1	25,183	5,297	25,183	25,183	25,183	25,183	I
Hunter	16829	35	0	0	35	Cattle	6/1	9/15	143	1	143	0	0	143	C
Hunter Wash	16504	1,411	1,411	0	1,411	Cattle	3/1	5/3	13,042	710	13,042	13,042	0	13,042	I
							12/1	2/28							
I.A.E. of Ranch	06727	147	147	0	147	Cattle	5/1	5/30	1,821	519	1,821	1,821	0	1,821	M
							11/1	12/15							
J.L.	06422	37	37	0	37	Cattle	3/1	5/15	165	164	165	165	0	165	C
							12/31	2/28							
Jerry Gulch	06847	151	151	0	151	Cattle	5/1	6/30	1,472	950	1,472	1,472	0	1,472	I
Kannah Creek Common	16202	2,349	2,349	0	2,349	Cattle	5/1	6/30	20,158	4,466	20,158	20,158	0	20,158	I
							10/15	11/30							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
							12/15	1/15							
							1/16	1/23							
		664	664	0	664	Cattle	5/1	6/30							
							10/1	12/30							
		690	690	0	690	Cattle	5/1	6/30							
							10/1	12/30							
Kannah Creek Indiv.	06207	105	105	0	105	Cattle	9/1	2/28	952	1,992	952	952	0	952	C
Kelly Individual	06169	13	13	13	13	Cattle	8/1	9/2	226	0	226	226	226	226	C
Kimball Creek	06724	193	193	158	193	Cattle	3/1	5/30	13,876	9,413	13,876	13,876	12,100	13,876	M
							11/1	11/30							
Kimball Foothill Comm.	06728	31	31	31	31	Cattle	5/15	6/13	433	266	433	433	433	433	C
		18	18	18	18	Cattle	5/15	6/14							
Kimball Mtn.	06729	200	200	0	200	Cattle	6/1	10/31	695	8,158	695	695	0	695	M
King-Rogers	16118	121	121	121	121	Cattle	6/17	10/31	895	14,345	895	895	895	895	C
Kings Gap	16104	25	25	25	25	Cattle	4/1	4/30	453	510	453	453	453	453	C
Kinney	16833	79	79	79	79	Cattle	6/21	6/30	1,448	4	1,448	1,448	1,448	1,448	C
							10/1	10/3							
Ladder Canyon	06158	142	142	142	142	Cattle	2/15	5/15	3,388	1,790	3,388	3,388	3,388	3,388	I
Landini	16120	161	161	161	161	Cattle	3/14	5/1	2,166		2,166	2,166	2,166	2,166	M
Lapham-Post	16506	604	604	604	604	Cattle	5/2	11/15	8,052	863	8,052	8,052	8,052	8,052	I
Leon	16832	85	85	85	85	Cattle	6/15	10/15	291	1,439	291	291	291	291	C
Leslie-Bays	16131	48	48	48	48	Cattle	6/1	6/15	961	5,144	961	961	961	961	C
							12/1	2/1							
Little Dolores River	06134	85	85	85	85	Cattle	6/15	11/15	1,638	4,733	1,638	1,638	1,508	1,638	C
Little Salt	16507	2,734	2,734	0	2,734	Cattle	3/1	5/31	29,262	1,349	29,262	29,262	0	29,262	I
							12/1	2/28							
Lloyd	16835	113	113	0	113	Cattle	5/22	10/31	1,879	3,013	1,879	1,879	0	1,879	M
Logan End Common	06732	86	86	0	86	Cattle	6/1	10/31	1,653	2,913	1,653	1,653	0	1,653	M
Logan Gulch	06733	255	255	0	255	Cattle	5/5	6/18	3,471	398	3,471	3,471	0	3,471	I
		169	169	0	169	Cattle	5/5	6/18							
		84	84	0	84	Cattle	5/5	6/18							
Logan Wash	06734	21	0	0	21	Cattle	4/5	5/31	1,560	423	1,560	0	0	1,560	M
Long	16836	45	45	45	45	Cattle	5/16	6/30	279	1,037	279	279	279	279	C
Lorimor	16838	20	20	0	20	Cattle	6/1	9/1	167	152	167	167	0	167	C
Lower 4-A	06738	488	488	488	488	Cattle	6/6	10/30	1,855	1,189	1,855	1,855	1,855	1,855	I

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
Lower Brush Mtn. Ind.	06735	128	128	0	128	Cattle	6/16	10/15	477	4,072	477	477	0	477	C
Lower Carr Creek	06736	30	30	30	30	Cattle	5/3	6/2	303	1,004	303	303	303	303	C
							10/1	10/31							
Lower Rapid-Cottonwood	06844	168	168	0	168	Cattle	4/15	5/14	4,087	32	4,087	4,087	0	4,087	M
							10/1	11/15							
Lower Roan Creek Comm.	06737	57	57	57	57	Cattle	5/15	6/5	2,709	1,278	2,709	2,709	2,709	2,709	I
							11/1	11/15							
		104	104	104	104	Cattle	6/1	6/15							
							10/16	10/22							
Lyons/Anderson	16811	218	218	0	218	Cattle	5/1	6/14	1,963	157	1,963	1,963	0	1,963	I
							10/16	11/30							
Mabie	06160	10	10	10	10	Cattle	6/1	10/31	65	729	65	65	65	65	C
Malone	16107	5	5	5	5	Cattle	12/1	4/30	86	394	86	86	86	86	C
Massey	06437	29	29	29	29	Cattle	3/1	5/31	691	372	691	691	691	691	C
							12/1	2/28							
McKay Fork	06746	985	985	985	985	Cattle	6/13	9/30	10,505	2,339	10,505	10,505	10,505	10,505	I
Meinhart	16150	80	80	80	80	Cattle	8/1	9/30	2,144	1,695	2,144	2,144	2,144	2,144	M
Milholland	06840	27	27	27	27	Cattle	5/1	6/15	272	464	272	272	272	272	C
Mogensen	16508	67	67	0	67	Cattle	4/20	5/20	1,397	160	1,397	1,397	0	1,397	M
Molina Place	06853	30	30	0	30	Cattle	4/1	5/31	93	148	93	93	0	93	C
Moore	06140	48	48	48	48	Yrling Cattle	6/1	9/27	336	1,031	336	336	336	336	C
Mormon Mesa[8]	06857	18	18	18	18	Cattle	5/11	5/15	198		198	198	198	198	C
		11	11	11	11	Cattle	6/1	6/14							
Mountain Island[9]	06154	1,612	1,612	1,411	1,612	Cattle	3/1	2/28	35,046	8,495	35,046	35,046	20,026	35,046	I
Mt. Garfield	16509	1,000	1,000	0	1,000	Cattle	3/1	4/30	26,124	4,549	26,124	26,124	0	26,124	I
							12/1	2/28							
Mule Trail Draw	06421	8	8	0	8	Cattle	12/11	1/10	180	195	180	180	0	180	C
N.E. Spear	06718	517	517	381	517	Cattle	4/16	5/31	6,411	1,316	6,411	6,411	1,285	6,411	I
							11/16	2/15							
		29	29	29	29	Cattle	4/16	5/31							
Nelson	06428	175	175	175	175	Cattle	4/25	7/1	2,386	2,449	2,386	2,386	2,386	2,386	M
							10/1	1/5							
North Creek	06416	99	99	0	99	Cattle	5/1	5/30	1,215	0	1,215	1,215	0	1,215	C
							12/1	1/15							
North East Creek	06156	81	81	81	81	Cattle	5/1	5/15	3,183	245	3,183	3,183	3,183	3,183	M

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
							11/1	12/16							
North Fork	06146	60	60	60	60	Cattle	6/1	11/14	1,259	1,531	1,259	1,259	1,259	1,259	C
North Fork Kannah Cr	06209	125	125	93	125	Cattle	5/20	6/19	2,022	338	2,022	2,022	678	2,022	I
							11/1	11/30							
Notch Spring	16121	271	271	271	271	Cattle	5/9	9/9	3,467	237	3,467	3,467	3,467	3,467	M
							11/1	11/9							
O. Hawkins	16826	46	46	46	46	Cattle	7/7	9/19	164	245	164	164	164	164	C
Paddock	06742	245	245	245	245	Cattle	5/15	10/13	1,723	717	1,723	1,723	1,723	1,723	M
Palisade Flats	16401	400	400	0	400	Cattle	10/21	2/28	8,962	383	8,962	8,962	0	8,962	I
Palisade Point	06145	91	91	91	91	Cattle	5/10	6/11	1,962	140	1,962	1,962	1,962	1,962	M
Parkes Place	06743	16	0	0	16	Cattle	5/16	6/15	106		106	0	0	106	C
							10/16	10/31							
Payne Wash	16132	26	26	26	26	Cattle	6/16	6/25	2,408	1,117	2,408	2,408	2,408	2,408	C
							11/16	12/5							
Pineridge	06151	93	93	93	93	Cattle	5/25	10/31	1,237	663	1,237	1,237	1,237	1,237	C
Plateau Creek	16810	14	0	0	14	Cattle	6/1	9/15	117	39	117	0	0	117	C
Prairie Canyon[6]	16616	318	318	318	318	Cattle	6/1	11/25	23,957	1,131	23,957	23,957	23,957	23,957	I
Red Mountain	16813	12	0	0	12	Cattle	5/1	10/31	428	199	428	0	0	428	C
Red Rock	06745	832	832	832	832	Cattle	4/25	6/25	12,421		12,421	12,421	12,421	12,421	I
							10/1	11/30							
Reservation	06133	154	154	64	154	Cattle	4/10	5/9	2,944	141	2,944	2,944	1,325	2,944	I
							12/18	2/22							
Roan Creek	06744	290	290	290	290	Cattle	6/7	11/1	9,275	3,315	9,275	9,275	9,275	9,275	I
Robbins	06846	61	61	0	61	Cattle	5/15	6/15	542	177	542	542	0	542	C
Round Knob	06152	342	342	0	342	Cattle	5/1	5/31	3,746	300	3,746	3,746	0	3,746	M
							1/1	1/31							
S.E. Spear	06739	320	320	0	320	Cattle	4/16	5/31	6,225	294	6,225	6,225	0	6,225	I
							11/1	12/15							
Salt Creek Comm.	16806	79	79	79	79	Cattle	5/15	6/15	2,372	522	2,372	2,372	2,372	2,372	M
Salt Wash	06430	55	55	0	55	Cattle	3/1	5/15	1,358		1,358	1,358	0	1,358	C
							12/1	2/28							
San Arroyo[3]	05845								13,510						
Sewemup[10]	N/A														
Sinbad Valley Comm.	06409	459	459	0	459	Cattle	3/1	5/15	10,099	2,369	10,099	10,099	0	10,099	I
							10/20	2/28							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
		93	93	0	93	Cattle	3/1	4/1							
							1/15	2/28							
Skinner	06128	107	107	107	107	Cattle	5/1	6/29	1,498	2,218	1,498	1,498	1,498	1,498	M
							11/1	11/13							
Snyder Flats	16129	415	415	415	415	Cattle	4/24	6/15	3,223	2,099	3,223	3,223	3,223	3,223	I
							9/17	11/1							
South of the Road	16105	66	66	66	66	Cattle	4/20	5/17	1,329	697	1,329	1,329	1,329	1,329	M
							11/15	11/30							
Spring Creek[6]	16115	381	381	255	381	Cattle	5/20	7/2	5,779		5,779	5,779	3,764	5,779	I
							8/15	10/1							
Stoner-Walker	06749	204	204	204	204	Cattle	5/6	6/15	5,763	1,969	5,763	5,763	5,763	5,763	I
							10/1	11/21							
Sunnyside Common	06801	121	121	0	121	Cattle	4/16	5/31	5,723	810	5,723	5,723	0	5,723	I
							12/22	1/27							
		103	103	0	103	Cattle	4/16	5/31							
							12/22	1/27							
		78	78	0	78	Cattle	5/1	5/31							
Swamp Hill	06412	220	220	0	220	Cattle	4/1	5/15	3,916	3	3,916	3,916	0	3,916	M
							12/1	1/15							
Tater Hills	06747	177	177	0	177	Cattle	5/10	6/9	1,654	386	1,654	1,654	0	1,654	I
Thompson	06148	54	54	54	54	Cattle	5/20	6/20	5,282	1,138	5,282	5,282	5,282	5,282	M
							10/20	11/21							
Timber Ridge	06137	222	222	222	222	Cattle	6/15	7/14	1,391	27	1,391	1,391	1,391	1,391	I
							11/15	1/22							
Tom Casto	06415	6	6	0	6	Cattle	3/1	4/30	79	49	79	79	0	79	C
Turner Gulch	06427	60	60	60	60	Cattle	4/25	7/10	1,188	277	1,188	1,188	1,188	1,188	C
							10/5	12/31							
Unaweep	06425	23	23	23	23	Cattle	3/1	5/31	404	534	404	404	404	404	C
							12/1	2/28							
Unaweep North Side	06417	60	60	60	60	Cattle	4/1	5/15	3,369	1,657	3,369	3,369	3,369	3,369	C
							10/1	10/31							
Unaweep South Side	06418	51	51	51	51	Cattle	4/1	5/31	1,092	2,636	1,092	1,092	1,092	1,092	C
							10/17	11/30							
Upper Brush Mtn.	06748	196	196	0	196	Cattle	6/10	10/10	741	2,467	741	741	0	741	M
						Horse	6/10	10/10							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
Ute Creek Comm.	06410	260	260	0	260	Cattle	4/26	5/26	6,944	97	6,944	6,944	0	6,944	M
							10/16	10/30							
Van Loan Individual	06194	25	25	25	25	Cattle	4/1	6/1	347	303	347	347	347	347	C
							10/1	1/1							
Webb Isolated Tracts	16815	17	0	0	17	Cattle	4/16	9/30	185		185	0	0	185	C
Webber	06750	12	0	0	12	Cattle	5/1	5/30	171		171	0	0	171	C
							11/1	11/30							
West Creek	06414	1	1	0	1	Cattle	3/1	3/31	131		131	131	0	131	C
West Logan Wash	06752	28	28	0	28	Cattle	5/25	5/30	427	38	427	427	0	427	M
West Salt Common	16603	8,099	8,099	6,599	8,099	Cattle	3/1	8/31	74,971	12,063	74,971	74,971	59,935	74,971	I
							9/1	2/28							
		159	159	159	159	Cattle	7/1	11/1							
West Spears	06753	470	470	235	470	Cattle	5/1	6/13	6,594	679	6,594	6,594	2,994	6,594	I
							11/1	12/15							
West Toms Canyon	06163	110	110	110	110	Cattle	5/1	5/31	3,481	6	3,481	3,481	3,481	3,481	I
							12/1	12/31							
White Mountain	16808	402	402	402	402	Cattle	4/16	6/15	3,111	167	3,111	3,111	3,111	3,111	I
							5/2	6/30							
Whitewater Common	16203	651	651	0	651	Cattle	4/20	5/20	22,499	10,351	22,499	22,499	0	22,499	I
							12/4	1/24							
		79	79	0	79	Cattle	4/20	6/15							
							9/15	12/16							
		1,692	1,692	0	1,692	Cattle	4/15	6/20							
							10/14	1/3							
Whitewater Hill	16205	75	0	0	75	Cattle	5/1	5/30	980	2,512	980	0	0	980	C
							12/1	12/30							
Wildhorse[10]	06799														
Wild Country	16809	177	177	89	177	Cattle	4/15	6/15	9,180	3,234	9,180	9,180	4,816	9,180	I
		351	351	175	351	Cattle	4/15	6/15							
		100	100	50	100	Cattle	4/15	6/15							
Winter Flats- Deer Pk	06713	575	575	0	575	Cattle	4/15	6/10	31,777	1,859	31,777	31,777	0	31,777	I
							11/15	1/28							
Wiretrap[11]	00017	16	16	16	16	Cattle	12/1	1/14	510		510	510	510	510	C
Woodring	26304	75	75	75	75	Cattle	5/5	6/1	1,110	1,013	1,110	1,110	1,110	1,110	M
							10/15	11/15							

Allotment Name	Allotment Number	Permitted AUMs[1] by Alternative				Type of Livestock	Begin Date	End Date	Public Acres	Private Acres	Public Acres Available[1] by Alternative				Management Category[2]
		A	B	C	D						A	B	C	D	
Woods	06124	120	120	120	120	Cattle	7/1	10/20	402	943	402	402	402	402	C
						Sheep	7/10	7/19							
Wright Draw	06405	138	138	0	138	Cattle	4/24	5/24	4,094	15	4,094	4,094	0	4,094	I
							10/16	12/31							
Total		61,270	60,633	32,658	61,270						978,600	961,100	586,600	977,200	

Light gray shading indicates allotment acres and AUMs available for livestock grazing varies by alternative.

Dark gray shading indicates allotment acres and AUMs available for livestock grazing varies by alternative and is currently unallotted.

[1] Portions of certain allotments are outside of the planning area, either within the BLM White River Field Office, McInnis Canyon NCA, the Dominguez-Escalante NCA or the BLM Moab Field Office of Utah. Where this occurs, the AUMs or acres for the allotment represents the AUMs and acres covered under this RMP.

[2] Maintain (M), Improve (I), or Custodial (C).

[3] Allotment is within the GJFO planning area but is managed and covered under the BLM, Moab Field Office RMP regarding grazing.

[4] Allotment is within the GJFO planning area but is managed and covered under the BLM, White River Field Office RMP regarding grazing.

[5] Combined with Collier Creek allotment.

[6] Involved in Interdistrict Agreement with Moab Field Office.

[7] East Salt allotment combined East Salt, Corral Canyon and Sphinx-Mitchell allotments.

[8] On Bureau of Reclamation land; not included in total.

[9] Mountain Island allotment is a consolidation of Brush Hole, Fish Park, Haystack, Little Dolores Canyon, Longshore Above Rims, Longshore Below Rims, Lost Horse, McKenzie, and Sieber Canyon allotments. Fish Park is part of Interdistrict Agreement with Moab Field office.

[10] The Little Book Cliffs Wild Horse Range (Wildhorse Allotment) and Sewemup are closed to livestock grazing.

[11] Formerly a pasture of Files allotment.

I

This page intentionally left blank.

Appendix K

Draft Recreation and Visitor Services Management Framework for Proposed Special and Extensive Recreation Management Areas

Draft
Recreation and Visitor Services Management Framework
For the Grand Junction Field Office

This page intentionally left blank.

TABLE OF CONTENTS

Section Page

TABLES

Page

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ACEC	area of critical environmental concern
BLM	United States Department of the Interior, Bureau of Land Management
BMP	best management practice
ERMA	extensive recreation management area
GJFO	Grand Junction Field Office
IRMA	intensive recreation management area
NEPA	National Environmental Policy Act of 1969
OHV	off-highway vehicle
R&VS	Recreation & Visitor Services
RMP	resource management plan
RMZ	recreation management zone
ROS	recreation opportunity setting
ROW	right-of-way
RSC	recreation setting characteristics
SRMA	special recreation management area
SRP	special recreation permit
VRM	Visual Resource Management
WSA	Wilderness Study Area

This page intentionally left blank.

INTRODUCTION

DESCRIPTION OF ALTERNATIVES

Alternative A

The 1987 Grand Junction Resource Management Plan (RMP) identified Intensive Recreation Management Areas (IRMAs) to identify, prescribe and maintain settings identified in the recreation opportunity setting (ROS). Since then guidance changed, and the Grand Junction Field Office (GJFO) further identified Special Recreation Management Areas (SRMAs) where Bureau of Land Management (BLM) lands were experiencing heavy recreation use or where BLM planned on making large investments in staff, funding, facilities, or time. Current management can be found in the 1987 Grand Junction RMP and subsequent amendments.

The 1987 Grand Junction RMP identified the Gateway (41,000 acres) and Grand Valley (176,000 acres) as IRMAs. Smaller more specific areas were identified within the Grand Valley IRMA and two SRMAs - Bangs Canyon and North Fruita Desert were created through RMP amendments.

Alternatives B, C, and D

This appendix outlines the management of areas proposed as SRMAs and Extensive Recreation Management Areas (ERMAs) in Alternatives B, C, and D. In contrast to Alternative A, the designation and management direction for these alternatives apply 2011 BLM Instruction Memorandum No. 2011-004 which clarified and refined land use planning guidance for Recreation and Visitor Services (R&VS). The guidance established three potential classifications for R&VS – SRMAs, ERMAs, and undesignated lands.

RMAs in Alternatives B, C, and D are defined as land units where R&VS objectives are recognized as a primary resource management consideration and specific management is required to protect the recreation opportunities. RMAs are classified as either SRMAs or ERMAs depending on the management focus.

The RMA designation is based on recreation demand and issues, recreation setting characteristics, resolving use/user conflicts, compatibility with other resource uses, and resource protection needs. Within the recreation program, lands not designated as an SRMA or an ERMA, are left undesignated. Recreation is not emphasized on these lands however management actions and allowable use decisions may still be necessary to address basic R&VS and resource stewardship needs.

KEY RECREATION PLANNING TERMS AND DEFINITIONS

Special Recreation Management Area (SRMA)

Definition. The SRMAs are administrative units where the existing or proposed recreation opportunities and recreation setting characteristics are recognized for their unique value, importance, and/or distinctiveness, especially as compared to other areas used for recreation.

Management Focus. The SRMAs are managed to protect and enhance a targeted set of activities, experiences, benefits, and desired recreation setting characteristics. The SRMAs may be subdivided into recreation management zones (RMZ) to further delineate specific recreation opportunities. Within SRMAs, R&VS management is recognized as the predominant land management focus, where specific recreation opportunities and recreation setting characteristics are managed and protected on a long-term basis.

Requirements. The SRMAs/RMZs must have measurable outcome-focused objectives. Supporting management actions and allowable use decisions are required to: 1) sustain or enhance recreation objectives, 2) protect the desired recreation setting characteristics, and 3) constrain uses, including non-compatible recreation activities that are detrimental to meeting recreation or other critical resource objectives (e.g. cultural or threatened and endangered species).

Supporting Information (Rationale for SRMA Designation)

Documentation of the rationale for consideration of the SRMA in the planning process and, if selected, designation of the SRMA in the record of decision.

SRMA/RMZ Outcome Objective

The outcome objective is a ***clear, measurable, and agreed-upon guide for decision making and evaluation of management effectiveness.*** SRMA/RMZ objectives must define the specific recreation opportunities (i.e. activities, experiences and benefits derived from those experiences) which become the focus of R&VS management.

Recreation Outcomes

Recreation outcomes consist of experiences and benefits and are defined as:

Experiences:
Recreation experiences are immediate states-of-mind resulting from participation in recreation opportunities that result in benefits.

Benefits:
Recreation benefits accrue from having a satisfying recreation experience that leads to (a) an improved condition or (b) maintenance of a desired condition. These accrue from recreation participation, are both short- and long-term, and are realized on and off site. Benefits are identified in one of four categories and are described as:

- Personal/Individual Benefits: Recreation and leisure contributes to personal well-being and human development. It contributes to better physical and mental health for all individuals.
- Social/Community Benefits: Recreation contributes to the quality of life within communities by encouraging positive lifestyles choices, building social skills, reducing crime, and fostering a sense of community pride.
- Economic Benefits: Investments in recreation represent an investment in our economies through diversifying our economies, by attracting new businesses and by generating employment opportunities.
- Environmental Benefits: Participation in recreation and outdoor education programs can help protect the quality of the environment through improved understanding and stewardship of our natural, cultural, and historic resources.

Proposed Recreation Setting Characteristics (RSCs)
Proposed (i.e., desired) Recreation Setting Characteristics (RSCs) are an expression of recreation setting conditions in the future that are expected to result if objectives are achieved and land use plan and implementation decisions are executed. Three recreation setting components are considered: a) the desired future recreational qualities of the landscape (physical), b) the qualities associated with use (social), and c) the conditions created by management (operational). These components influence the kinds of recreation activities that are emphasized and recreation outcomes realized. The BLM establishes these criteria in the land use plan to guide management action and allowable use decisions as well as the identification of site-specific use levels for activities during plan implementation (BLM H-1601-1, Page 13). These are initial allocations unless otherwise stated. Monitoring and evaluation may cause recreation managers to adjust the RSCs over the life of the plan to meet recreation objectives.

Extensive Recreation Management Area (ERMA)

Definition. The ERMAs are administrative units that require specific management consideration in order to address recreation use, demand, or R&VS program investments.

Management Focus. The ERMAs are managed to support and sustain the principal recreation activities and the associated qualities and conditions of the ERMA. Management of ERMAs is commensurate with the management of other resources and resource uses.

Requirements. The ERMAs must have measurable objectives. Supporting management actions and allowable use decisions must facilitate the visitors' ability to participate in outdoor recreation activities and protect the associated qualities and conditions. Non-compatible uses, including some recreation activities, may be restricted or constrained to achieve interdisciplinary objectives.

ERMA Objective

ERMA objectives must define the recreation activities and the associated qualities and conditions that become the focus for R&VS management.

Supporting Management Action and Allowable Use Decisions

Management actions and allowable use decisions are generally described as land use plan level decisions needed to achieve program objectives or constrain non-compatible land uses. Supporting management action and allowable use decisions are selected in terms of their ability to help achieve the recreation objectives (i.e., recreation opportunities), maintain or enhance the recreation settings, or guide recreation implementation.

Implementation-level Decisions Included in this RMP Revision.

Implementation decisions allow site-specific (on-the-ground) actions needed to achieve land use plan decisions (see Land Use Planning Handbook H-1601-1, p. 30-31). If implementation-level decisions are included in the land use planning document to achieve R&VS program objectives, they must be clearly distinguished as implementation decisions that are appealable to the Interior Board of Land Appeals.

Best Management Practices to Guide Implementation-level Management

Recreation management areas with complex implementation issues may require a subsequent implementation-level recreation area management plan tiered to land use plan decisions. Subsequent site-specific National Environmental Policy Act (NEPA) analysis would be required to implement some types of actions. Other actions that involve education, information, interpretation, and monitoring may not require site-specific NEPA analysis. The subsequent best management practices for implementation-level planning guidance is presented to illustrate opportunities for active stakeholder collaboration and to provide a suite of possible implementation-level actions that could be adaptively

performed to ensure management effectiveness in meeting recreation and visitor services goals and objectives.

Table 1, Summary of Existing and Proposed RMA Designations by Alternative, shows the types of designations in each area under each alternative.

Table 1
Summary of Existing and Proposed RMA Designations by Alternative

Area	Alternative A (*Existing*)	Alternative B	Alternative C	Alternative D
34 and C Road	Undesignated	ERMA	Undesignated	ERMA
Bangs**	SRMA	SRMA	SRMA	SRMA
Barrel Springs	Undesignated	ERMA	Undesignated	ERMA
Castle Rock	Undesignated	ERMA	Undesignated	SRMA
North Fruita Desert**	SRMA	SRMA	SRMA	SRMA
Dolores River Canyon*	IRMA	SRMA/ERMA	Undesignated	ERMA
Grand Valley **	IRMA	ERMA	Undesignated	SRMA
Grand Valley Ranges, *****	IRMA	ERMA	Undesignated	ERMA
Gunnison River Bluffs**	IRMA	ERMA	Undesignated	SRMA
Palisade Rims**	IRMA	ERMA	Undesignated	SRMA
South Shale Ridge	Undesignated	Undesignated	Undesignated	ERMA
Timber Ridge	Undesignated	Undesignated	Undesignated	ERMA

* In Alternative A, the area is all or in part within the Gateway IRMA
** In Alternative A, the area is all or in part within the Grand Valley IRMA
*** In Alternative B, the area is managed as a zone of the Grand Valley ERMA

This page intentionally left blank.

RECREATION – FIELD OFFICE WIDE

GOAL

Produce a diversity of quality recreational opportunities that support outdoor-oriented lifestyles and add to participants' quality of life, enhance the quality of local communities, and foster protection of natural and cultural resources.

OBJECTIVES

- To ensure the continued availability of outdoor recreation opportunities that the public seeks and that are not readily available from other public or private entities. (Alternative A)
- To protect resources, meet legal requirements for visitor health and safety, and mitigate resource user conflicts. (Alternative A)
- Increase awareness, understanding, and a sense of stewardship in recreational activity participants so their conduct safeguards cultural and natural resources as defined by Colorado Standards for Public Lands Health or area-specific (e.g. Areas of Critical Environmental Concern [ACEC], wild and scenic river, wildlife, etc.) objectives. (Alternatives B, C, and D)
- Ensure that visitors are not exposed to unhealthy or unsafe human-created conditions (defined by a repeat incident in the same year, of the same type, in the same location, due to the same cause). (Alternatives B, C, and D)
- Achieve a minimum level of conflict between recreation participants to: 1) allow other resources/programs to achieve their RMP objectives; 2) curb illegal trespass and property damage; and 3) maintain a diversity of recreation activity participation. (Alternatives B, C, and D)
- Increase collaboration with community partners to maintain appropriate activity-based recreation opportunities in community

growth areas (BLM lands adjacent to, between, and surrounding communities; also referred to as wildland urban interface areas). (Alternatives B, C, and D)

MANAGEMENT ACTIONS AND ALLOWABLE USES

The following recreation-related management actions and allowable uses are proposed in Chapter 2, Alternatives:

- Temporarily close off-highway vehicle (OHV) open areas and designated routes as needed during wind events to reduce particulate matter (e.g. during National Weather Service high wind warning). (Alternative B)
- Temporarily close designated routes as needed during wind events to reduce particulate matter (e.g. during National Weather Service high wind warning). (Alternative C)
- In designated open areas, monitor and identify thresholds for evaluating vulnerability to erosional processes and utilize best available science to limit erosion and sedimentation/salt loading to the Colorado River. (Alternatives B and D)
- Mitigate to reduce impacts to riparian areas:
  - Where feasible, consistent with user safety, locate/relocate developed travel routes away from riparian wetland areas;
  - Monitor recreational use on riparian areas. Where adverse impacts are determined to not meet PFC or land health standards for riparian habitats, modify recreation management to improve camping opportunities outside of riparian areas; require the use of designated camping sites only; install fencing, energy dissipation structures, and bank protection features as appropriate;
  - Where necessary, control recreational use by changing location or kind of activity, season, intensity, distribution and/or duration. (Alternatives B and C)
- Mitigate to reduce impacts on riparian areas;
  - Where feasible, consistent with user safety, locate/relocate developed travel routes from riparian wetland areas;
  - Avoid camping in riparian areas; and
  - Where necessary, control recreational use by changing location or kind of activity, season, intensity, distribution and/or duration. (Alternative D)
- Implement preventative measures for activities associated with oil and gas operations; rights-of-way (ROWs); special recreation permits (SRP); and construction and mechanical vegetation

treatment activities as authorized in contracts and permits. (All Alternatives)

- Caves and other structures utilized by bats may be closed to public access in the event of a White Nose Syndrome outbreak or other transmittable diseases that threaten bats. (Alternatives B, C, and D)
- Prohibit target shooting in the Coal Canyon and Main Canyon areas. (Alternatives B and C)
- In cooperation with the recreation program, manage Unaweep Canyon/West and East Creek as a Ute heritage area, rename the West and East Creek Day Use areas in consultation with the Ute Tribes. With local partners and Ute tribal members interpret Ute Cultural Heritage for the public at this location. (Alternatives B, C, and D)
- Consider applications in retention areas to meet community or organization needs under the Recreation and Public Purposes Act in accordance with resource objectives. (All Alternatives)
- Consider acquisition of lands that meet the following criteria:
  - Lands within or adjacent to SRMAs (Alternative B); and
  - Valuable recreation areas. (Alternative C)
- Close the Dolores River Riparian ACEC to recreational placer mining. (Alternatives B and C)
- Unless otherwise posted, implement a 14-day camping limit in areas open to camping and overnight use on BLM lands. A limit of less than 14 days may be applied in certain areas if applicable due to resource and social impacts. (All alternatives)
- Allow undeveloped camping where not specifically restricted. Undeveloped camping may be closed seasonally or as impacts or environmental conditions warrant. (Alternatives B, C, and D)

Geocaching and similar activities require BLM authorization prior to placement and may be prohibited in specific areas of the field office.

The discharge of firearms for recreational target shooting is permitted on BLM lands, outside of areas with firearm use restrictions, provided that the firearm is discharged toward a proper backstop sufficient to stop the projectile's forward progress beyond the intended target. Targets would be constructed of wood, cardboard and paper or similar non-breakable materials. All targets, clays and shells are considered litter after use and must be removed and properly discarded. (Alternatives B, C, and D)

Prohibit the discharge of firearms for recreational target shooting on the following BLM lands for visitor safety:

- Bangs Canyon SRMA: Little Park Road Corridor (Alternatives A and D)
- Bangs SRMA (Alternatives B and C)
- North Fruita Desert SRMA: RMZ 1 (certain areas) and open area (Alternatives B, C, and D)
- Gunnison River Bluffs (Alternative D)
- Open areas (Alternatives A, B, and a portion under Alternative D)
- North Fruita Desert SMA Bike emphasis area (Alternatives A and D)
- Coal Canyon and Main Canyon (Alternatives B and C)
- Developed recreation sites (Alternatives B and C)
- Urban interface areas around 34 and C Road (Alternatives B and C)
- Mount Garfield ACEC (Alternatives A, B, and C)
- Pyramid Rock ACEC (Alternatives A, B, and C)
- Palisade Rims ERMA (Alternative B)

Close the following areas to competitive events:

- Atwell Gulch ACEC (Alternatives B and C)
- Badger Wash ACEC (Alternatives B and C)
- Pyramid Rock ACEC (Alternatives B, C, and D)
- South Shale Ridge ACEC (Alternatives B and C)
- The Palisade ACEC (Alternatives B and C)
- Nine Mile Hill Boulder ACEC (Alternative C)
- Unaweep Seep ACEC (Alternatives B and C)
- Maverick Canyon Lands with Wilderness Character (Alternatives B and C)
- Unaweep Canyon Lands with Wilderness Character (Alternatives B and C)
- West Creek Lands with Wilderness Character (Alternatives B and C)
- Bangs Canyon Lands with Wilderness Character (Alternative C)
- East Demaree Canyon Lands with Wilderness Character (Alternative C)

- Hunter Canyon Lands with Wilderness Character (Alternative C)
- Kings Canyon Lands with Wilderness Character (Alternative C)
- South Shale Ridge Lands with Wilderness Character (Alternative C)

Close the following areas to camping and overnight use (i.e., 11pm to 5am):

- Pyramid Rock ACEC (Alternatives B, C, and D)
- Target shooting areas (Alternatives B and D)
- Unaweep Seep ACEC (Alternatives B, C, and D)
- Within 100 meters of national register historic sites (e.g. Calamity Camp) (Alternatives B, C, and D)
- 34 and C Road SRMA (Alternatives B and C)
- Bangs (certain areas) (Alternatives B, C, and D)
- Palisade Rims ERMA (Alternative B)

Close the following SRMAs to fluid mineral leasing:

- Bangs (Alternatives B and C)
- Dolores River Canyon (Alternative B)
- Gunnison River Bluffs (Alternative B)
- North Fruita Desert RMZ 1 (Alternative C)

Prohibit surface occupancy and surface-disturbing activities in the following areas for the protection of the recreation activities, outcomes, and setting characters:

- Bangs SRMA (Alternatives B, C, and D)
- North Fruita Desert RMZ 1 SRMA (Alternatives B, C, and D)
- Dolores River Canyon SRMA (Alternative B)
- Gunnison River Bluffs SRMA (Alternative D)
- Palisade Rims SRMA (Alternative D)

BEST MANAGEMENT PRACTICES COMMON TO ALL SRMAS

The following BMPs would be applied to all SRMAs. Additional BMPs may be applied for individual SRMAs as listed in the introduction to that SRMA and in the SRMA worksheet.

1. Management
    a. With stakeholder involvement, apply adaptive management (e.g., Limits of Acceptable Change) which focuses on a cycle of designing-

implementing-monitoring-evaluating-adjusting implementation actions to respond to future recreation issues and the results of monitoring.

b. Develop new recreation facilities (e.g., trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if:

   i. The proposal is consistent with interdisciplinary land use plan objectives; and

   ii. Sufficient funding and long-term management commitments are secured from managing partners.

c. Reroute trails that create resource damage and/or trespass on private property.

d. Construction of new recreation roads and trails will be consistent with the Criteria for Placement of Trails (see Appendix L, Travel Management Plan)

2. Administration

   a. All SRPs would be evaluated using Permit Evaluation Factors and Permit Classification System (See Appendix K, Special Recreation Permits)

   b. Designate BLM routes to create consistency with adjacent federal land management agencies.

   c. As provided by the guidelines in the Federal Lands and Recreation Enhancement Act (FLREA PL 108-447), implement recreation fees as appropriate to maintain visitor services and facilities through management of sites or areas as a United States Fee Area.

3. Information and Environmental Education

   a. Create a comprehensive interpretation or communications plan for each SRMA that helps to implement the goals, objectives and management decisions established within this framework.

   b. Provide a basic, simple SRMA brochure/map including information on: targeted outcomes; RSCs, visitor use ethics; area stewardship and resource protection with the goal of helping to preserve the recreation opportunities and the special landscape character of this place.

4. Monitoring

   a. Close cultural resource areas and/or historic structures to camping and overnight use if there is a public health and safety issue or resource concern.

      i. Either close areas to camping and overnight use or designate sites if social or physical monitoring indicators or resource objectives are not being met.

b. Monitor outcome attainment and preferences through customer assessments (e.g. focus group interviews of visitor studies) on five year intervals or as funding allows. Monitor activity participation and RSCs annually during the primarily use season of mid-April through October.

c. If future monitoring indicates that social RSCs are not being achieved, resource damage is occurring or user conflicts need to be addressed, the GJFO may create an allocation system or apply group size limits for private and commercial recreation use.

This page intentionally left blank.

BANGS SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

This section describes the unique value, importance and distinctiveness of Bangs SRMA. Bangs SRMA has three recreation management zones in each alternative that vary in size and number by alternative. In all, Bangs encompasses world class singletrack mountain biking trails and excellent opportunities for Jeeping, hiking, and OHV riding. This SRMA includes the Tabeguache (Lunch Loops), Little Park, Bangs, Billings, and Ribbon Trailheads. The area has scenic views of the Colorado National Monument, Grand Valley, Grand Mesa, and Bookcliffs. The area is in close proximity to the population center of the Grand Valley, which makes it an important community resource for local recreation as well as tourism. Portions of the SRMA are managed in partnership with the City of Grand Junction, with shared responsibility for access and facilities.

GOAL SRMA WIDE

Bangs SRMA, through recreation program management and stakeholder involvement, will produce a diversity of quality recreational opportunities that will continue to add to area residents' quality of life, contribute to the local economy and provide stewardship and protection of natural and cultural resources.

OBJECTIVE SRMA WIDE

The objective is that participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where 1 = not at all realized to 5 = totally realized). Visitor assessments would be administered within five years of the completion of the implementation plan and/or as funding allows.

This page intentionally left blank.

Table 2
Bangs SRMA/Recreation Management Zone (RMZ) 1

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)		Management objectives that are currently defined are SRMA wide, not specific to a zone.	Through the life of this plan, manage RMZ 1 targeting a local/regional market, providing non-motorized trail opportunities for mixed use accommodating a range of skill levels (beginner, intermediate and advanced). Manage this area to provide the defined RSCs. Encourage community based recreation that can be marketed as an urban interface recreation asset to the Grand Valley.		Through the life of this plan, manage RMZ 1 to be a tourism-based, urban interface area, providing intermediate to expert level mountain biking and free-riding opportunities that can be marketed by stakeholders and partners as a destination recreation area. The focus of the area would be mountain biking, with potential use restrictions on other allowed uses (walking and trail running) to accommodate specific objectives for tourism based mountain biking.
Activities		Mountain biking Hiking	The focused activities for RMZ 1 include hiking/walking/dog walking, running, and mountain biking.		The focused activity for RMZ 1 is mountain biking.
Experiences		No similar objective.	Visitors are generally local and experience or seek to experience frequent access to outdoor physical activity for fitness and stress reduction, often in groups of friends and family and develop endurance and outdoor skills and abilities through recreation in this zone.		Visitors are generally local or from the surrounding region, with seasonal spikes in tourism related use. Visitors experience or seek to experience physical exercise, risk, and adventure that test their skills and equipment often in groups of friends or associates.
Benefits		No similar objective.	Visitors generally realize personal benefits of easy access to the outdoors; improved fitness and health maintenance (physical and mental) and develop stronger social bonds with friends and family. As a result, the community benefits by having a higher level of stewardship; stronger relationships and a healthier populous. Economically the area is strengthened through recreation related revenue; desirable place to live and higher property values.		Visitors generally realize personal benefits of a greater sense of adventure that tests their endurance and equipment while building stronger ties with friends and an improved capacity to engage in mountain biking in steep, rugged terrain. As a result, economic benefits of increased local tourism and tax revenue are realized.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness* *Naturalness* *Facilities*	This is a non-motorized, urban interface zone (front-country to rural) that is bound by county and city roads. The character of the landscape is largely natural in appearance (middle-country), with some viewsheds that include roads, trails and houses. Due to the topography and area scenery, the natural landscape is mostly retained despite the density of trails and proximity to the City of Grand Junction. The recreation facilities at trailheads are fairly simple and basic with vault toilets and kiosks (front country to rural). The trails are designed, maintained, and signed throughout the unit.			
Social	*Contacts* *Group Size* *Evidence of Use*	Participants would encounter a season average of up to 7 encounters per day (middle country) of small groups (back country); sounds of other people occasionally heard depending on location in the zone and proximity to trailheads (middle country).			Participants would encounter a season average of up to 15 encounters per day (front country) with occasional large groups of cyclists (front country). Sounds of others would be heard (rural).
Operational	*Access* *Visitor Services* *Management Controls*		Non-motorized single track trails and use are predominant with easy access from several trailheads in close proximity to the Grand Valley (rural). Simple brochures, kiosks at trailheads with rules and regulations, directional signage at all route intersections (front country). BLM on-site presence is low away from trailheads (middle country to front country).		
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class		Manage under VRM Class II and III objectives.	Manage under VRM Class II objectives.		
Fluid Minerals		Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.	Close to fluid mineral leasing and geophysical exploration.		Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.
Mineral Materials		Allow disposal of mineral material (salable minerals).	Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales with the exception of the community Bentonite Pit on Little Park Road.		
Nonenergy Solid Leasable Minerals		No similar action.	Close to non-energy leasable mineral exploration and/or development.		Open to non-energy leasable mineral exploration and/or development.
ROW		Designate as a mixture of ROW avoidance and ROW exclusion.	Designate as a ROW avoidance area with the exception of a 75-meter corridor following Little Park and Monument Roads.	Designate as a ROW avoidance area with the exception of a 50-meter corridor following Little Park and Monument Roads.	Designate as a ROW avoidance area with the exception of a 100-meter corridor following Little Park and Monument Roads.
Facility Development		No similar action.	Develop additional recreation facilities (e.g. trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if: 1) the proposal is consistent with SRMA objectives and 2) sufficient funding and long-term management commitments are secured from managing partners (IA).		
Camping Restrictions		Close to camping and overnight use outside of designated campgrounds.			
SRPs		No similar action.	Issue Class I, II and III Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class IV Commercial and Competitive SRPs.	Issue Class I and II Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class III and IV Commercial and Competitive SRPs.	Same as Alternative B.
CTTM		Close to motorized travel and limit all other modes of travel to designated routes.			
Forestry		Open to timber harvest, fire wood cutting, and special forest product harvest.	Close to timber harvest, fire wood cutting and special forest product harvest.		Allow harvest of forest and woodland products if the RMZ is determined suitable for harvest.

Table 2
Bangs SRMA/Recreation Management Zone (RMZ) 1

	Alternative A	Alternative B	Alternative C	Alternative D
Lands and Realty	No similar action.	Pursue opportunities with landowners, either through purchase or exchange, for acquisition of private properties necessary for public access and recreational use.		
Firearm Use Restrictions	Prohibit the discharge of firearms for recreational target shooting along Little Park Road.	Prohibit the discharge of firearms for recreational target shooting.		Same as Alternative A.
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management	No similar action.	Construct new system trails to accommodate activity specific trails (i.e., limited to hiking).	Maintain the existing trail system and construct new trails only connect to new access points.	Construct new system routes to accommodate free-riding and intermediate to advanced mountain biking.
		Connect/reroute routes to make loop opportunities as necessary. Reroute/repair unsustainable and eroding routes.		
		Close to motorized travel and limit mechanized travel to designated routes. Limit all modes of travel (including foot and horse) to designated routes in the Lunch Loop Trail system (north of Andy's Loop and Little Park Road).		
		Separate uses if necessary through trail designations or timing limitations (e.g., different uses on different days).		Designate directional travel on system trails.
SRPs	No similar action.	Develop and implement an allocation system for SRPs.		Through partners and stakeholders encourage and promote mountain bike-specific permitted events.
BEST MANAGEMENT PRACTICES (BMPs)				
Management	No similar BMPs.	Work with stakeholders to create additional access.		
		Work with stakeholders to acquire adjacent lands to be managed consistently with RMZ and increase recreational opportunities.		
		Work with partners (e.g., City of Grand Junction and Mesa County) to develop connectivity to the urban trails for safe access public lands, provide for alternative transportation options and improved recreational opportunities.		
		Focus trail design, construction and maintenance to create mixed use trails, adapted to a variety of skill levels that reduces conflict among user groups with an emphasis on a community-based market.		Focus trail design and construction on downhill and advanced mountain biking trail based recreation, to promote the area's tourism draw.
Administration	No similar BMPs.	Administer the RMZ cooperatively through a partnership agreement (example memorandum of understanding) between the City of Grand Junction and BLM GJFO that outlines administrative roles and responsibilities.		
Information and Education	No similar BMPs.	Work with local tourism groups, local businesses and the City of Grand Junction to tailor information and maps to the needs and wants of local customers. Provide information at local outlets and on-site locations only.		Work with regional tourism groups, regional business and the communities with communities within the Grand Valley regarding tourism in an effort to promote mountain biking opportunities as an international destination.

Table 3
Bangs SRMA/Recreation Management Zone (RMZ) 2

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		No similar objective.	Through the life of this plan, manage RMZ 2 targeting a local/regional market, providing predominantly motorized trail opportunities, accommodating a range of skill levels (beginner, intermediate and advanced) for varying distances. Manage this area to provide the defined RSCs. Encourage community based recreation that can be marketed as an urban interface recreation asset to the Grand Valley.		Through the life of this plan, manage RMZ 2 to be a tourism-based recreation area providing opportunities that can be marketed by stakeholders and partners as a destination recreation area. The focus of the area would be motorized, with potential use restrictions on other allowed uses (mountain biking) to accommodate specific objectives for tourism based off highway vehicle use.
Activities		No similar objective.	The focused activities for RMZ 2 include rock crawling, all-terrain vehicle use and motorcycle riding.		
Experiences		No similar objective.	Visitors are generally local and experience or seek to experience easy access to natural landscapes and exploring while testing their equipment, often in groups of friends and family.		Visitors are generally local or from the surrounding region, with seasonal spikes in tourism related use. Visitors experience or seek to experience risk taking adventure while testing their skills and equipment.
Benefits		No similar objective.	Visitors generally realize personal benefits of having easy access to recreation; improved skills and stronger ties with family and friends. With greater community involvement in recreation, stronger family bonds are created and a greater community ownership and stewardship for natural places is realized.		Visitors generally realize personal benefits of greater self-reliance; improved skills and stronger ties with family and friends. With greater community involvement in recreation, stronger family bonds are created and a greater community ownership and stewardship for natural places is realized. Economic benefits of increased tourism and tax revenue are realized.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness Naturalness Facilities*	This area is largely remote in character with single-track, ATV, and jeep trails that offer motorized recreation opportunities bound by county and city roads (front country to rural). The character of the landscape is largely natural in appearance, with some viewsheds that include roads, trails and houses. Due to the topography, vegetative screening and area scenery, the natural landscape is retained despite the proximity to the City of Grand Junction (back country to front country). The recreation facilities at trailheads are fairly simple and basic, consisting of vault toilets, bathrooms, and kiosks. The trails are designed, maintained and signed throughout the unit (middle country to front country).			
Social	*Contacts Group Size Evidence of Use*	The qualities of this area associated with use are limited to small to medium social groups of 3-6 people (back country) and fairly rare or fewer than 6 encounters on designated routes (primitive to back country). The area is limited to designated routes for mechanized and motorized uses, which is the majority of the use. Hikers and equestrians that travel cross-country would likely not encounter other visitors away from access points (trailheads). Evidence of others is relatively low with sounds of other visitors can occasionally be heard (middle country).			
Operational	*Access Visitor Services Management Controls*	This is a motorized zone with designed trails specific to mountain bikes, motorcycles, ATVs and jeeps (middle country). Simple visitor services are available like area brochures, kiosks with maps on site, and directional signage is installed on routes (backcountry to front country). Rules, regulations, and ethics clearly posted at trailheads. BLM on-site presence is low away from trailheads (backcountry to front country).			
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class		Manage under VRM Class II and III objectives.	Manage under VRM Class II objectives.		
Fluid Minerals		Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.	Close to fluid mineral leasing and geophysical exploration.		Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.
Mineral Materials		Allow disposal of mineral material (salable minerals).	Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales.		
Nonenergy Solid Leasable Minerals		No similar action.	Close to non-energy leasable mineral exploration and/or development.		Open to non-energy leasable mineral exploration and/or development.
ROW		Designate as a mixture of ROW avoidance and ROW exclusion.	Designate as a ROW avoidance area with the exception of a 75-meter corridor following Little Park Road.	Designate as a ROW avoidance area with the exception of a 50-meter corridor following Little Park Road.	Designate as a ROW avoidance area with the exception of a 100-meter corridor following Little Park Road.
Facility Development		No similar action.	Develop additional recreation facilities (e.g. trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if: 1) the proposal is consistent with SRMA objectives and 2) sufficient funding and long-term management commitments are secured from managing partners.		
Camping Restrictions		Allow camping in designated sites north of Rough Canyon. Allow undeveloped camping in the rest of the RMZ.			

Table 3
Bangs SRMA/Recreation Management Zone (RMZ) 2

	Alternative A	Alternative B	Alternative C	Alternative D
SRPs	No similar action.	Develop and implement an allocation system for SRPs that considers the following for events and other permitted activities: timing, locations, frequency, sizes and types.		Develop and implement an allocation system for SRPs that considers the following for events and other permitted activities: timing, locations, frequency, sizes and types.
				Issue Class I, II, III, and IV Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K).
CTTM	Limit motorized and mechanized travel to designated routes and allow cross-country travel for all other modes.			
Forestry	No similar action.	Allow harvest of forest and woodland products if the RMZ is determined suitable for harvest.	Close to timber harvest, fire wood cutting and special forest product harvest.	Same as Alternative B.
Lands and Realty	No similar action.	Private property parcels within this unit should be sought for acquisition.		
Firearm Use Restrictions	No similar action.	Prohibit the discharge of firearms for recreational target shooting.		No similar action.
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management	No similar action.	Work with stakeholders to design and construct new system trails to create additional motorized opportunities.	Maintain the existing trail system and construct new trails only connect to new access points.	Same as Alternative B.
		Create new access points and trailheads to accommodate additional use.	Maintain the existing access and close/rehab additional access points that are user created.	Same as Alternative B.
		Connect/reroute routes to make loop opportunities as necessary. Reroute/repair unsustainable and eroding routes.		
Facility Development	No similar action.			Consider development of a managed campground.
BEST MANAGEMENT PRACTICES				
Management	No similar BMPs.	Work with stakeholders to create additional access to the RMZ.		
	No similar BMPs.	Focus trail design, construction and maintenance to create a mixed use, adapted to a variety of skill levels that reduces conflict among user groups with an emphasis on a community-based market.		Focus trail design and construction on attracting regional and national visitors (jeep trails and long-distance technical motorcycle routes)
Information and Education	No similar BMPs.	Work with local tourism groups, local businesses and the City of Grand Junction to tailor information and maps to the needs and wants of local customers. Provide information at local outlets and on-site locations only.		Work with regional tourism groups, regional business and the communities with the Grand Valley regarding tourism in an effort to promote motorized opportunities as a destination.
Monitoring	No similar BMPs.	Motorized routes through canyons (e.g., Billings Canyon) would be monitored annually in cooperation with user groups.		

Table 4
Bangs SRMA/Recreation Management Zone (RMZ) 3

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		No similar action.	Through the life of this plan, manage RMZ 3 targeting a local/regional market, providing non-motorized primitive hiking and educational outdoor classroom opportunities consistent with ACEC management objectives to enhance the protection of those identified resources.		
Activities		No similar action.	The focused activities for RMZ 3 include hiking/walking and experiential learning.		
Experiences		No similar action.	Visitors are generally local and experience or seek to experience the enjoyment of the area's wildlife, scenery, views and aesthetics while learning more about the history, culture and geology of the area.		
Benefits		No similar action.	Visitors generally realize personal benefits of a closer relationship with the natural world which leads to an increased awareness and protection of natural landscapes and cultural resources on a community wide basis.		
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness Naturalness Facilities*	This is largely a non-motorized zone (back country to middle country). The character of the landscape is natural in appearance with few modifications that detract from naturalness. Due to the topography, vegetative screening and area scenery, the natural landscape is mostly retained (back country to middle country). The recreation facilities at trailheads are fairly simple and basic with vault toilets and kiosks. The trails are designed and mostly maintained throughout the unit. Interpretive and educational displays at specific locations can be expected (middle country to front country).			
Social	*Contacts Group Size Evidence of Use*	On developed trails (Mica mine trail), participants would likely encounter multiple groups per day with a fairly high potential of seeing large groups like school groups and scouts (front country); throughout the rest of the unit encounters with small groups would be infrequent (primitive to middle country); on developed trails the sounds of other people would be frequently heard (front country); in the rest of the unit, depending on location in the zone and proximity to trailheads, the sounds of other people would be infrequent (back country).			
Operational	*Access Visitor Services Management Controls*	Non-motorized single track trails and use are predominant with easy access from the Bangs trailhead in close proximity to the Grand Valley (primitive to back country). Simple brochures, educational/interpretational signage at key locations, kiosks at trailheads with rules and regulations, directional signage at all route intersections (middle to front country). BLM on-site presence is low away from the developed trails and trailheads (middle to front country).			
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class		Manage under VRM Class II objectives.			
Fluid Minerals		Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.	Close to fluid mineral leasing and geophysical exploration.	Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.	
Mineral Materials		Allow disposal of mineral material (salable minerals).	Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) disposal.		
Nonenergy Solid Leasable Minerals		No similar action.	Close to non-energy leasable mineral exploration and/or development.	Open to non-energy leasable mineral exploration and/or development.	
ROW		Designate as a ROW exclusion and avoidance area.	Designate as a ROW avoidance area.		
Facility Development		Develop additional recreation facilities (e.g. trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if: 1) the proposal is consistent with SRMA objectives and 2) sufficient funding and long-term management commitments are secured from managing partners.			
Camping Restrictions		Close to camping and overnight use outside of designated campgrounds/campsites.			
SRPs		No similar action.	Issue Class I and II Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class III and IV Commercial and Competitive SRPs.	Issue Class I Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class II, III and IV Commercial and Competitive SRPs.	Same as Alternative B.
Comprehensive Trails and Travel Management		Close to motorized vehicle use, (except for the Tabeguache Trail) and limit all other modes of travel to designated routes.			
Forestry		Open to timber harvest, fire wood cutting and special forest product harvest.	Close to timber harvest, fire wood cutting and special forest product harvest.		Allow harvest of forest and woodland products if the RMZ is determined suitable for harvest.
Firearm Use Restrictions		No similar action.	Prohibit the discharge of firearms for recreational target shooting.		No similar action.
IMPLEMENTATION ACTIONS					
Comprehensive Trails and Travel Management		No similar action.	Construct new activity-specific system trails (i.e., limited to hiking, etc.).	Maintain the existing trail system and construct new trails only connect to new access points.	Same as Alternative B.
SRPs		No similar action.	Encourage SRPs for school and other organized groups consistent with RMZ objectives.		
BEST MANAGEMENT PRACTICES					
Management		No similar BMPs.	Work with cooperators, partners and local schools to provide curriculum based, educational opportunities in this zone consistent with the management objectives of the RMZ and ACEC.		
Information and Education		No similar BMPs.	Interpretation and environmental education plan would be developed to further the outdoor classroom opportunities in cooperation with local schools and visitors to the area.		
Monitoring		No similar BMPs.	Social and physical recreation monitoring should be consistent with the ACEC designation, goals, objectives and resource protection measures.		

This page intentionally left blank.

NORTH FRUITA DESERT SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

This section describes the unique value, importance, and distinctiveness of North Fruita Desert SRMA. The SRMA has two recreation management zones that vary in size and quantity by alternative. In all, North Fruita Desert encompasses unique opportunities for singletrack mountain biking and motorized recreation. The area is in close proximity to the City of Fruita, which makes it an important community resource for local recreation as well as tourism.

GOAL SRMA WIDE

North Fruita Desert SRMA, through recreation program management and stakeholder involvement, will produce a diversity of quality recreational opportunities that adds to area residents' quality of life while contributing to the local economy and foster protection of natural and cultural resources.

OBJECTIVE SRMA WIDE

The objective is that participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1 = Not at all realized to 5 = totally realized). Visitor assessments would be administered within five years of the completion of the implementation plan and/or as funding allows.

BEST MANAGEMENT PRACTICES SRMA WIDE

1. Management
    a. Reroute trails that create resource damage and/or trespass on private property.
    b. Construction of new recreation roads and trails will be consistent with the Criteria for Placement of Trails (Appendix L).

This page intentionally left blank.

Table 5
North Fruita Desert SRMA/Recreation Management Zone (RMZ) 1

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)		No similar objective.	Through the life of this plan, manage RMZ 1 to be a tourism-based recreation area, providing single track trail opportunities accommodating a range of skill levels (beginner, intermediate and advanced) that can be marketed by stakeholders and partners as a family focused destination with close proximity to camping. The focus of the area would be mountain biking and motorized trail riding, with potential use restrictions on other allowed uses (e.g., walking and trail running) and programs (e.g., livestock grazing) to accommodate specific objectives for tourism based trail riding.	Through the life of this plan, manage RMZ 1 targeting a local and regional market for family groups, providing single track trail opportunities, accommodating largely beginner and intermediate riders. Manage this area to provide the defined RSCs. The focus of the area would be mountain biking and motorized trail riding, with potential use restrictions on other allowed uses (e.g., walking and trail running) and programs (e.g., livestock grazing) to accommodate specific objectives for community based trail riding.	Same as Alternative B.
Activities		No similar objective.	The focused activity for RMZ 1 is mountain biking, motorcycle trail riding, and camping.		
Experiences		No similar objective.	Visitors are generally not local and experience or seek to experience the closeness of family while developing their skills and abilities.	Visitors are generally not local and experience or seek to experience the closeness of family while developing their skills and abilities.	Same as Alternative B.
Benefits		No similar objective.	Visitors generally realize personal benefits of improved skills for enjoying the outdoors and develop stronger bonds with friends and family. As a result, the community benefits economically by having increased tax and tourism revenue.	Visitors generally realize personal benefits of improved skills for enjoying the outdoors and develop stronger bonds with friends and family. As a result, the community benefits by having a healthier populous and economically by creating a more desirable place to live.	Same as Alternative B.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness Naturalness Facilities*	This is a motorized and mechanized zone that is crisscrossed by county and BLM roads and trails (front country to rural). The character of the landscape is natural in appearance, varied in topography, with viewsheds that include roads, trails and houses (front country to rural). The recreation facilities at trailheads are fairly simple and basic with vault toilets and kiosks. The trails are designed, maintained and signed throughout the unit (middle country to front country).			
Social	*Contacts Group Size Evidence of Use*	The qualities of this area associated with use are limited to small to medium of 4-6 people (back country) in social groups and fairly frequent, fewer than 14 encounters (middle country) on designated routes. The area is limited to designated routes for mechanized and motorized uses, which is the majority of the uses. Sounds of others can occasionally be heard (front country).			
Operational	*Access Visitor Services Management Controls*	This zone offers both motorized and mechanized trails designed specifically for mountain bikes and motorcycles (back country to middle country). Simple visitor services are available like area brochures, kiosks with maps, directional signage is installed on routes. Rules, regulations and ethics clearly posted at trailheads (middle country). The BLM on-site presence is low away from trailheads (middle country).			
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class		No similar action.	Manage under VRM Class II objectives.		
Oil, Gas and Geothermal		Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.		Close to fluid mineral leasing and geophysical exploration.	Same as Alternative A.
Mineral Materials		Allow disposal of mineral material (salable minerals).	Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales.		
Nonenergy Solid Leasable Minerals		No similar action.	Close the RMZ to non-energy leasable mineral exploration and/or development.		Open to non-energy leasable mineral exploration and/or development.
ROW		Designate as suitable for consideration for public utilities.	Designate as a ROW exclusion area (with the exception to recreation projects requiring electric or water).		Designate as a ROW avoidance area.
Facility Development		No similar action.	Develop additional recreation facilities (e.g. trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if: 1) the proposal is consistent with SRMA objectives and 2) sufficient funding and long-term management commitments are secured from managing partners.		
Camping Restrictions		Within the bicycle emphasis area, limit camping to designated sites within the developed campground. Outside the bicycle emphasis area campers are required to have and use a portable toilet system and firepan.	To reduce resource impacts and conflict, limit camping to designated campgrounds and campsites that would be identified and managed. Designated sites would have limitations on number of vehicles and people. Use of designated undeveloped sites would include use of portable toilet system and firepan.		Limit camping throughout this zone to reduce resource impacts and conflict. Overnight camping would be limited to designated campgrounds and campsites that would be identified and managed. Use of designated undeveloped sites would include use of portable toilet system and firepan.

Table 5
North Fruita Desert SRMA/Recreation Management Zone (RMZ) 1

	Alternative A	Alternative B	Alternative C	Alternative D
SRPs	No similar action.	Develop and implement an allocation system for SRPs that considers the following for events and other permitted activities: timing, locations, frequency, sizes and types.		Develop and implement an allocation system for SRPs that considers the following for events and other permitted activities: timing, locations, frequency, sizes and types. Through partners and stakeholders encourage and promote mountain bike-specific permitted events.
CTTM	Limit motorized and mechanized travel to designated routes. Allow cross-country foot and horse travel.		Limit all modes of travel to designated routes.	Same as Alternative A.
Forestry	No similar action.	Allow harvest of forest and woodland products if the RMZ is determined suitable for harvest.	Close to timber harvest, fire wood cutting and special forest product harvest.	Allow harvest of forest and woodland products if the RMZ is determined suitable for harvest.
Firearm Use Restrictions	No shooting in the bike emphasis area.	Designate no shooting areas for visitor safety.	Prohibit the discharge of firearms for recreational target shooting.	Same as Alternative A.
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management	No similar action.	Work closely with stakeholders to design and build new trails to achieve RMZ objectives of destination recreation opportunities to promote the area for regional, nation and international tourism.	Work closely with stakeholders to design and build new trails to achieve community based recreation related objectives.	Same as Alternative B.
BEST MANAGEMENT PRACTICES				
Management	No similar BMPs.	Implement a 7-day camping limit.	Implement a 3-day camping limit.	Manage camping limitations consistent with BLM-wide policy (e.g., a 14-day limit).
Information and Education	No similar BMPs.	Work with local, regional national and international chambers of commerce, tourism groups, and businesses to provide accurate recreation information, user ethics, and use/user expectations with an emphasis on promotional marketing.	Work with local chambers of commerce, tourism groups, and businesses to provide accurate recreation information, user ethics, and use/user expectations as opposed to promotional marketing.	Same as Alternative B.
Monitoring	No similar BMPs.	Monitor outcome attainment and preferences through customer assessments (e.g. focus group interviews of visitor studies) on five year intervals or as funding allows. Monitor activity participation and RSCs annually during the primary use season of mid-April through October.		
		If future monitoring indicates that social RSCs are not being achieved, resource damage is occurring or user conflicts need to be addressed, the GJFO may create an allocation system or apply group size limits for private and commercial recreation use.		

Table 6
North Fruita Desert SRMA/Recreation Management Zone (RMZ) 2

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus: (Objectives)		No similar objective.	Through the life of this plan, manage RMZ 2 targeting a local/regional market, providing predominantly motorized trail opportunities, accommodating a range of skill levels for varying distances. Manage this area to provide the defined recreation setting characteristics (RSCs). Encourage community based recreation that can be marketed as a recreation asset to the Grand Valley. Manage Hunter Canyon consistent with resource objectives (Alternative B only).		Through the life of this plan, manage RMZ 2 targeting a regional/national market, providing predominantly motorized trail opportunities, accommodating a range of skill levels for varying distances. Manage this area to provide the defined recreation setting characteristics (RSCs). Encourage community based recreation that can be marketed as a recreation asset to the Grand Valley. Manage Hunter Canyon consistent with resource objectives.
Activities		No similar objective.	The focused activities for RMZ 2 include trail based off-highway vehicle use and cross country off-highway vehicle use in the 18 Road Open Area, geared toward local visitors in small and family oriented groups.		Encourage SRPs and group events in this RMZ.
			Encourage SRPs and group events in this RMZ.		
Experiences		No similar objective.	Visitors are generally local and seek to experience easy access to outdoor recreation that allows them to test their equipment and skills in small groups of family and friends.		
Benefits		No similar objective.	Visitors generally realize personal benefits, relationships with family, and greater self-reliance and improved skills that build on the economic benefit of greater tax revenue for the local community.		
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness Naturalness Facilities*	This area is seemingly remote in character with single-track, ATV and jeep trails that offer motorized recreation, and is crisscrossed by county and BLM roads and trails (middle to front country). The recreation facilities at trailheads are fairly simple and basic with vault toilets and kiosks. The trails are designed, maintained and signed throughout the unit. The open area is partially fenced (middle to rural country).			
Social	*Contacts Group Size Evidence of Use*	Visitors generally contact small groups of 1-3 people (primitive) and encounters are infrequent, fewer than 6 on designated routes (back country). The area is limited to designated routes for mechanized and motorized uses, with the exception of the 18 Road Open Area (Alternatives A, B, and D). Motorized recreation is the predominant use. Sounds of other visitors can occasionally be heard (front country to rural).			
Operational	*Access Visitor Services Management Controls*	This is a motorized zone with designed trails specific to mountain bikes, motorcycles, ATVs and jeeps (front country to rural). Simple visitor services are available like area brochure, kiosks with maps on site, directional signage is installed on routes (back country). Rules, regulations and ethics clearly posted at trailheads. The BLM on-site presence is low away from trailheads (back country).			
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class		Manage under VRM Class III objectives.			
Mineral Materials		Allow disposal of mineral material (salable minerals).		Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales.	
Nonenergy Solid Leasable Minerals		No similar action.	Close to non-energy leasable mineral exploration and/or development.		
ROW		This RMZ is suitable for consideration for public utilities.	Manage as a ROW avoidance area.		Same as Alternative A.
Facility Development		Develop additional recreation facilities (e.g. trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if: 1) the proposal is consistent with SRMA objectives; and 2) sufficient funding and long-term management commitments are secured from managing partners.			
Camping Restrictions		No similar action.	Allow undeveloped camping unless monitoring determines resource concerns or user conflicts.		
SRPs		No similar action.	Issue Class I, II, and III Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class IV Commercial and Competitive SRPs.	Issue Class I and II Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class III and IV Commercial and Competitive SRPs.	Issue Class I, II, III, and IV Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K).
CTTM		Limit motorized and mechanized travel to designated routes. Allow cross-country foot and horse travel.			
Forestry		No similar action.	Allow harvest of forest and woodland products if the RMZ is determined suitable for harvest.	Close to timber harvest, fire wood cutting and special forest product harvest.	Same as Alternative A.
Firearm Use Restrictions		Prohibit the discharge of firearms for recreational target shooting in the OHV open area. Designate designated shooting areas for visitor safety in other areas of the RMZ.		Designate shooting areas for visitor safety.	Same as Alternative A.
IMPLEMENTATION ACTIONS					
Comprehensive Trails and Travel Management		No similar action.	With partners (e.g. local governments, trail organizations, user groups, service providers, tourism councils, etc.) design and construct a mixed used trail system for long distance touring.		
			Manage motorized recreation and access in Hunter Canyon to meet wildlife goals and objectives.	No similar action.	Manage motorized recreation and access in Hunter Canyon to meet wildlife goals and objectives.
BEST MANAGEMENT PRACTICES					
Management		No similar BMPs.	Identify appropriate areas for staging of large events, including sites for recreational vehicle (i.e., RV) use.		

This page intentionally left blank.

DOLORES RIVER CANYONS SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

Dolores River Canyons has one RMZ. In all, Dolores River Canyons encompasses lands adjacent to the Town of Gateway including the Dolores River west to the Utah border. This SRMA will be directly affected by the development of the resort and their partnership with BLM.

GOAL SRMA WIDE

Dolores River Canyons SRMA, through recreation program management and stakeholder involvement, will produce a diversity of quality recreational opportunities that will continue to add to area residents' quality of life, contribute to the local economy and provide stewardship and protection of natural and cultural resources.

OBJECTIVE SRMA WIDE

Participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1 = Not at all realized to 5 = totally realized). Visitor assessments to be administered within five years of the completion of the implementation plan and/or as funding allows.

This page intentionally left blank.

Table 7
Dolores River Canyons SRMA

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)			Through the life of this plan, manage the Dolores River Canyons SRMA targeting a regional, national and international market providing largely non-motorized, educational opportunities to visitors to experience the history, culture, geology and scenic diversity of this region. Manage this area to provide the defined RSCs. Encourage stewardship and environmental and cultural appreciation through education and experiential learning.		
Activities			The focused activities for the Dolores River Canyons SRMA include automobile/motorized touring, mountain biking, day hiking, and environmental learning.		
Experiences			Visitors are generally drawn by the emerging resort community developing in the small town of Gateway. Local and regional visitors are also prevalent. Visitors experience or seek to experience the area's wildlife, scenery, views, aesthetics and culture by learning about this area during self-exploration or guided tours.		
Benefits			Visitors generally realize personal benefits of gaining greater appreciation of the area's natural and cultural heritage through education and improved mental well-being. As a result, the community benefits by having an enlarged sense of dependency on public lands; with related economic benefits of increased property values and richer tourism market. Due to the community's distinctive identity associated with the natural setting, the environment benefits through protection and education of visitors.		
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness* *Naturalness* *Facilities*		This area is a corridor along a Colorado State Highway 141 which is also a state scenic byway (front country to urban). Despite the proximity to the highway, ranching development and small town of Gateway, this unit has a high appearance of naturalness because of the topography and scenic integrity (back country to middle country). Few facilities currently exist, but trailheads and other interpretive exhibits will likely develop over time (middle country to front country).		
Social	*Contacts* *Group Size* *Evidence of Use*		The majority of visitors use the scenic byway to explore this unit so contacts are high (front country) with varying group sizes (front country). The evidence of use is low in regards to alteration of the natural landscapes, but sights and sounds of other users is common (front country to rural).		
Operational	*Access* *Visitor Services* *Management Controls*		Ordinary highway auto, truck and motorcycle traffic is characteristic in the majority of this unit (rural) . Information and environmental education would be prevalent along the highway corridor and trailheads. Information would be available on web-sites and other digital media sources. Regulatory and use ethics would be clearly signed with frequent patrols and other on-site management to reduce conflicts, reduce environmental hazards and resource damage (rural).		

Table 7
Dolores River Canyons SRMA

	Alternative A	Alternative B	Alternative C	Alternative D
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
VRM Class		Manage under VRM Class II objectives with an exception for recreation sites and right-of-ways.		
Fluid Minerals		Close to fluid mineral leasing and geophysical exploration.		
Mineral Materials		Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales (exception for area near Niche Road).		
Nonenergy Solid Leasable Minerals		Close the SRMA to non-energy leasable mineral exploration and/or development.		
ROW		Designate as a ROW exclusion area except for a 75-meter corridor as mapped along Highway 141.		
Facility Development		Develop additional recreation facilities (e.g. trails, trailheads, restrooms) to effectively address recreation activity demand created by growing communities and recreation-tourism if: 1) the proposal is consistent with SRMA objectives and 2) sufficient funding and long-term management commitments are secured from managing partners.		
Camping Restrictions		Limit camping to designated undeveloped sites.		
SRPs		Issue Class I and II Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class III and IV Commercial and Competitive SRPs.		
CTTM		Limit all modes of travel to designated routes, except in WSAs and lands with wilderness characteristics (where motorized and mechanized travel is prohibited).		
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management		Design access to, and interpretive sites and signage for, the Dolores River and public use sites. Work with Colorado Department of transportation to develop pull-offs that highlight interpretation. Work with stakeholders and the local community to develop a non-motorized trail system east of the Dolores River, incorporating easement access through Gateway Canyons Resort.		
SRPs		Allow only SRPs that further management objectives of BLM and stakeholders (e.g., environmental and cultural education).		

CASTLE ROCK SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

The Castle Rock SRMA is bounded by V.2 Road and S Road (4,400 acres) and provides a unique opportunity for single track motorized and mechanized recreation on slick rock benches. This general area of the Bookcliffs is rich in cultural, biological and scenic resources. By proposing a small area for designed, purposefully built single track trails, and providing easy access to those opportunities the remaining area will be managed primarily to protect resources and limit recreation.

GOAL SRMA WIDE

Through recreation program management and stakeholder involvement, produce single-track, trail-based recreational opportunities in balance with the area's unique cultural and biological resources. Through coordination and consultation with the State Historic Preservation Officer, Tribes, and United States Fish and Wildlife Service (as necessary) design a trail system that can contribute to the area's overall protection and stewardship of natural and cultural resources.

OBJECTIVE SRMA WIDE

The objective is that participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1 = Not at all realized to 5 = totally realized). Visitor assessments to be administered within five years of the completion of the implementation plan and/or as funding allows.

BEST MANAGEMENT PRACTICES SRMA WIDE

1. Management

    a. Reroute trails that create resource damage and/or trespass on private property.

    b. Construction of new recreation roads and trails will be consistent with the Criteria for Placement of Trails (see Appendix L, Travel Management Plan).

Table 8
Castle Rock SRMA

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)					Through the life of this plan, manage this SRMA to be a local and regional recreation area providing intermediate to expert level mountain biking and motorcycle riding, balancing recreation with the natural and cultural resources within the area.
Activities					The focused activity for the Castle Rock SRMA is trials riding, motorcycle trail riding and mountain biking.
Experiences					Visitors are generally local or from the surrounding region. Visitors experience or seek to experience development of skills and abilities while enjoying a beautiful and natural landscape.
Benefits					Visitors generally realize personal benefits of a greater sense of adventure that tests their endurance and equipment.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness* *Naturalness* *Facilities*				The area has the feeling of remoteness in a very natural setting with limited facilities or developments.
Social	*Contacts* *Group Size* *Evidence of Use*				Participants would encounter a season average of up to 6 encounters on the designated trail system per day of small groups, with sounds of other people rarely heard.
Operational	*Access* *Visitor Services* *Management Controls*				Access and types of travel allowed is limited to designated routes and will include some existing two track that will have full size vehicle access, primarily the area will be single track motorized and mechanized only. Information will be limited to route specific directional signage. Management controls would be limited.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class					Manage under VRM Class II objectives.
ROW					Designate as a ROW avoidance area.
CTTM					Limit all modes of travel to designated routes.
SRPs					Issue Class I, II, III and IV Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K).
IMPLEMENTATION ACTIONS					
SRPs					SRP events would be limited to activities that do not conflict with cultural or resource objectives.

This page intentionally left blank.

GRAND VALLEY SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

The Grand Valley SRMA (9,700 acres) is located north of the Grand Junction Airport, consists of roughly 17 square miles of desert-like terrain. The barren hills of Mancos shale offer challenging rides for all types of vehicles and all skill levels of riders. Situated between two county roads with easy access, the roads provide a well-defined boundary which could be signed and fenced to contain cross-country travel. Skinny Ridge and other popular riding areas are included with a size that allows for diverse and challenging terrain. The set back from the airport, homes, and the highway address the visual, noise and safety concerns. A couple of access portals have been identified for development of parking, signage, and restrooms.

GOAL SRMA WIDE

Through recreation program management and stakeholder involvement, will produce opportunities for visitors to experience the freedom to participate in a variety of dispersed, motorized and non-motorized, day and overnight recreation activities which lead to a variety of recreation outcomes for participants and communities.

OBJECTIVE SRMA WIDE

The objective is that participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1 = Not at all realized to 5 = totally realized). Visitor assessments to be administered within five years of the completion of the implementation plan and/or as funding allows.

BEST MANAGEMENT PRACTICES SRMA WIDE

1. Management

    a. Grand Valley open area will be fenced or boundaries clearly signed on all sides.

    b. Access will be identified with parking areas and information portals.

Table 9
Grand Valley SRMA

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)					Through the life of this plan, manage the SRMA to be a tourism-based, urban interface area, providing an open OHV riding opportunities that can be marketed by stakeholders and partners as a destination recreation area. The focus of the area would be intensive use, with effective restrictions in place to provide for safety and attainment of prescribed benefits. Large events, permitted competitive use and other high intensity use would be centered in this location.
Activities					The focused activity for this SRMA includes all cross-country, unrestricted motorized use and events, and undeveloped camping.
Experiences					Visitors are generally local or from the surrounding region, with seasonal spikes in tourism related use. Visitors experience or seek to experience risk taking adventure while testing their equipment and building their skills often in groups of friends and family.
Benefits					Visitors generally realize personal benefits of a greater sense of adventure that tests their endurance and equipment and improved capacity to engage in motorized recreation. As a result, economic benefits of increased local tourism and tax revenue are realized.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness Naturalness Facilities*				The area's landscape character for remoteness is urban due to its proximity to the Grand Valley, Interstate 70 and the Grand Junction Airport. The character of the natural landscape has been largely interrupted by nearby development and cross country travel that has been the dominant use of the area. Facilities currently do not exist, but will be prominent in the future to restrict and focus use to areas within the open area.
Social	*Contacts Group Size Evidence of Use*				This SRMA is a busy place with other people constantly in view, traveling or congregating in large groups at trailheads and throughout the unit. Large disturbed areas present with sounds of others fairly constant.
Operational	*Access Visitor Services Management Controls*				Access is unlimited by size or type of vehicle. Federal, state and local staff often present for information, education and law enforcement efforts. Basic maps at trailheads will be available delineating the open area with regulatory information. Outdoor events, demonstrations and motorized competitive events will be present.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
ROW					Designate as a ROW avoidance area except for existing ROW corridor.
Facility Development					Develop access portals and trailheads with signage and restroom facilities.
SRPs					Issue Class I, II, III and IV Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K).
Firearm Use Restrictions					Prohibit the discharge of firearms for recreational target shooting in a portion of the SRMA.
IMPLEMENTATION ACTIONS					
SRPs					Encourage Type III and IV competitive events in this SRMA.

This page intentionally left blank.

PALISADE RIMS SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

This section describes the unique value and distinctiveness of the Palisade Rims SRMA. The area compromises the rim and bench lands east of the Town of Palisade, and the ridge directly south of the Town of Palisade. Public lands in the area are popular close-to-home recreation destinations for the community of Palisade, the neighboring communities and seasonal tourism.

GOAL SRMA WIDE

Palisade Rims SRMA, through recreation program management and stakeholder involvement, will produce quality recreation opportunities that will continue to add to area residents' quality of life, contribute to the local economy, and provide stewardship and protection of natural and cultural resources.

OBJECTIVE SRMA WIDE

The objective is that participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1 = Not at all realized to 5 = totally realized). Visitor assessments to be administered within five years of the completion of the implementation plan and/or as funding allows.

BEST MANAGEMENT PRACTICES SRMA WIDE

1. Management
    a. Reroute trails that create resource damage and/or trespass on private property.
    b. Construction of new recreation roads and trails will be consistent with the Criteria for Placement of Trails (Appendix L).

c. Manage in partnership with the Town of Palisade, Bureau of Reclamation, and Orchard Mesa Irrigation District with shared responsibility for access and facilities.

Table 10
Palisade Rims SRMA

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)					Through the life of this plan, manage the Palisade Rims SRMA to be a community-based recreation area, providing beginner to intermediate non-motorized trail based recreation with an emphasis on cultural heritage educational opportunities and stewardship of cultural and natural resources.
Activities					The focused activities for Palisade Rims include mountain biking and day hiking.
Experiences					Visitors are generally local, with seasonal spikes in tourism related use. Visitors experience or seek to experience outdoor physical activity for fitness and stress reduction, often in small groups of family and friends.
Benefits					Visitors generally realize personal benefits of having recreation and cultural appreciation opportunities close to home that will increase opportunities to improve mental and physical health. As a result, economic benefits of increased local tourism and tax revenue are realized.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness* *Naturalness* *Facilities*				The character of the landscape is largely natural in appearance, with some viewsheds that include roads, trails and houses. Due to the topography and area scenery, the natural landscape is mostly retained despite the proximity to the Town of Palisade and Interstate 70. The recreation facilities at trailheads are fairly simple and basic with vault toilets and kiosks. The trails are designed, maintained and signed throughout the unit.
Social	*Contacts* *Group Size* *Evidence of Use*				Participants would encounter a season average of up to 6 encounters per day of small groups; sounds of other people occasionally heard depending on location in the zone and proximity trailheads.
Operational	*Access* *Visitor Services* *Management Controls*				Non-motorized single track trails with access to hiking and mountain biking. Simple brochures, kiosk at trailheads with rules and regulations, directional signage at all route intersections. BLM on-site presence is rare away from trailheads and low at trailheads.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class					Manage under VRM Class II objectives with the exception of ROWs and recreation sites.
Mineral Materials					Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales.
ROW					Designate as a ROW avoidance area.
SRPs					Issue Class I, II, and III Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class IV Commercial and Competitive SRPs
CTTM					Limit all modes of travel to designated routes.

This page intentionally left blank.

GUNNISON RIVER BLUFFS SPECIAL RECREATION MANAGEMENT AREA

SUPPORTING INFORMATION FOR SRMA ALLOCATION

This section describes the unique value, importance and distinctiveness of Gunnison River Bluffs SRMA. The Old Spanish Trail (northern branch) and historic wagon roads traverse the area. The historic and cultural resources associated with this area is significant to the local community.

GOAL SRMA WIDE

To manage a sustainable trail experience for hikers, mountain bikers and equestrians that links the history of the Old Spanish Trail and celebrates the natural beauty of the Gunnison River Bluffs area for educational and recreational opportunities.

OBJECTIVE SRMA WIDE

The objective is that participants in visitor assessments report an average of 4.0 realization of the targeted experience and benefit outcomes listed below. (4.0 on a probability scale where: 1 = Not at all realized to 5 = totally realized). Visitor assessments to be administered within five years of the completion of the implementation plan and/or as funding allows.

BEST MANAGEMENT PRACTICES SRMA WIDE

1. Management
    a. Reroute trails that create resource damage and/or trespass on private property.
    b. Construction of new recreation roads and trails will be consistent with the Criteria for Placement of Trails (Appendix L).

This page intentionally left blank.

Table 11
Gunnison River Bluffs SRMA

		Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (RMZ Objectives)					Through the life of this plan, manage this SRMA to be a community based, non-motorized recreation area in collaboration with Mesa County and the Old Spanish Trails Association to ensure consistency with the defined RSCs. Management of this area will also incorporate a priority on interpretation and environmental education on the cultural significance of the region and should seek to address access concerns.
Activities					The focused activities this SRMA includes mountain biking, day hiking and equestrian use.
Experiences					Visitors are generally local and experience or seek to experience frequent access to outdoor physical activity with friends and family.
Benefits					Visitors generally realize personal benefits of improved health and wellness, greater cultural appreciation, and develop stronger bonds with friends and family. As a result of having access to BLM lands, property values are greater and the community benefits economically by being a more desirable place to live.
RECREATION SETTING CHARACTERISTIC (RSC) DESCRIPTIONS					
Physical	*Remoteness Naturalness Facilities*				This is a non-motorized zone that is crisscrossed by county and BLM roads and trails. The character of the landscape is natural in appearance, fairly flat with viewsheds that include roads, trails and houses. The recreation facilities at trailheads are fairly simple and basic with vault toilets and kiosks. The trails are designed, maintained and signed throughout the unit.
Social	*Contacts Group Size Evidence of Use*				The qualities of this area associated with use are limited to small to medium (4-6 people) social groups and fairly rare (fewer than 6) encounters on designated routes. The area is limited to designated routes for mechanized and motorized uses (private property and administrative only), which account for the majority of the uses. Sounds of others can occasionally be heard.
Operational	*Access Visitor Services Management Controls*				This zone offers mechanized and non-motorized trails specific to mountain bikers, hikers, and equestrians. Simple visitor services are available like area brochure, kiosks with maps on site, directional signage is installed on routes. Rules, regulations and ethics clearly posted at trailheads. The BLM on-site presence is low away from trailheads.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS					
VRM Class					Manage under VRM Class III objectives.
Mineral Materials					Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales.
ROW					Suitable for consideration for public utilities.
Camping Restrictions					Camping is prohibited.
Facility Development					Work with City of Grand Junction and Mesa County to develop access portals for area residents and the general public.
SRPs					Issue Class I and II Commercial and Competitive SRPs that are consistent with zone objectives (see Appendix K). Prohibit Class III and IV Commercial and Competitive SRPs.
CTTM					Close to motorized travel and limit all other modes of travel to designated routes.

This page intentionally left blank.

ERMAs

The following pages show Tables 12 through 20, which describe ERMA management strategies and objectives for each area under each alternative.

Table 12
Palisade Rims ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		Through the life of the plan the 2,700-acre Palisade Rims ERMA offers visitors the freedom to participate in a variety of non-motorized day-use recreation activities, with an emphasis on hiking and mountain biking to enjoy scenic and cultural heritage educational opportunities and foster stewardship of cultural and natural resources.		
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
VRM Class		Manage under VRM Class II objectives.		
Mineral Materials		Close to mineral material (salable such as moss rock, top soil, sand and gravel, scoria, fill dirt) sales.		
Nonenergy Solid Leasable Minerals		Close to non-energy leasable mineral exploration and/or development.		
ROW		Designate as a ROW avoidance area.		
Camping Restrictions		Close to camping.		
CTTM		Close to motorized travel. Limit all other modes of travel to designated routes.		
Firearm Use Restrictions		Prohibit the discharge of firearms for recreational target shooting.		
BEST MANAGEMENT PRACTICES				
Management		Manage in partnership with the Town of Palisade, Bureau of Reclamation, and Orchard Mesa Irrigation District with shared responsibility for access and facilities.		

Table 13
Dolores River Canyon ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		Through the life of the plan manage 151,200-acre Dolores River Canyon ERMA to target motorized exploration and heritage tourism in concert with scenic values, protection of wilderness characteristics, geological values, rare plants, wildlife and cultural resources objectives that are specific resources of concern in the following overlapping special designation areas: Sinbad Valley ACEC, Sewemup WSA, Blue Mesa wildlife emphasis area, Juanita Arch ACEC, Maverick lands with wilderness characteristics unit, Bull Hill wildlife emphasis area, Unaweep Canyon lands with wilderness characteristics unit, Unaweep Seep ACEC, West Creek lands with wilderness characteristics unit, and the Palisade WSA and ACEC.		Through the life of the plan manage 16,800-acre Dolores River Canyon ERMA to target motorized touring, mountain biking, day hiking, and nonmotorized boating, with a focus on environmental learning in cooperation with stakeholders, including the community of Gateway, Museum of Western Colorado, and scenic byway associations. The ERMA would be managed in concert with protection of rare plant and riparian habitat, hydrologic values, and special status wildlife habitat objectives that are specific resources of concern in the following overlapping special designation areas: Palisade WSA and ACEC, Sewemup WSA, and Unaweep Seep ACEC.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
CTTM		Prohibit motorized and mechanized travel within the overlapping WSAs.		Prohibit motorized and mechanized travel within the overlapping WSAs. Limit motorized and mechanized travel to designated routes in the rest of the ERMA.

Table 13
Dolores River Canyon ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management		Work with stakeholders to identify opportunities to connect/reroute routes to create loop opportunities as necessary. Reroute/repair unsustainable and eroding routes.		Work with stakeholders to design and construct new nonmotorized system trails to create additional trail-based opportunities. Connect/reroute routes to create loop opportunities as necessary. Reroute/repair unsustainable and eroding routes. Work with the byway association and Colorado Department of Transportation to identify safe interpretive pullouts and highway crossings along Highway 141.
BEST MANAGEMENT PRACTICES				
Management		Recreation opportunities should reduce conflict with other resources, specifically cultural, wildlife, and wilderness characteristics.		Recreation opportunities should reduce conflict with other resources, specifically cultural, wildlife, paleontology, riparian, and wilderness characteristics.
Information and Education		Focus interpretive media on cultural heritage tourism and promote stewardship of natural and cultural resources.		Focus interpretive media on cultural heritage tourism and promote stewardship of natural and cultural resources.

Table 14
Gunnison River Bluffs ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		Through the life of the plan manage 800-acre Gunnison River Bluffs ERMA to provide a sustainable trail experience for hikers, mountain bikers, and equestrians that links the history of the Old Spanish Trail and celebrates the scenic values of the Gunnison River Bluffs area for educational and recreational opportunities.		
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
Camping Restrictions		Camping is prohibited.		
CTTM		Close to motorized travel. Limit all other modes of travel to designated routes.		
BEST MANAGEMENT PRACTICES				
Management		Collaborate with Mesa County and the Old Spanish Trail Association to manage the ERMA with shared responsibilities for access and facilities.		
Information and Education		Use interpretation and environmental education to emphasize the cultural significance of the region.		

Table 15
Timber Ridge ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)				Through the life of the plan the 11,900-acre Timber Ridge ERMA will offer visitors the freedom to participate in non-motorized recreation activities, including hiking, horseback riding, and hunting, in a relatively unchanged, natural-appearing landscape.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
VRM Class				Manage under VRM Class II objectives.
Locatable Minerals				Open to fluid mineral leasing and geophysical exploration subject to standard lease terms.
Mineral Materials				Allow disposal of mineral material (salable minerals).
Nonenergy Solid Leasable Minerals				Open to non-energy leasable mineral exploration and/or development.
ROW				Designate as suitable for consideration for public utilities.
CTTM				Limit motorized and mechanized travel to designated routes.
BEST MANAGEMENT PRACTICES				
Management				Work to acquire lands with willing sellers to provide additional public access.

Table 16
South Shale Ridge ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)				Through the life of the plan the 21,600-acre South Shale Ridge ERMA will offer visitors the freedom to participate in a variety of recreational activities in a relatively unchanged, natural-appearing landscape.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
VRM Class				Manage under VRM Class III objectives.
CTTM				Limit motorized and mechanized travel to designated routes.
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management				New trail construction would only be allowed to address user conflict or resource concerns.

Table 17
Barrel Springs ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		Through the life of the plan the 10,300-acre Barrel Springs ERMA will offer visitors the freedom to participate in a variety of recreation activities, including hunting and OHV travel, in a relatively unchanged, natural-appearing landscape.		Same as Alternative B.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
VRM Class		Manage under VRM Class III objectives.		Same as Alternative B.
CTTM		Limit motorized and mechanized travel to designated routes.		Same as Alternative B.
BEST MANAGEMENT PRACTICES				
Management		Work to acquire lands with willing sellers to provide additional public access.		Same as Alternative B.

Table 18
Grand Valley ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Target Shooting Zone				
Management Focus (Objectives)		Through the life of the plan the 750-acre Grand Valley ERMA (Target Shooting zone) will offer visitors close-to-home, day-use recreational target shooting.		
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
Facility Development		Provide appropriate facilities for the attainment of the recreation objective (e.g., backstops, shade shelters, and shooting benches).		
Camping Restrictions		Close to camping.		
BEST MANAGEMENT PRACTICES				
Management		Identify for disposal to stakeholder(s) who would manage the area with similar objectives.		
Open Area Zone				
Management Focus (Objectives)		Through the life of the plan the 4,900-acre Grand Valley ERMA (Open Area zone) offers local and regional visitors the freedom to participate in cross-country motorized and non-motorized day and overnight recreation activities.		
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
Firearm Use Restrictions		Prohibit the discharge of firearms for recreational target shooting.		

Table 18
Grand Valley ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
		BEST MANAGEMENT PRACTICES		
Management		Grand Valley Open Area will be fenced or boundaries clearly signed on all sides. Access will be identified with staging areas that include loading/unloading ramps, restroom facilities, and informational signage. Focus large competitive, permitted events in this ERMA.		
Administration		Temporarily close the ERMA as needed during wind events to reduce particulate matter (e.g. during National Weather Service high wind warning).		

Table 19
Grand Valley Ranges ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)				Through the life of the plan the 750-acre Grand Valley Ranges ERMA will offer visitors close-to-home, day-use recreational target shooting.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
Facility Development				Provide appropriate facilities for the attainment of the recreation objective (e.g., backstops, shade shelters, and shooting benches).
Camping Restrictions				Close to camping.
BEST MANAGEMENT PRACTICES				
Management				Identify for disposal to stakeholder(s) who would manage the area with similar objectives.

Table 20
34 and C Road ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Open Area Zone				
Management Focus (Objectives)		Through the life of the plan the 330-acre 34 and C Road ERMA (Open Area zone) offers local visitors the freedom to participate in cross-country motorized and non-motorized day-use recreation activities.		Same as Alternative B.
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
Firearm Use Restrictions		Prohibit the discharge of firearms for recreational target shooting.		Same as Alternative B.
BEST MANAGEMENT PRACTICES				
Management		The 34 and C Road Open Area will be fenced or boundaries clearly signed on all sides. Access will be identified with staging areas that include loading/unloading ramps, restroom facilities, and informational signage. Work with adjoining landowners and users to minimize conflicts with private property.		Same as Alternative B.
Administration		Temporarily close the ERMA as needed during wind events to reduce particulate matter (e.g. during National Weather Service high wind warning).		Same as Alternative B.
Target Shooting Zone				
Management Focus (Objectives)		Through the life of the plan the 220-acre 34 and C Road ERMA (Target Shooting zone) will offer visitors close-to-home, day-use recreational target shooting.		Same as Alternative B.

Table 20
34 and C Road ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
MANAGEMENT ACTIONS & ALLOWABLE USE DECISIONS				
Facility Development		Provide appropriate facilities for the attainment of the recreation objective (e.g., backstops, shade shelters, and shooting benches).		Same as Alternative B.
Camping Restrictions		The ERMA zone is closed to camping.		Same as Alternative B.
BEST MANAGEMENT PRACTICES				
Management		Work with adjoining landowners and users to minimize conflicts with private property. Identify for disposal to stakeholder(s) who would manage the area with similar objectives.		Same as Alternative B.

Table 21
Castle Rock ERMA

	Alternative A	Alternative B	Alternative C	Alternative D
Management Focus (Objectives)		Through the life of the plan the 4,400-acre Castle Rock ERMA will offer visitors singletrack, trail-based recreational opportunities in balance with the area's unique cultural and biological resources. Through coordination and consultation with the SHPO, Tribes, and USFWS (as necessary) design a trail system that can contribute to the area's overall protection and stewardship of natural and cultural resources.		
IMPLEMENTATION ACTIONS				
Comprehensive Trails and Travel Management		Focus trail design, construction, maintenance, and access points to reduce conflict among user groups and to protect natural and cultural resources.		

Appendix L

Special Recreation Permits

APPENDIX L
SPECIAL RECREATION PERMITS

SPECIAL RECREATION PERMIT PROGRAM OVERVIEW

All commercial, competitive, and organized group SRP proposals will be evaluated on a case by case basis, and their approval or disapproval will be at the discretion of the Authorized Officer. All SRPs are considered undertakings under the NEPA. Permit approval is dependent on conformance with all applicable land use planning documents and environmental review in accordance with NEPA. All existing permits will be analyzed for conformance to the Land Use Plan Revision.

In order to provide good customer service, to reduce unnecessary submissions of applications, and to ensure consistent consideration of permit proposals, all new SRP proposals will be evaluated using the following process. Additional implementation guidance for GJFO will be completed and will provide applicants with specific information including but not limited to: application deadlines, timelines for processing, application package requirements, fees, use reporting, and penalties.

PERMIT PROCESS

Pre-application Consultation

A pre-application consultation would be utilized to determine if a SRP is required and allowed, and if so, what type of permit is required. Among other factors, proposals will be evaluated to determine whether the proposal is consistent with recreation objectives; whether the opportunity is already available under an existing permit; whether there is adequate market competition; and whether the proposal would create conflict with the public and/or existing permitted activities. Additionally, during the pre-application consultation, permit proposals will be classified using the Classification criteria below. Once a class determination is made and type of permit (competitive,

organized or commercial) is established the following guidelines and administration practices will apply.

Permit Class and Allowable Use Area

Table 1
Permit Class and Allowable Use Area

Classification	Considered*	Not Considered
Class 1		
Class 2		
Class 3		
Class 4		

* Permit will be allowed unless restricted through specific management prescriptions identified in RMP or subsequent planning efforts.
Note: This table will be completed based on the alternative selected in the Record of Decision.

Commercial Administration
If a proposal conforms to land use planning decisions, within capacity for proposed area and within the deadlines described in the GJFO permit policy, the applicant will then be asked to fill out all the required SRP application package requirements and pay applicable fees.

Competitive Event Administration
If a proposal conforms to land use planning decisions and there is a minimum of 180 days prior to the proposed use, the applicant will then be asked to fill out all the required SRP application package requirements and pay applicable fees.

Vending
If a proposal conforms to land use planning decisions, is in conjunction with a competitive events and organized group and there is a minimum of 180 days prior to the proposed use, the applicant will then be asked to fill out the required paperwork and pay applicable fees.

Organized Group Permit Administration
An organized group/event permits are for group outdoor recreation activities or events which are neither commercial nor competitive. The authorized officer determines when a permit is required based on planning decisions, resource concerns, user conflicts, public health and safety, and/or the need for monitoring.

Organized groups above the group size criteria of 12 defined as primitive or backcountry areas through social setting character, including Wilderness, WSAs and lands managed to protect wilderness characteristics or above the group size of 25 in remaining field office at a single location for more than two hours, are

required to contact the BLM prior to their event to determine if an SRP would be required. After reviewing the activity and location with the organizers, BLM will determine whether or not a permit is required (see **Table 2**). If a permit is not required, we may document this determination in the form of a *Letter of Agreement*.

General Permit Administration

All permit administration will be done in accordance with NEPA, BLM Manual: H-2930-1-Recreation Permit Administration, BLM Colorado State SRP Handbook, and all associated BLM SRP Instruction Memorandums and Information Bulletins.

Application Evaluation

The Authorized Officer will evaluate the application using the "Permit Application Review Criteria" listed below. The criterion includes specific objectives identified in the land use plan for both Extensive Recreation Management Areas and Special Recreation Management Areas. The issuance or denial of SRPs will be made in accordance with these criteria.

Permit Application Review Criteria

Permit proposals described in business and operating plans will be evaluated using the following criteria (see **Table 2**, Determining Need for an Organized Group Special Recreation Permit). These criteria offer an objective framework for SRP application evaluation. Any or all of the criteria will be evaluated to authorize or deny a permit (subject to potential modifications) by the authorized officer (see **Tables 3**, Classification Criteria, and **Table 4**, Permit **Classification**).

Compliance History

Applicant must be in compliance, and have a history of compliance, with local, state and federal regulations. Applicant or authorized representatives have not been convicted of a federal, state or local violation in connection with the proposed operations or activities within the last three years.

Safety and Safety History

Applicant has demonstrated a history of providing an acceptable level of safety for clients and affected publics.

Consistency with Land Use Planning Documents

Proposals will be evaluated for consistency with current planning documents, including but not limited to the GJFO Resource Management Plans (Revised) and applicable Special Recreation Management Area plans. All proposals in a Wilderness Study Area must be consistent with the BLM's interim management policy.

Conflicts

Permits will not be issued in areas where conflicts currently exist between existing permittees, between permittees and the public or landowners. Valid conflicts include:

- Overlapping use areas where the same type of use is currently permitted
- Limited public land ownership and/or related access
- Camps; location, number and distance between camps
- Types of activities permitted
- Overcrowding and/or use levels during specific time periods, supporting infrastructure at capacity
- Enforcement/compliance problems exist
- Improper conduct by permittee or employees
- Unacceptable resource impacts

Diversity of Services

Applicants must demonstrate that their proposal enhances the diversity of recreational opportunities available for visitors and the services are needed by the public.

Low Percentage of BLM Public Lands

Applications may be refused where public lands comprise a low percentage of the total area and recreational management goals are being met.

Adjoining Lands and Joints Permits

Preference will not be given to applicants who own or lease private land adjacent to BLM public lands. Preference will not be given permittees that have a joint permit issued by another land management agency office.

These criteria are a means to analyze applications and offset potential problems. Many complex issues are best addressed through an ongoing effort between the permittees and the BLM.

If the proposal meets the application review criteria, the appropriate NEPA document would be completed. Permits may be denied as a result of issues identified during the NEPA process. Any stipulations identified during the NEPA process will be included on approved permits.

Table 2
Determining Need for an Organized Group Special Recreation Permit

Criteria	Permit Not Required	Permit Required	Deny as proposed
Is the activity recreational in nature?	If the use is not recreational, may require "lands" permit or no permit.		
Is the use appropriate to the site? Is there a management concern for cultural or natural resources, or facilities on public land?	Yes, site very conducive to the proposed use, provided for in planning.	Site is appropriate for group size and activity, not specifically provided for in plan.	No, site is not appropriate for use as proposed. Site has significant cultural or natural resource concerns. Does not conform with recreation planning goals, violates ROS Class or experience prescriptions. While the criterion recognizes a need to screen for conflicts with cultural or natural resources, the screening process lacks a response action for proposed SRPs with unacceptable conflicts.
Does the activity further recreation program goals and objectives?	Yes	Yes	No
Is monitoring needed?	Nothing beyond one simple site visit.	Monitoring beyond a one-time site visit required.	Long term monitoring of one or more resources required
Health and Safety Concerns?	None	Concerns for event participants or other public land users.	Unmitigated, high risk to human health and safety. Unreasonable risk especially to non-participants.
Bonding desirable to cover reclamation, damage to government property or resources	No	Bonding desirable or required	n/a
Insurance desirable to protect the U.S. Government from claims by group participants or third parties?	No, liability exposure is negligible.	Insurance is desirable due to possible claims for personal injury or property damage.	n/a
Special services required such as Law Enforcement, fire protection, exclusive use of public lands, reserved sites etc.	No	Yes	n/a

Table 3
Classification Criteria

Resource		Anticipated Impact	Description of Impact
Wildlife	Visual	No	Artificial lighting system used will not be used or will be less than 1000 candle power.
		Yes	Artificial lighting system used will be 1000 candle power or greater.
	Audio	No	A loudspeaker or other broadcasting device will not be used
		Yes	A loudspeaker or other broadcasting device will be used
Special Status Species		High	Less than 100 meters from special status species
		Medium	More than 100 meters from special status species
		Low	Greater than 200 meters from special status species
Hydrology	Perennial Waters/Riparian communities	Low	Actions are not located within 500 feet of perennial waters or extent of riparian community.
		Moderate	Actions are located between 325 to 500 feet of perennial waters or extent of riparian community.
		High	Actions are located closer than 325 feet to perennial waters or extent of riparian community.
	Water Quality	No	Proposal doesn't fall within a water quality impaired stream segment or activity won't affect stream
		Yes	Proposal falls within a water quality impaired stream segment
Cultural Sensitivity Zones		High	Resource conflict exists at the site.
		Medium	Some associated features present; existing protection is adequate.
		Low	No associated features.
Paleontological		High	Known vertebrate fossil site(s) can be seen.
		Medium	Surface geology consists of PFYC Class 4-5 formations.
		Low	Surface geology consists of PFYC Class 1-3 formations.

Table 3
Classification Criteria

Resource	Anticipated Impact		Description of Impact
Soils/Vegetation	Low		Site and associated features demonstrate resilience and resistance to anticipated activity or are sufficiently disturbed that they would not be impacted
	Moderate		Site and associated features demonstrate some ability to resist/recover from impacts
	High		Site and associated features demonstrate limited ability to resist/recover from impacts
Within Existing Disturbance	No	Low	Effects of a temporary nature and no additional surface disturbance
		Medium	Effects lasting less than one year and/or surface disturbance less than 5 acres
		High	Effects lasting more than one year and/or surface disturbance more than 5 acres
	Yes	Small	< 5 acres
		Medium	5 to 40 acres
		Large	> 40 acres
Duration of Use	Short		One day or less
	Moderate		Two to six days
	Long		> six days
Anticipated Number of Participants	Low		< 12
	Medium		13-25
	High		25+
Anticipated Number of Vehicles	Low		1-3
	Medium		4-6
	High		7+
Competitive Event	Yes		The event or activity is competitive in nature
	No		The event or activity is non-competitive
Motorized/Mechanized Support	Yes		Vehicles or other mechanized equipment required in support of activity
	No		No vehicles or other mechanized equipment required.
BLM Monitoring and Inspection Requirements	None		No significant pre or post permit oversight activities required
	Low		Pre or post permit activities require <8 hours BLM oversight
	High		Pre or post permit activities require >8 hours BLM oversight

Table 4
Permit Classification

Evaluation Factors	Permit Class			
	I	**II**	**III***	**IV***
Wildlife (Visual)	No	No	Yes	Yes
Wildlife (Audio)	No	No	Yes	Yes
Hydrology (Perennial/Riparian)	Low	Low/Moderate	Moderate/High	High
Hydrology (Water Quality)	Low	Low/Moderate	Moderate/High	High
Cultural	Low	Moderate	High	High
Paleontological	Low	Low/Moderate	Moderate	High
Soils/Vegetation	Low	Low/Moderate	Moderate	High
Within Existing Disturbance (Yes)	No	No	Yes	Yes
Within Existing Disturbance (No)	Yes	Yes	No	No
Duration of Use	Short	Short/Moderate	Moderate	Long
Anticipated Number of Participants	Low	Low/Moderate	Moderate	High
Anticipated Number of Vehicles	<25	25-50	50-100	>100
Competitive Event	No	No	Yes	Yes
Motorized/Mechanized Support	No	Y or N	Y	Y
Monitoring and Inspection Requirements	None	None/Low	Low	High
Examples	Group Camping, Guided Hunting, Organized Groups, Guided horseback rides, Commercial River Rafting & Fishing, Motorized Tours on System Roads		Non-competitive motorized events, Non-Motorized Competitive Events	Festivals, Motorized Competitive Events

* Class III and IV events are more likely to require cost recovery due to the probability of these events needing more than 50 hours of BLM staff time for permit administration.

Appendix M

Draft Travel Management Plan for the Grand Junction Field Office

United States Department of the Interior
Bureau of Land Management

Grand Junction Field Office
Travel Management Plan

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

This page intentionally left blank.

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

	Full Phrase
ATV	all-terrain vehicle
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
ERMA	Extensive Recreation Management Area
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act
GJFO	Grand Junction Field Office
NEPA	National Environmental Policy Act
OHV	off-highway vehicle
RMP	Resource Management Plan
RMZ	Recreation Management Zone
ROD	Record of Decision
SHPO	State Historic Preservation Office
SRMA	Special Recreation Management Area
TMP	Travel Management Plan
WEPP	Water Erosion Prediction Program

This page intentionally left blank.

1. Introduction

Travel management is the process of planning for and managing access and travel systems on public lands. The Grand Junction Field Office (GJFO) Travel Management Plan (TMP) is written in conformance with the *Grand Junction Field Office Resource Management Plan Revision and Record of Decision* (RMP/ROD). For the Grand Junction Field Office, the GJFO RMP/ROD offers a mix of recreational opportunities that attempt to meet a wide variety of recreation demands while reducing conflict among users, with natural resources, cultural resources, and traditional public land uses. The GJFO RMP/ROD emphasizes community partnerships to develop recreational opportunities in support of resource protection and public education.

Travel management issues are considered sequentially at three levels:

- Land Use Planning – GJFO RMP Revision
- Activity or Implementation Level Plans – GJFO TMP
- Plan Implementation – Project Plans and on-the-ground actions

The goal of the Grand Junction Field Office Travel Management Plan is to propose a management framework that allows for both current and future recreation needs, while ensuring protection of resources. The GJFO TMP is based upon extensive public participation and workshops as well as structured interdisciplinary team analysis. The BLM recognizes the importance of access for public visitation, scientific studies, and administrative uses while providing for the protection of natural and cultural resources. The evaluation process incorporated the four minimization criteria set forth by 43 Code of Federal Regulations (CFR) 8342.1(a-d) and created a designated route system consistent with land use allocations as well as areas managed to maintain wilderness characteristics.

This document, an appendix to the RMP, explains the TMP development and provides a designation of the engineering assets (roads, primitive roads, and trails and their associated open, closed, or limited status; signing plan), education (direction for education and outreach), enforcement and evaluation (guidance for developing a monitoring system).

1.1 Background

Travel management historically focused specifically on motor vehicle use. A shift in the accepted paradigm has caused the BLM to develop a more comprehensive travel management process which encompasses all forms of transportation, including travel by foot, horseback, and mechanized vehicles such as bicycles as well as the numerous forms of motorized vehicles from two-wheeled (motorcycles) and four-wheeled all-terrain vehicles (ATVs) to cars and trucks.

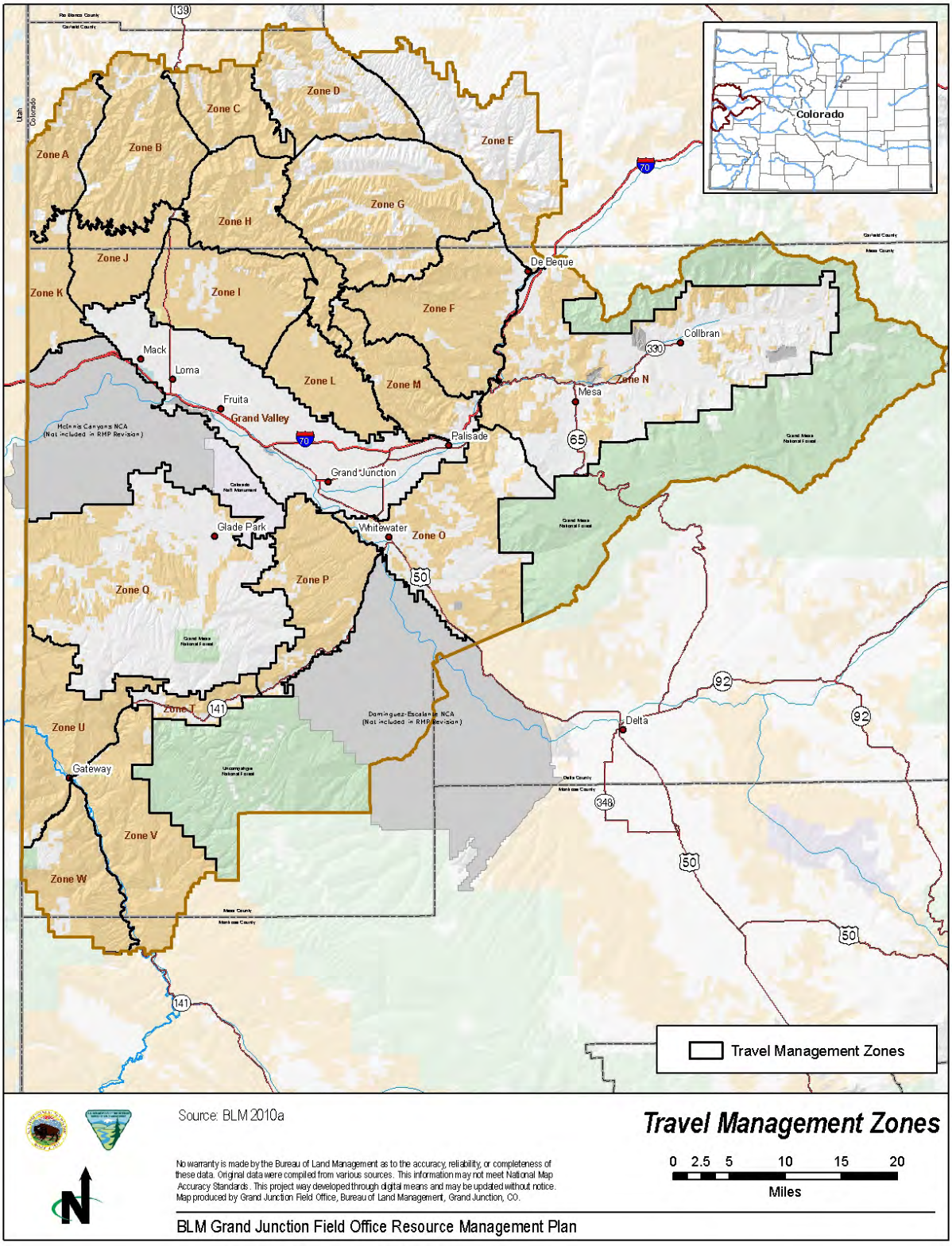
Many routes within the GJFO were constructed to create access to public land improvements, timber and vegetation management projects, gas and mineral development, range management, and various ROWs. Of these routes, many were not

necessarily intended to be left behind or open for recreational use but have become popular routes for visitors engaged in mechanized and motorized recreation activities. Some routes were created or pioneered by visitors. Open travel designations that permit cross-country mechanized and motorized use, high levels of use, and improvements in mechanized and motorized vehicle technology have allowed public land users to gain access to and through more terrain. These routes are not typically maintained by the BLM; rather, it is the repeated passage of vehicles that maintains these routes. Not designed but created, these routes are often rutted and eroded.

Approximately 42 percent of the planning area is currently designated as open to cros-country off-highway vehicle (OHV) use, 44 percent is limited to existing or designated roads and trails, 11 percent has seasonal limitations, and three percent is closed to OHV use. Areas with designated routes typically do not contain trails built with consideration for sustainability, resource concerns or conditions, or recreation experiences. Most routes either follow historic routes, such as those for grazing, mining, or administrative access, or they were user created. In either case, the trails do not always provide desirable recreation experiences and have unmitigated impacts to natural or cultural resources.

The National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (Strategy), finalized by the Bureau of Land Management (BLM) in January 2001, was the first step in developing a proactive approach to determine and implement better on-the-ground management solutions designed to conserve soil, wildlife, water quality, native vegetation, air quality, heritage resources, and other resources, while providing for appropriate recreational opportunities. It provides agency guidance and offers recommendations for future actions to improve motorized vehicle management. This priority was re-emphasized by the BLM's M-1626 Travel and Transportation Manual and H-8342 Travel and Transportation Handbook, *BLM's Priorities for Recreation and Visitor Services (Purple Book)*, and Colorado's *Recreation and Visitor Services Strategy*. The Colorado State Director has given specific policy direction found in Instruction Memorandum No. CO-2007-020, which explicitly directs BLM Colorado to accomplish comprehensive travel planning.

GJFO lands through designed travel networks provide access for recreation that can have a positive impact on the attainment of personal, familial, and community benefits. Although not one of BLM's land health considerations, the socioeconomic implications of recreational use have significant direct and indirect effects on land health. As the popularity of recreation increases, socioeconomic factors become increasingly important considerations in understanding and mitigating the overall effects of use on land health. Recreation can have significant economic value to local communities where and when use is popular.


Colorado
Utah
Colorado
Zone A
Zone B
Zone C
Zone D
Zone E
Zone F
Zone G
Zone H
Zone I
Zone J
Zone K
Zone L
Zone M
Zone N
Zone O
Zone P
Zone Q
Zone T
Zone U
Zone V
Zone W
De Beque
Collbran
Mack
Loma
Fruita
Grand Valley
Mesa
Palisade
Grand Junction
Glade Park
Whitewater
Gateway
Delta
McInnis Canyons NCA
(Not included in RMP Revision)
Dominguez-Escalante NCA
(Not included in RMP Revision)
Travel Management Zones
Source: BLM 2010a
No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project way developed through digital means and may be updated without notice. Map produced by Grand Junction Field Office, Bureau of Land Management, Grand Junction, CO.
Travel Management Zones
0 2.5 5 10 15 20
Miles
BLM Grand Junction Field Office Resource Management Plan

2 Planning - Travel Management Components

2.1 Overview

The travel management inventory identified roughly 4,600 miles of roads and trails within the planning area covering 1.06 million acres. In order to effectively communicate with the public, cooperating agencies, partners, user groups, and resource specialists and to track decisions, the planning area was broken into 19 zones labeled A to W (see figure on preceeding page). Each route was broken into segments and given a unique number that correlated with its zone (e.g., A102). During the planning process Dominguez-Escalante National Conservation Area was designated, therefore zones R and S were removed from consideration and will be addressed during a separate RMP planning effort.

2.2 Inventory

GJFO initiated the travel management planning process in 2004 beginning with a route inventory that ended in 2010. The inventory was conducted by BLM personnel on motorcycles, bicycles and foot. This inventory provided the foundation and baseline for the TMP. The inventory mapped existing road and trail networks, route conditions, facilities, improvements, and public use areas accessed by the routes (range and wildlife improvements, recreation activity areas, gates, fences, trailheads, and other features). The inventory staff took steps to capture every historic linear disturbance that could be seen on the ground in the GJFO. Inventory procedures were designed to collect information necessary for planning and management of the area.

Open areas or areas that have an extremely high density of routes were screen digitized, field verified, and, in the North Desert, sampling was used to estimate mileage of routes.

2.3 Scoping and Public Participation

GJFO TMP is based upon extensive public and cooperating agency participation, including workshops and several comment periods.

2.3.1 RMP Scoping

The formal public scoping process for the GJFO RMP/EIS began on October 15, 2008, with the publication of a Notice of Intent in the Federal Register, and ended on January 9, 2009. Public outreach during this scoping period included: 1) a newsletter mailed to over 600 agency officials, organizations, and members of the public; 2) three scoping open houses in December 2008 in Grand Junction and Collbran, Colorado, and in Moab, Utah; and 3) a public website, http://www.blm.gov/co/st/en/fo/gjfo/rmp, which provides access to materials distributed at scoping meetings as well as information on the public involvement process.

A total of 64 comment letters received during the scoping period addressed travel management. Most of the planning issue comments focused on travel management (23.7 percent), which were consolidated into one issue statement. “How will motorized, non-motorized, and mechanized travel be managed to provide commodity, amenity, and recreation opportunities, reduce user conflicts, enforce route designations and

closures, reduce fragmentation and habitat degradation, and protect natural and cultural resources?"

2.3.2 Travel Management Comment Period 1

GJFO hosted a series of "travel management data collection workshops" in February to give the public the opportunity to review its route inventory for completeness and accuracy, as well as offer suggestions for possible reroutes or new routes that would complement the existing system. The workshops were held in Delta, DeBeque, Collbran, Gateway, Fruita, and Grand Junction, with over 200 participants. A total of 118 written comments were received during this comment period.

2.3.3 Travel Management Comment Period 2

GJFO identified the need and interest from the public to comment not only on the completeness and accuracy of the inventory but also to help evaluate the quantity and quality of the experiences and desired recreation setting available in the planning area. The GJFO received 178 written comments during this comment period. Viewpoints expressed in the comments reflected a wide spectrum of desires regarding appropriate levels of access.

2.3.4 Coordination with Partners, Cooperating Agencies, and Resource Advisory Council (Sub-group)

During the data collection and inventory phase of the planning process, BLM staff met with offices of the US Forest Service and BLM with contiguous acreage, with County and municipalities within the planning area, and Colorado Department of Wildlife and US Fish and Wildlife Service to verify the inventory data and collect additional information on resource concerns and access needs.

Throughout the process GJFO staff made presentations at local user group meetings and to the Cooperating Agencies and Resource Advisory Council (Sub-group) the defining law, policy, goals, and objectives associated with travel management and the process to be used in designing the travel management network.

During the route by route selection by alternative, the Cooperating Agencies were invited to participate in providing information to the resource specialists to aid in the decision making process. A complete list of attendees by date and area discussed is included as TMP Attachment 4.

2.4 Outcomes-Based Recreation Management

Outcomes-based recreation management is a recreation management philosophy that focuses on the positive and beneficial outcomes derived from recreational activities, rather than emphasizing the recreation activities themselves. It promotes quality recreation experiences from the visitors' or users' perspectives. Outcomes-based provides the conceptual recreation framework to view, plan, and collaboratively deliver recreation services as a means to a larger end – an end in which outcomes benefit individuals, communities, economies, and the environment. By conducting outcomes-based analysis, recreational settings can be better delineated and managed. In outcomes-based analysis, priority is given to resource dependent recreation. Resource

dependent recreation is that which can only be done where the natural resource or setting exists. An example is running for fitness versus nature hiking. Fitness running can be done on a treadmill or anywhere a suitable surface exists. Nature hiking requires a natural setting and things to observe along the way. Hiking would not be suitable indoors or in unnatural settings, thus it is a resource dependent recreation.

As identified in BLM Colorado's Recreation and Visitor Services Strategy, comprehensive travel planning is integral to the character of recreation setting. Travel management decisions support the fulfillment of planning objectives which include desired recreation setting objectives to protect and/or enhance landscape character. This is facilitated by working closely with communities, sister agencies, interest groups, and interested individuals to balance protecting the health of the land with providing appropriate public and administrative travel and access.

Transportation routes identified for recreation purposes will include opportunities and quality experiences for all user groups, including hikers, backpackers, equestrians, bicycles, ATVs, four-wheel-drive vehicles, motorcycles, backcountry aircraft pilots, hunters, and fishers. However, one should not be interpret that all users will be accommodated in all areas.

The BLM administratively allocates recreation areas in one of two manners: Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs). SRMAs are designated administrative units where a commitment has been made to emphasize recreation by managing for specific recreation opportunities and recreation setting characteristics on a sustained or enhanced, long-term basis. SRMAs may be subdivided into recreation management zones (RMZs) to delineate specific recreation opportunities and recreation setting characteristics. ERMAs are areas where recreation is planned for and actively managed on an interdisciplinary-basis in concert with other resources and resource programs.

Within the planning area, Bangs Canyon SRMA and North Fruita Desert SRMA currently exist with additional units analyzed in the GJFO RMP. Areas with implementation level plans that address travel management would not be addressed in this effort (Bangs Canyon SRMA and North Fruita Desert SRMA):

1. unless new resource information is available;
2. public comment is received regarding the route; or
3. recreation staff thinks it makes a valuable contribution to the network.

In order to facilitate the realization of SRMA or ERMA objectives, travel systems support the defined recreation objectives. This may require the development of additional trails and routes, the closure of routes, or the change in the type of use on a route.

The process for developing and constructing travel systems, trails or otherwise, is strictly defined by the BLM and under no circumstances will the BLM adopt user-created routes in its future travel systems. Routes found to be outside the defined travel system will be closed and rehabilitated.

Dispersed camping would be allowed in the planning area. Existing spur routes that lead to campsites would be designated and identified. No cross-country travel associated with dispersed camping is allowed outside the open areas, and dispersed camping was largely addressed in most zones. During the implementation of approved designations, some additional spur routes to potential campsites may be designated as open to accommodate use consistent with resource concerns and desired future outcomes of the recreation program.

2.5 Laws, Regulations, Policies and Program Guidance

Currently, the Code of Federal Regulations (CFR) establishes the criteria of designating public lands in respect to OHVs and for establishing controls governing the use and operation of OHVs. Non-motorized and non-mechanized uses have been addressed in this planning effort, and decisions made will be incorporated into supplemental rules for enforcement purposes. Various laws and regulations that apply to this process, including:

- National Environmental Policy Act (NEPA)
- Endangered Species Act (ESA)
- Wilderness Act
- National Historic Preservation Act
- Antiquities Act of 1906, including Monument Proclamations
- Wild and Scenic Rivers Act
- Clean Air Act
- Clean Water Act
- Taylor Grazing Act
- Mining Act of 1872 (and subsequent mining acts)
- Federal Land Policy and Management Act (FLPMA) for the BLM
- Code of Federal Regulations (CFR)

The Federal Regulations 43 CFR Part 8340 and Executive Order 11644 (as amended by 11989) require BLM to designate all public lands as Open, Limited, or Closed for OHV use within the following parameters:

The authorized officer shall designate all public lands as either open, limited, or closed to off-highway vehicles. All designations shall be based on the protection of the resources of the public lands, the promotion of the safety of all the users of the public lands, and the minimization of conflicts among various uses of the public lands; and in accordance with the following criteria:

1. Areas and trails shall be located to minimize damage to soil, watershed, vegetation, air, or other resources of the public lands, and to prevent impairment of wilderness suitability.
2. Areas and trails shall be located to minimize harassment of wildlife or significant disruption of wildlife habitats. Special attention will be given to protect endangered or threatened species and their habitats.
3. Areas and trails shall be located to minimize conflicts between off-highway vehicle use and other existing or proposed recreational uses of the same or neighboring public lands, and to ensure the compatibility of such uses with existing conditions in populated areas, taking into account noise and other factors.
4. Areas and trails shall not be located in officially designated wilderness areas or primitive areas. Areas and trails shall be located in natural areas only if the authorized officer determines that off-highway vehicle use in such locations will not adversely affect their natural, esthetic, scenic, or other values for which such areas are established.

2.6 Land Use Plan Decisions – GJFO RMP

FLPMA requires that the BLM "develop, maintain, and, when appropriate, revise land use plans" (43 United States Code 1712 (a)). BLM has deemed it necessary to revise the existing RMP for the GJFO based on a number of new issues that have arisen since preparation of the initial RMP in 1987. The range of alternatives developed in the route designation process for this TMP mirror the goals and objectives of each of the alternatives developed in the RMP revision.

2.6.1 Area Designations

Open

Open areas have been identified by alternative that are limited to a size that can be effectively managed and geographically identifiable to offer a quality, safe, and varied experience for participants. Open areas will be fenced or boundaries clearly signed, closed to shooting, and have parking and information portals.

Alternative A

Alternative A includes three open OHV areas totaling 12,500 acres of intensive travel.

The Grand Valley OHV Area (11,400 acres) is located just north of the Grand Junction Airport and consists of 17 square miles of desert like terrain. The barren hills of Mancos Shale offer challenging rides for all types of vehicles and all skill levels of riders.

The North Fruita Desert (350 acres) open area is located within the North Fruita Desert SRMA and is adjacent to approximately 250 miles of designated routes and trails. The area is mostly fenced and well-signed.

Whitewater Hill Open Area (400 acres) just outside of Whitewater and consists of a small, informal parking area with mostly Mancos Shale terrain. This is not a popular

riding area. The majority of this type of use in the this part of the planning area occurs around 34 and C Road.

Alternative B
Alternative B includes three open areas with 5,400 acres being analyzed.

This alternative includes a scaled down Grand Valley OHV area (4,900 acres) that concentrates use between 27 ¼ Road and 29 Road with designated routes connecting it to another small open area, Skinny Ridge (10 acres).

In this alternative the Whitewater Hill Open Area is changed to designate routes. A new area around 34 and C Road (330 acres) is added and may be a more suitable and enjoyable area.

The North Fruita Desert Open area is reduced by half (170 acres).

Alternative C
Open areas are not being analyzed in this alternative with no acres open to cross-country travel. All previous open areas are limited to designated routes.

Alternative D
Alternative D has the most open area acreage of any action alternative, with 10,200 acres being analyzed.

Grand Valley OHV Area (9,700 acres) is situated between two county roads with easy access. The roads provide a definite place to sign and fence for better user compliance. Skinny Ridge and other popular riding areas are included with a size that allows for diverse and challenging terrain. This area is set back from the airport, homes, and the highway to address the visual, noise, and safety concerns. A couple of portals have been identified for development of parking, signage, and restrooms.

North Fruita Desert (170 acres) is being analyzed.

The 34 and C Road open area (330 acres) is being analyzed, with easy access and better terrain than the Whitewater Hill Alternative.

Limited
"Limited to designated routes" is the default allocation for motorized and mechanized use in the planning area. All areas outside of the open and closed polygons by alternative are limited. Limitations vary by modes of travel, seasons of use, and types of user.

Generally, horse and foot travel is not limited to designated routes. Certain areas with high use, sensitive resources, or potential conflict with other users require that foot and horse travel is limited to designated routes or, in some alternatives, excluded all together.

Alternatives A, B, C and D
For the Bangs Canyon SRMA RMZ 1, 2, 3, and 4, all modes of travel are limited to designated routes.

Alternative B and C
For the North Fruita Desert SRMA RMZ 1, all modes of travel are limited to designated routes.

Alternative B and D
For the Pyramid Rock ACEC, the area is closed to all modes of travel except foot travel.

Alternative C
For the Pyramid Rock ACEC, the area is closed to all modes of travel.

Seasonal Limitations:
Five seasonal limitations for motorized and mechanized travel are proposed within certain areas limited to designated routes:

- Winter Closure (December 1 – May 1)
- Spring Closure 1 Sage Grouse - (March 1 – June 30)
- Open Rifle Hunting Season - (October 1 - November 30)
- Spring Closure 3 Elk Calving (May 15 - June 15)
- Spring Closure 2 Soils (March 1 - May 15)

These wildlife closure dates were recommended by Colorado Parks and Wildlife and are being incorporated into travel management planning throughout BLM Colorado where appropriate. Spring Closure 2 for soils would take place during spring months when saturated soil conditions are most predictable (typically associated with spring melt-out). Seasonal closures target soil mapping units particularly vulnerable to erosion. Additional surface disturbance during saturated conditions on inherently erodible soils can impair the ability of roadways to sufficiently drain water as designed. This often results in accelerated erosion from the roadbed and fill slopes which can damage roadways (making them unsustainable) and contribute towards water quality degradation. Spring melt-out typically occurs from the beginning of March through the middle of May in the GJFO planning area.

Closed
This designation closes and area to any and all motorized and mechanized travel. Areas are designated closed if closure to all types of transportation is necessary to protect resources, promote visitor safety, or reduce use conflicts. These areas vary by alternative and include WSAs, ACECs, LWWCs, WSR segments, Critical Habitat and Research Areas, Wildlife Core Areas, and Municipal Watersheds.

Generally, non-motorized/non-mechanized uses are permitted in these areas on designated trails.

2.7 Implementation Level Decisions

Implementation level decisions include the process of assigning route designations to each route within the limited polygons in accordance with alternative themes while balancing access and resource concerns. Route designation is an implementation level

decision governed by the higher level RMP. Implementation decisions are subject to appeal.

2.7.1 Process for Route Designation

GJFO Interdisciplinary Team and Cooperating Agencies convened for six weeks to look at each route by alternative and evaluate the access needs, public comments, and resource concerns of each.

2.7.2 Route Designation Criteria

For each route, the following was analyzed and recorded in the route designation process by alternative, working with the GJFO ID Team.

Route Overview and Access

Right-of-Way (ROW)

Legally recognized by another agency

Access to non-federal lands

Continuity between other county, state, or federal routes or lands

Resource Uses

Forestry

Livestock Grazing (Range)

Recreation and Visitor Services

- Loop trail
- Recognized in local maps and guides
- Resolves user conflicts
- Contributes to the route network
- Previously designated
- Access to recreation facilities

Lands and Realty

Energy and Mineral Development

Natural, Biological, and Cultural Resources

Cultural Resources

Geology

Paleontology

Soils

Vegetation (including Special Status Species)

Water

Wilderness

Fish and Wildlife (including Special Status Species and habitat)

2.7.3 Route Designations

The following designations were utilized in the route designation process:

- Open to all modes of travel;
- ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use only;
- Motorcycle, mechanized, non-motorized travel only;
- Mechanized, horse, and foot travel only;
- Mechanized and foot travel only;
- Mechanized travel only;
- Foot and horse travel only;
- Foot travel only;
- Closed (motorized and mechanized use not allowed); and
- Administrative/permitted use only.

Table 1, Route Designations in Miles by Alternative, summarizes the proposed route designations for motorized, mechanized, horse, and foot travel by alternative. Detailed travel management zone maps that display each route's proposed designation by alternative are provided in the accompanying CD-ROM.

Table 1. Route Designations in Miles by Alternative

Alternative A	Alternative B	Alternative C	Alternative D
Action: In areas classified as limited to designated routes, allow travel on 3,283 miles of designated routes. • Routes designated for all modes of travel: 150 miles • Routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use: 13 miles • Routes designated for motorcycle, mechanized, and non-motorized use: 52 miles • Routes designated for mechanized, horse, and foot travel only: 55 miles • Routes designated for mechanized and foot travel only: 5 miles	Action: In areas classified as limited to designated routes, allow travel on 2,499 miles of designated routes. • Routes designated for all modes of travel: 935 miles • Routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use: 115 miles • Routes designated for motorcycle, mechanized, and non-motorized use: 61 miles • Routes designated for mechanized, horse, and foot travel only: 82 miles • Routes designated for mechanized and foot travel only: 12 miles	Action: In areas classified as limited to designated routes, allow travel on 2,016 miles of designated routes. • Routes designated for all modes of travel: 612 miles • Routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use: 51 miles • Routes designated for motorcycle, mechanized, and non-motorized use: 46 miles • Routes designated for mechanized, horse, and foot travel only: 73 miles • Routes designated for mechanized and foot travel only: 6 miles	Action: In areas classified as limited to designated routes, allow travel on 3,005 miles of designated routes. • Routes designated for modes of travel: 1,746 miles • Routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use: 86 miles • Routes designated for motorcycle, mechanized, and non-motorized use: 136 miles • Routes designated for mechanized, horse, and foot travel only: 83 miles • Routes designated for mechanized and foot travel only: 14 miles

Table 1. Route Designations in Miles by Alternative

Alternative A	Alternative B	Alternative C	Alternative D
• Routes designated for mechanized travel only: 1 mile • Routes designated for foot and horse travel only: 5 miles • Routes designated for foot travel only: 5 miles • Routes designated as closed: 39 miles • Routes designated for administrative/permitted use only: 112 miles • Routes undesignated: 2,969 miles	• Routes designated for mechanized travel only: 1 mile • Routes designated for foot and horse travel only: 66 miles • Routes designated for foot travel only: 7 miles • Routes designated as closed: 954 miles • Routes designated for administrative/permitted use only: 980 miles.	• Routes designated for mechanized travel only: 1 mile • Routes designated for foot and horse travel only: 51 miles • Routes designated for foot travel only: 10 miles • Routes designated as closed: 1,593 miles • Routes designated for administrative/permitted use only: 1,013 miles.	• Routes designated for mechanized travel only: 1 mile • Routes designated for foot and horse travel only: 48 miles • Routes designated for foot travel only: 7 miles • Routes designated as closed: 345 miles Routes designated for administrative/permitted use only: 661 miles.
Action: No similar action in current RMP.	Action: Implement the following seasonal travel limitations on routes designated for all modes of travel: • Winter closure (December 1 to May 1): 99 miles • Spring closure for sage-grouse (March 1 to June 30):	Action: Implement the following seasonal travel limitations on routes designated for all modes of travel: • Winter closure (December 1 to May 1): 37 miles • Spring closure for sage-grouse (March 1 to June 30):	Action: Implement the following seasonal travel limitations on routes designated for all modes of travel: • Winter closure (December 1 to May 1): 89 miles

Table 1. Route Designations in Miles by Alternative

Alternative A	Alternative B	Alternative C	Alternative D
	15 miles • Spring closure for elk calving (May 15 to June 15): 9 miles • Spring closure for soil resources (March 1 to May 15): 47 miles • Rifle season opening* (October 1 to November 30): 34 miles * These routes are closed year-round except during CPW rifle hunting season, generally October 1 to November 30.	17 miles • Spring closure for elk calving (May 15 to June 15): 4 miles • Spring closure for soil resources (March 1 to May 15): 27 miles • Rifle season opening* (October 1 to November 30): 0 miles * These routes are closed year-round except during CPW rifle hunting season, generally October 1 to November 30.	• Spring closure for sage-grouse (March 1 to June 30): 0 miles • Spring closure for elk calving (May 15 to June 15): 12 miles • Spring closure for soil resources (March 1 to May 15): 56 miles • Rifle season opening* (October 1 to November 30): 26 miles * These routes are closed year-round except during CPW rifle hunting season, generally October 1 to November 30.
Action: No similar action in current RMP.	Action: Implement the following seasonal travel limitations on routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use:	Action: Implement the following seasonal travel limitations on routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use:	Action: Implement the following seasonal travel limitations on routes designated for ATV (less than 50 inches in width), motorcycle, mechanized, and non-motorized use:

Table 1. Route Designations in Miles by Alternative

Alternative A	Alternative B	Alternative C	Alternative D
	• Winter closure (December 1 to May 1): 32 miles • Spring closure for sage-grouse (March 1 to June 30): 2 miles • Spring closure for elk calving (May 15 to June 15): 0 miles • Spring closure for soil resources (March 1 to May 15): 0 miles • Rifle season opening* (October 1 to November 30): 0 miles * These routes are closed year-round except during CPW rifle hunting season, generally October 1 to November 30.	• Winter closure (December 1 to May 1): 18 miles • Spring closure for sage-grouse (March 1 to June 30): 0 miles • Spring closure for elk calving (May 15 to June 15): 2 miles • Spring closure for soil resources (March 1 to May 15): 20 miles • Rifle season opening* (October 1 to November 30): 26 miles * These routes are closed year-round except during CPW rifle hunting season, generally October 1 to November 30.	• Winter closure (December 1 to May 1): 27 miles • Spring closure for sage-grouse (March 1 to June 30): 1 mile • Spring closure for elk calving (May 15 to June 15): 8 miles • Spring closure for soil resources (March 1 to May 15): 4 miles • Rifle season opening* (October 1 to November 30): 0 miles * These routes are closed year-round except during CPW rifle hunting season, generally October 1 to November 30.

3 Plan Implementation

The implementation strategy for the TMP follows a set of management guidelines known as the "4 E's". All management actions generally fit within these four areas:

1. Engineering – the design of roads, trails, and signs
2. Education – the use of informational signs, brochures, maps, and personal contact
3. Enforcement – the use of law enforcement personnel to enforce travel regulations
4. Evaluation – a system of monitoring to determine if objectives are being met

3.1.1 Engineering

Transportation system roads and trails are classified by maintenance levels specified in BLM Manual Handbook H-9113- 2.

BLM Route Maintenance Intensities provide guidance for appropriate "standards of care" to recognized routes within the BLM. Recognized Routes by definition include Roads, Primitive Roads, and Trails carried as assets within the BLM Facility Asset Management System (FAMS).

3.1.2 Facility Asset Management System

All roads, trails and related facilities and infrastructure will be entered into the FAMS. FAMS is a tabular engineering database that does not have a spatial component, but the attribute fields for BLM Roads in GJFO will be linked to attribute data stored in FAMS similar to the way it had been linked to Facility Information Management System data in the past.

3.1.3 Condition Assessments

Condition assessments will be conducted for roads and trails in the planning area on a priority basis and in accordance with standards and guidelines currently described in IB-2000-005, *Road and Trail Condition Assessments*. The results of these assessments will be reviewed by the state engineering staff and, if approved, will be used to update the FAMS database. These updates will be linked to the appropriate data in GIS.

3.1.4 Routes Defined

BLM transportation guidance provides definitions for transportation routes, including roads, primitive roads, and trails, and the maintenance intensity classes for transportation assets. These definitions are used in the Grand Junction TMP.

a. Road: A linear route declared a road by the owner, managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use.

b. Primitive Road: A linear route managed for use by four-wheel drive or high-clearance vehicles. Primitive roads do not normally meet any BLM road design standards.

c. Trail: A linear route managed for human-powered, stock, or OHV forms of transportation, or for historical or heritage values. Trails are not generally managed for use by four-wheel drive or high-clearance vehicles.

3.1.5 Functional Class

Functional classes indicate the relative importance of a route's transportation and access functions, and are the basis for geometric design standards and maintenance guidelines. The functional classifications are determined according to guidance in *BLM Manual 9113 Roads*. Functional class is defined by collector roads, local roads, and resource roads.

Collector Roads are the highest standard of BLM road. They provide primary access to large blocks of land and connect with or are extensions of a public road system. Collector roads accommodate mixed traffic and serve many uses. They generally receive the highest volume of traffic within the BLM road system. User cost, safety, comfort, and travel time are primary road management considerations. Collector roads usually require application of the highest standards used by BLM. As a result, they have the potential for creating substantial environmental impacts and often require complex mitigation procedures.

Local Roads normally serve a smaller area than collector roads and connect to collector roads or public road systems. Local roads receive lower volumes, carry fewer traffic types, and generally serve fewer users. User cost, comfort, and travel time are secondary to construction and maintenance cost considerations. Low volume local roads in mountainous terrain, where operating speed is reduced by effort of terrain, may be single land roads with turnouts.

Resource Roads are usually spur roads that provide point access and connect to local or collector roads. They carry very low volume and accommodate only one or two types of uses. Use restrictions are applied to prevent conflicts between users needing the road and users attracted to the road. The location and design of these roads are governed by environmental compatibility and minimizing BLM costs, with minimal consideration for user cost, comfort, or travel time.

Most of the routes in the planning area are designated as Resource Roads, unpaved, single lane, with very low traffic volume (Average Daily Traffic $\leq$150 vehicle passes) and very low traffic speeds.

3.1.6 Maintenance Intensities

Maintenance Intensities provide consistent objectives and standards for the care and maintenance of BLM routes according to identified management objectives. Maintenance Intensities are consistent with land-use planning management objectives (for example, natural, cultural, recreation setting, and visual).

Maintenance Intensities provide operational guidance to field personnel on the appropriate intensity, frequency, and type of maintenance activities that should be undertaken to keep the route in acceptable condition and provide guidance for the minimum standards of care for the annual maintenance of a route.

Maintenance Intensities do not describe route geometry, types of route, types of use, or other physical or managerial characteristics of the route. Those items are addressed as other descriptive attributes to a route.

Maintenance Intensities provide a range of objectives and standards, from "identification for removal" through frequent and intensive maintenance.

Level 0 routes are existing routes that will no longer be maintained and no longer be declared a route. Routes identified as Level 0 are identified for removal from the transportation system entirely.

Level 1 routes require minimum, low intensity maintenance to protect adjacent lands and resource values. These roads may be impassable for extended periods of time

Level 3 routes require more moderate maintenance due to low volume use, such as seasonal or year-round for commercial, recreation, or administrative access. Maintenance Intensities may not provide year-round access but are intended to provide resources appropriate to maintain a usable route for most of the year.

Level 5 routes require high, maximum intensity maintenance due to year-round needs, high-volume traffic, or significant use. The Level 5 designation may also include routes identified through management objectives as requiring high intensities of maintenance or to be maintained and kept open on a year-round basis.

The proposed maintenance intensity class will be developed for each route in the planning area. These will provide the basis for updating the FAMS database for the project area. Under BLM policy, transportation maintenance and repairs may be conducted on BLM routes on a case by case basis depending on need and following NEPA analysis.

3.1.7 Area and Route Signing

A sign plan is necessary to ensure that signs placed in an area are consistent with land use and other planning documents; that they are designed to be consistent with all applicable laws, regulations, and policies; and that all signs adhere to a consistent theme. A sign plan should include the goals, objectives, and responsibilities for the placement of signs, as well as an inventory of existing signs and may include a process for designing/locating new signs.

BLM Sign Guidebook covers location and placement, along with speed of travel in Chapter 4, Design Standards. Colorado Inter-Agency Travel Management Sign Standards have been developed and will be used in signing for the GJFO. (See TMP Attachment 2)

3.1.8 Sign Types

There are several types of signs that states should consider when developing state sign policy and implementing TMPs. Efforts should include identification and information signs at trailheads and entrances, and along trails, roads, primitive roads, intersections, authorized, and closed areas.

Trail Signs

There are two types of trail signs, allocation signs, and reassurance markers. Allocation signs show the permitted and not permitted uses of the trail. These signs are used at trailheads, where a trail begins, intersections, or anywhere there is a change in use type. Reassurance markers provided markers so trail users know they are still on the right trail. For example, symbols could be an arrow or the trail logo.

Road Signs

Road signs apply to signage for linear routes managed for use by low-clearance vehicles having four or more wheels, and maintained for regular and continuous use. The Manual on Uniform Traffic Control Devices standards apply to these roads. There are cases where some roads will be open to unlicensed OHVs. Signs for these roads are marked in a manner that notifies or warns the public of mixed uses.

Primitive Road Signs

Primitive road signs apply to signage for linear routes managed for use by four-wheel drive or high-clearance vehicles. These routes do not normally meet any BLM road design standards.

Other Types of Signs

Trailhead or entry signs apply to signs used at entry to trails or access points to public lands. These signs are used to notify the public of the travel management strategy or designation of the area they are entering, such as “areas limited to designated routes,” “areas limited to exiting routes,” or “open areas.”

3.1.9 Sign Placement

Travel management signing and allocation information need not be on every trail sign along the trail corridor. Travel management signs should be placed at the trailhead and at trail junctions where travel management is changing or needs reinforcement.

3.2 Education

An improved public outreach program will be initiated to instill and strengthen a more effective and responsible resource use ethic. For mapping and signing efforts, particularly at information kiosks, the GJFO will develop appropriate resource information and education. Legal penalties language will be included in all handouts, maps, and kiosks.

The BLM will work with cooperating associations and community groups to better distribute interpretive materials. In order to achieve outreach and education objectives, it is imperative to create sustainable partnerships with private groups and governmental organizations.

3.2.1 Targeted Methods of Communication

Methods of communicating with the public include the following:

- Podcasts: downloadable items such as maps, land use ethics, rules, air quality alerts, fire prevention restrictions, emergency announcements, etc.

- Electronic Kiosks: downloadable items such trail track logs, audio storytelling for cultural, historic, natural interpretative information
- Web Video & Focus Surveys: interactive sites for user info and feedback to BLM
- Web site: updated regularly and designed to give viewers something new each time they view the page, including GIS data posted to the BLM website for self-service data acquisition.
- Public Service Announcements: via radio, newspaper, TV, etc.
- Traditional Brochures and Guides

3.3 Enforcement

Currently, law enforcement coverage is provided by BLM Rangers. Enforcement actions are typically in response to complaints, and patrols are conducted on a periodic basis depending on priorities throughout the GJFO. Partnerships with local businesses and organizations will be encouraged to promote safe and responsible use of public lands. Volunteer groups may assist with monitoring, public education, and special events.

Goals for a successful enforcement plan include:

- Increasing the presence of BLM law enforcement staff and BLM law enforcement in the area. BLM park rangers will conduct high profile, routine patrols in the area to educate users about laws and regulations. They may initiate emergency or law enforcement response simply by being first on-scene;
- Improving and expanding interagency cooperation in the area;
- Concentrating efforts on high use periods, such as weekends and holidays;
- Focusing targeted enforcement in “hot spots;”
- Increasing enforcement capacity, including the use of new technology;
- Supporting volunteer efforts to educate the public on rules and etiquette; and
- Encouraging educational and monitoring efforts by volunteer user groups and citizen-based education groups, which can leverage formal law enforcement efforts. Volunteer user groups will educate users on rules and etiquette for the area.

3.4 Evaluation

As required in 43 CFR Sec. 8342.3 (Designation changes): "The authorized officer shall monitor effects of the use of off-road vehicles. On the basis of information so obtained, and whenever the authorized officer deems it necessary to carry out the objectives of

this part, designations may be amended, revised, revoked, or other actions taken pursuant to the regulations in this part."

A monitoring plan would be prepared and would include the measures for route closures and rehabilitation of impacted areas, levels, and types of uses. Natural resource conditions, such as soil erosion, spread of noxious weeds, and impacts to vegetation, would be monitored.

Inventory data presents a “snapshot” of the status of resources. Monitoring is the critical factor in determining cumulative impacts to resources. Areas must be monitored for impacts to the resources in addition to the quantity and type of uses that are occurring. Analysis and evaluation of monitoring data provides an indication of both change in use and the effects of that use on the environment.

The success of the GJFO TMP is best determined through monitoring and evaluation. BLM will develop and implement a monitoring and evaluation program for the area. It will be designed to identify and address emerging issues that may adversely impact resources or visitor experience. The data monitoring will be used to evaluate implementation progress and the effectiveness of the TMP in achieving desired outcomes and conditions and to identify adaptive measures should adverse impacts be discovered. The monitoring effort will identify specific actions, including timeframes, methods, and anticipated resource needs for environmental monitoring. The evaluation and monitoring program will be used for the following:

- To determine if recreation objectives are being met;
- To determine visitor satisfaction;
- To determine use patterns and volumes;
- To determine the condition of roads and trails, the condition of public use areas, and compliance with planned designations and use restrictions; and
- To determine efficacy of cross-jurisdictional enforcement.

Limits of Acceptable Change indicators, or triggers, requiring adjustments to this management plan are as follows:

- Desired recreation experiences over a five year period are not being met as determined by surveys, visitor sign-in logs, or other data-gathering processes conducted in the planning area;
- Unauthorized routes, whether created by motor vehicle or non-motorized means, cannot be rehabilitated at the same rate as their creation with available funding or personnel;
- Priority or Special Status species habitat conditions are in a downward trend over a five year period, and it is determined to be a result of recreation or travel impacts;

- Riparian condition trend is not improving over a five-year period, and it is determined to be a result of recreation or travel impacts; and
- Visitor safety and assumed risk for non-shooters is determined by BLM to be unacceptable as determined by data collection and surveys conducted in the planning area.

Some features of the monitoring plan will include:

- BLM employees and volunteers will be encouraged to use trail and recreation observation booklets while in the field to document vehicle use and assist in monitoring and compliance;
- Photo-monitoring points will be established in key locations to monitor implementation actions and their effectiveness. For example, photo points can be established to monitor where cross-country travel has occurred, activity on "closed" routes has occurred, success of rehabilitation projects, extent of erosion mitigation areas as well as areas of good road quality for future reference. Photo monitoring points will be documented using GPS, and a monitoring schedule will be established;
- The monitoring data collected will be used to assess the effectiveness of the plan and associated implementation actions;
- "Closed" routes would be monitored for indications of use, rehabilitated routes will be monitored to determine effectiveness of seeding and water drainage, and the plan area will be monitored for signing conditions. Modifications to the plan would be considered if monitoring indicates that the goals and objectives are not being met;
- Recreation demand and preference will be captured by survey as funding and staffing allow;
- Upland health assessments will be conducted as warranted;
- Riparian health assessments will be conducted every 3 to 5 years;
- To maintain simplicity, hard copy binders backed up with digital data will be created and stored for a period of ten consecutive years. After ten years, only select photos and data will be retained for long term monitoring; and
- Management changes may occur based on monitoring or related data. Several different kinds of limitations, including vehicle numbers, types, use times or seasons, permitted use, designated routes, and other limitations necessary to meet land use plan objectives, may be implemented as necessary. The public would be notified of such changes.

4 Implementation Strategy

Following approval of the proposed plan, a notice will be published in the Federal Register, in accordance with 43CFR8365, to establish new use restrictions needed to implement and enforce the plan. **Table 2**, Implementation Timetable, provides a potential timeline for implementing and enforcing the plan.

4.1 Prioritization of Work

Specific prioritization of work will be guided by five factors/questions. he highest priority would be given to areas for which all factors apply.

1. Does it maintain or enhance public safety?
2. Is it located within an area of high resource value?
3. Does it have above-average density of important sensitive species?
4. Does it have above-average disturbance?
5. Does it have significant urban interface issues?

4.2 Case Study for Reference

Past agency experience, such as that obtained through the implementation of the *Ord Mountain Route Designation Pilot Project* in the California Desert District, can give valuable insight into not only effective implementation actions, but also the order in which they should occur. Implementation of the Ord Mountain Pilot plan revealed that the most effective short-term action taken was an increase in enforcement and visitor service patrolling, which resulted in a commensurate increase in visitor contacts. Through this increased number of contacts, visitors realized that BLM was aggressively and successfully implementing a new route network. Visitors generally responded to this in one of two ways. Those who were seeking a cross-country driving experience and did not want to be limited to routes gradually moved to the designated “Open Areas” where they could continue to recreate in a more unrestricted manner. Others continued to recreate in the Ord Mountains, generally staying on “open” routes.

The least effective short-term action taken in the Ord Mountains was signing the “closed” route network. This effort consumed a lot of staff time and signs were removed almost as quickly as they were put up. The need to resign routes placed additional demands on scarce staff time and materials.

Table 2: Implementation Timetable

ACTION	TIMELINE
1. Pursue funding for outreach literature, signage and staff necessary to implement the route/facility signing effort (i.e. law enforcement, non-law enforcement type park rangers, and maintenance staff). 2. Pursue funding and contractual obligations for highest priority survey work. 3. Pursue funding for route and site rehabilitation. 4. Sign the "open" route network and limit signing the "closed" route network. 5. Maintain the "open" route network with the principal goal being to make the "open" route network more attractive than the "closed" route network. 6. Install informational kiosks and signing where they would be most effective. Site these facilities where it would reach the greatest number of visitors and where it would target an audience that might be the most receptive to such facilities. For example such facilities might be most beneficial at major trailheads and campgrounds that are heavily visited by camping families and groups. 7. Develop and publish up-to-date, readily available, and easy-to-understand maps. 8. Regularly maintain signs, kiosks, routes, maps, and brochures.	Year 1
1. Begin area and route rehabilitation in priority areas, such as riparian zones and along main roads. 2. Area and route rehabilitation would require active maintenance for at least one year to prevent reestablishment of routes and the growth of seed and plants. 3. Initiate enforcement and visitor service patrols with the following caveat: funding must be available to sustain the new visitor service patrol for a period of at least two years. Additional funding will be sought through BLM channels and through partnering to leverage grants or other available funds. 4. As enforcement efforts move into new areas, inappropriate use could migrate back to areas where it is not desired. Therefore, this behavior pattern will be monitored by volunteers. 5. Initiate monitoring plan.	Year 2
1. Begin development of area facilities. 2. Routinely maintain signs, kiosks, routes, maps, and brochures. 3. Monitoring analysis.	Year 3

4.3 Priorities for Site-specific Analysis

Types of surveys required would depend on the habitat type in which the route occurs.

New routes

1. New/existing routes paralleling and/or crossing stream channels supporting riparian communities. Typical survey work may include: collection of baseline morphologic data of stream channel, banks, and floodplain; site specific route information necessary to accurately input and run Water Erosion Prediction Program (WEPP) simulations, PFC evaluations and/or Pfankuch stream stability evaluations.
2. New/existing routes with multiple drainage crossings (specifically the ingress/regress to drainages) and/or routes which utilize dry washes as travel routes. Typical survey work may include: collection of baseline morphologic data of stream channel, banks, and floodplain; site specific route information necessary to accurately input and run WEPP simulations.
3. New/existing routes on mapped "Fragile soils". Survey data would be required to confirm existing or proposed routes are on mapped "Fragile soils".
4. Existing routes to be upgraded (widened and/or type of use changed from existing)
5. Existing routes with an expected increase in motorized use
6. Existing routes with an expected increase in mechanized use
7. Existing routes with an expected increase in pedestrian/ horseback use

4.4 Rehabilitation

Rehabilitation actions will be determined according to the following options:

a. Leave route to natural re-vegetation, route is not currently visible, no need to sign.
b. Closed routes will only be posted where evidence of use is apparent.
c. Sign route as closed and leave to naturally reclaim.
d. Sign route as closed, place a berm or other barrier and leave to natural re-vegetation.
e. Sign route as closed and reclaim the portion that is visible from open routes.
f. Sign route as closed and reclaim the entire route.
g. Barriers will be placed in areas deemed necessary.

4.5 Reclamation Standards

The following reclamation standards will be followed:

a. Routes identified for closure will not alter natural hydrologic function and condition of the affected watershed (e.g. closed routes will not divert runoff from natural drainage patterns).

b. Disturbed areas will be fully re-contoured and re-vegetated with BLM-preferred seed mixtures.

c. Seeding will be done where necessary to aid rehabilitation of closed routes. Appropriate native seed mixtures will be selected for each site based on site conditions. Reclamation techniques include ripping the surface with a tractor to break up compacted soil and allow rain retention. Broadcast seeding will be done prior to winter. Some areas will be fenced to prevent disturbance and allow for grazing rest during the first two growing seasons. This technique is typically used near main roads where camping or parking may occur.

d. BLM will utilize native material such as rock and large woody debris to the greatest extent practicable in combination with manufactured stormwater structures (e.g. silt fence, straw waddles, etc.), and mechanical erosion control techniques (e.g. ripping, pocking) to minimize erosion and facilitate site stability.

e. Reclamation techniques for routes in Wilderness, Wilderness Study Areas, and Lands with Wilderness Characteristics will be specifically planned to return the area to its original condition in the shortest amount of time.

f. Weed and vegetation treatment control measures will be implemented as needed to promote re-vegetation with native plants, prevent any new weed establishment, and control of existing weed sources.

4.5.1 Funding Strategy

Significant funding will be needed for labor costs to provide law enforcement, recreation visitor services, and to cover maintenance and operational costs (e.g. supplies, materials, tools, equipment, vehicles, communications, etc.). Operations funding for cultural surveys, land health assessments, wildlife surveys, transportation maintenance, and related costs will be determined on an ongoing project basis, and planned annually. A preliminary engineering summary indicates that the facilities and road improvements will total approximately $2,000,000 if contracted out entirely. BLM will strive to lower the costs through partnerships, in-house labor, and careful engineering.

Funds for labor, supplies and equipment will be pursued through the BLM budget process, and will be subject to appropriation of funds. Funding sources may include BLM Damaged Lands accounts, State OHV gas tax funds, and grant monies available to non-profit groups. Funding will be pursued though Challenge Cost Share projects, an agency program that matches other funding sources, assistance agreements, or plans to leverage external contributions to the greatest extent possible. Grants from various

sources will be pursued, including state, federal, and private funding sources. Appropriate agreements will need to be created.

4.5.2 Standard Operating Procedures

The following standard operating procedures will be implemented during all phases of plan implementation.

General

A visitor access guide will be published and made available as full size hard copy maps for sale, smaller maps available for free and posted virtually on the internet.

Appropriate NEPA analysis will be obtained prior to any ground disturbance not discussed in this plan, and impacts to cultural resources, or other resource values, that may be discovered will be mitigated or avoided.

Routes

Standards and guidelines will be developed for BLM road and primitive road maintenance, new construction, or reconstruction. The standards and guidelines for primitive roads will be based on the functional requirements of the various types of recreational motorized users. BLM will not develop, endorse, or publish road or trail ratings. BLM will simply describe the physical aspects of a route or recreation site, such as those for technical vehicles.

Maintenance standards for each designated route will be documented and route modifications will be identified and recommended if necessary. Maintenance will be completed only to the identified maintenance intensity level to support resource and public protection.

Maintenance of routes may be done to minimize soil erosion and other resource degradation. This maintenance will be done on a case-by-case basis, depending upon annual maintenance funding.

Maintenance procedures for physical barriers will be developed, once the number and type of barriers is determined.

Minor modifications of the road network during plan implementation are allowed without a plan amendment. FLPMA allows BLM RMPs, such as the GJFO RMP, to be "maintained as necessary to reflect minor changes in data" (Section 1610.5-4). Plan maintenance is limited in that it cannot result in the expansion of the scope of resource uses or restrictions or change the terms, conditions, and decisions of the GJFO RMP. It is limited to further refining or documenting a previously approved decision incorporated in the plan. In view of these limitations, "minor realignments" of the route network would be considered to be Plan Maintenance. The term "minor realignment" refers to a change of no more than one quarter (1/4) mile of one designated route. It could include the opening of an existing, but previously "closed" route that serves the same access need as the "open" route that is to be "realigned." It does not include the construction of a new route involving new ground disturbance, except where new construction is

necessary to avoid a cultural resource site or sensitive species. "Minor realignments" include the following:

- Minor realignments of a route where necessary to minimize effects on cultural resources.
- Minor realignments of a route necessary to reduce impact on sensitive species or their habitats.
- Minor realignments of a route that would substantially increase the quality of a recreational experience, while not affecting sensitive species or their habitat, or any other sensitive resource value.

Minor realignments must be documented in the official record. The reason for the alignment change shall be recorded and kept on file in the GJFO.

Opening or "limited" opening of a route where valid ROWs or easements of record were not accurately identified in the route designation process.

The proposed BLM Roads consist of roads or primitive roads that provide the principal access from the public highway system to public lands in the planning area. These routes are the main connectors of the planning area's existing travel route network under current and foreseeable traffic patterns. These routes function as BLM Local, although road standards may vary depending on type of use or to meet specific management objectives. These routes will generally be the priorities for pursuing legal access acquisition or adjudicating existing access rights across non-federal land, and for completing maintenance to ensure long term, legal public access to the public lands in the planning area. These routes will generally be the highest transportation maintenance priority. Road segments from the public highways to the public land may be posted with "Public Land Access Route" signs.

When accepting a proposal, the authorized officer should consider cost recovery. Only after NEPA analysis has occurred will a formal decision to accept or reject a specific route change be made.

Hand raking and disguise of prominent "closed" routes, including planting commonly found plants on "closed" routes, will be employed to help discourage use.

Proactive route rehabilitation work would be utilized where the first phase has not proven to be successful or where route conditions were clearly beyond the capability of the first phase to address.

Having route designations in place enhances the availability of funds and would allow the BLM to pursue external sources of rehabilitation funding, such as State OHV Grants, the National Fish and Wildlife Habitat Fund, and contributions of volunteer labor from local, state, and national interest organizations.

Focus on signing of the open route network so that it is highly visible, thus discouraging interest in closed routes. The signing of closed routes will be done very infrequently,

since they have been found to be more of an attractant than a deterrent to unauthorized use.

Backcountry Airstrips

There are a number of locations throughout the GJFO that are commonly known and consistently used for aircraft landing and departure activities that, through such casual use, have evolved into backcountry airstrips (the definition contained in Section 345 of Public Law 106-914, the Interior and Related Agencies Appropriation Act of 2001). In accordance with that law, require full public notice, consultation with local and state government officials, the Federal Aviation Administration (FAA), and compliance with all applicable laws, including NEPA, when considering any closure of an aircraft landing strip.

In addition to compliance with applicable aviation regulations, backcountry airstrips will be designated and managed the same as travel routes for other forms of transportation. As such, management of backcountry airstrips would conform to all decisions, including those regarding route construction and maintenance, outlined in this travel management plan.

4.6 Mitigation Measures

During the structured analysis process, sensitive resources were identified requiring mitigation measures that would minimize effects to resources.

Best management practices such as, but not limited to, closures, relocations, drainage improvements, maintenance, hardening, change in motorized/non-motorized use, seeding, etc. shall be promptly implemented when monitoring or field reviews indicate such action is appropriate.

4.6.1 Soils and Hydrology

a. All route construction will comply with standard criteria for placement of routes. (See TMP Attachment 1)

b. The BLM retains the authority to temporarily or permanently close or modify appropriate modes of travel (e.g. motorized vs. non-motorized) on open routes based on site-specific resource concerns and documentation of those concerns through routine monitoring and maintenance.

c. Surface disturbance near drainage features and total surface disturbance on mapped Mancos Shale areas will be limited.

d. Alteration of natural hydrologic function and condition in source areas for springs, seeps, and fens will be avoided. Surface disturbing activities will be relocated away from these sensitive areas as site conditions warrant.

e. Low water crossings will be constructed at original streambed elevation in a manner that will prevent any blockage or restriction of the existing channel.

f. Drainage relief structures will be utilized on all routes as site-specific conditions, such as buffer length and slope to natural drainages, route slope, fill slope, soil type, rock content, etc., require.

4.6.2 Cultural

Travel Management decisions will have both positive and negative impacts on cultural resources in the GJFO. Site damage could occur to significant sites due to erosion potential and direct disturbance through the ground disturbing activities of travel management, such as trail and road construction, reclamation, and maintenance, as soils will be stripped of stabilizing vegetation, woody debris, and large rocks. Decreased soil stabilization increases erosion potential, elevates potential alteration of natural drainage patterns with formation and enhancement of rills, pedestals and gullies, and could reveal and impact additional subsurface cultural features.

In contrast, some road and trail maintenance might be beneficial by protecting sites from erosional runoff. There are trade-offs associated with the change from unregulated travel use and cross-country travel in the GJFO to concentrating use to designated routes. It is likely that cultural resources along designated routes will experience increased impacts through use, but that cultural resources outside designated routes would see reduced impact.

The BLM GJFO will work with Colorado State Historic Preservation Office (SHPO) to develop agreements related to travel management and cultural resource which may include the use of strategic cultural resource survey sampling and modeling in portions of the GJFO. (See TMP Attachment 3)

Prior to any ground disturbing activity cultural resource surveys, in compliance with Federal laws, would be completed and the appropriate entities, such as SHPO and interested Native American tribes, would be consulted with prior to the activity occurring.

For trail and road construction projects and maintenance projects the BLM may choose one of the following options if significant (eligible or potentially eligible “needs data”) cultural resources are discovered or known in the area:

1. The BLM may choose to not perform construction or maintenance on areas that would directly impact sites,
2. The BLM might reroute roads, primitive roads, and trails to avoid significant cultural resources on existing and proposed construction. These reroutes would require surveys for cultural resources and would have to allow for other resource specialists to analyze the locations of the reroutes,
3. The BLM may choose to conduct evaluative testing to determine final eligibility on potentially eligible sites. The BLM would consult with SHPO on changes to site eligibility.
4. Eligible sites may be mitigated via data recovery through excavation to reduce the effects of the trail and road maintenance, reclamation, and

construction. Both SHPO and interested Native American tribes would be consulted prior to any proposed data recovery mitigation on significant cultural resources.

4.6.3 Sensitive Status Species

To prevent the seeding and spread of invasive, non-native species, BLM-approved seed mix will be used during reclamation activities, and seed mixtures shall contain no noxious, prohibited, or restricted weed seeds. Where soil disturbance will occur, all equipment will be required to be cleaned and inspected prior to use within the planning area. Public education and signs promoting the use of clean vehicles to prevent the spread of weeds, shall be included in entry kiosks and on literature.

The GJFO contains threatened, endangered, and other special status plants, wildlife and fish. As knowledge grows regarding the distribution of species and the effects of travel management on species and their habitat, the GJFO may recommend modifications to the proposal to enhance conservation and management objectives for these species or their habitat.

4.7 Lands Actions

Lands actions include the following:

- Improve legal access to public land, where appropriate and necessary.
- Identify needs and request funding for motorized and non-motorized access, exchanges and acquisitions and incorporate them in the existing ranking system.

Easements, ROWs, and Permissive access license agreements include:

- Acquisition of road or trail easement or issuance of an ROW on an existing or historic physical access will be pursued only in areas where those actions will contribute to the protection of natural resources and not for the sole enhancement of recreation opportunity.
- Easements may be acquired through donation following the procedures set forth in *BLM Manual 2100 - Acquisition*.

Attachment 1

Criteria for Placement of Routes

This page intentionally left blank.

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 9Technology and development Center 1998 Doc# 7E72A49

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

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

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

Trails 2000, Lockwood USDA Forest Service 1994

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

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

USDA Forest Service Travel Management Handbook, FS 2309.18

Attachment 2

Colorado Interagency Travel Management Sign Standards

This page intentionally left blank.

COLORADO NATURAL RESOURCE GROUP

TRAVEL MANAGEMENT SIGNS FOR PUBLIC LANDS IN COLORADO

The following Travel Management Sign guidance has been developed by the Colorado Natural Resource Group (CNRG) to promote consistent seamless travel management signage for public land users in the State of Colorado. Promoting safe and responsible use and promoting and supporting coordination among all agencies and non-government partners is a goal of the CNRG.

Colorado Division of Wildlife

Russell George 12/18/03

Russell George, Director — Date

Colorado State Parks and Outdoor Recreation

1-6-04

Lyle Laverty, Director — Date

Colorado State Forest Service

1.28.04

Jim Hubbard, State Forester — Date

Bureau of Land Management

12/4/03

Ron Wenker, State Director — Date

National Park Service

12/9/03

Ron Everhart, Colorado State Director — Date

US Forest Service

1/12/04

Jim Bedwell, Colorado Lead Forest Supervisor — Date

09/30/02

Travel Management Signs for Public Lands in Colorado

Background

Four travel management signs were developed at the Colorado Natural Resource Group (CNRG) sponsored 1998 travel management conference held in Denver on Sept 11-12, 1998. Those signs include a Trail sign, an Area Open sign, a Travel Restricted sign and a Road Use sign. On June 15, 2001 an interagency implementation group met and recommended an additional Road Use sign to be placed on roads not intended for use by standard passenger cars. This recommendation was supported and approved by the CNRG. The following descriptions provide direction on the installation and use of these approved travel management signs.

Standards For All Signs

These signs are intended to inform the traveler on what the travel management direction is for an area, road or trail.

Color:

Color on the signs will be white on brown.

Symbols:

Eight federal recreation symbols are used on these signs. To ensure consistency the symbols are as follows: hiker (RL-100); cross-country skier (RS-040); horse (RL-110); bicycle (RL-090); trail bike, i.e., trail motorcycle (RL-150); all-terrain vehicle (RL-170); snowmobile (RS-070); and high clearance vehicle (RL-140). There will be no additions or substitutions. Always use international symbols, and ensure that they are the current symbols.

Symbols will be reflectorized.

A red slash across a symbol will be used to display closures. No other color than red should be used for the slash.

Consistency is the key to the success of these signs. Whenever symbols are used, the order of placement will be: hiker, cross-country skier, horse, bicycle, trail motorcycle, ATV, snowmobile and high clearance vehicle. Any of the symbols may be eliminated when appropriate, but the remaining order will be maintained.

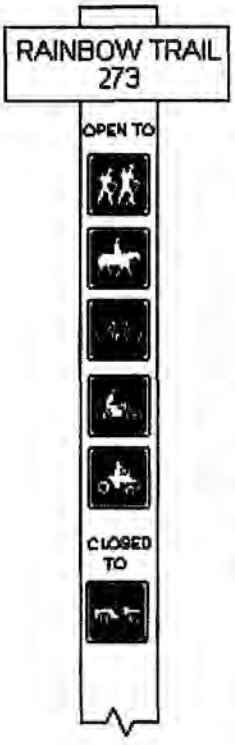
Material:

Travel management signs will not be constructed on paper or poster type materials.

Fonts

The fonts will be Gothic C, standard highway fonts. The lettering size will not be smaller than one half inch.

Trail Sign



Standard Format

Travel Management signage for trails is critical in today's world. The trail users want to know what modes of travel are allowed on the trail they are ready to use, as well as what modes of travel are prohibited on that trail.

Trailhead Signage

All trailheads should have travel management signing regardless of the level of development at the trailhead. At a minimum, the user should see the name and number of the trail, with travel management information clearly displayed as a sign assembly. See diagram at left.

The trail name and trail number should read horizontally. The travel management should be displayed vertically. A destination is optional for the trail sign. Follow responsible agency's manual direction on proper wording, abbreviations, and placement of text for direction signs.

Placement of International Symbols

To show the travel modes allowed, use the words "Open To" and show the international symbols below. Display the modes of travel that are prohibited using the words "Closed to" with a red slash across the international symbol below.

Symbol Size

The size of symbols for trail usage is 3x3 inches for each symbol.

Agency Logos

The agency logo(s) may be placed at the bottom of the vertical travel management sign. It can be smaller than the 3x3 international symbol. Consider keeping it white on brown.

Placement of Travel Management Signs

Travel management signing need not be on every trail sign along the trail corridor. Travel management signs should be placed at the trailhead, and at trail junctions where travel management is changing, or needs reinforcement.

Travel Restricted Area Sign

Standard Format

The Travel Restricted Area sign is intended to be used where a traveler crosses into a travel restricted area from an open area. This does not include wilderness areas. This sign is intended to alert the traveler that off road travel is prohibited and there may be some additional restrictions on certain routes.

Install this sign where it is safe for traffic to stop to view the message.

The Trail sign and Road Use sign will be used to designate routes. All other signing alternatives will no longer be used.

Symbols

Only the modes of travel that are restricted should be shown on this sign.

Allowable Alterations

The word "Designated" may be changed to "Established" while area management prescriptions are being changed from "open to off-road travel" to "restricted to roads and trails". When the roads and trails that will be retained as the managed transportation system have been identified the word "Established" should be changed back to "Designated." This is intended to be an interim policy to allow for the orderly transition between "open to off-road" to "restricted to route" policy.

Lettering

Minimum size of lettering will be one inch.

Minimum lettering size for "TRAVEL RESTRICTED AREA" wording will be one half inch larger than all other lettering.

Area Open Sign

Standard Format

The "OPEN AREA" sign is used for specific areas with identifiable boundaries in which travel is allowed both on and off roads. An area identification is optional. If the area name is desired, place the name at the top of the sign. The message "THIS AREA OPEN TO ALL TRAVEL ON AND OFF ROADS AND TRAILS USING" is to be placed below the name of the area and above the recreation symbols. Agency logos and/or names are to be placed below the recreation symbols. Every sign should include at least one agency identification of some sort so the public knows where questions and comments can be directed. Areas managed by multiple agencies may show only agency logos across the bottom of the sign.

In most cases this sign would be installed at all access points into a specified open area.

Road Use Sign

Standard Format

These signs are travel management signs and are not intended to replace road name or road number signs. Where there are travel restrictions, the road name and number may be included on these signs.

Road Use signs are used to identify "designated routes" through a travel restricted area. They also inform the traveler of the modes of travel allowed on the route. The sign may contain several messages.

Options – Horizontal Display

This sign is appropriate on roads intended for use by standard passenger cars, or on lower standard roads where the complexity of the travel management message (i.e., seasonal closures) requires the use of horizontal display. There are 3 options for this sign (see diagrams at left). They are:

OPEN TO: is intended to show, using symbols, the modes of travel allowed on the road. Display all the symbols under the words "Open To."

CLOSED TO: is intended to show, using symbols, the modes of travel that are not allowed on the road. This sign will first show the modes of travel that *are* allowed on the road under the words "Open To". Below these, the modes of travel that are prohibited will be shown with red-slashed symbols under the words "Closed To." The reason for the closure is optional.

SEASONAL CLOSURE (with dates): This sign will first show the modes of travel that *are* allowed on the road under the words "Open To". Below these, the modes of travel that are restricted will be shown with red-slashed symbols under the words "Seasonal Closure". The dates of the restricted travel will be shown below the symbols.

FR 17-1
18" X 18"
(w/green circle)

OHV Sign

Road Identification

The road name is not required. If the road name is desired, it will be placed at the top of the sign along with the number.

Symbols

The minimum symbol size will be 3" x 3".

ATV Usage

If the only change of use on the road is allowing ATV's the open OHV sign can be used in place of the Road Use sign.

Options – Vertical Display

This sign is appropriate on roads not intended for use by standard passenger cars. There are two options for this sign. They are:

OPEN TO: is intended to show, using symbols, the modes of travel allowed on the road. Display all the symbols under the words "Open To."

CLOSED TO: is intended to show, using symbols, the modes of travel that are not allowed on the road. This sign will first show the modes of travel that *are* allowed on the road under the words "Open To". Below these, the modes of travel that are prohibited will be shown with red-slashed symbols under the words "Closed To." The reason for the closure is optional.

SEASONAL CLOSURE (with dates): The complexity of the travel management under this scenario requires the use of the horizontal display to convey the entire necessary message. Refer to the direction for horizontal display above.

Road Identification

The road name is not appropriate on the vertical display. The number will be placed vertically at the top of the sign to distinguish these routes from trails.

Symbols

The minimum symbol size will be 3" x 3".

Agency Logos

The agency logo(s) may be placed at the bottom of the vertical display. It can be smaller than the 3x3 international symbol. Consider keeping it white on brown.

Attachment 3

Addendum 1 to Colorado Protocol

This page intentionally left blank.

Addendum 1 to the Colorado Protocol: Section 106 Requirements For Comprehensive Travel and Transportation Management Planning

Background

As part of its comprehensive travel and transportation management planning program (CTTM), the Bureau of Land Management (BLM) is required to designate travel management routes and areas on public lands as open, limited, or closed to off-highway vehicle (OHV) use (as required by Executive Order 11644 ((as amended by Executive Order 11989) and regulation (43 CFR Part 8340)) and other travel use in every land use plan (LUP). CTTM planning considers both motorized and non-motorized travel, such as, OHV's, horseback riding, biking, and hiking.

Absent designation, routes and areas are subject to uncontrolled travel. Designation of routes and travel network areas generally has the beneficial effect of controlling impacts of travel on public lands, including on cultural resources. Designation provides a purposefully designed and clearly delineated travel network, reduces the potential for user caused route proliferation, and facilitates travel management and law enforcement. 43 CFR Part 8340 authorizes the closure of routes and areas to the types of OHV travel that have caused or may cause adverse effects to cultural resources. In addition, route designations prohibit indiscriminate cross-country travel that may cause adverse impacts to cultural resources.

Purpose

The closure and reduction of unmanaged cross-country travel is intended to protect cultural resources across a broad landscape. It is in the interest of cultural resource protection to complete the designation process as soon as possible. Most existing routes are user-created and have not been inventoried for cultural resources and the effects to them are not well documented. Because of the large number of existing and new routes and areas that will be designated by each planning effort, a phased identification effort is needed to complete BLM Section 106 responsibilities pursuant to 36 CFR 800.4 (b)(2). This phased identification effort is integrated into three steps of CMMT: planning, route development, and route maintenance.

This Addendum replaces two Programmatic Agreements (PA's) regarding travel management in the Royal Gorge Field Office (RGFO) and the Kremmling Field Office (KFO). The signatories of the PA for the RGFO includes the BLM, Colorado State Historic Preservation Office (SHPO), the Advisory Council on Historic Preservation (ACHP) with the Comanche as a concurring party initiated on June 3, 2003. The PA for the KFO includes the BLM and the SHPO with the Southern Ute as a concurring party initiated on January 11, 2005. Both PA's will be terminated on the effective date of this Addendum following the procedures in these agreements. BLM will notify all signatories of the PA's of the termination and the implementation of this Addendum.

Development of Planning Alternatives:

Selection of specific route networks and imposition of other use limitations, will avoid impacts on cultural resources where possible. In accordance with 43 CFR 8342, existing cultural resource information must be considered when choosing among the range of alternatives for the design of a planning area travel system, including the potential impacts on cultural resources when determining whether each of the routes or areas in a planning area should be designated as open, limited, or closed. Eligible and potentially eligible (need data) cultural resource sites may be protected through rerouting, excavation of archaeological resources, limitations on vehicle type and time or season of travel, closure, and other less common mitigation strategies. Evaluation of routes or areas to be designated as closed to protect cultural resources should be based on existing inventory information and should not be postponed until additional information is acquired.

Plan Development, Maintenance and Modification

A BLM cultural resource specialist will be involved *throughout* the planning process and on any team working on periodic plan maintenance or on a plan amendment. Cultural resource inventory and monitoring information, gathered after a plan is approved, maintained, or amended, should be used to review and update the route network as necessary in any plan maintenance or plan amendment process.

Compliance with Section 106

Designation of routes and areas are considered undertakings for the purposes of Section 106 of the National Historic Preservation Act (NHPA). The signing of existing routes – does not include the construction of kiosks or other structures being used to hold information – is not considered an undertaking under NHPA. Route and area designation is considered a non-routine undertaking under the Colorado Protocol because of the magnitude and scope of this action and requires an addendum to the Protocol to address these requirements. Given the nature and potential adverse effects to historic properties from the designation of routes and areas in planning documents, Section 106 compliance for these undertakings will be accomplished as described below.

Area of Potential Effect (APE)

The APE includes a corridor that extends at least 50 feet on both sides of the centerline of the road or trail. A 300-foot use corridor will be used when parking, camping and staging areas are allowed adjacent to roads. Additional areas may be inventoried when the cultural resource specialist believes alterations in trails or roads, or changes in their use, may result in indirect impacts, such as vandalism, to cultural resources. Nickens, Tucker and Larralde (1981), *A Survey of Vandalism To Archaeological Resources in Southwestern Colorado*, provides useful information about the potential for vandalism and other indirect impacts to cultural resources from road access. This publication is accessible at http://www.blm.gov/heritage/adventures/research/StatePages/CO_pubs.html

Inventory Requirements

Three principal guidelines will be followed:

- Proposed designations that allow continued use of existing routes and keep an open area open may have adverse effects to cultural resources. When the BLM cultural resource specialist determines that existing information reveals areas where adverse effects to cultural resources have occurred, are occurring, or have a reasonable expectation of occurring from travel, some degree of Class III inventory in the APE will be required.

- Proposed designations that impose new limitations on an existing route, close an open area or travel route and keep a closed area closed are unlikely to adversely affect cultural resources. No further field inventory of these routes and areas is required.

- Proposed designations of new routes or areas as open to travel are subject to Section 106 compliance in the same manner as any undertaking. Class III inventory in the APE is required **prior to designation** of new routes or areas as open to travel, and for new locations proposed as camping areas, staging areas or similar areas of concentrated travel.

Phases of Identification:

- Phase 1: Planning: This phase primarily involves using existing information to identify the field inventory needs for designated routes or areas and for route closures in the APE. The plan implementation schedule will identify field inventory needs, needed funding and the schedule of completion. The plan will reference this addendum.

- Phase 2: Route development: This phase involves the Class III inventory of most designated routes scheduled for inventory in the APE.

- Phase 3: Route maintenance: This phase involves the Class III inventory of the lowest priority designated routes scheduled for inventory in the APE.

Existing cultural resource information: Every new, revised and amended LUP must incorporate sufficient information to identify the nature and importance of all cultural resources known or expected in the LUP area. Where this information is lacking or out of date, the LUP Preparation Plan should include provision for developing or revising this information as part of the overall plan development, revision, or amendment process. Cultural resource information from the planning area's Class I overview, or existing cultural resources records search and literature review, will be considered when choosing among the range of possibilities in designing a planning area travel system for proposed designation.

The records search and literature review will include the field office and the SHPO database and records, information from the most recent regional overview for the field

office, the statewide context documents, and knowledge of the cultural resource specialist.

Field Inventory: Field inventory requirements, priorities and strategies will vary depending on the nature and potential effect of the proposed travel activity and associated use levels (See Definition section) and the expected density and nature of cultural resources based on existing cultural resource information.

Federal interstate highways and State highways (primary and secondary) are not included here because Section 106 actions are the responsibility of the Federal Highway Administration, as implemented by the Colorado State Department of Transportation.

Existing routes that have been regularly maintained (Types 3A-C) do not require field inventory. [See Definitions section]

Existing routes that have not been regularly maintained (Types 4-6F) require further field inventory. [See Definitions section]

Class II inventory will be conducted on designated routes and areas in the APE that allow continued use of an existing route and keep an open area open. Class II inventory will require field visitation of known "need data" and eligible cultural resources located within or immediately adjacent to existing routes. Also, Class III inventory will be conducted on an existing route or routes in the APE that best represents the topographical/vegetation variation in the travel management area. Inventory will include the documentation of impacts from travel and the need for further Class III inventory.

Class III field inventory will be conducted in the APE for the following undertakings: (1) some designated routes and areas that allow continued use of an existing route and keep an open area open based on the results of Class II inventory, (2) all new construction of routes and the maintenance of route types 4-6F located either in the footprint or outside the footprint, such as, drainage pitch-out, culvert replacement, cattle-guard placement, facility maintenance, and restoration, and (3) route closure actions that disturb the ground both in and outside the existing route footprint. Closure actions that only impact the disturbed surface, such as hand-brushing actions, are considered to have no effect on cultural resources. Class III inventory will follow the standards identified in the Colorado Handbook of Guidelines and Procedures for Identification, Evaluation, and Mitigation of Cultural Resources – Chapter 3 (1998) attached to the Colorado Protocol.

Adverse Effects

For all adverse effects to historic properties, the cultural resource specialist will follow the evaluation, treatment, mitigation, and reporting procedures outlined in the Colorado Protocol.

Monitoring

Areas and routes that are designated open to travel in the APE will be monitored for impacts to resources, and a BLM cultural resource specialist will be included on the team

responsible for developing and implementing the monitoring standards and process. The monitoring standards and process will consider the intensity and type of travel, the density and sensitivity of cultural resources, and the potential for adverse indirect and cumulative impacts, including route proliferation. When monitoring identifies adverse effects to cultural resources from route or area designation, the decision record should make it clear which mitigation actions will be taken, and when they should be taken, in order to minimize additional environmental analysis required prior to implementation.

Monitoring will be based on the schedule identified in each plan. The BLM cultural resource specialist, as part of the monitoring team, will identify an appropriate monitoring schedule for cultural resources. The monitoring results will be reported to the SHPO in the annual report required under the Protocol. Any changes in monitoring will be identified and agreed to at the annual meeting with the SHPO on the Protocol and implemented upon an agreed time frame.

Emergencies

All travel management is subject to prohibitions against operation of vehicles on public lands in a reckless, careless, or negligent manner; and in excess of established speeds or in a manner causing or likely to cause undue damage to cultural and other resources. Where an authorized officer determines that OHVs are causing or likely to cause adverse effects to cultural resources, 43 CFR 8342 requires immediate closure to the type or types of vehicles causing the adverse effect until the adverse effects are eliminated and measures implemented to prevent recurrence. Field inventory is not required prior to the emergency closure.

The Authorized Officer will notify the SHPO and other consulting parties by telephone within 48 hours and identify the steps being taken to address the emergency, describe the discovered cultural resource and its significance, and describe the emergency work and potential adverse effects on the discovery. Consultation will begin as soon as possible after notification to determine what mitigation measures are needed. Within 30 days following this notification, the Authorized Officer will document to the SHPO and consulting parties the actions taken to minimize effects and the work's present status. The results of mitigation will be fully documented in reports, site forms and photographs meeting the requirements in the Protocol. The documentation will be forwarded to the SHPO in accordance with the timetables established in Section X of the Protocol.

Discoveries

Discoveries may be identified during implementation and monitoring and will follow the procedures identified in Section X of the Colorado Protocol. Work in the immediate area of the discovery will cease until the discovery has been evaluated pursuant to Section VII of the Colorado Protocol. This may require the closure of the route until mitigation is completed. Within 48 hours of the discovery the SHPO and consulting parties will be notified of the discovery, and consultation will begin to determine an appropriate mitigation measure. BLM will ensure that the discovery is protected from further disturbance until mitigation is completed.

Pursuant to 43CFR10.4(g), the BLM authorized officer must be notified, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43CFR10.4 (c) and (d), activities must stop in the vicinity of the discovery and the discovery must be protected for 30 days or until notified to proceed by the authorized officer. All reasonable measures will be taken to resolve any issues regarding affiliation and disposition of discovered remains within a 30 calendar day period beginning with the agency certification of initial notification.

For Native American human remains and associated cultural items discovered on Federal land, the BLM will meet the requirements of the Native American Graves Protection and Repatriation Act (NAGPRA) for all inadvertent discoveries and discovery situations on a case-by-case basis in accordance with 43 CFR 10. For all other human remains and associated artifacts, the procedures identified in the 1989 Guidelines, Colorado Indadvertent Burial Discovery Procedures will be followed.

Consultation

Consultation with the SHPO and affected Tribes is required for all planning efforts and, as necessary, with other consulting parties. The SHPO will be consulted during planning and invited to participate in the development and implementation of identification, monitoring, and treatment options. The planning team will consult with potentially affected Tribes to solicit concerns relative to planning options and to ensure that appropriate identification and treatment options are developed and implemented during or after the planning effort. Consistent with BLM Manual 8120 and Handbook H-8120-1, additional consultation may be required for specific planning decisions and project implementation.

Funding

Route and area designation is an undertaking initiated by the planning program. The cultural resource program provides administrative support from the BLM cultural resource specialist during the planning effort. This work includes conducting the needed records and literature search and providing the input for all National Environmental Policy Act documentation. The planning program can assist with costs associated with consultation and Class I overviews.

Benefiting programs are expected to fund most cultural resource needs during development and maintenance phases to accomplish the field inventory and other needed work to satisfy BLMs requirements under Section 106 of NHPA and the Colorado Protocol. The cultural resource program can fund cultural resource work in areas and on sites that are identified in the State Strategic Plan as high priority for proactive inventory and for protection of "at-risk" cultural resources. These accomplishments are reportable under the cultural resource program elements identified in the Management Information System database.

Definitions

Route types (based on typology used by the engineering program):

[1]-[2]: Federal interstate highways, and State highways (primary and secondary).

[3A-3B]: BLM regularly maintained road (light-duty/constructed/gravel and paved.

[3C]: BLM regularly maintained road (light-duty/constructed/dirt).

[4]: BLM not-regularly-maintained road (primitive/constructed).

[5]: BLM not-regularly-maintained road (primitive/user-created).

[6A-B]: BLM motorized trail (single and double track/ATV, motorcycles).

[6C-F]: BLM non-motorized road and trail (single track/foot, horse, mountain bike).

[7]: BLM closed road

Use Levels (based on terms commonly used in travel management planning):

Decreased Use: This reduces the current use level by lowering the number and density of existing routes.

Maintain Current Use: This maintains the existing number and density of existing routes.

Increased Use: This may include a low increase (a small increase in the number of routes and density) or a high increase (a high number of routes and density).

BUREAU OF LAND MANAGEMENT

Linda M. Anañia, Deputy State Director — Date 10/26/06

COLORADO STATE HISTORIC PRESERVATION OFFICER

Georgianna Contiguglia, State Historic Preservation Officer — Date October 19, 2006

Attachment 4
List of Participants

This page intentionally left blank.

Travel Management Route Designation Recommendation Process Attendees (2010)

Name	3/15	3/16	3/17	3/18	3/22	3/23	3/24	3/25	4/05	4/06	4/07	4/08	4/12	4/13	4/14	4/15	4/20	5/13
Grand Junction Field Office Staff																		
Michelle Bailey			X	X	X	X			X	X	X		X	X				
Eric Boik	X								X			X	X		X	X		
Terry Bridgman	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
Julia Christiansen										X								
Doug Diekman	X	X	X		X	X	X						X	X		X		X
Nate Dieterich	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
Jim Dollerschell	X	X	X	X		X	X	X	X		X	X	X	X		X		X
Robert Fowler		X	X	X	X	X	X		X	X						X		X
Scott Gerwe					X	X						X	X					X
Dan Gourley	X	X	X	X	X	X	X		X	X	X	X	X	X	X			X
Chris Ham		X	X				X		X				X					X
Bob Hartman	X	X	X	X		X								X		X	X	
Mike Jones	X	X																
Alan Kraus													X					
Robin Lacy	X	X	X			X												X
Aline LaForge			X				X	X										
Alissa Leavitt-Reynolds	X	X	X	X	X				X	X			X	X		X		X
Anna Lincoln	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X
Ken Lloyd		X				X					X							
Jacob Martin	X	X	X	X		X	X			X	X							X

Travel Management Route Designation Recommendation Process Attendees (2010)

Name	3/15	3/16	3/17	3/18	3/22	3/23	3/24	3/25	4/05	4/06	4/07	4/08	4/12	4/13	4/14	4/15	4/20	5/13
Amanda Moore	X																	
Ruxton Noble			X	X	X	X	X	X	X	X	X	X	X	X	X		X	
Chris Pipkin	X		X						X	X	X				X			X
Heidi Plank	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X		X
Catherine Robertson	X					X												
Cristina Stark																		X
Bryce Stewart	X			X			X	X		X								
Mark Taber	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X
Cathy Ventling	X	X	X		X													X
Wayne Werkmeister			X															X
Cooperating Agency Representatives																		
Michael Blanck (CDOW)																	X	
Nathan Boddy (Town of Palisade)	X																	
Eric Bruton (Mesa County)	X																	
Dan Burns (SM Stoller/DOE)													X	X				
Paul Creeden					X													

Travel Management Route Designation Recommendation Process Attendees (2010)

Name	3/15	3/16	3/17	3/18	3/22	3/23	3/24	3/25	4/05	4/06	4/07	4/08	4/12	4/13	4/14	4/15	4/20	5/13
(CDOW)																		
Otis Darnell									X				X					
(Mesa County)																		
Kevin Duckett												X		X	X	X		
(CDOW)																		
Collin Ewing	X						X											
(USFWS)																		
Terry Franklin	X									X								
(City of Grand Junction)																		
Keith Hatch																	X	
(Mesa County)																		
Clint Kinney															X			
(City of Fruita)																		
David Ludlam						X												
(West Slope Colorado Oil & Gas Association)																		
Frank McGee																	X	
(CDOW)																		
Randall Price				X			X											
(Mesa County)																		
Dick Proctor						X												
(Grand Valley																		

Travel Management Route Designation Recommendation Process Attendees (2010)

Name	3/15	3/16	3/17	3/18	3/22	3/23	3/24	3/25	4/05	4/06	4/07	4/08	4/12	4/13	4/14	4/15	4/20	5/13
Water Users' Association)																		
Dale Rickstrew	X		X			X	X											
(Town of DeBeque)																		
Alan Schroeder	X					X				X			X		X	X	X	
(Bureau of Reclamation)																		
Kaye Simonson	X																	
(Mesa County)																		
Dan Skinner																	X	
(CDOW)																		
Ty Smith									X		X	X						
(CDOW)																		
David Thornton									X							X		
(City of Grand Junction)																		
Kyle Turley													X	X				
(SM Stoller/DOE)																		
EMPSi Contractor Staff																		
Marcia Rickey																	X	
Drew Vankat	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Kate Wynant	X																	

Appendix N

Coal Screening Criteria in the Grand Junction Field Office

APPENDIX N
COAL SCREENING CRITERIA IN THE GRAND JUNCTION FIELD OFFICE

INTRODUCTION

The federal government provides for leasing of coal under the Mineral Leasing Act of 1920 (the Act), as amended. Regulations established under the Act outline procedures for considering development of coal deposits through a leasing system involving land use planning and environmental analysis. This document summarizes the federal coal management decisions for the US Department of the Interior, BLM, GJFO planning area and documents the unsuitability criteria applied to potential coal lands for future development. The identification of areas acceptable for further consideration for coal leasing is a major land use planning decision in the BLM's RMP, which guides the Secretary of the Interior on making coal leasing decisions. Planning decisions outlined in this document will guide the development of the federal coal resource in the planning area.

The lands suitable for further consideration for coal leasing in the GJFO planning area were identified using the first three of the four screening procedures outlined in 43 CFR 3420.1-4:

1. Identify only lands that have coal development potential;
2. Review federal lands during land use planning using the unsuitability criteria set forth in 43 CFR 3461 to determine which areas are unsuitable for all or stipulated methods of coal mining involving surface coal mining operations;
3. Evaluate multiple land use decisions (trade-offs) that could eliminate lands from leasing that contain resources presently deemed more important than coal; and

4. Consult with the surface owner for private surface lands overlying federal coal. (This screen was not applied to this planning process.)

COAL PLANNING PROCESS

The following section describes the screening procedures and criteria used to determine lands suitable for further consideration for coal leasing in the GJFO planning area.

Screen 1: Identification of Coal Development Potential

BLM-administered lands in the planning area that have coal development potential are presented differently for Alternative A (current management) than for Alternatives B, C, and D. Screen 1 was completed for the 1987 GJFO RMP, and that screening is carried forward as the potential area in Alternative A, current management (No Action Alternative) (Figure 2-26, Appendix A). Coal potential under Alternative A was based on a maximum development depth of 1,500 feet. With new technology that allows deeper coal to be mined, the coal potential area in Alternatives B, C, and D was expanded to a maximum development depth of 2,500 feet (Figures 2-27, 2-28, and 2-29, Appendix A). Coal potential in the GJFO planning area is considered deep coal, with overburden depths too great to assume any surface mining potential. These lands constitute the coal development potential identified for the timeframe of this planning effort and include current coal leases and unleased federal coal resources where development could occur by year 2032. These areas will be brought forward for the coal unsuitability review outlined in Screen 2, below.

Screen 2: Unsuitability Review

As outlined in 43 CFR 3461, the BLM considered 20 criteria that were based mostly on resource values to determine whether those lands identified as having development potential (Screen 1) were suitable for development. Due to the depths of coal resources within the GJFO planning area, it is anticipated that all coal would be mined by underground mining techniques. Screen 2, as it applies within the GJFO, would therefore only be applicable to surface operations such as vent holes, portals, load out facilities, roads, and other surface disturbances related to underground coal mining.

In the GJFO planning area, the areas identified as having coal development potential represent deep coal deposits with no clearly defined areas where surface impacts would occur. As such, these coal resources are generally exempted from the restrictions of the unsuitability criteria.

Some criteria have exceptions or exemptions as listed in the regulations. If the exemption or exception for a specific criterion can be applied, the coal lands being evaluated would not be considered unsuitable and could be considered for leasing.

The regulations outlining the procedures for unsuitability determinations provide that "federal lands with coal deposits that would be mined by

underground mining methods shall not be assessed as unsuitable where there would be no surface coal mining operations" (43 CFR 3461.1 [a]). Surface coal mining operations are defined in 43 CFR 3400.0-5 as "activities conducted on the surface of lands in connection with a surface coal mine or surface operations and surface impacts incident to an underground mine." In other words, unsuitability criteria will be applied to all coal lands that are potentially recoverable by surface mining methods (i.e., where earthen material above the coal beds is physically moved to access the coal beds and those areas where associated support facilities and structures are located).

"Surface operations and surface impacts" apply to the support facilities and structures built on the surface for underground mines and the surface disturbance that it causes; therefore, lands will generally be considered unsuitable if the expected mining activities would result in direct impacts on the surface.

Criterion 1

All federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Recreation Areas, land acquired with money derived from the Land and Water Conservation Fund, National Forests, and federal lands in incorporated cities, towns, and villages.

Analysis

No land systems or categories under this criterion exist in the potential coal development areas.

Criterion 2

Federal lands that are within rights-of-way or easements, or within surface leases for residential, commercial, industrial, or other public purposes on federally owned surface, shall be considered unsuitable.

Analysis

Numerous rights-of-way are present within the potential coal development areas. The lands within these rights-of-way are unsuitable for surface coal mining operations.

Criterion 3

Federal lands affected by Section 522(e) (4) and (5) of the Surface Mining Control and Reclamation Act shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public highway; within 100 feet of a cemetery; within 350 feet of any occupied public building, school, church, community, or institutional building or public park; or within 300 feet of an occupied building.

Analysis
Interstate 70, including the lands within 0.5-mile of either side of both rights-of-way, are unsuitable for coal mining operations.

Other public roads and facilities are also considered unsuitable for coal mining operations. An evaluation of public roads and facilities will be conducted when a coal lease is nominated and determined unsuitable for surface coal mining operations.

Criterion 4
Federal lands designated as WSA shall be considered unsuitable while under review by the Administration and the Congress for possible wilderness designation.

Analysis
The Demaree Canyon (22,700 acres) and Little Book Cliffs WSAs (29,300 acres) are both within the potential coal development areas and have been determined unacceptable for coal leasing per Screen 3 (below). As such, a suitability determination under Screen 2 is not applicable.

Criterion 5
Scenic federal lands designated by visual resource management (VRM) analysis as Class I (an area of outstanding scenic quality or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable.

Analysis
VRM Class I areas within the GJFO planning area are unsuitable for surface coal mining operations. The Demaree Canyon and Little Book Cliffs WSAs are managed as VRM Class I areas but have been determined unacceptable for coal leasing per Screen 3 (below). As such, a suitability determination under Screen 2 is not applicable. Additional areas that are located outside of the WSAs and designated as VRM Class I will be determined unsuitable for surface coal mining operations.

Criterion 6
Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, or natural resources or technology demonstrations and experiments shall be considered unsuitable for the duration of the study, demonstration, or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency give written concurrence to all or certain methods of mining.

Analysis
The ant research area and owl banding station will be considered unsuitable for surface coal mining operations.

Criterion 7
All publicly owned places on federal lands that are included in the National Register of Historic Places shall be considered unsuitable. This criterion applies to any areas that the surface management agency determines, after consultation with the Advisory Council on Historic Preservation and the State Historic

Preservation Office, are necessary to protect the inherent values of the property that made it eligible for listing in the National Register of Historic Places.

Analysis
There are no publicly owned places on federal lands that are included in the National Register of Historic Places.

Criterion 8
Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.

Analysis
No natural areas or National Natural Landmarks are designated within the potential coal development areas.

Criterion 9
Federally designated critical habitat for threatened or endangered plant and animal species, and habitat for federal threatened or endangered species, which is determined by the US Department of the Interior, US Fish and Wildlife Service (USFWS) and the surface management agency to be of essential value, and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

Analysis
Threatened or endangered habitat is unsuitable for surface coal mining operations. Underground coal mining operations may occur if, after consultation with USFWS, USFWS determines that reasonable and prudent measures included in the Biological Opinion will mitigate and/or minimize impacts to the species or its critical habitat. Threatened or endangered habitat areas that would be directly or indirectly impacted by surface facilities outlined in the mine plans will be surveyed prior to any mine plan approval. The mine plans will incorporate avoidance of the species and their habitat.

Criterion 10

Federal lands containing habitat determined critical or essential for plant or animal species listed as threatened or endangered by the state pursuant to state law shall be considered unsuitable.

Analysis

Species currently listed as threatened or endangered by the State of Colorado but not listed by USFWS shall be determined unsuitable for surface coal operations. Underground coal mining operations may occur if, after consultation with the State of Colorado, the State determines reasonable and prudent measures will mitigate and/or minimize impacts to the species or its critical habitat. State threatened or endangered habitat areas that would be directly or indirectly impacted by surface facilities outlined in any mine plan will be surveyed prior to mine plan approval. Mine plans will incorporate avoidance of the species and their habitat.

Criterion 11

A bald or golden eagle nest or site on federal lands that is determined to be active and an appropriate buffer zone of land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with USFWS.

Analysis

Bald and golden eagle nests are unsuitable for surface coal mining operations. Several golden eagle nests are within the potential coal development areas, mostly along the Book Cliffs. Bald eagle habitat and one known nest site occur within the potential coal development areas.

No surface coal mining facilities that require daily human activities will be built within active areas or within buffer zones with active nests of bald or golden eagles.

Underground coal mining operations may occur if:

- They can be conditioned in such a way, either in manner or period of operation, that eagles will not be disturbed during breeding season; or
- The surface management agency, with the concurrence of USFWS, determines that the golden eagle nest(s) will be moved.

Buffer zones may be decreased if the surface management agency determines that the active eagle nests will not be adversely affected.

Criterion 12

Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering shall be considered unsuitable.

Analysis
There are no known bald or golden eagle roosts or concentration areas within the potential coal development areas. Eagles do visit the area during winter, but no critical habitat areas have been identified.

Criterion 13
Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with USFWS.

Analysis
Falcon nests are considered unsuitable for surface coal mining operations. Falcon nests that would be directly or indirectly impacted by surface facilities outlined in a mine plan will be surveyed prior to mine plan approval. The mine plan will incorporate avoidance of the species and their habitat.

Protections for bald and golden eagles are identified under Criterion 11.

Criterion 14
Federal lands that are high-priority habitat for migratory bird species of high federal interest on a regional or national basis, as determined jointly by the surface management agency and USFWS, shall be considered unsuitable.

Analysis
Critical habitat of migratory birds, listed on the USFWS list of Birds of Conservation Concern, is unsuitable for surface coal mining operations. Critical migratory bird habitat that would be directly or indirectly impacted by surface facilities outlined in the mine plan will be surveyed prior to mine plan approval. The mine plan will incorporate avoidance of the species and their habitat. Underground mining may occur where the surface management agency, after consultation with USFWS, determines that all or certain stipulated methods of coal mining will not adversely affect the migratory bird habitat during the periods when such habitat is used by the species.

Criterion 15
Federal lands that the surface management agency and the state jointly agree are fish and wildlife habitat for resident species of high interest to the state, and that are essential for maintaining these priority wildlife species, shall be considered unsuitable. Examples of such lands that serve a critical function for the species involved include: (i) active dancing and strutting grounds for sage-grouse, sharp-tailed grouse, and prairie chicken; (ii) winter ranges crucial for deer, antelope, and elk; (iii) migration corridor for elk; and (iv) extremes of range for plant species.

Analysis
This criterion includes sensitive fish, wildlife, and plants as designated by the BLM and Colorado Division of Wildlife, as well as high-value species such as deer, elk, moose, and bighorn sheep. Areas that contain these species are suitable for limited surface coal mining operations.

Surface coal mining operations may occur within deer and elk critical winter range. Construction or daily activity within elk calving areas will be allowed only if no reasonable alternative sites exist outside the critical habitat. Lease stipulations and conditions of approval, as determined by BLM and Colorado Division of Wildlife, will be required to minimize disturbance within the critical habitats.

Underground mining may occur if, after consultation with the State, the surface management agency determines that all or certain stipulated methods of coal mining will not have a significant long-term impact on the species being protected.

Criterion 16
Federal lands in riverine, coastal, and special flood plains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of mining.

Analysis
No coastal flood plains exist in the potential coal lease areas. One hundred-year flood plains exist along the drainages in the potential coal development areas, but only the Colorado River has been delineated. As such, the entire Colorado River corridor has been identified as unsuitable.

Criterion 17
Federal lands that have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

Analysis
The Palisade and Grand Junction municipal watersheds are within the potential coal development areas and considered unsuitable for surface coal mining operations.

Criterion 18
Federal lands with national resource waters, as identified by states in their water quality management plans, and a buffer zone of federal lands 0.25-mile from the outer edge of the far banks of the water, shall be unsuitable.

Analysis
No national resource waters have been identified by the State of Colorado in the potential coal development areas.

Criterion 19

Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in 43 CFR 3400.0-5 (a) of this title, the standards in 30 CFR Part 822, the final alluvial valley floor guidelines of the Office of Surface Mining

Reclamation and Enforcement when published, and approved state programs under the Surface Mining

Control and Reclamation Act of 1977, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining federal land outside and alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

Analysis

The Office of Surface Mining has tentatively identified approximately 2,400 acres in the potential coal development areas as alluvial valley floors. Most of these areas are undeveloped rangelands not presently significant to agriculture. They include:

- The alluvium of West Salt Creek from the headwaters to approximately two (2) miles south of the Book Cliffs.
- The alluvium of East Salt Creek from the headwaters to approximately two (2) miles south of the Book Cliffs.
- The alluvium of Big Salt Wash from the headwaters to approximately three (3) miles south of the Book Cliffs.
- Several sub-irrigated areas in the headwaters area of Middle Dry Fork, North Dry Fork, McKay Fork, and Kimball Creek.

Surface coal mining operations may occur within alluvial valley floors if no reasonable alternative sites exist outside these areas. Lease stipulations and conditions of approval, will be required to minimize disturbance and affects to water supplies within these areas.

Criterion 20

Federal lands in a state to which is applicable a criterion (i) proposed by the state or Indian tribe located in the planning area, and (ii) adopted by rulemaking by the Secretary, shall be considered unsuitable.

Analysis

There are no lands within the potential coal development areas that have been proposed by the State of Colorado or Indian tribes to be unsuitable.

Screen 3: Trade-offs

This screen requires evaluating multiple land use decisions (trade-offs) that could eliminate lands from leasing that contain resources presently deemed more important than coal. This screen has been applied as part of the land use conflict-resolution process. Where conflicts were identified between coal development and development or protection of other resources, a determination was made as to which resource was more important. The following have been determined to be areas where another resource is more important than coal and potential impacts could not be mitigated. These conflict areas, which vary by alternative considered in the RMP, are determined unacceptable for further coal leasing and development.

Common to All Alternatives

The Demaree Canyon (22,700 acres) and Little Book Cliffs (29,300 acres) WSAs are both within the potential coal development areas. Of these 52,000 acres, 2,156 acres are currently under coal lease. An estimated 277 million tons of in-place coal underlies the Demaree Canyon WSA, and an estimated 349 million tons of in-place coal underlies the Little Book Cliffs WSA. Both areas are unacceptable for leasing per Screen 3, pending Congressional decisions on wilderness recommendations. This determination is based on Section 308 of the Fiscal Year 1984 Interior Appropriations Act, which prohibits leasing. The WSAs could become acceptable for leasing if Congress does not designate them as Wilderness.

Alternative A

No additional areas are unacceptable for further coal leasing and development under Screen 3.

Alternative B

The following additional areas are unacceptable for further coal leasing and development under Screen 3.

- The Colorado River corridor, which is unacceptable for further coal leasing and development.
- The Grand Junction and Palisade municipal watersheds, which is unacceptable for further coal leasing and development.

Alternative C

The following additional areas are determined unacceptable for further coal leasing and development under Screen 3.

- The Colorado River corridor, which is unacceptable for further coal leasing and development.
- The Grand Junction and Palisade municipal watersheds, Cabin Reservoir, and Mesa/Powderhorn source water protection area, which is unacceptable for further coal leasing and development.

- Roan Creek, which is unacceptable for further coal leasing and development along the segment that has been identified as suitable for designation into the National Wild and Scenic Rivers System under Alternative C.
- The Pyramid Rock Area of Critical Environmental Concern, which is unacceptable for further coal leasing and development for Native American Graves Protection and Repatriation Act considerations, which require the area to be withdrawn from multiple uses (BLM Washington Office Instruction Memorandum 2007-002, which amends BLM Handbook 8120-1, 11-C-3).

Alternative D

No additional areas are unacceptable for further coal leasing and development under Screen 3.

Screen 4: Consultation with Private Surface Owners

Screen four, consultation with the surface owner for private surface lands overlying federal coal, was not completed for this land use planning process.

This page intentionally left blank.

Appendix O

Air Emissions Inventory

TABLE OF CONTENTS

Section Page

TABLES

Page

TABLES *(continued)*

FIGURES

APPENDIX O
AIR EMISSIONS INVENTORY

Emission inventories for development and production activities within the Planning Area were compiled for this analysis for total nitrogen oxides (NOx), sulfur dioxide (SO_2), carbon monoxide (CO), carbon dioxide (CO_2), particulate matter less than or equal to 10 microns in size (PM_{10}), particulate matter less than or equal to 2.5 microns in size ($PM_{2.5}$), volatile organic compounds (VOC), and hazardous air pollutants (HAPs). Lead emissions are negligible and were not calculated in the inventory. In addition, methane (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2) emissions were included in the inventory for purposes of quantifying greenhouse gas (GHG) emissions.

Operational, production, and construction activity data used to estimate emissions for proposed emission sources were obtained from Grand Junction Field Office staff, the Reasonable Foreseeable Development Scenario for Oil and Gas for the Grand Junction Field Office (BLM 2012), the Mineral Potential Report (BLM 2010a), and from NEPA analyses currently being conducted for BLM actions within the planning area. Emission factors used to estimate proposed emissions were obtained primarily from the following sources: (1) EPA's *AP-42 Compilation of Air Pollutant Emission Factors* (USEPA 1995); (2) EPA's NONROAD2008a Emissions Model (USEPA 2009); (3) EPA's MOVES2010a Motor Vehicle Emissions Simulator (USEPA 2010); (4) API *Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Oil and Natural Gas Industry* (API 2009); (5) Colorado Department of Public Health and Environment (CDPHE); and (6) Western Governor's Association - Western Regional Air Partnership (WRAP). The inventory accounted for all applicable emissions controls such as CDPHE Regulation 7 and Federal New Source Performance Standards (NSPS).

The following tables provide additional details on the emissions that were analyzed to determine potential impacts to air quality. Tables are also provided that show the input parameters and assumptions used to calculate the

emissions. For additional details on the methods, data, and assumptions used to calculate emissions, the Air Quality Technical Support Document will be provided upon request.

O.1 BLM AUTHORIZED ACTIONS WITHIN THE PLANNING AREA EMISSIONS INVENTORY TABLES

- Oil and Gas Development
  - Combined Conventional, CBNG, Shale
- Solid Mineral Development
  - Coal
  - Uranium
  - Sand and Gravel
- Travel and Transportation Management
- Vegetation
  - Prescribed Fire and Mechanical Treatments
- Livestock Grazing
- Lands and Realty
  - Right of Ways

Table O-1
Oil and Gas – BLM Only – Base Year
(Conventional + Coal Bed Natural Gas + Shale)

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Base Year BLM								
Completion Engines	7.43	75.90	131.84	4.34	4.21	3.32	0.93	15,439
Completion Venting	1.57	0.00	0.00	0.00	0.00	0.00	0.08	308
Condensate Tanks	7.17	0.00	0.00	0.00	0.00	0.00	0.35	24
Construction Equipment	0.19	1.10	2.51	0.17	0.16	0.05	0.02	249
Dehydrators	32.47	0.00	0.00	0.00	0.00	0.00	17.01	957
Drilling Engines	3.86	39.42	68.47	2.25	2.18	1.72	0.48	8,018
Field Compressor Engines	5.53	694.98	412.88	3.63	3.63	0.11	0.61	6,954
Flaring	0.13	0.56	0.10	0.00	0.00	0.00	0.05	172
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	20.56	2.09	0.00	0.00	0
Fugitive Leaks	416.40	0.00	0.00	0.00	0.00	0.00	20.14	83,619
Heaters	12.53	191.44	227.90	17.32	17.32	0.00	1.75	275,147
Midstream Compressor Engines	23.29	233.80	293.15	1.83	1.83	0.12	2.58	5,040
Other Midstream	66.27	16.84	27.79	0.60	0.60	0.06	18.83	39,898
Other Production	46.74	30.09	130.77	7.37	7.15	3.19	3.01	21,781
Pneumatic Devices	167.05	0.00	0.00	0.00	0.00	0.00	8.08	32,879
Pneumatic Pumps	15.57	0.00	0.00	0.00	0.00	0.00	0.75	3,064
Traffic	0.29	1.28	2.53	28.43	2.94	0.01	0.03	342
Water Injection Pumps	2.24	2.31	2.95	14.53	1.13	51.44	0.28	5,206
Well Blowdowns	4.03	0.00	0.00	0.00	0.00	0.00	0.20	794
BLM Totals	**812.75**	**1,287.71**	**1,300.90**	**101.01**	**43.24**	**60.02**	**75.18**	**499,890**

Table O-2
Oil and Gas – BLM Only – Alternative A
(Conventional + Coal Bed Natural Gas + Shale)

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	4.85	49.61	86.18	2.83	2.75	0.07	0.60	10,092
Completion Venting	0.52	0.00	0.00	0.00	0.00	0.00	0.02	103
Condensate Tanks	30.31	0.00	0.00	0.00	0.00	0.00	0.21	100
Construction Equipment	0.11	0.66	1.52	0.10	0.10	0.03	0.01	150
Dehydrators	26.97	0.00	0.00	0.00	0.00	0.00	14.06	1,181
Drilling Engines	3.77	38.49	66.86	2.20	2.13	0.05	0.47	7,829
Field Compressor Engines	4.96	404.57	233.36	2.26	2.26	0.07	0.55	4,342
Flaring	0.54	2.28	0.42	0.00	0.00	0.00	0.22	704
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	12.69	1.29	0.00	0.00	0
Fugitive Leaks	260.42	0.00	0.00	0.00	0.00	0.00	12.57	60,614
Heaters	8.01	122.35	145.65	11.07	11.07	0.00	1.12	175,848
Midstream Compressor Engines	90.64	229.85	130.82	6.37	6.37	2.38	10.03	7,866
Other Midstream	110.08	32.92	28.54	1.48	1.48	1.31	14.72	31,647
Other Production	30.39	22.22	94.64	5.30	5.14	2.31	2.00	15,065
Pneumatic Devices	104.29	0.00	0.00	0.00	0.00	0.00	5.04	20,556
Pneumatic Pumps	9.60	0.00	0.00	0.00	0.00	0.00	0.46	1,892
Traffic	0.21	0.93	1.93	21.07	2.18	0.01	0.02	258
Water Injection Pumps	1.69	1.74	2.21	10.91	0.85	38.63	0.21	3,910
Well Blowdowns	2.52	0.00	0.00	0.00	0.00	0.00	0.12	496
Project Year 10 Totals	**689.87**	**905.61**	**792.13**	**76.29**	**35.63**	**44.85**	**62.44**	**342,651**
Project Year 20								
Completion Engines	4.77	48.72	84.63	2.78	2.70	0.07	0.59	9,910
Completion Venting	0.50	0.00	0.00	0.00	0.00	0.00	0.02	99
Condensate Tanks	38.23	0.00	0.00	0.00	0.00	0.00	0.19	126
Construction Equipment	0.11	0.65	1.49	0.10	0.10	0.03	0.01	148
Dehydrators	27.14	0.00	0.00	0.00	0.00	0.00	14.13	1,310
Drilling Engines	3.72	38.02	66.05	2.17	2.11	0.05	0.46	7,735
Field Compressor Engines	4.33	114.19	54.12	0.90	0.90	0.03	0.48	1,720
Flaring	0.66	2.80	0.51	0.00	0.00	0.00	0.26	864
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	12.45	1.27	0.00	0.00	0
Fugitive Leaks	103.84	0.00	0.00	0.00	0.00	0.00	4.98	37,491
Heaters	3.47	52.98	63.08	4.79	4.79	0.00	0.49	76,154
Midstream Compressor Engines	103.75	257.47	107.42	7.14	7.14	2.45	11.48	9,249
Other Midstream	119.14	37.58	32.58	1.69	1.69	1.49	15.12	34,279
Other Production	14.12	14.31	58.32	3.22	3.12	1.42	0.99	8,319
Pneumatic Devices	41.28	0.00	0.00	0.00	0.00	0.00	2.00	8,185
Pneumatic Pumps	3.61	0.00	0.00	0.00	0.00	0.00	0.17	716
Traffic	0.14	0.63	1.44	13.54	1.41	0.01	0.02	189
Water Injection Pumps	1.12	1.16	1.48	7.27	0.57	25.74	0.14	2,606
Well Blowdowns	1.00	0.00	0.00	0.00	0.00	0.00	0.05	198
Project Year 20 Totals	**470.95**	**568.51**	**471.12**	**56.06**	**25.80**	**31.29**	**51.58**	**199,295**

Table O-3
Oil and Gas – BLM Only – Alternative B
(Conventional + Coal Bed Natural Gas + Shale)

Oil and Gas Development Estimated Emissions, BLM activities (tons/yr) - Alternative B								
Category	**VOC**	**CO**	**NOx**	**PM10**	**PM2.5**	**SO2**	**HAPs**	**CO2e**
Project Year 10								
Completion Engines	17.10	174.75	303.57	9.99	9.69	0.24	2.13	35,548
Completion Venting	1.64	0.00	0.00	0.00	0.00	0.00	0.08	326
Condensate Tanks	60.25	0.00	0.00	0.00	0.00	0.00	0.33	199
Construction Equipment	0.39	2.34	5.35	0.36	0.35	0.11	0.05	530
Dehydrators	45.80	0.00	0.00	0.00	0.00	0.00	23.85	2,209
Drilling Engines	13.29	135.86	236.02	7.76	7.53	0.19	1.66	27,638
Field Compressor Engines	9.85	471.93	255.92	3.00	3.00	0.09	1.09	5,751
Flaring	1.78	7.53	1.38	0.00	0.00	0.00	0.71	2,321
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	44.69	4.55	0.00	0.00	0
Fugitive Leaks	345.75	0.00	0.00	0.00	0.00	0.00	16.64	96,979
Heaters	10.98	167.64	199.57	15.17	15.17	0.00	1.54	240,947
Midstream Compressor Engines	281.93	709.75	290.02	19.16	19.16	6.58	31.19	24,802
Other Midstream	319.41	100.77	87.36	4.54	4.54	4.00	40.52	91,901
Other Production	43.42	36.26	151.15	8.41	8.16	3.68	2.91	22,867
Pneumatic Devices	138.09	0.00	0.00	0.00	0.00	0.00	6.68	27,277
Pneumatic Pumps	10.77	0.00	0.00	0.00	0.00	0.00	0.52	2,129
Traffic	0.39	1.73	4.08	35.67	3.72	0.02	0.04	532
Water Injection Pumps	2.80	2.88	3.67	18.10	1.41	64.10	0.35	6,488
Well Blowdowns	3.34	0.00	0.00	0.00	0.00	0.00	0.16	659
Project Year 10 Totals	**1,306.98**	**1,811.45**	**1,538.09**	**166.84**	**77.26**	**79.01**	**130.46**	**589,103**
Project Year 20								
Completion Engines	10.10	173.86	173.86	1.99	1.93	0.24	1.26	35,364
Completion Venting	1.62	0.00	0.00	0.00	0.00	0.00	0.08	323
Condensate Tanks	77.83	0.00	0.00	0.00	0.00	0.00	0.35	258
Construction Equipment	0.40	2.35	5.38	0.36	0.35	0.12	0.05	533
Dehydrators	52.30	0.00	0.00	0.00	0.00	0.00	27.21	2,676
Drilling Engines	7.87	135.40	135.40	1.55	1.50	0.19	0.98	27,542
Field Compressor Engines	14.12	248.93	99.23	2.36	2.36	0.07	1.56	4,537
Flaring	2.32	9.81	1.80	0.00	0.00	0.00	0.93	3,026
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	40.38	4.11	0.00	0.00	0
Fugitive Leaks	274.50	0.00	0.00	0.00	0.00	0.00	13.12	110,222
Heaters	9.40	143.57	170.92	12.99	12.99	0.00	1.32	206,351
Midstream Compressor Engines	353.61	872.24	308.11	24.04	24.04	8.00	39.12	31,628
Other Midstream	395.74	127.23	110.30	5.73	5.73	5.05	49.22	113,897
Other Production	39.08	42.38	171.34	9.44	9.16	4.17	2.79	23,919
Pneumatic Devices	108.88	0.00	0.00	0.00	0.00	0.00	5.27	21,628
Pneumatic Pumps	5.98	0.00	0.00	0.00	0.00	0.00	0.29	1,194
Traffic	0.39	1.73	3.74	37.34	3.88	0.02	0.04	497
Water Injection Pumps	3.35	3.45	4.40	21.65	1.68	76.68	0.42	7,761
Well Blowdowns	2.63	0.00	0.00	0.00	0.00	0.00	0.13	522
Project Year 20 Totals	**1,360.12**	**1,760.96**	**1,184.48**	**157.84**	**67.73**	**94.53**	**144.13**	**591,878**

Table O-4
Oil and Gas – BLM Only – Alternative C
(Conventional + Coal Bed Natural Gas + Shale)

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	2.88	49.61	49.61	0.57	0.55	0.07	0.36	10,091
Completion Venting	0.04	0.00	0.00	0.00	0.00	0.00	0.00	8
Condensate Tanks	9.45	0.00	0.00	0.00	0.00	0.00	0.12	32
Construction Equipment	0.11	0.67	1.53	0.10	0.10	0.03	0.01	151
Dehydrators	13.54	0.00	0.00	0.00	0.00	0.00	7.07	534
Drilling Engines	2.24	38.49	38.49	0.44	0.43	0.05	0.28	7,829
Field Compressor Engines	3.98	391.09	228.85	2.12	2.12	0.06	0.44	4,060
Flaring	0.49	2.09	0.38	0.00	0.00	0.00	0.20	645
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	7.50	0.77	0.00	0.00	0
Fugitive Leaks	260.42	0.00	0.00	0.00	0.00	0.00	12.57	60,614
Heaters	8.01	122.35	145.65	11.07	11.07	0.00	1.12	175,848
Midstream Compressor Engines	90.64	229.85	130.82	6.37	6.37	2.38	10.03	7,866
Other Midstream	110.08	32.92	28.54	1.48	1.48	1.31	14.72	31,647
Other Production	30.39	22.22	94.64	5.30	5.14	2.31	2.00	15,065
Pneumatic Devices	104.29	0.00	0.00	0.00	0.00	0.00	5.04	20,556
Pneumatic Pumps	8.76	0.00	0.00	0.00	0.00	0.00	0.42	1,727
Traffic	0.20	0.91	1.83	20.74	2.15	0.01	0.02	247
Water Injection Pumps	1.69	1.74	2.21	10.91	0.85	38.63	0.21	3,910
Well Blowdowns	2.52	0.00	0.00	0.00	0.00	0.00	0.12	496
Project Year 10 Totals	**649.74**	**891.92**	**722.56**	**66.60**	**31.02**	**44.85**	**54.75**	**341,325**
Project Year 20								
Completion Engines	4.38	48.72	9.33	0.42	0.41	0.07	0.55	9,910
Completion Venting	0.04	0.00	0.00	0.00	0.00	0.00	0.00	8
Condensate Tanks	10.73	0.00	0.00	0.00	0.00	0.00	0.08	36
Construction Equipment	0.11	0.66	1.51	0.10	0.10	0.03	0.01	149
Dehydrators	9.88	0.00	0.00	0.00	0.00	0.00	5.15	469
Drilling Engines	3.01	38.02	7.28	0.33	0.32	0.05	0.38	7,735
Field Compressor Engines	2.41	87.73	45.26	0.61	0.61	0.02	0.27	1,166
Flaring	0.62	2.61	0.48	0.00	0.00	0.00	0.25	806
Fracing Engines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
Fugitive Dust	0.00	0.00	0.00	7.11	0.73	0.00	0.00	0
Fugitive Leaks	103.84	0.00	0.00	0.00	0.00	0.00	4.98	37,491
Heaters	3.47	52.98	63.08	4.79	4.79	0.00	0.49	76,154
Midstream Compressor Engines	103.75	257.47	107.42	7.14	7.14	2.45	11.48	9,249
Other Midstream	119.14	37.58	32.58	1.69	1.69	1.49	15.12	34,279
Other Production	14.12	14.31	58.32	3.22	3.12	1.42	0.99	8,319
Pneumatic Devices	41.28	0.00	0.00	0.00	0.00	0.00	2.00	8,185
Pneumatic Pumps	1.97	0.00	0.00	0.00	0.00	0.00	0.10	392
Traffic	0.13	0.57	1.21	12.68	1.31	0.01	0.01	162
Water Injection Pumps	1.12	1.16	1.48	7.27	0.57	25.74	0.14	2,606
Well Blowdowns	1.00	0.00	0.00	0.00	0.00	0.00	0.05	198
Project Year 20 Totals	**421.00**	**541.81**	**327.93**	**45.37**	**20.79**	**31.28**	**42.03**	**197,312**

Table O-5
Oil and Gas – BLM Only – Alternative D
(Conventional + Coal Bed Natural Gas + Shale)

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	86	881	1,530	50	49	1	11	179,118
Completion Venting	8	0	0	0	0	0	0	1,527
Condensate Tanks	314	0	0	0	0	0	1	1,038
Construction Equipment	2	12	27	2	2	1	0	2,653
Dehydrators	182	0	0	0	0	0	95	9,988
Drilling Engines	69	701	1,218	40	39	1	9	142,621
Field Compressor Engines	35	818	372	7	7	0	4	12,995
Flaring	9	38	7	0	0	0	4	11,701
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	224	23	0	0	0
Fugitive Leaks	786	0	0	0	0	0	38	303,652
Heaters	27	407	485	37	37	0	4	585,271
Midstream Compressor Engines	1,328	3,391	1,215	90	90	28	147	122,260
Other Midstream	1,452	483	419	22	22	19	174	418,098
Other Production	113	116	472	26	25	11	8	66,420
Pneumatic Devices	312	0	0	0	0	0	15	61,914
Pneumatic Pumps	19	0	0	0	0	0	1	3,837
Traffic	1	6	16	119	12	0	0	2,089
Water Injection Pumps	9	9	12	59	5	210	1	21,286
Well Blowdowns	8	0	0	0	0	0	0	1,495
Project Year 10 Totals	**4,759**	**6,863**	**5,773**	**676**	**310**	**272**	**511**	**1,947,963**
Project Year 20								
Completion Engines	51	880	880	10	10	1	6	178,925
Completion Venting	8	0	0	0	0	0	0	1,526
Condensate Tanks	412	0	0	0	0	0	2	1,364
Construction Equipment	2	12	27	2	2	1	0	2,684
Dehydrators	233	0	0	0	0	0	121	12,956
Drilling Engines	41	700	700	8	8	1	5	142,471
Field Compressor Engines	64	942	331	10	10	0	7	19,037
Flaring	13	56	10	0	0	0	5	17,228
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	203	21	0	0	0
Fugitive Leaks	1,155	0	0	0	0	0	55	523,545
Heaters	41	623	742	56	56	0	6	895,327
Midstream Compressor Engines	1,719	4,297	1,471	118	118	37	190	160,374
Other Midstream	1,893	633	549	28	28	25	225	545,115
Other Production	173	203	813	45	43	20	13	111,011
Pneumatic Devices	457	0	0	0	0	0	22	90,949
Pneumatic Pumps	23	0	0	0	0	0	1	4,612
Traffic	2	8	18	177	18	0	0	2,391
Water Injection Pumps	16	17	21	104	8	369	2	37,354
Well Blowdowns	11	0	0	0	0	0	1	2,197
Project Year 20 Totals	**6,313**	**8,371**	**5,563**	**761**	**323**	**454**	**662**	**2,749,064**

Table O-6
Coal – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Construction Fugitive Dust	0	0	0	0	0	0	0	0	0	0	0	0
Construction Combustion Sources	0	0	0	0	0	0	0	0	0	0	0	0
Production Fugitives (dust, methane)	0	0	0	0	0	0	0	0	0	0	0	0
Production Combustion Sources (mining, heavy equipment, vehicle exhaust)	0	0	0	0	0	0	0	0	0	0	0	0
Production Point Sources	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-7
Coal – Alternatives A and D, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Construction Fugitive Dust	30	9	0	0	0	0	0	0	0	0	0	0
Construction Combustion Sources	1	1	25	0	8	1	0	3,097	0	0	3,136	2,846
Production Fugitives (dust, methane)	23	7	0	0	0	0	0	0	106,389	0	2,234,164	2,027,372
Production Combustion Sources (mining, heavy equipment, vehicle exhaust)	4	1	101	0	13	5	0	13,079	0	1	13,317	12,085
Production Point Sources	3	1	91	0	0	0	0	0	0	0	0	0
Total	**60**	**19**	**217**	**0**	**21**	**6**	**1**	**16,176**	**106,389**	**1**	**2,250,618**	**2,042,303**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-8
Coal – Alternatives B and C, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Construction Fugitive Dust	0	0	0	0	0	0	0	0	0	0	0	0
Construction Combustion Sources	0	0	0	0	0	0	0	0	0	0	0	0
Production Fugitives (dust, methane)	18	6	0	0	0	0	0	0	85,111	0	1,787,331	1,621,897
Production Combustion Sources (mining, heavy equipment, vehicle exhaust)	3	1	80.5	0	10	4	0	10,463	0	1	10,654	9,668
Production Point Sources	2	1	73	0	0	0	0	0	0	0	0	0
Total	**24**	**7**	**154**	**0**	**10**	**4**	**0**	**10,463**	**85,111**	**1**	**1,797,985**	**1,631,565**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-9
Coal – Alternatives A and D, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Construction Fugitive Dust	0	0	0	0	0	0	0	0	0	0	0	0
Construction Combustion Sources	0	0	0	0	0	0	0	0	0	0	0	0
Production Fugitives (dust, methane)	32	10	0	0	0	0	0	0	148,944	0	3,127,829	2,838,321
Production Combustion Sources (mining, heavy equipment, vehicle exhaust)	6	2	141	0	18	7	1	18,310	0	1	18,644	16,919
Production Point Sources	4	1	128	0	0	0	0	0	0	0	0	0
Total	**42**	**12**	**269**	**0**	**18**	**7**	**1**	**18,310**	**148,944**	**1**	**3,146,474**	**2,855,239**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-10
Coal – Alternatives B and C, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Construction Fugitive Dust	0	0	0	0	0	0	0	0	0	0	0	0
Construction Combustion Sources	0	0	0	0	0	0	0	0	0	0	0	0
Production Fugitives (dust, methane)	18	6	0	0	0	0	0	0	85,111	0	1,787,331	1,621,897
Production Combustion Sources (mining, heavy equipment, vehicle exhaust)	3	1	81	0	10	4	0	10,463	0	1	10,654	9,668
Production Point Sources	2	1	73	0	0	0	0	0	0	0	0	0
Total	**24**	**7**	**154**	**0**	**10**	**4**	**0**	**10,463**	**85,111**	**1**	**1,797,985**	**1,631,565**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-11
Uranium – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Extraction and Processing	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-12
Uranium – Alternatives A, B, C, and D, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	439	48	107	0	102	11	1	14,093	1	0	14,178	12,866
Extraction and Processing	132	124	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	16	15	257	6	100	18	2	28,849	0	0	28,926	26,249
Total	**587**	**187**	**364**	**7**	**203**	**29**	**3**	**42,942**	**1**	**0**	**43,104**	**39,115**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-13
Uranium – Alternatives A, B, C, and D, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	878	95	214	1	205	22	2	28,185	1	0	28,356	25,731
Extraction and Processing	263	249	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	32	31	514	13	201	36	4	57,698	1	0	57,852	52,498
Total	**1,173**	**375**	**727**	**13**	**406**	**58**	**6**	**85,883**	**2**	**1**	**86,208**	**78,229**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-14
Sand and Gravel – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	208	21	10	0	7	1	0	1,294	0	0	1,299	1,179
Extraction and Processing	23	6	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	4	0	2	0	0	400	0	0	401	364
Total	**231**	**27**	**14**	**0**	**9**	**1**	**0**	**1,694**	**0**	**0**	**1,701**	**1,543**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-15
Sand and Gravel – Alternative A, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	208	21	10	0	7	1	0	1,294	0	0	1,299	1,179
Extraction and Processing	23	6	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	4	0	2	0	0	400	0	0	401	364
Total	**231**	**27**	**14**	**0**	**9**	**1**	**0**	**1,694**	**0**	**0**	**1,701**	**1,543**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-16
Sand and Gravel – Alternative B, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	52	5	3	0	2	0	0	323	0	0	325	295
Extraction and Processing	6	1	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	1	0	0	0	0	100	0	0	100	91
Total	**58**	**7**	**3**	**0**	**2**	**0**	**0**	**423**	**0**	**0**	**425**	**386**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-17
Sand and Gravel – Alternative C, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	52	5	3	0	2	0	0	323	0	0	325	295
Extraction and Processing	6	1	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	1	0	0	0	0	100	0	0	100	91
Total	**58**	**7**	**3**	**0**	**2**	**0**	**0**	**423**	**0**	**0**	**425**	**386**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-18
Sand and Gravel – Alternative D, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	208	21	10	0	7	1	0	1,294	0	0	1,299	1,179
Extraction and Processing	23	6	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	4	0	2	0	0	400	0	0	401	364
Total	**231**	**27**	**14**	**0**	**9**	**1**	**0**	**1,694**	**0**	**0**	**1,701**	**1,543**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-19
Sand and Gravel – Alternative A, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	208	21	10	0	7	1	0	1,294	0	0	1,299	1,179
Extraction and Processing	23	6	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	4	0	2	0	0	400	0	0	401	364
Total	**231**	**27**	**14**	**0**	**9**	**1**	**0**	**1,694**	**0**	**0**	**1,701**	**1,543**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-20
Sand and Gravel – Alternative B, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	52	5	3	0	2	0	0	323	0	0	325	295
Extraction and Processing	6	1	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	1	0	0	0	0	100	0	0	100	91
Total	**58**	**7**	**3**	**0**	**2**	**0**	**0**	**423**	**0**	**0**	**425**	**386**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-21
Sand and Gravel – Alternative C, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	52	5	3	0	2	0	0	323	0	0	325	295
Extraction and Processing	6	1	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	1	0	0	0	0	100	0	0	100	91
Total	**58**	**7**	**3**	**0**	**2**	**0**	**0**	**423**	**0**	**0**	**425**	**386**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-22
Sand and Gravel – Alternative D, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	208	21	10	0	7	1	0	1,294	0	0	1,299	1,179
Extraction and Processing	23	6	0	0	0	0	0	0	0	0	0	0
Heavy Equipment	0	0	4	0	2	0	0	400	0	0	401	364
Total	**231**	**27**	**14**	**0**	**9**	**1**	**0**	**1,694**	**0**	**0**	**1,701**	**1,543**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-23
Travel and Transportation Management – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.27	0.24
Maintenance Equipment	0.08	0.01	0.06	0.00	0.05	0.01	0.00	7.46	0.00	0.00	7.48	6.79
Recreational Vehicles	1,216.70	127.16	2.85	0.05	375.33	228.76	22.88	1,648.96	2.69	0.05	1,720.65	1,561.39
Total	**1,216.82**	**127.18**	**2.92**	**0.06**	**375.38**	**228.76**	**22.88**	**1,656.69**	**2.69**	**0.05**	**1,728.40**	**1,568.42**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-24
Travel and Transportation Management – Alternative A, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.34	0.31
Maintenance Equipment	0.10	0.02	0.08	0.00	0.07	0.01	0.00	9.62	0.00	0.00	9.65	8.76
Recreational Vehicles	1,568.87	163.97	3.68	0.07	483.96	294.97	29.50	2,126.25	3.47	0.06	2,218.69	2,013.33
Total	**1,569.03**	**163.99**	**3.76**	**0.07**	**484.03**	**294.98**	**29.50**	**2,136.21**	**3.47**	**0.06**	**2,228.68**	**2,022.39**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-25
Travel and Transportation Management – Alternative B, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Equipment	0	0	0	0	0	0	0	8	0	0	8	8
Recreational Vehicles	1,348	141	3	0	416	253	25	1,827	3	0	1,907	1,730
Total	**1,348**	**141**	**3**	**0**	**416**	**254**	**25**	**1,836**	**3**	**0**	**1,915**	**1,738**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-26
Travel and Transportation Management – Alternative C, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Equipment	0	0	0	0	0	0	0	7	0	0	7	7
Recreational Vehicles	1,166	122	3	0	360	219	22	1,580	3	0	1,649	1,496
Total	**1,166**	**122**	**3**	**0**	**360**	**219**	**22**	**1,587**	**3**	**0**	**1,656**	**1,503**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-27
Travel and Transportation Management – Alternative D, Year 10

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Equipment	0	0	0	0	0	0	0	10	0	0	10	9
Recreational Vehicles	1,569	164	4	0	484	295	29	2,126	3	0	2,219	2,013
Total	**1,569**	**164**	**4**	**0**	**484**	**295**	**29**	**2,136**	**3**	**0**	**2,229**	**2,022**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-28
Travel and Transportation Management – Alternative A, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0.07	0.01	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.42	0.38
Maintenance Equipment	0.12	0.02	0.10	0.00	0.08	0.01	0.00	11.88	0.00	0.00	11.91	10.81
Recreational Vehicles	1,936.56	202.40	4.54	0.09	597.38	364.10	36.41	2,624.56	4.28	0.08	2,738.66	2,485.17
Total	**1,936.75**	**202.43**	**4.64**	**0.09**	**597.47**	**364.11**	**36.41**	**2,636.86**	**4.28**	**0.08**	**2,750.99**	**2,496.37**

Table O-29
Travel and Transportation Management – Alternative B, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Equipment	0	0	0	0	0	0	0	8	0	0	8	8
Recreational Vehicles	1,348	141	3	0	416	253	25	1,827	3	0	1,907	1,730
Total	**1,348**	**141**	**3**	**0**	**416**	**254**	**25**	**1,836**	**3**	**0**	**1,915**	**1,738**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-30
Travel and Transportation Management – Alternative C, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Equipment	0	0	0	0	0	0	0	7	0	0	7	7
Recreational Vehicles	1,166	122	3	0	360	219	22	1,580	3	0	1,649	1,496
Total	**1,166**	**122**	**3**	**0**	**360**	**219**	**22**	**1,587**	**3**	**0**	**1,656**	**1,503**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-31
Travel and Transportation Management – Alternative D, Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	0	0	0	0	0	0	0	0	0	0	0	0
Maintenance Equipment	0	0	0	0	0	0	0	12	0	0	12	11
Recreational Vehicles	1,937	202	5	0	597	364	36	2,625	4	0	2,739	2,485
Total	**1,937**	**202**	**5**	**0**	**597**	**364**	**36**	**2,637**	**4**	**0**	**2,751**	**2,496**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-32
Prescribed Fire and Mechanical Treatments – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Fugitive Dust - Mechanical Treatment	468	70	0	0	0	0	0	0	0	0	0	0
Fugitive Dust - Prescribed Fire	5	1	0	0	0	0	0	0	0	0	0	0
Smoke - Prescribed Fire	3	3	1	0	36	2	0	0	2	2	532	483
Commuter Vehicles - Mechanical Treatment	0	0	0	0	0	0	0	21	0	0	25	23
Commuter Vehicles - Prescribed Fire	0	0	0	0	0	0	0	11	0	0	11	10
Maintenance Equipment - Mechanical Treatment	18	17	208	5	278	56	6	25,421	0	0	25,579	23,211
Maintenance Equipment - Prescribed Fire	0	0	8	0	5	1	0	942	0	0	948	860
Total	**494**	**91**	**217**	**6**	**319**	**59**	**6**	**26,397**	**2**	**2**	**27,095**	**24,587**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-33
Prescribed Fire and Mechanical Treatments – Alternative A, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Fugitive Dust - Mechanical Treatment	239	36	0	0	0	0	0	0	0	0	0	0
Fugitive Dust - Prescribed Fire	9	1	0	0	0	0	0	0	0	0	0	0
Smoke - Prescribed Fire	6	5	1	0	61	3	0	0	3	3	909	824
Commuter Vehicles - Mechanical Treatment	0	0	0	0	0	0	0	11	0	0	13	12
Commuter Vehicles - Prescribed Fire	0	0	0	0	0	0	0	20	0	0	20	18
Maintenance Equipment - Mechanical Treatment	9	9	106	3	142	29	3	12,982	0	0	13,063	11,854
Maintenance Equipment - Prescribed Fire	1	1	13	0	8	1	0	1,610	0	0	1,620	1,470
Total	**263**	**52**	**121**	**4**	**212**	**33**	**3**	**14,623**	**3**	**3**	**15,623**	**14,177**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-34
Prescribed Fire and Mechanical Treatments – Alternative B, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Fugitive Dust - Mechanical Treatment	239	36	0	0	0	0	0	0	0	0	0	0
Fugitive Dust - Prescribed Fire	9	1	0	0	0	0	0	0	0	0	0	0
Smoke - Prescribed Fire	6	5	1	0	61	3	0	0	3	3	909	824
Commuter Vehicles - Mechanical Treatment	0	0	0	0	0	0	0	11	0	0	13	12
Commuter Vehicles - Prescribed Fire	0	0	0	0	0	0	0	20	0	0	20	18
Maintenance Equipment - Mechanical Treatment	9	9	106	3	142	29	3	12,982	0	0	13,063	11,854
Maintenance Equipment - Prescribed Fire	1	1	13	0	8	1	0	1,610	0	0	1,620	1,470
Total	**263**	**52**	**121**	**4**	**212**	**33**	**3**	**14,623**	**3**	**3**	**15,623**	**14,177**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-35
Prescribed Fire and Mechanical Treatments – Alternative C, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Fugitive Dust - Mechanical Treatment	191	29	0	0	0	0	0	0	0	0	0	0
Fugitive Dust - Prescribed Fire	10	2	0	0	0	0	0	0	0	0	0	0
Smoke - Prescribed Fire	7	6	2	0	74	3	0	0	3	3	1,090	989
Commuter Vehicles - Mechanical Treatment	0	0	0	0	0	0	0	9	0	0	10	9
Commuter Vehicles - Prescribed Fire	0	0	0	0	0	0	0	23	0	0	23	21
Maintenance Equipment - Mechanical Treatment	7	7	85	2	114	23	2	10,386	0	0	10,450	9,483
Maintenance Equipment - Prescribed Fire	1	1	16	0	10	2	0	1,932	0	0	1,944	1,764
Total	**217**	**44**	**103**	**3**	**197**	**28**	**3**	**12,350**	**4**	**4**	**13,518**	**12,267**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-36
Prescribed Fire and Mechanical Treatments – Alternative D, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Fugitive Dust - Mechanical Treatment	299	45	0	0	0	0	0	0	0	0	0	0
Fugitive Dust - Prescribed Fire	6	1	0	0	0	0	0	0	0	0	0	0
Smoke - Prescribed Fire	4	4	1	0	46	2	0	0	2	2	681	618
Commuter Vehicles - Mechanical Treatment	0	0	0	0	0	0	0	14	0	0	16	15
Commuter Vehicles - Prescribed Fire	0	0	0	0	0	0	0	15	0	0	15	13
Maintenance Equipment - Mechanical Treatment	11	11	133	3	177	36	4	16,228	0	0	16,328	14,817
Maintenance Equipment - Prescribed Fire	1	1	10	0	6	1	0	1,208	0	0	1,215	1,102
Total	**321**	**61**	**144**	**4**	**230**	**39**	**4**	**17,464**	**3**	**2**	**18,255**	**16,566**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-37
Livestock Grazing – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Heavy Equipment	0.37	0.05	0.09	0.00	0.03	0.01	0.00	11.86	0.00	0.00	11.89	10.79
Commuting Vehicles	1.00	0.11	0.26	0.00	0.72	0.06	0.01	43.11	0.00	0.00	43.74	39.69
OHVs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,554.31	0.00	53,640.53	48,675.62
Total	**1.38**	**0.16**	**0.35**	**0.00**	**0.75**	**0.07**	**0.01**	**54.97**	**2,554.31**	**0.00**	**53,696.16**	**48,726.10**

Table O-38
Livestock Grazing – Alternative A, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Heavy Equipment	0.37	0.05	0.09	0.00	0.03	0.01	0.00	11.86	0.00	0.00	11.89	10.79
Commuting Vehicles	1.00	0.11	0.26	0.00	0.72	0.06	0.01	43.11	0.00	0.00	43.74	39.69
OHVs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,554.31	0.00	53,640.53	48,675.62
Total	**1.38**	**0.16**	**0.35**	**0.00**	**0.75**	**0.07**	**0.01**	**54.97**	**2,554.31**	**0.00**	**53,696.16**	**48,726.10**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-39
Livestock Grazing – Alternative B, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Heavy Equipment	0.37	0.05	0.09	0.00	0.03	0.01	0.00	11.83	0.00	0.00	11.86	10.76
Commuting Vehicles	1.00	0.11	0.26	0.00	0.72	0.06	0.01	43.00	0.00	0.00	43.63	39.59
OHVs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,547.88	0.00	53,505.45	48,553.04
Total	**1.37**	**0.16**	**0.35**	**0.00**	**0.75**	**0.07**	**0.01**	**54.83**	**2,547.88**	**0.00**	**53,560.94**	**48,603.40**

Table O-40
Livestock Grazing – Alternative C, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Heavy Equipment	0.36	0.05	0.09	0.00	0.03	0.01	0.00	11.52	0.00	0.00	11.55	10.48
Commuting Vehicles	0.97	0.10	0.25	0.00	0.70	0.06	0.01	41.88	0.00	0.00	42.49	38.56
OHVs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,481.35	0.00	52,108.43	47,285.32
Total	**1.34**	**0.16**	**0.34**	**0.00**	**0.73**	**0.07**	**0.01**	**53.40**	**2,481.36**	**0.00**	**52,162.47**	**47,334.36**

Table O-41
Livestock Grazing – Alternative D, Year 10 and Year 20

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Heavy Equipment	0.37	0.05	0.09	0.00	0.03	0.01	0.00	11.86	0.00	0.00	11.89	10.79
Commuting Vehicles	1.00	0.11	0.26	0.00	0.72	0.06	0.01	43.11	0.00	0.00	43.74	39.69
OHVs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Enteric	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2,554.31	0.00	53,640.53	48,675.62
Total	**1.38**	**0.16**	**0.35**	**0.00**	**0.75**	**0.07**	**0.01**	**54.97**	**2,554.31**	**0.00**	**53,696.16**	**48,726.10**

Table O-42
Lands and Realty Right-of-ways – Base Year

Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	1.67	0.18	0.35	0.01	0.08	0.02	0.00	40.83	0.00	0.00	42.16	38.26
Heavy Equipment	0.35	0.09	0.68	0.02	0.32	0.05	0.01	72.11	0.00	0.00	72.30	65.61
Total	**2.02**	**0.27**	**1.03**	**0.02**	**0.40**	**0.08**	**0.01**	**112.94**	**0.01**	**0.00**	**114.47**	**103.87**

[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

Table O-43
Lands and Realty Right-of-ways – Alternatives A, B, C, and D, Year 10 and Year 20

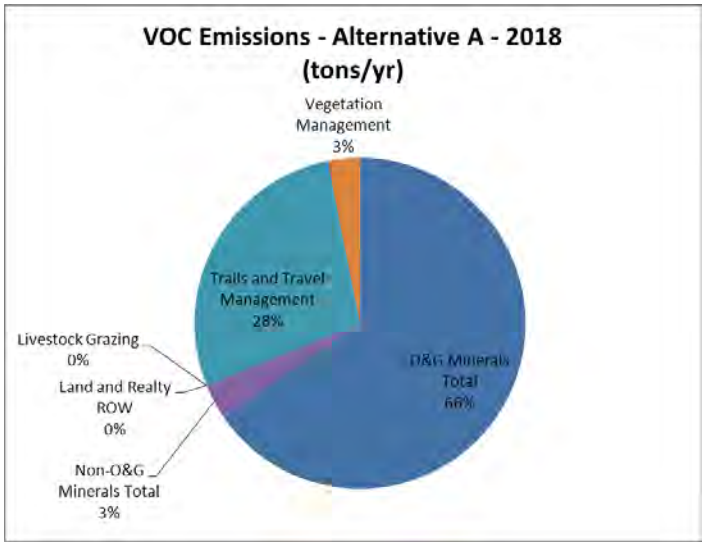
Activity	Annual Emissions (Tons)											
	PM10	PM2.5	NO_x	SO_2	CO	VOC	HAPs[a]	CO_2	CH_4	N_2O	CO_2eq	CO_2eq metric Tonnes
Commuter Vehicles	1.67	0.18	0.35	0.01	0.08	0.02	0.00	40.83	0.00	0.00	42.16	38.26
Heavy Equipment	0.35	0.09	0.68	0.02	0.32	0.05	0.01	72.11	0.00	0.00	72.30	65.61
Total	**2.02**	**0.27**	**1.03**	**0.02**	**0.40**	**0.08**	**0.01**	**112.94**	**0.01**	**0.00**	**114.47**	**103.87**

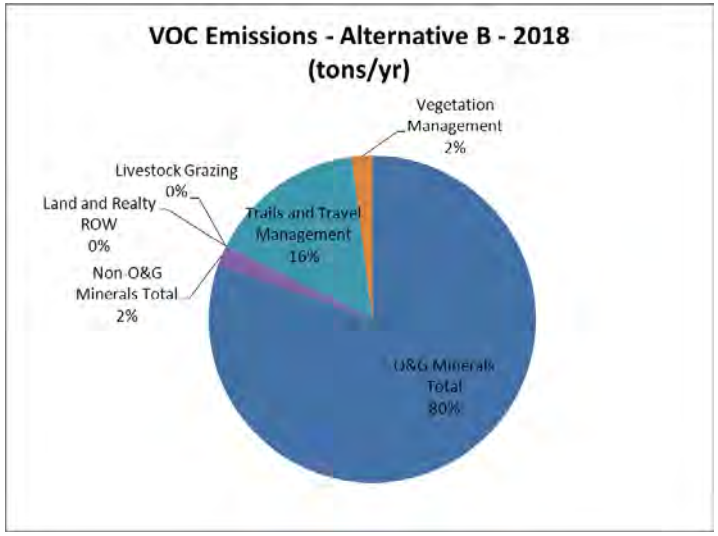
[a] HAPs = Hazardous Air Pollutants; assumed = VOCs * 0.1

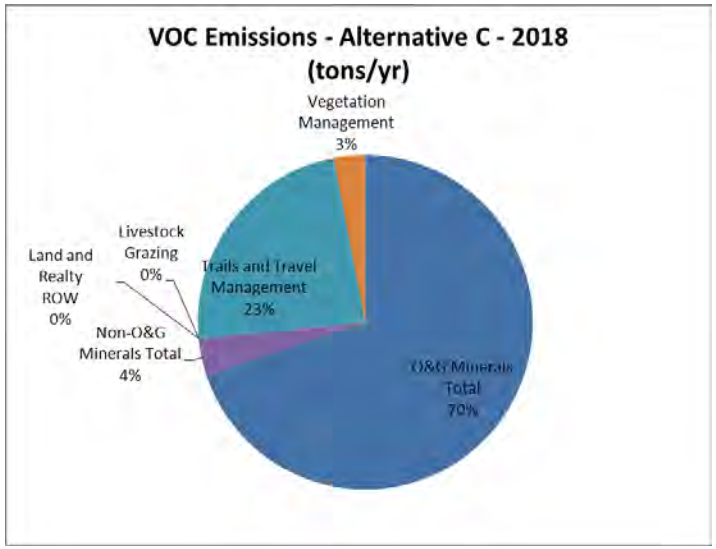
This page intentionally left blank.

O.2 BLM AUTHORIZED ACTIONS: PERCENT CONTRIBUTION TO BLM EMISSIONS BY ACTIVITY

Figure O-1
VOC Emissions







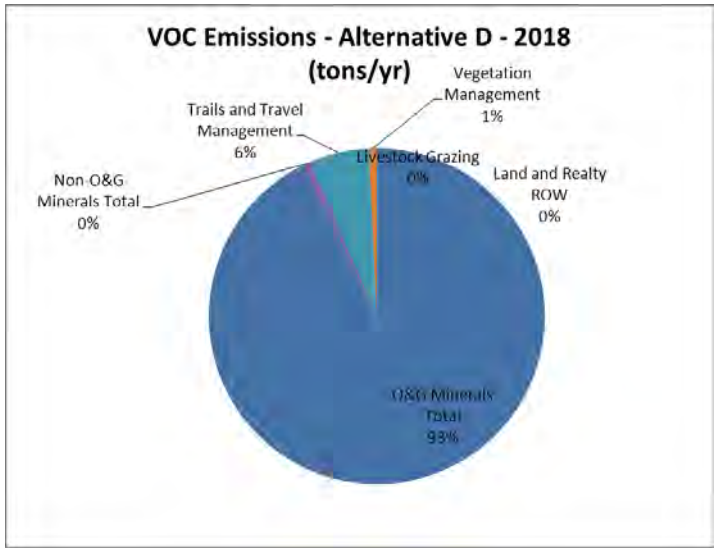
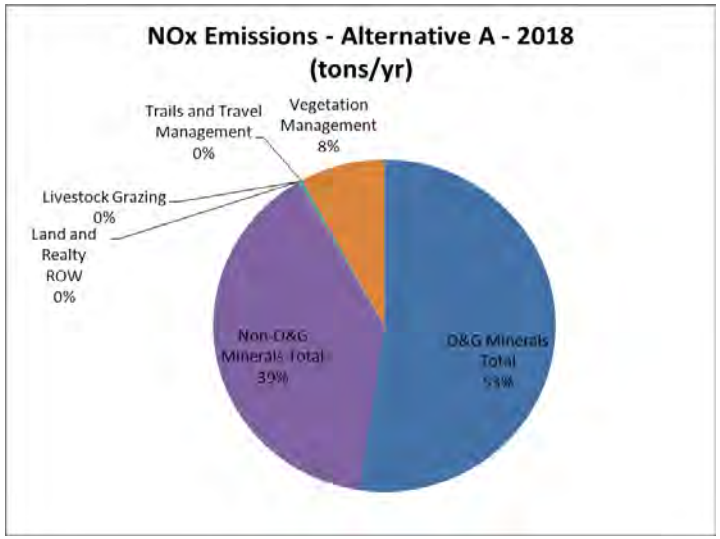
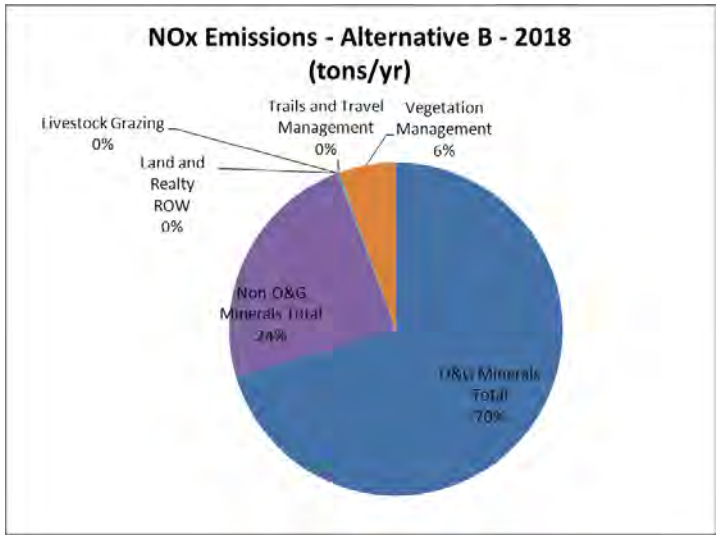
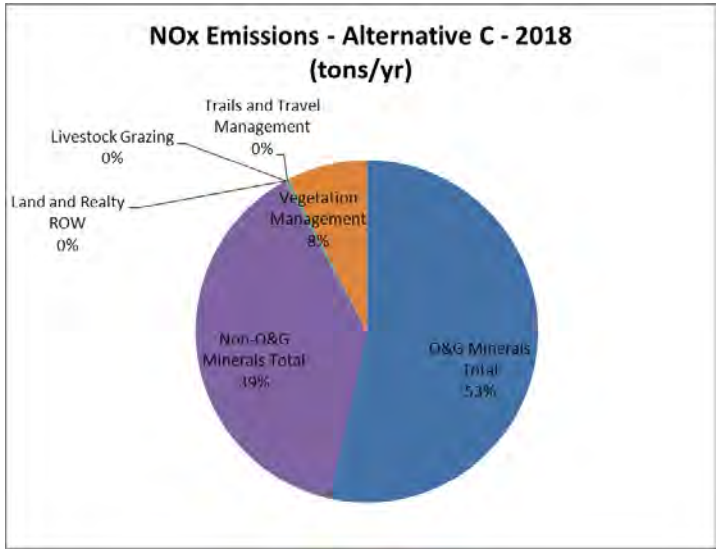


Figure O-2
NO_x Emissions







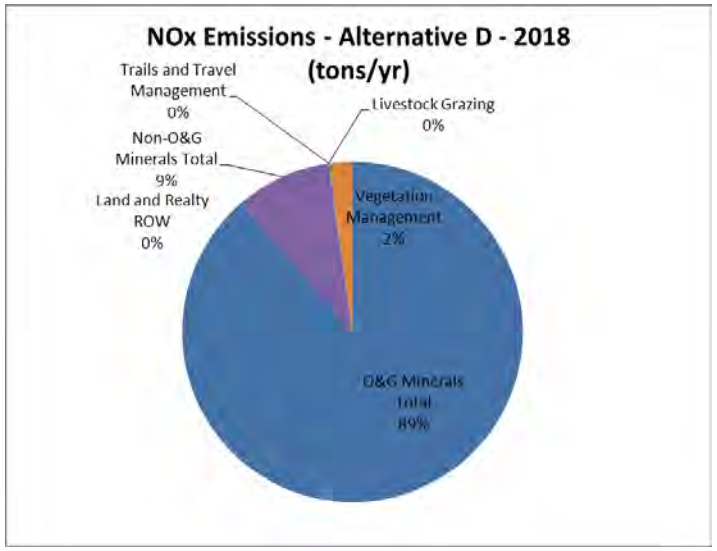
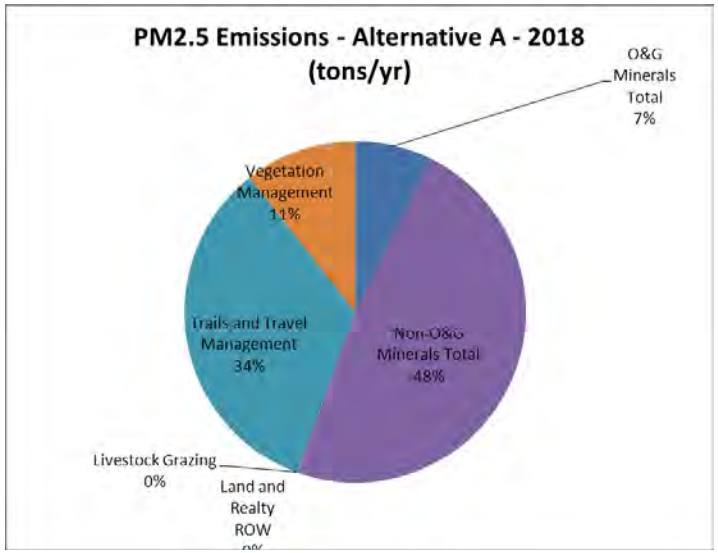
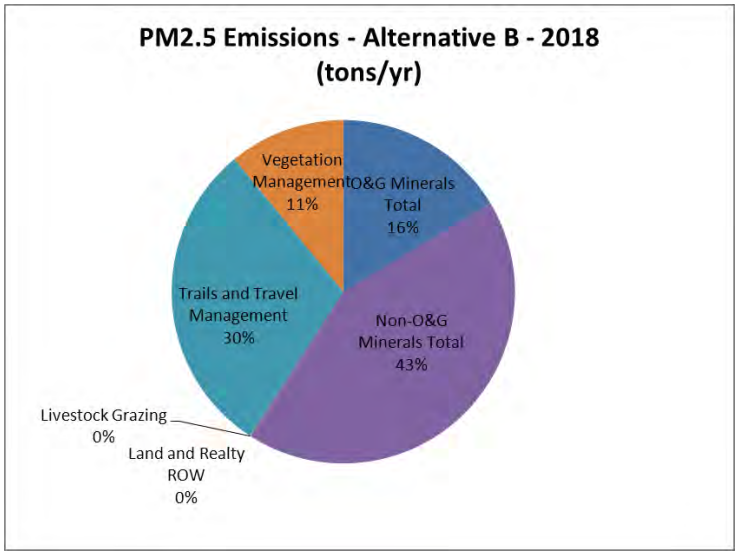
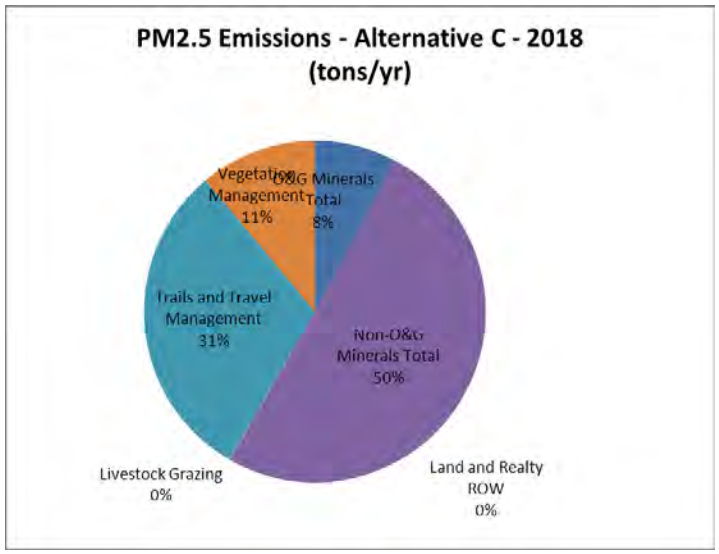
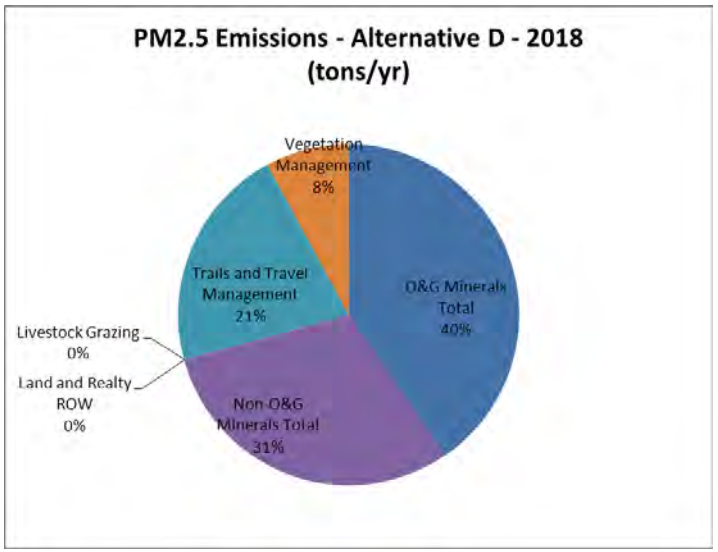


Figure O-3
$PM_{2.5}$ Emissions









O.3 BLM PLUS NON-FEDERAL OIL AND GAS ACTIONS WITHIN THE PLANNING AREA EMISSIONS INVENTORY TABLES

- Oil and Gas Development – BLM + Private/Fee
  - Combined Conventional, CBNG, Shale

Table O-44
BLM + Non-federal Oil and Gas, Alternative A

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	32	332	577	19	18	0	4	67,550
Completion Venting	3	0	0	0	0	0	0	682
Condensate Tanks	425	0	0	0	0	0	12	1,396
Construction Equipment	1	4	10	1	1	0	0	1,006
Dehydrators	96	0	0	0	0	0	50	5,433
Drilling Engines	25	258	449	15	14	0	3	52,540
Field Compressor Engines	22	1,344	752	8	8	0	2	15,400
Flaring	5	21	4	0	0	0	2	6,467
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	85	9	0	0	0
Fugitive Leaks	925	0	0	0	0	0	45	237,913
Heaters	29	442	526	40	40	0	4	634,746
Midstream Compressor Engines	592	1,499	821	42	42	15	66	51,666
Other Midstream	713	215	187	10	10	9	95	205,137
Other Production	113	88	371	21	20	9	8	57,438
Pneumatic Devices	370	0	0	0	0	0	18	72,979
Pneumatic Pumps	34	0	0	0	0	0	2	6,644
Traffic	1	4	9	87	9	0	0	1,222
Water Injection Pumps	7	7	9	44	3	155	1	15,664
Well Blowdowns	9	0	0	0	0	0	0	1,763
Project Year 10 Totals	**3,403**	**4,215**	**3,714**	**370**	**174**	**189**	**311**	**1,435,646**
Project Year 20								
Completion Engines	32	331	575	19	18	0	4	67,369
Completion Venting	3	0	0	0	0	0	0	678
Condensate Tanks	456	0	0	0	0	0	11	1,498
Construction Equipment	1	4	10	1	1	0	0	1,004
Dehydrators	100	0	0	0	0	0	52	6,403
Drilling Engines	25	258	448	15	14	0	3	52,445
Field Compressor Engines	30	819	394	6	6	0	3	12,089
Flaring	6	27	5	0	0	0	3	8,392
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	85	9	0	0	0
Fugitive Leaks	729	0	0	0	0	0	35	251,294
Heaters	24	368	438	33	33	0	3	529,366
Midstream Compressor Engines	697	1,723	699	48	48	16	77	62,101
Other Midstream	798	252	219	11	11	10	101	229,712
Other Production	98	96	391	22	21	10	7	56,339
Pneumatic Devices	290	0	0	0	0	0	14	57,490
Pneumatic Pumps	25	0	0	0	0	0	1	5,045
Traffic	1	4	10	91	9	0	0	1,277
Water Injection Pumps	7	8	10	48	4	171	1	17,357
Well Blowdowns	7	0	0	0	0	0	0	1,389
Project Year 20 Totals	**3,331**	**3,891**	**3,199**	**379**	**175**	**209**	**316**	**1,361,245**

Table O-45
BLM + Non-federal Oil and Gas, Alternative B

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	45	457	794	26	25	1	6	93,007
Completion Venting	4	0	0	0	0	0	0	852
Condensate Tanks	338	0	0	0	0	0	10	1,114
Construction Equipment	1	6	14	1	1	0	0	1,386
Dehydrators	94	0	0	0	0	0	49	4,984
Drilling Engines	35	356	618	20	20	0	4	72,348
Field Compressor Engines	27	1,411	775	9	9	0	3	16,808
Flaring	6	25	5	0	0	0	2	7,780
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	117	12	0	0	0
Fugitive Leaks	1,010	0	0	0	0	0	49	274,278
Heaters	32	487	580	44	44	0	4	699,845
Midstream Compressor Engines	784	1,979	980	54	54	20	87	68,602
Other Midstream	923	283	245	13	13	11	120	265,391
Other Production	126	102	428	24	23	10	8	65,240
Pneumatic Devices	404	0	0	0	0	0	20	79,701
Pneumatic Pumps	32	0	0	0	0	0	2	6,349
Traffic	1	5	11	102	11	0	0	1,496
Water Injection Pumps	8	8	10	51	4	180	1	18,242
Well Blowdowns	10	0	0	0	0	0	0	1,925
Project Year 10 Totals	**3,879**	**5,119**	**4,460**	**461**	**215**	**223**	**365**	**1,679,348**
Project Year 20								
Completion Engines	27	456	456	5	5	1	3	92,819
Completion Venting	4	0	0	0	0	0	0	849
Condensate Tanks	340	0	0	0	0	0	8	1,125
Construction Equipment	1	6	14	1	1	0	0	1,400
Dehydrators	98	0	0	0	0	0	51	5,817
Drilling Engines	21	355	355	4	4	0	3	72,249
Field Compressor Engines	39	954	439	8	8	0	4	14,906
Flaring	8	33	6	0	0	0	3	10,249
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	106	11	0	0	0
Fugitive Leaks	900	0	0	0	0	0	43	324,025
Heaters	30	459	546	42	42	0	4	659,563
Midstream Compressor Engines	947	2,338	900	65	65	22	105	84,480
Other Midstream	1,075	342	296	15	15	14	135	309,330
Other Production	123	124	504	28	27	12	9	71,939
Pneumatic Devices	358	0	0	0	0	0	17	70,933
Pneumatic Pumps	22	0	0	0	0	0	1	4,457
Traffic	1	5	11	110	11	0	0	1,428
Water Injection Pumps	10	10	13	63	5	222	1	22,512
Well Blowdowns	9	0	0	0	0	0	0	1,713
Project Year 20 Totals	**4,012**	**5,082**	**3,541**	**446**	**194**	**272**	**388**	**1,749,793**

Table O-46
BLM + Non-federal Oil and Gas, Alternative C

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	19	332	332	4	4	0	2	67,546
Completion Venting	0	0	0	0	0	0	0	56
Condensate Tanks	199	0	0	0	0	0	7	660
Construction Equipment	1	4	10	1	1	0	0	1,013
Dehydrators	47	0	0	0	0	0	24	2,200
Drilling Engines	15	258	258	3	3	0	2	52,536
Field Compressor Engines	16	1,254	722	7	7	0	2	13,528
Flaring	5	20	4	0	0	0	2	6,075
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	50	5	0	0	0
Fugitive Leaks	925	0	0	0	0	0	45	237,913
Heaters	29	442	526	40	40	0	4	634,746
Midstream Compressor Engines	592	1,499	821	42	42	15	66	51,666
Other Midstream	713	215	187	10	10	9	95	205,137
Other Production	113	88	371	21	20	9	8	57,438
Pneumatic Devices	370	0	0	0	0	0	18	72,979
Pneumatic Pumps	28	0	0	0	0	0	1	5,547
Traffic	1	4	9	85	9	0	0	1,148
Water Injection Pumps	7	7	9	44	3	155	1	15,664
Well Blowdowns	9	0	0	0	0	0	0	1,763
Project Year 10 Totals	**3,089**	**4,124**	**3,248**	**305**	**143**	**189**	**277**	**1,427,614**
Project Year 20								
Completion Engines	30	331	63	3	3	0	4	67,368
Completion Venting	0	0	0	0	0	0	0	55
Condensate Tanks	157	0	0	0	0	0	5	524
Construction Equipment	1	4	10	1	1	0	0	1,016
Dehydrators	35	0	0	0	0	0	18	2,144
Drilling Engines	20	258	49	2	2	0	3	52,444
Field Compressor Engines	17	641	334	4	4	0	2	8,355
Flaring	6	26	5	0	0	0	2	8,001
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	48	5	0	0	0
Fugitive Leaks	729	0	0	0	0	0	35	251,294
Heaters	24	368	438	33	33	0	3	529,366
Midstream Compressor Engines	697	1,723	699	48	48	16	77	62,101
Other Midstream	798	252	219	11	11	10	101	229,712
Other Production	98	96	391	22	21	10	7	56,339
Pneumatic Devices	290	0	0	0	0	0	14	57,490
Pneumatic Pumps	14	0	0	0	0	0	1	2,856
Traffic	1	4	8	85	9	0	0	1,093
Water Injection Pumps	7	8	10	48	4	171	1	17,357
Well Blowdowns	7	0	0	0	0	0	0	1,389
Project Year 20 Totals	**2,933**	**3,711**	**2,227**	**306**	**141**	**209**	**273**	**1,348,903**

Table O-47
BLM + Non-federal Oil and Gas, Alternative D

Category	VOC	CO	NOx	PM10	PM2.5	SO2	HAPs	CO2e
Project Year 10								
Completion Engines	199	2,038	3,540	116	113	3	25	414,480
Completion Venting	23	0	0	0	0	0	1	4,565
Condensate Tanks	1,074	0	0	0	0	0	28	3,550
Construction Equipment	5	28	63	4	4	1	1	6,280
Dehydrators	365	0	0	0	0	0	190	18,711
Drilling Engines	144	1,476	2,565	84	82	2	18	300,336
Field Compressor Engines	105	2,489	1,136	20	20	1	12	39,348
Flaring	34	143	26	0	0	0	14	44,247
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	527	54	0	0	0
Fugitive Leaks	2,368	0	0	0	0	0	114	722,815
Heaters	76	1,167	1,389	106	106	0	11	1,676,763
Midstream Compressor Engines	3,419	8,211	2,804	222	222	86	378	269,343
Other Midstream	3,893	1,141	989	51	51	45	530	1,118,780
Other Production	316	272	1,126	62	61	27	21	166,815
Pneumatic Devices	944	0	0	0	0	0	46	186,766
Pneumatic Pumps	59	0	0	0	0	0	3	11,627
Traffic	3	15	38	282	30	0	0	4,883
Water Injection Pumps	21	22	28	137	11	484	3	49,038
Well Blowdowns	23	0	0	0	0	0	1	4,511
Project Year 10 Totals	**13,072**	**17,002**	**13,703**	**1,613**	**753**	**650**	**1,395**	**5,042,860**
Project Year 20								
Completion Engines	118	2,036	2,036	23	23	3	15	414,091
Completion Venting	23	0	0	0	0	0	1	4,561
Condensate Tanks	1,312	0	0	0	0	0	32	4,341
Construction Equipment	5	28	64	4	4	1	1	6,353
Dehydrators	456	0	0	0	0	0	237	23,949
Drilling Engines	86	1,475	1,475	17	16	2	11	300,035
Field Compressor Engines	196	3,110	1,161	31	31	1	22	59,984
Flaring	49	208	38	0	0	0	20	64,050
Fracing Engines	0	0	0	0	0	0	0	0
Fugitive Dust	0	0	0	485	49	0	0	0
Fugitive Leaks	3,616	0	0	0	0	0	173	1,220,816
Heaters	119	1,818	2,165	165	165	0	17	2,613,263
Midstream Compressor Engines	4,402	10,392	3,219	287	287	109	487	349,578
Other Midstream	4,999	1,474	1,278	66	66	59	677	1,436,726
Other Production	487	464	1,900	105	102	46	34	274,992
Pneumatic Devices	1,439	0	0	0	0	0	70	285,063
Pneumatic Pumps	75	0	0	0	0	0	4	15,015
Traffic	4	20	42	417	43	0	0	5,636
Water Injection Pumps	36	37	48	235	18	831	5	84,082
Well Blowdowns	35	0	0	0	0	0	2	6,885
Project Year 20 Totals	**17,457**	**21,061**	**13,426**	**1,835**	**805**	**1,052**	**1,805**	**7,169,420**

This page intentionally left blank.

O.4 BLM PLUS NON-FEDERAL OIL AND GAS ACTIONS WITHIN THE PLANNING AREA: EMISSION SUMMARIES BY POLLUTANT

Table O-48
Volatile Organic Compounds

	BLM Actions Only VOC Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	811	609	366	1,061	1,048	590	341	3,435	4,633
Oil and Gas - Shale	2	81	105	246	312	60	78	1,324	1,681
Fluid Minerals Total	***813***	***690***	***471***	***1,307***	***1,360***	***650***	***419***	***4,759***	***6,313***
Coal	0	6	7	4	4	4	4	6	7
Sand and Gravel	1	1	1	0	0	0	0	1	1
Uranium	0	29	58	29	58	29	58	29	58
Solid Minerals Total	***1***	***36***	***66***	***33***	***62***	***33***	***62***	***36***	***66***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	229	295	364	254	254	219	219	295	364
Vegetation –Prescribed Fire and Mechanical Treatment	59	33	33	33	33	28	28	39	39
Other Activities Total	***288***	***328***	***397***	***287***	***287***	***247***	***247***	***334***	***403***
TOTAL Alternative	1,102	1,054	934	1,627	1,709	930	728	5,130	6,783
	BLM + Non-Federal Oil and Gas within GJFO VOC Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	3,581	2,862	2,627	3,236	3,196	2,690	2,397	10,801	14,575
Oil and Gas - Shale	4	541	704	643	816	398	520	2,271	2,882
Fluid Minerals Total	***3,585***	***3,403***	***3,331***	***3,879***	***4,012***	***3,089***	***2,917***	***13,072***	***17,457***
Coal	0	6	7	4	4	4	4	6	7
Sand and Gravel	1	1	1	0	0	0	0	1	1
Uranium	0	29	58	29	58	29	58	29	58
Solid Minerals Total	***1***	***36***	***66***	***33***	***62***	***33***	***62***	***36***	***66***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	229	295	364	254	254	219	219	295	364
Vegetation –Prescribed Fire and Mechanical Treatment	59	33	33	33	33	28	28	39	39
Other Activities Total	***288***	***328***	***397***	***287***	***287***	***247***	***247***	***334***	***403***
TOTAL Alternative	3,874	3,767	3,794	4,199	4,361	3,369	3,227	13,443	17,927

Table O-49
Nitrogen Oxides

	BLM Actions Only NOx Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	1,295	630	280	976	650	598	215	2,752	2,696
Oil and Gas - Shale	6	162	191	562	534	125	113	3,021	2,867
Fluid Minerals Total	***1,301***	***792***	***471***	***1,538***	***1,184***	***723***	***328***	***5,773***	***5,563***
Coal	0	217	269	154	154	154	154	217	269
Sand and Gravel	14	14	14	3	3	3	3	14	14
Uranium	0	364	727	364	727	364	727	364	727
Solid Minerals Total	***14***	***594***	***1,010***	***521***	***884***	***521***	***884***	***594***	***1,010***
Lands and Realty ROW	1	1	1	1	1	1	1	1	1
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	3	4	5	3	3	3	3	4	5
Vegetation –Prescribed Fire and Mechanical Treatment	217	121	121	121	121	103	103	144	144
Other Activities Total	***221***	***126***	***127***	***126***	***126***	***107***	***107***	***149***	***150***
TOTAL Alternative	1,536	1,513	1,608	2,185	2,195	1,350	1,319	6,516	6,723
	BLM + Non-Federal Oil and Gas within GJFO NOx Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	8,703	2,643	1,931	2,988	2,143	2,426	1,483	8,519	8,507
Oil and Gas - Shale	27	1,071	1,268	1,472	1,398	821	744	5,184	4,919
Fluid Minerals Total	***8,730***	***3,714***	***3,199***	***4,460***	***3,541***	***3,248***	***2,227***	***13,703***	***13,426***
Coal	0	217	269	154	154	154	154	217	269
Sand and Gravel	14	14	14	3	3	3	3	14	14
Uranium	0	364	727	364	727	364	727	364	727
Solid Minerals Total	***14***	***594***	***1,010***	***521***	***884***	***521***	***884***	***594***	***1,010***
Lands and Realty ROW	1	1	1	1	1	1	1	1	1
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	3	4	5	3	3	3	3	4	5
Vegetation –Prescribed Fire and Mechanical Treatment	217	121	121	121	121	103	103	144	144
Other Activities Total	***221***	***126***	***127***	***126***	***126***	***107***	***107***	***149***	***150***
TOTAL Alternative	8,965	4,434	4,336	5,106	4,551	3,875	3,218	14,446	14,586

Table O-50
Particulate Matter - PM10

	BLM Actions Only PM10 Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	100	58	32	104	88	54	27	344	386
Oil and Gas - Shale	1	18	24	62	70	13	18	332	375
Fluid Minerals Total	***101***	***76***	***56***	***167***	***158***	***67***	***45***	***676***	***761***
Coal	0	60	42	24	24	24	24	60	42
Sand and Gravel	231	231	231	58	58	58	58	231	231
Uranium	0	587	1,173	587	1,173	587	1,173	587	1,173
Solid Minerals Total	***231***	***878***	***1,446***	***668***	***1,255***	***668***	***1,255***	***878***	***1,446***
Lands and Realty ROW	2	2	2	2	2	2	2	2	2
Livestock Grazing	1	1	1	1	1	1	1	1	1
Travel and Transportation Management	1,217	1,569	1,937	1,348	1,348	1,166	1,166	1,569	1,937
Vegetation –Prescribed Fire and Mechanical Treatment	494	263	263	263	263	217	217	321	321
Other Activities Total	***1,715***	***1,836***	***2,203***	***1,615***	***1,615***	***1,386***	***1,386***	***1,894***	***2,262***
TOTAL Alternative	2,047	2,790	3,705	2,450	3,028	2,121	2,686	3,448	4,469
	BLM + Non-Federal Oil and Gas within GJFO PM10 Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	904	251	219	297	262	222	188	1,042	1,191
Oil and Gas - Shale	4	119	160	163	184	83	119	571	644
Fluid Minerals Total	***909***	***370***	***379***	***461***	***446***	***305***	***306***	***1,613***	***1,835***
Coal	0	60	42	24	24	24	24	60	42
Sand and Gravel	231	231	231	58	58	58	58	231	231
Uranium	0	587	1,173	587	1,173	587	1,173	587	1,173
Solid Minerals Total	***231***	***878***	***1,446***	***668***	***1,255***	***668***	***1,255***	***878***	***1,446***
Lands and Realty ROW	2	2	2	2	2	2	2	2	2
Livestock Grazing	1	1	1	1	1	1	1	1	1
Travel and Transportation Management	1,217	1,569	1,937	1,348	1,348	1,166	1,166	1,569	1,937
Vegetation –Prescribed Fire and Mechanical Treatment	494	263	263	263	263	217	217	321	321
Other Activities Total	***1,715***	***1,836***	***2,203***	***1,615***	***1,615***	***1,386***	***1,386***	***1,894***	***2,262***
TOTAL Alternative	2,854	3,084	4,028	2,744	3,316	2,359	2,947	4,385	5,542

Table O-51
Particulate Matter – $PM_{2.5}$

	BLM Actions Only PM2.5 Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	43	28	16	50	42	26	14	166	183
Oil and Gas - Shale	0	8	10	27	26	5	7	144	139
Fluid Minerals Total	***43***	***36***	***26***	***77***	***68***	***31***	***21***	***310***	***323***
Coal	0	19	12	7	7	7	7	19	12
Sand and Gravel	27	27	27	7	7	7	7	27	27
Uranium	0	187	375	187	375	187	375	187	375
Solid Minerals Total	***27***	***234***	***414***	***201***	***389***	***201***	***389***	***234***	***414***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	127	164	202	141	141	122	122	164	202
Vegetation –Prescribed Fire and Mechanical Treatment	91	52	52	52	52	44	44	61	61
Other Activities Total	***219***	***216***	***254***	***193***	***193***	***166***	***166***	***225***	***264***
TOTAL Alternative	289	485	695	471	649	399	576	769	1,001
	BLM + Non-Federal Oil and Gas within GJFO PM2.5 Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	335	123	109	145	125	109	94	506	566
Oil and Gas - Shale	1	51	66	70	68	34	47	247	239
Fluid Minerals Total	***336***	***174***	***175***	***215***	***194***	***143***	***141***	***753***	***805***
Coal	0	19	12	7	7	7	7	19	12
Sand and Gravel	27	27	27	7	7	7	7	27	27
Uranium	0	187	375	187	375	187	375	187	375
Solid Minerals Total	***27***	***234***	***414***	***201***	***389***	***201***	***389***	***234***	***414***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	127	164	202	141	141	122	122	164	202
Vegetation –Prescribed Fire and Mechanical Treatment	91	52	52	52	52	44	44	61	61
Other Activities Total	***219***	***216***	***254***	***193***	***193***	***166***	***166***	***225***	***264***
TOTAL Alternative	582	623	844	610	775	511	696	1,212	1,483

Table O-52
Sulfur Dioxide (SO_2)

	BLM Actions Only SO2 Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	59	36	16	53	45	36	16	137	194
Oil and Gas - Shale	1	8	15	26	49	8	15	135	260
Fluid Minerals Total	***60***	***45***	***31***	***79***	***95***	***45***	***31***	***272***	***454***
Coal	0	0	0	0	0	0	0	0	0
Sand and Gravel	0	0	0	0	0	0	0	0	0
Uranium	0	7	13	7	13	7	13	7	13
Solid Minerals Total	***0***	***7***	***14***	***7***	***14***	***7***	***14***	***7***	***14***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	0	0	0	0	0	0	0	0	0
Vegetation –Prescribed Fire and Mechanical Treatment	6	4	4	4	4	3	3	4	4
Other Activities Total	***6***	***4***	***4***	***4***	***4***	***3***	***3***	***4***	***4***
TOTAL Alternative	66	55	49	89	112	55	48	283	472
	BLM + Non-Federal Oil and Gas within GJFO SO2 Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	290	138	114	155	143	138	114	417	605
Oil and Gas - Shale	4	51	94	68	129	50	94	233	447
Fluid Minerals Total	***294***	***189***	***209***	***223***	***272***	***189***	***209***	***650***	***1,052***
Coal	0	0	0	0	0	0	0	0	0
Sand and Gravel	0	0	0	0	0	0	0	0	0
Uranium	0	7	13	7	13	7	13	7	13
Solid Minerals Total	***0***	***7***	***14***	***7***	***14***	***7***	***14***	***7***	***14***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	0	0	0	0	0	0	0	0	0
Vegetation –Prescribed Fire and Mechanical Treatment	6	4	4	4	4	3	3	4	4
Other Activities Total	***6***	***4***	***4***	***4***	***4***	***3***	***3***	***4***	***4***
TOTAL Alternative	300	199	226	234	289	199	225	661	1,070

Table O-53
Hazardous Air Pollutants (HAPs)

	BLM Actions Only HAPS Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	75	59	47	117	128	51	37	439	576
Oil and Gas - Shale	0	4	5	13	16	4	5	72	86
Fluid Minerals Total	***75***	***62***	***52***	***130***	***144***	***55***	***42***	***511***	***662***
Coal	0	1	1	0	0	0	0	1	1
Sand and Gravel	0	0	0	0	0	0	0	0	0
Uranium	0	3	6	3	6	3	6	3	6
Solid Minerals Total	***0***	***4***	***7***	***3***	***6***	***3***	***6***	***4***	***7***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	23	29	36	25	25	22	22	29	36
Vegetation –Prescribed Fire and Mechanical Treatment	6	3	3	3	3	3	3	4	4
Other Activities Total	***29***	***33***	***40***	***29***	***29***	***25***	***25***	***33***	***40***
TOTAL Alternative	104	99	98	162	179	83	73	548	709
	BLM + Non-Federal Oil and Gas within GJFO HAPS Estimated Emissions (tons/yr)								
Emissions Generating Activity	base year	A Year 10	A Year 20	B Year 10	B Year 20	C Year 10	C Year 20	D Year 10	D Year 20
Oil and Gas - Conventional/CBNG	342	286	284	331	347	253	241	1,272	1,658
Oil and Gas - Shale	0	25	32	35	42	24	30	123	147
Fluid Minerals Total	***342***	***311***	***316***	***365***	***388***	***277***	***271***	***1,395***	***1,805***
Coal	0	1	1	0	0	0	0	1	1
Sand and Gravel	0	0	0	0	0	0	0	0	0
Uranium	0	3	6	3	6	3	6	3	6
Solid Minerals Total	***0***	***4***	***7***	***3***	***6***	***3***	***6***	***4***	***7***
Lands and Realty ROW	0	0	0	0	0	0	0	0	0
Livestock Grazing	0	0	0	0	0	0	0	0	0
Travel and Transportation Management	23	29	36	25	25	22	22	29	36
Vegetation –Prescribed Fire and Mechanical Treatment	6	3	3	3	3	3	3	4	4
Other Activities Total	***29***	***33***	***40***	***29***	***29***	***25***	***25***	***33***	***40***
TOTAL Alternative	371	347	362	397	423	305	302	1,432	1,852

This page intentionally left blank.

O.5 INPUTS AND ASSUMPTIONS FOR EMISSIONS INVENTORY

Table O-54
Input Assumptions for BLM Actions and Non-federal Oil and Gas Development within the Planning Area

Key Assumption	A	A	B	B	C	C	D	D
	Year 10	Year 20	Year 10	Year 20	Year 10	Year 20	Year 10	Year 20
Oil and Gas Development BLM only								
con. / cbm wells	56	110	196	390	56	110	916	1,831
shale wells	55	110	195	390	55	110	1,054	2,107
Shale Gas - compression (total Hp)	3,170	4,163	11,168	14,732	3,170	4,163	60,242	79,518
Conv/CBM lateral compression (total Hp)	1,671	662	2,213	1,745	1,671	662	4,999	7,320
Conv/CBM wellhead compression (total Hp)	2,035	806	2,695	2,125	2,035	806	6,087	8,913
Conv/CBM midstream scalar: Gas Production Growth	0.88	0.91	2.43	2.94	0.88	0.91	10.36	13.44
drilling rate (wells/yr)	11		39		11		197	
Oil and Gas Development Non-Federal								
con. / cbm wells	316	632	316	632	316	632	1,836	3,671
shale wells	316	632	316	632	316	632	754	1,507
Shale Gas - compression (total Hp)	18,056	23,855	18,056	23,855	18,056	23,855	43,079	56,862
Conv/CBM lateral compression (total Hp)	4,256	3,989	4,256	3,989	4,256	3,989	10,137	15,747
Conv/CBM wellhead compression (total Hp)	5,182	4,857	5,182	4,857	5,182	4,857	12,343	19,174
Conv/CBM midstream scalar: Gas Production Growth	0.97	1.05	0.97	1.05	0.97	1.05	4.37	5.53
drilling rate (wells/yr)	63		63		63		259	
Coal								
tons produced (MMt/yr)	10	14	8		8		10	14
acres disturbed	940	1250	320		320		620	930
Uranium								
tons produced (MMt/yr)	0.7	1.5	0.7	1.5	0.7	1.5	0.7	1.5
Sand and Gravel								
Production	160,790		40,198		40,198		160,790	
Acres	8		2		2		8	
Fire								
Acres	396		396		476		297	
Comp.Travel and Trans mgmnt								
1000 vehicle miles traveled per year	9,081	11,210	7,804	7,804	6,748	6,748	9,081	11,210
Livestock Grazing								
AUMs	42132		42026		40929		42132	
Lands-ROWs and Realty								
# of sites	6		6		6		6	
Acres	12		12		12		12	

Table O-55
Emissions Controls Assumptions for Oil and Gas Calculations

Description	Alternative A	Alternative B	Alternative C	Alternative D
Emission Controls - Control Percentages				
Dust Control	50%	50%	50%	80%
	50%	50%	80%	80%
Drill Rigs (control from basline to higher Tier engine)	0% (NOx) 0% (PM) 0% (VOC)	0% (NOx) 0% (PM) 0% (VOC)	-42% (NOx) -80% (PM) -41% (VOC)	0% (NOx) 0% (PM) 0% (VOC)
	0% (NOx) 0% (PM) 0% (VOC)	-42% (NOx) -80% (PM) -41% (VOC)	-89% (NOx) -85% (PM) 25% (VOC)	-42% (NOx) -80% (PM) -41% (VOC)
Completion Equipment (control from basline to higher Tier engine)	0% (NOx) 0% (PM) 0% (VOC)	0% (NOx) 0% (PM) 0% (VOC)	-42% (NOx) -80% (PM) -41% (VOC)	0% (NOx) 0% (PM) 0% (VOC)
	0% (NOx) 0% (PM) 0% (VOC)	-42% (NOx) -80% (PM) -41% (VOC)	-89% (NOx) -85% (PM) 25% (VOC)	-42% (NOx) -80% (PM) -41% (VOC)
Green Completions (combination flaring and closed loop)	88%	89%	99%	89%
	88%	89%	99%	89%
	45%	23%	20%	23%
	45%	23%	20%	23%
	45%	68%	80%	68%
	45%	68%	80%	68%
Liquids Removal System (haul traffic)	0%	0%	25%	0%
	0%	50%	50%	50%
Production Site Separator Heaters (consolidation)	0%	0%	0%	0%
	0%	0%	0%	0%
Production Site Tank Heaters (consolidation)	0%	0%	0%	0%
	0%	0%	0%	0%
Production Site Dehydrators (flaring)	10%	10%	10%	10%
	10%	10%	10%	10%
Production Site Condensate Tanks (flaring)	10%	48%	76%	48%
	10%	48%	76%	48%
Production Site Pneumatic Devices (percentage of devices that are low-bleed)	100%	100%	100%	100%
	100%	100%	100%	100%
Production Site Pneumatic Pumps (flaring)	10%	48%	76%	48%
	10%	48%	76%	48%
Production Site Pneumatic Pumps (electrification)	0%	0%	0%	0%
	0%	0%	0%	0%
Wellhead and Lateral Compressor Engines (electrification)	0%	0%	50%	0%
	0%	0%	50%	0%

Table O-56
Descriptions of Emissions Controls

Description	Alternative A	Alternative B	Alternative C	Alternative D
Emission Controls - Control Percentages				
Dust Control	watering	watering	watering	watering, chemical suppression, graveling or paving
	watering	watering	watering, chemical suppression, graveling or paving	watering, chemical suppression, graveling or paving
Drill Rigs (control from basline to higher Tier engine)	Tier II engines	Tier II engines	Tier IV engines	Tier II engines
	Tier II engines	Tier IV engines	Tier IV genset engin	Tier IV engines
Completion Equipment (control from basline to higher Tier engine)	Tier II engines	Tier II engines	Tier IV engines	Tier II engines
	Tier II engines	Tier IV engines	Tier IV genset engin	Tier IV engines
Green Completions (combination flaring and closed loop)	closed loop system and flaring control	closed loop system and flaring	closed loop system and flaring control	closed loop system and flaring control
	closed loop system and flaring control	closed loop system and flaring	closed loop system and flaring control	closed loop system and flaring control
Liquids Removal System (haul traffic)	none	none	pipeline system to elimate well site liquids storage and truck hauling	none
	none	pipeline system to elimate well site liquids storage and truck hauling	pipeline system to elimate well site liquids storage and truck hauling	pipeline system to elimate well site liquids storage and truck hauling
Production Site Separator Heaters (consolidation)	none	none	none	none
	none	none	none	none
Production Site Tank Heaters (consolidation)	none	none	none	none
	none	none	none	none
Production Site Dehydrators (flaring)	flaring control	flaring control	flaring control	flaring control
	flaring control	flaring control	flaring control	flaring control
Production Site Condensate Tanks (flaring)	flaring control	flaring control	flaring control	flaring control
	flaring control	flaring control	flaring control	flaring control
Production Site Pneumatic Devices (percentage of devices that are low-bleed)	usage of low-bleed pneumatic devices per Colorado requirements	usage of low-bleed pneumatic devices per Colorado requirements	usage of low-bleed pneumatic devices per Colorado requirements	usage of low-bleed pneumatic devices per Colorado requirements
	usage of low-bleed pneumatic devices per Colorado requirements	usage of low-bleed pneumatic devices per Colorado requirements	usage of low-bleed pneumatic devices per Colorado requirements	usage of low-bleed pneumatic devices per Colorado requirements
Production Site Pneumatic Pumps (flaring)	flaring control	flaring control	flaring control	flaring control
	flaring control	flaring control	flaring control	flaring control
Production Site Pneumatic Pumps (electrification)	none	none	none	none
	none	none	none	none
Wellhead and Lateral Compressor Engines (electrification)	none	none	electrification of compressor	none
	none	none	electrification of compressor	none
Wellhead, Lateral, Centralized Compressor Engines (CDPHE RICE and NSPS)	All engines required to meet Colorado RICE and Federal NSPS Standards			

Table O-57
Projected Well Numbers per Revised RFD (BLM 2012a)

Well Numbers By Alternative - Short Term and Long Term (Including Decline)									
	Baseline (2008)	Alternative A - No Action		Alternative B - Preferred		Alternative C - Conservation		Alternative D - Development	
		2018	2028	2018	2028	2018	2028	2018	2028
Total Cumulative Wells (New + Existing - decline)		***1,932***	***1,973***	***2,212***	***2,533***	***1,932***	***1,973***	***5,749***	***9,605***
Total BLM Wells (New + Existing - decline)		***499***	***293***	***779***	***853***	***499***	***293***	***2,358***	***4,011***
Total Non-BLM Wells (New + Existing - decline)		***1,433***	***1,680***	***1,433***	***1,680***	***1,433***	***1,680***	***3,391***	***5,594***
Cumulative New Wells		***743***	***1,484***	***1,023***	***2,044***	***743***	***1,484***	***4,560***	***9,116***
New BLM		***111***	***220***	***391***	***780***	***111***	***220***	***1,970***	***3,938***
New Non-BLM		***632***	***1,264***	***632***	***1,264***	***632***	***1,264***	***2,590***	***5,178***
- New BLM conv./dir.		51	101	179	357	51	101	837	1,674
- New BLM CBM		5	9	17	33	5	9	79	157
- New BLM shale gas		55	110	195	390	55	110	1,054	2,107
- New Non-BLM conv./dir.		308	616	308	616	308	616	1,789	3,578
- New Non-BLM CBM		8	16	8	16	8	16	47	93
- New Non-BLM shale gas		316	632	316	632	316	632	754	1,507
Cumulative Existing Wells (2008)	***1,891***	***1,189***	***489***	***1,189***	***489***	***1,189***	***489***	***1,189***	***489***
Existing BLM - decline	***704***	***388***	***73***	***388***	***73***	***388***	***73***	***388***	***73***
Existing Non-BLM - decline	***1,187***	***801***	***416***	***801***	***416***	***801***	***416***	***801***	***416***
- Existing BLM conv./dir.	661	358	56	358	56	358	56	358	56
- Existing BLM CBM	31	18	5	18	5	18	5	18	5
- Existing BLM shale gas	12	12	12	12	12	12	12	12	12
- Existing Non-BLM conv./dir.	1,155	777	399	777	399	777	399	777	399
- Existing Non-BLM CBM	15	7	0	7	0	7	0	7	0
- Existing Non-BLM shale gas	17	17	17	17	17	17	17	17	17
decline BLM conv./dir. (1999)		272	543	272	543	272	543	272	543
decline BLM conv./dir. (2000-2008)		31	62	31	62	31	62	31	62
decline BLM CBM (1999)		10	20	10	20	10	20	10	20
decline BLM CBM (2000-2008)		3	6	3	6	3	6	3	6
decline Non-BLM conv. (1999)		181	362	181	362	181	362	181	362
decline Non-BLM conv. (2000-2008)		197	394	197	394	197	394	197	394
decline Non-BLM CBM (1999)		8	15	8	15	8	15	8	15
decline Non-BLM CBM (2000-2008)		0	0	0	0	0	0	0	0
assume no decline of shale gas wells over 20 years		0	0	0	0	0	0	0	0

This page intentionally left blank.

Appendix P

Leasing Reform and Master Leasing Plans

APPENDIX P
LEASING REFORM AND MASTER LEASING PLANS

P.1 INTRODUCTION

The MLP concept, introduced in May 2010 via the Washington Office's Oil and Gas Leasing Reform IM 2010-117, promotes a proactive approach to planning for oil and gas development. Generally, the BLM uses RMPs to make oil and gas planning decisions, such as areas closed to leasing, open to leasing, or open to leasing with major or moderate constraints (lease stipulations) based on known resource values and reasonably foreseeable oil and gas development scenarios. However, this policy acknowledged that additional planning and analysis may be necessary in some areas prior to new oil and gas leasing because of changing circumstances, updated policies, and new information.

To determine whether or not circumstances warrant additional planning and analysis, IM 2010-117 lists numerous criteria to be considered. Specifically, the BLM must prepare an MLP when all four of the following criteria are met:

- A substantial portion of the area to be analyzed in the MLP is not currently leased.
- There is a majority federal mineral interest.
- The oil and gas industry has expressed a specific interest in leasing, and there is a moderate or high potential for oil and gas confirmed by the discovery of oil and gas in the general area.
- Additional analysis or information is needed to address likely resource or cumulative impacts if oil and gas development were to occur where there are:
  - multiple-use or natural/cultural resource conflicts;
  - impacts on air quality;
  - impacts on the resources or values of any unit of the NPS, national wildlife refuge, or National Forest wilderness area, as

determined after consultation or coordination with the NPS, the US Fish and Wildlife Service, or the Forest Service; or

– impacts on other specially designated areas.

The BLM has the discretion to complete an MLP for areas that do not meet the MLP criteria. For example, even though a substantial portion of an area is already leased or lacks a majority federal mineral interest, additional analysis of measures to resolve potential resource conflicts may benefit future leasing decisions.

The MLP process entails analyzing likely development scenarios and varying levels of protective design features and mitigation measures in a defined area with greater detail than a traditional RMP allocation analysis but at a less site-specific level than a development plan that has been fully defined by an operator.

Because the BLM began this planning process in 2008 and had prepared the majority of the Draft RMP/EIS prior to the adoption of IM 2010-117, the phrase "Master Leasing Plan" is generally absent from the Draft RMP/EIS. However, the alternatives analyzed capture in detail the components of an MLP for the area described in the Shale Ridges and Canyons Master Leasing Plan Recommendation.

Chapter 2 of the Draft RMP/EIS, Alternatives, details the proposed Alternatives A through D considered. The "No Action" alternative, Alternative A, is the continuation of present management direction and current prevailing conditions based on existing planning decisions and amendments. Alternative B seeks to balance resources among competing human interests, land uses, and the conservation of natural and cultural resource values, while sustaining the ecological integrity of certain key habitats for plant, wildlife, and fish species. Alternative C emphasizes non-consumptive use and management of resources through protection, restoration, and enhancement, while also providing for multiple uses, including livestock grazing and mineral development. Alternative D emphasizes active management for natural resources, commodity production, and public use opportunities.

Chapter 3 of the Draft RMP/EIS, Affected Environment, describes the existing biological, physical, and socioeconomic characteristics of the planning area, including human uses that could be affected by implementing the alternatives described in Chapter 2. Resource and resource use discussions include a description of current conditions and a characterization of trends expressing the direction of change between the present and some point in the past.

Chapter 4 of the Draft RMP/EIS, Environmental Consequences, presents the likely direct, indirect, and cumulative impacts on the human and natural environment that could occur from implementing the alternatives presented in Chapter 2.

P.2 MASTER LEASING PLAN PROPOSAL

In August 2010, the Wilderness Society and the Center for Native Ecosystems submitted recommendations that the BLM prepare a Shale Ridges and Canyons MLP. This proposal encompasses 908,600 acres, including 640,700 acres of BLM-administered surface land and 700,900 acres of federal mineral estate (see **Figure P-1**, Surface Management and Split Estate). The externally recommended MLP is within the GJFO boundary and overlaps with most of the northern half of the RMP planning area.

P.2.1 MLP Nominated Areas Criteria Analysis

Criterion #1: A substantial portion of the area to be analyzed in the MLP is not currently leased.

The externally recommended Shale Ridges and Canyons MLP area does not meet this criterion. There are 648,900 acres currently open to leasing within the externally recommended MLP area. As shown in **Figure P-2**, Oil and Gas Leases, 482,200 of those acres (74 percent) are currently leased for oil and gas development.

Criterion #2: There is a majority federal mineral interest.

The externally recommended Shale Ridges and Canyons MLP area meets this criterion. The GJFO has jurisdiction over 640,700 surface acres (71 percent of the externally recommended MLP area), and 700,900 acres of federal mineral estate (77 percent of the externally recommended MLP area).

Criterion #3: The oil and gas industry has expressed a specific interest in leasing, and there is a moderate or high potential for oil and gas confirmed by the discovery of oil and gas in the general area.

The externally recommended Shale Ridges and Canyons MLP area meets this criterion. Approximately 686,300 acres (98 percent) of the federal mineral estate within the externally recommended MLP area is considered to have development potential for oil and gas (see **Figure P-3**, Oil and Gas Potential). Of that area, 211,900 acres (31 percent) is unleased and would be subject to the stipulations proposed in the Draft RMP/EIS and discussed below.

There are 400 producing federal wells within the externally recommended MLP boundary. Industry continues to express interest in leasing within the externally recommended MLP area.

Criterion #4: Additional analysis or information is needed to address likely resource or cumulative impacts if oil and gas development were to occur where there are multiple use or natural/cultural resource conflicts; impacts on air quality; impacts on the resources or values of any unit of the NPS; or impacts on other specially designated areas.

The externally recommended Shale Ridges and Canyons MLP meets this criterion. The external MLP proposal focused primarily on concerns regarding fish and wildlife, special status species, recreation, Citizen Wilderness Proposals,

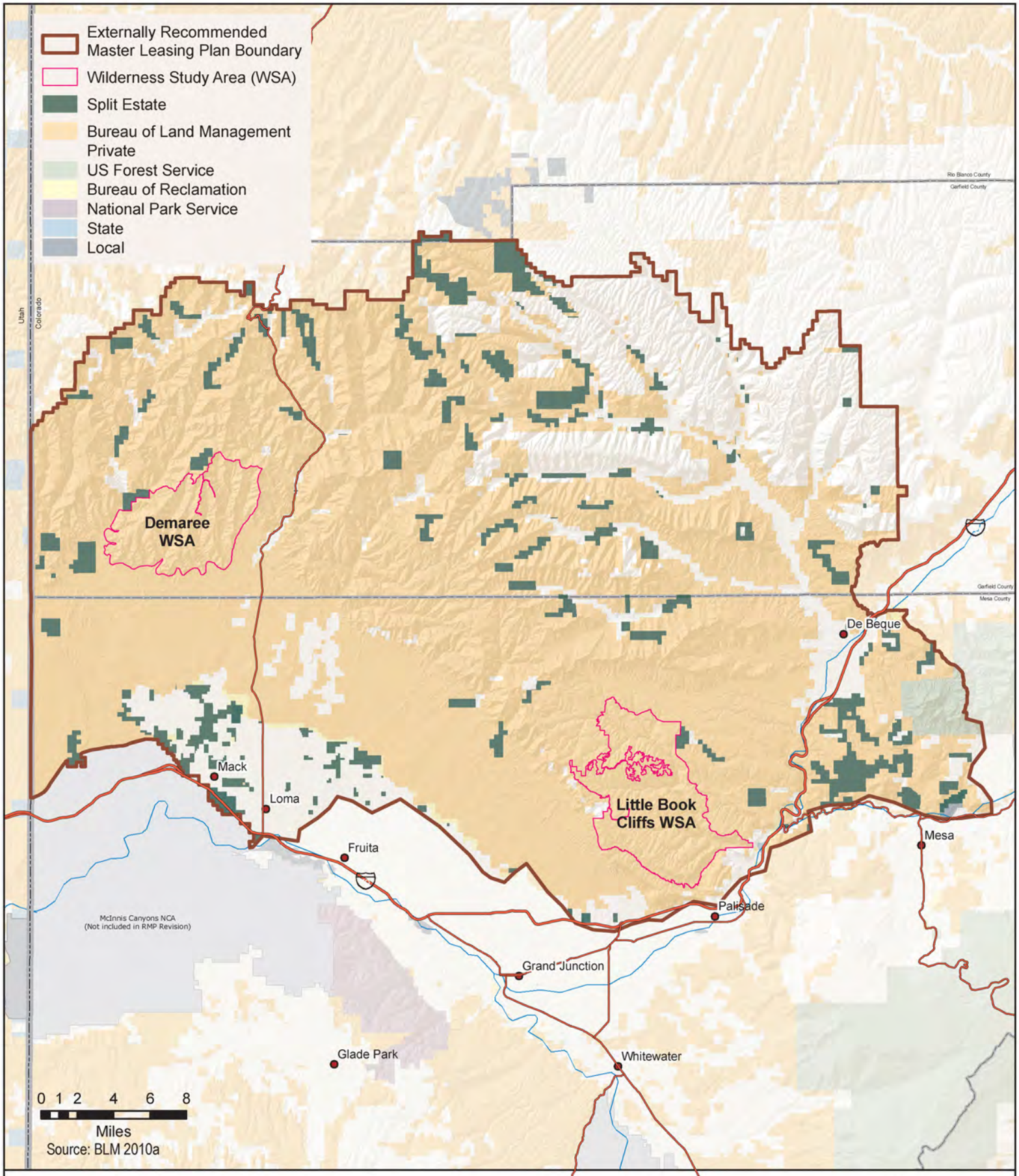
ACECs, and CNHP Potential Conservation Areas (PCAs). According to IM 2010-117, other important national and local resource issues that should be considered when developing an MLP include air quality; Special Recreation Management Areas; nearby state, tribal, or other federal agency lands; cultural resources; paleontological resources; visual resources; watershed conditions, including steep slopes and fragile soils; municipal watersheds; public health and safety; and the ability to achieve interim and final reclamation standards.

P.2.2 Potential Resource Conflicts

The external proposal identified a series of potential resource conflicts, displayed in **Table P-1**, Potential Resource Conflicts. All of those resources and uses are fully addressed in this appendix.

Table P-1
Potential Resource Conflicts

Resource/Use	Not Present	Present/Not Protected	Present/May be Protected
Land Ownership			X
Recreation and Tourism			X
Greater Sage-grouse			X
Aridlands Burrowing Mammal Communities			X
Big Game and Wide-ranging Mammals			X
Raptors			X
Fishing			X
Rare Plants			X
Citizen Wilderness Proposals			X

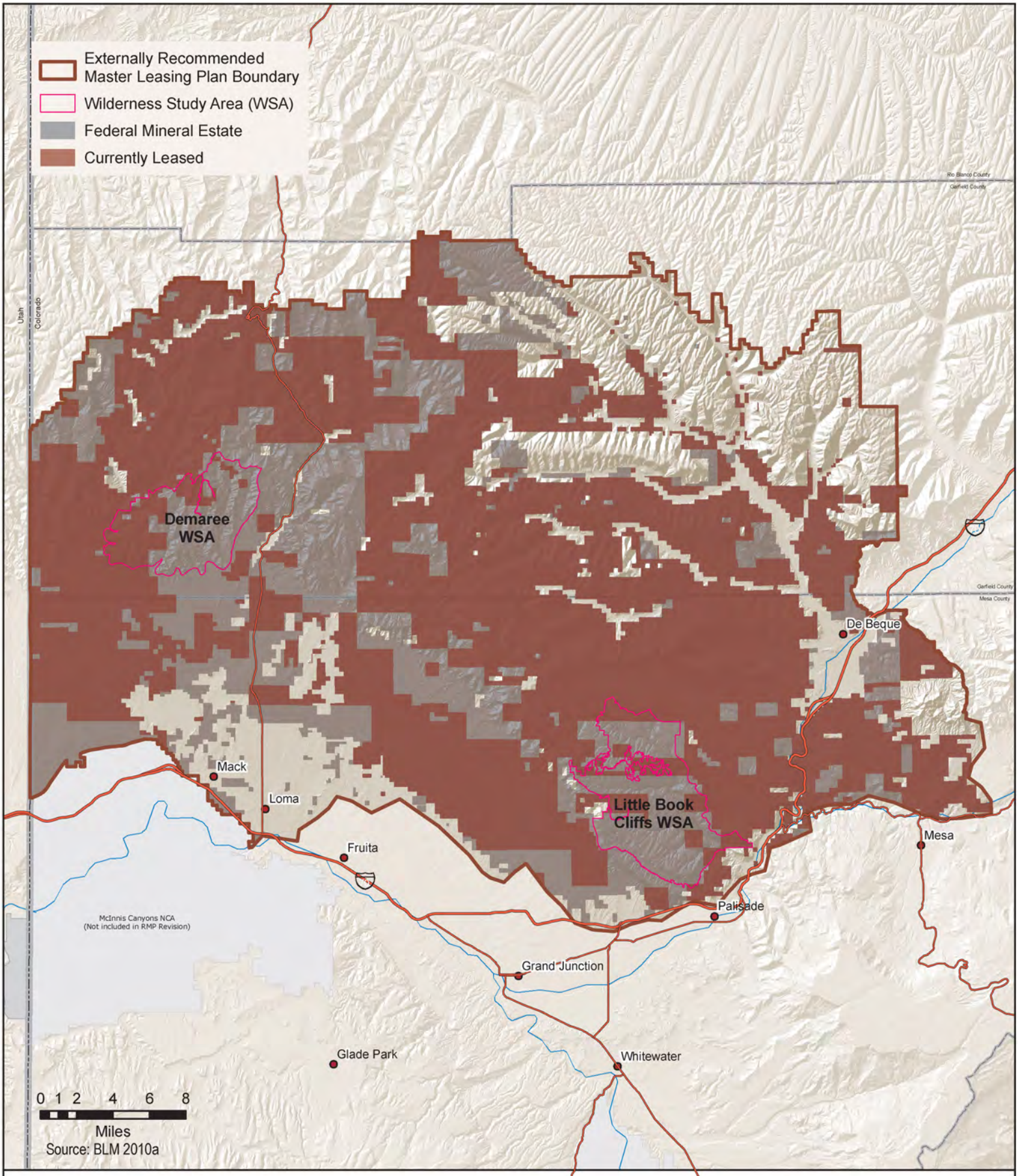


Surface Management and Split Estate

BLM Grand Junction Field Office Resource Management Plan
Appendix N- Leasing Reform and Master Leasing Plans

Figure P-1

This page intentionally left blank.



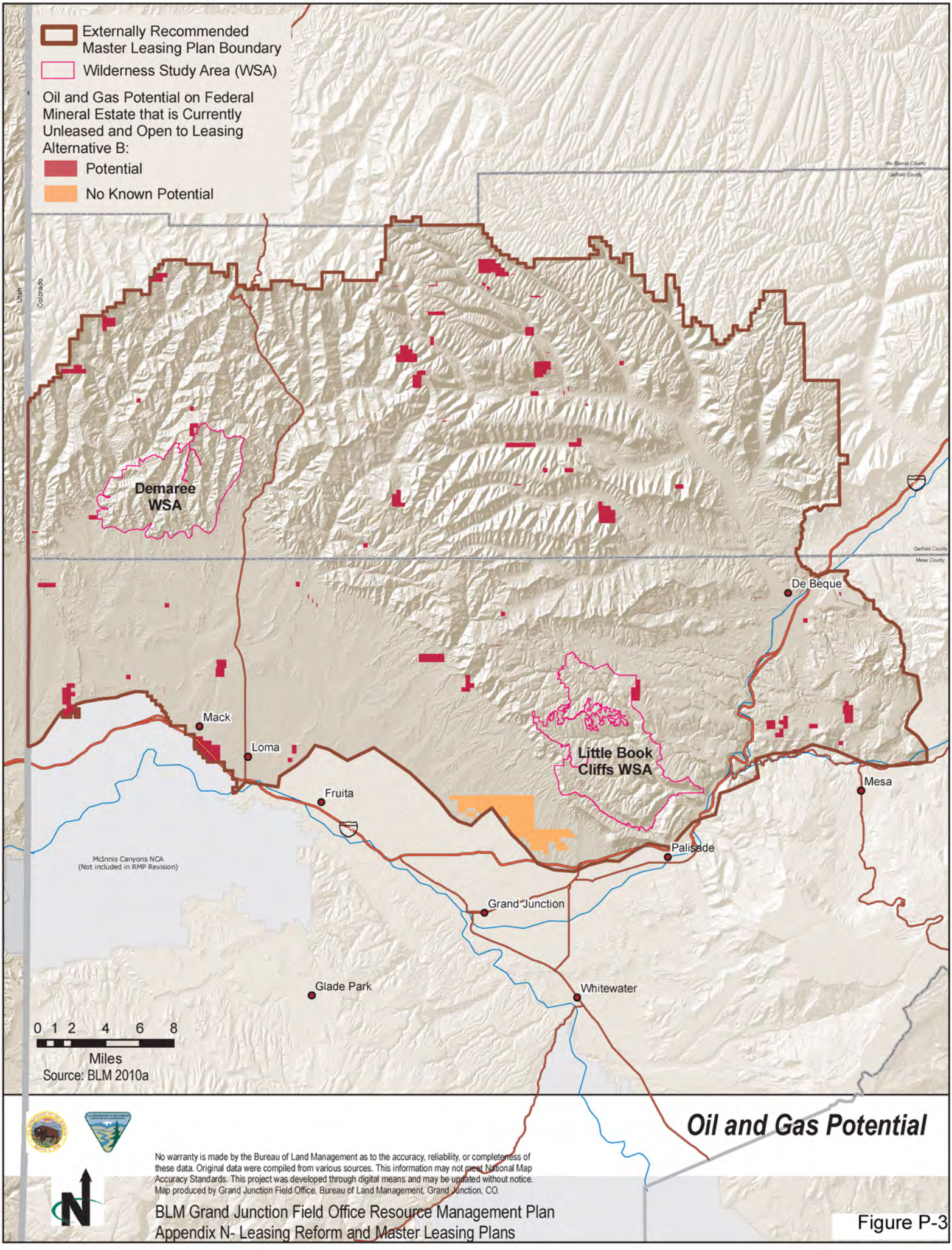
Oil and Gas Leases

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data. Original data were compiled from various sources. This information may not meet National Map Accuracy Standards. This project was developed through digital means and may be updated without notice. Map produced by Grand Junction Field Office, Bureau of Land Management, Grand Junction, CO.

BLM Grand Junction Field Office Resource Management Plan
Appendix N- Leasing Reform and Master Leasing Plans

Figure P-2

This page intentionally left blank.



Oil and Gas Potential

Map produced by Grand Junction Field Office, Bureau of Land Management, Grand Junction, CO.

BLM Grand Junction Field Office Resource Management Plan
Appendix N- Leasing Reform and Master Leasing Plans

Figure P-3

This page intentionally left blank.

P.3 RESOURCE CONCERNS ADDRESSED IN THE GJFO RMP/EIS

The following sections delineate the key concerns identified in the external MLP proposal and corresponding protection measures in the GJFO Draft RMP/EIS.

The Draft RMP/EIS proposes stipulations for multiple resources that would apply to oil and gas leasing. **Table P-2**, Acres Managed with Conditions of Approval and Lease Stipulations for Alternatives A through D within the Externally Recommended MLP, displays, by alternative, the stipulations applied to currently unleased acreage that is open to leasing within the externally recommended MLP boundary. Because some stipulations, including NSOs for cultural resources, definable streams, lentic riparian areas, TLs for special status species, and others, are not mapped, the actual acreages where stipulations are applied is higher than shown in the table.

Table P-2
Acres Managed with Conditions of Approval and Lease Stipulations for Alternatives A through D within the Externally Recommended MLP

Alternative	Currently Unleased and Open to Leasing	NSO	CSU	TL
A	163,000	76,100	44,700	36,700
B	162,400	76,900	101,100	73,200
C	93,300	50,000	84,800	35,300
D	163,000	61,800	84,400	71,700

Figure P-4, Stipulations in Alternative B, shows the stipulations that would be applied to BLM-administered surface land and split estate that is currently unleased and would be open to leasing.

P.3.1 Air Quality

The Draft RMP/EIS proposes several management actions to reduce impacts on air quality, including the following requirements:

- Within one year of the Record of Decision, require that all new and existing drill rig engines meet US Environmental Protection Agency Tier 2 (Alternative B) or Tier 4 (Alternative C) Nonroad Diesel Engine Emission Standards or meet equivalent emission standards, regardless of when they begin operation.
- Under Alternative C, require as a condition of approval green completions, involving recovery and clean-up of natural gas. Prohibit flaring and venting of natural gas, except during emergency situations.
- Under Alternative B, require as a condition of approval green completions, involving recovery and clean-up of natural gas. Prohibit

flaring and venting of natural gas, except during emergency situations, well completion operations, initial production tests, subsequent well tests, and well plugging and maintenance.

- Under Alternative C, temporarily close designated routes as needed during wind events to reduce particulate matter (e.g. during National Weather Service high wind warning). Closures would apply to designated routes and off-highway vehicle Open areas under Alternative B.
- Under Alternatives B, C, and D, require proper road design, construction, and surfacing on BLM authorized roads to reduce fugitive dust emissions.

P.3.2 Soil and Water Resources

The Draft RMP/EIS includes several proposed stipulations to protect soil and water resources.

Soil Resources

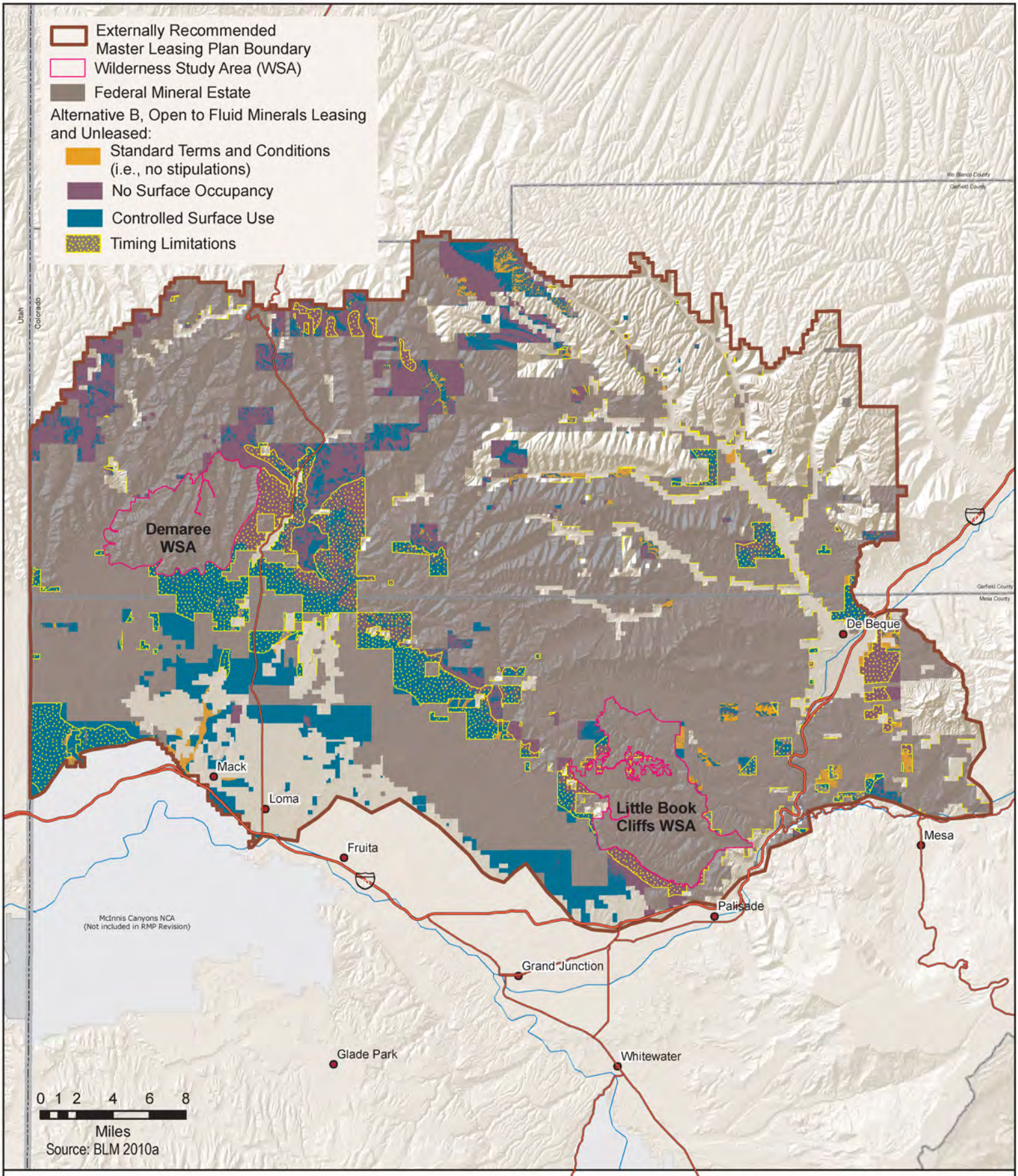
Under Alternative B, there would be a CSU stipulation for fragile soils, and an NSO for slumping soils and slopes greater than or equal to 40 percent. Under Alternative C, all three of those resources would be covered by an NSO stipulation. In addition, under Alternatives B and C, a CSU stipulation would be applied to slopes between 25 and 40 percent and mapped Mancos Shale and saline soils.

Alternative D would include the NSO stipulation for slopes greater than or equal to 40 percent.

Water Resources

Alternatives B and C propose the following stipulations to protect water resources:

- An NSO would be applied to the Colorado River corridor;
- An NSO would be applied to stream and springs possessing lotic riparian characteristics;
- A CSU (Alternative B) or NSO (Alternative C) would be applied to definable streams;
- An NSO would be applied to lentic riparian areas; and
- A CSU would be applied to the Colorado River corridor, extending 0.25- to 0.5-miles landward from the identified NSO buffer.



Stipulations in Alternative B

BLM Grand Junction Field Office Resource Management Plan
Appendix N- Leasing Reform and Master Leasing Plans

Figure P-4

This page intentionally left blank.

Additional relevant management actions under Alternatives B and C include:

- Oil and gas operations near domestic water supplies using a groundwater well or spring will be restricted. Siting of oil and gas operations may be permitted following NEPA analysis conducted for a specific location, and the application of protections that may include conditions of approval, mitigation and design features developed in the NEPA analysis, and the regulations at 43 CFR 3101.1-2.
- For projects that propose to disturb riparian vegetation and channels, requiring professionally engineered design, construction, maintenance, and reclamation plans to mitigate to the fullest extent practicable riparian resource damage associated with the proposed action.

Alternative D proposes a CSU stipulation within 500 feet from the edge of any hydrologic feature including perennial, intermittent, and streams, wetlands (including fens), lakes, springs, and seeps; and

P.3.3 Vegetation and Special Status Plant Species

The external recommendation identified concerns regarding rare plants and other native plant species in the Shale Ridges and Canyons proposed MLP area. The proposal stated that this MLP area contains some of the highest concentrations of globally rare plants in the state, and requested that BLM adequately protect habitat and address the potential direct, indirect, and cumulative impacts on rare plants.

The Draft RMP/EIS proposes the following stipulations and management actions to protect vegetation and special status plant species:

- A CSU stipulation would be applied to all old growth forests and woodlands under Alternatives B, C, and D.
- The following ACECs would be managed as ROW Exclusion to protect threatened and endangered species habitat. An NSO stipulation would also be applied.
  - Atwell Gulch (Alternatives B and C);
  - Pyramid Rock (Alternatives B, C, and D); and
  - South Shale Ridge (Alternatives B and C).
- A portion (1,800 acres) of Badger Wash ACEC would be managed as ROW Exclusion to protect special status species habitat under Alternatives B, C, and D.
- The following Lease Notice would be applied under Alternatives B, C, and D: The operator is required to conduct a biological inventory prior to approval of operations in areas of known or

suspected habitat of special status species, or habitat of other species of interest such as but not limited to raptor nests, sage-grouse leks, or significant natural plant communities. The operator, in coordination with the BLM, shall use the inventory to prepare mitigating measures to reduce the impacts on affected species or their habitats. These mitigating measures may include, but are not limited to, relocation of roads, well pads, pipelines, and other facilities, and fencing operations or habitat. Where impacts cannot be mitigated to the satisfaction of the BLM's Authorized Officer, surface occupancy on that area is prohibited.

- The following Lease Notice would be applied under Alternatives A, B, C, and D: This lease contains habitat for the Colorado hookless cactus (*Sclerocactus glaucus*). Prior to undertaking any activity on the lease, including surveying and staking of well locations, the lessee may be required to perform botanical inventories on the lease. Special design and construction measures may also be required in order to minimize impacts on Colorado hookless cactus habitat from drilling and producing operations.
- An NSO stipulation would be applied Alternatives B and C within 656 feet of current and historically occupied, and known habitat of threatened, endangered, proposed, and candidate plants under Alternatives B and C.
- An NSO stipulation would be applied under Alternative D within 656 feet of known habitat of threatened, endangered, proposed, and candidate plants.
- An NSO stipulation would be applied under Alternative B within 328 feet of BLM Sensitive plant species occupied habitat.
- An NSO stipulation would be applied under Alternative C within 656 feet of BLM Sensitive plant species current and historically occupied, known, and suitable habitat.
- An NSO stipulation would be applied under Alternatives B, C, and D within 656 feet of current and historically occupied habitat and within 66 feet of suitable habitat for DeBeque phacelia.
- A CSU stipulation would be applied under Alternatives B and C within those plant communities that meet BLM's criteria for significant plant communities that can require special design, construction, and implementation measures, including relocation of operations by more than 656 feet.
- A CSU stipulation would be applied under Alternative D within those plant communities that meet BLM's criteria for significant plant communities.

P.3.4 Lands With Wilderness Characteristics

The external recommendation identified several Citizen Wilderness proposals, including Hunter Canyon, South Shale Ridge, and Cow Ridge. These areas were identified for their rugged landscapes, biological diversity, geological uniqueness, presence of rare plants, and wildlife value.

BLM's wilderness inventory (see **Appendix F**) identified six units with wilderness characteristics within the externally proposed MLP area (East Demaree, East Salt Creek, Hunter Canyon, South Shale Ridge, Spink Canyon, and Spring Canyon, totaling 103,200 acres). Eighty-three percent of those acres are currently leased and would not be subject to any new fluid minerals stipulations of this RMP or a new MLP.

Under the preferred alternative, none of these units would be managed to protect their wilderness characteristics. However, overlapping designations and allocations (e.g., ACECs, wildlife emphasis areas) and their associated protections would result in 79,600 acres (77 percent) of the 103,200 acres being subject to NSO stipulations.

Under Alternative C, all six units would be closed to fluid mineral leasing.

The Cow Ridge citizen wilderness proposal area is also within the externally recommended MLP boundary. The BLM does not consider this area to meet the criteria for further consideration. In addition, the BLM wilderness inventory included five other areas that did not meet the criteria for further consideration.

P.3.5 Sage-grouse

The external recommendation identified concerns regarding overlap of the Shale Ridges and Canyons area with sensitive sage-grouse habitat, including mapped production habitat and a core area, and proximity to leks. The proposal notes the species' vulnerability to a wide range of disturbances associated with oil and gas development, and requests a federal mineral withdrawal for all mapped priority sage-grouse habitats within the Shale Ridges and Canyons area.

The externally recommended MLP boundary contains greater sage-grouse habitat and the Draft RMP/EIS proposes several stipulations and management actions to reduce impacts from oil and gas development:

- Areas within a 4-mile radius of sage-grouse leks would be managed as ROW Exclusion under Alternative B. This restriction would apply to below-ground facilities under Alternative C.
- Sage-grouse occupied habitat and areas within a 4-mile radius of sage-grouse leks would be managed as ROW Avoidance under Alternative B. This restriction would be expanded to cover suitable habitat under Alternative C.

- All occupied habitat would be closed to leasing under Alternative C, including on split-estate.
- The Sunnyside and Roan and Carr Creeks Wildlife Emphasis Areas (14,500 and 17,700 acres, respectively) would be managed to protect sage-grouse habitat under Alternative B. An NSO stipulation would be applied to the Sunnyside Wildlife Emphasis Area and a CSU stipulation would be applied to the Roan and Carr Creeks Wildlife Emphasis Area.
- The Sunnyside Wildlife Emphasis Area and Roan and Carr Creeks ACEC (11,300 and 33,600 acres, respectively) would be managed to protect sage-grouse habitat under Alternative C. An NSO stipulation would be applied to both areas.
- The Roan and Carr Creeks Wildlife Emphasis Area (33,400 acres) would be managed to protect sage-grouse habitat under Alternative D. A CSU stipulation would be applied to this area.
- A TL stipulation would be applied to all occupied winter habitat from December 16 to March 15 under Alternatives B and C.
- An NSO stipulation would be applied to prohibit surface occupancy and surface-disturbing activities within 4 miles of an active lek or within sage-grouse nesting and early brood-rearing habitat under Alternatives B and C.
- A CSU stipulation would be applied to protect sage-grouse nesting and early brood rearing habitat within 4 miles of an active lek or within sage-grouse nesting and early brood-rearing habitat under Alternatives B and C.
- A TL stipulation would be applied within 4 miles of sage-grouse leks from March 1 to June 30 under Alternative B. Under Alternative D, the TL would cover a 0.6-mile radius.

P.3.6 White-tailed Prairie Dog

The external recommendation identified concerns regarding active white-tailed prairie dog burrow complexes within the Shale Ridges and Canyons area. The species is a Species of Greatest Conservation Need and is considered "most pressing" in the Colorado Comprehensive Wildlife Conservation Strategy. In addition, prairie dogs are prey for raptors and help to sustain raptor populations in the area. The proposal requests eliminating or minimizing potential disturbances associated with oil and gas development near burrow complexes.

The southern portion of the externally recommended MLP boundary contains white-tailed prairie dog habitat, and the Draft RMP/EIS proposes several stipulations and management actions to reduce impacts from oil and gas development:

- The Prairie Canyon Wildlife Emphasis Area (22,200 acres) would be managed to protect white-tailed prairie dog habitat under Alternative B. NSO (2,800 acres) and CSU stipulations (16,600 acres) would be applied in the area.
- The Prairie Canyon area would be managed as an ACEC (6,900 acres) and Wildlife Emphasis Area (15,300 acres) to protect white-tailed prairie dog habitat under Alternative C. Both areas would be closed to leasing.
- An NSO applied to active white-tailed prairie dog towns under Alternative B. This stipulation would be expanded to within 150 feet of active towns under Alternative C.
- A CSU applied within active white-tailed prairie dog towns and to avoid the center of active towns, while maintaining the integrity of the town's social structure under Alternative D.
- A TL stipulation to prohibit surface occupancy and surface-disturbing activities within active white-tailed prairie dog towns from April 1 to July 15 under Alternative D.

P.3.7 Burrowing Owl

Similar to white-tailed prairie dog, the external recommendation identified concerns regarding burrowing owl burrow complexes in the Shale Ridges and Canyons area. Burrowing owl is a state threatened species, and burrow complexes typically support a highly interrelated community of mammals, avian species, reptiles, and vegetation.

- A TL stipulation would prohibit surface disturbance and human encroachment within 150 feet of active burrows or burrowing owl nest sites from March 15 to October 31 under Alternatives B, C, and D.
- The Prairie Canyon Wildlife Emphasis Area (22,200 acres) would be managed to protect burrowing owl habitat under Alternative B. NSO (2,800 acres) and CSU stipulations (16,600 acres) would be applied in the area.
- The Prairie Canyon area would be managed as an ACEC (6,900 acres) and Wildlife Emphasis Area (15,300 acres) to protect burrowing owl habitat under Alternative C. Both areas would be closed to leasing.

P.3.8 Big Game and Wide-ranging Mammals

The external recommendation identified concerns regarding big game and wide-ranging mammals in the Shale Ridges and Canyons area. The area provides important habitat for mule deer, elk, pronghorn, black bear, and turkey. Portions of the Shale Ridges and Canyons area include elk and mule deer migration corridors.

The Draft RMP/EIS provides protection for big game and wide-ranging mammal habitat through several means. These include using conditions of approval listed in Appendix B and standard operating procedures and best management practices provided in Appendix G, applying a TL stipulation to big game winter range (Alternatives B, C, and D), applying a CSU stipulation to deer and elk migration and movement corridors (Alternatives B and C), and applying an NSO stipulation to elk production areas and pronghorn wintering habitat (Alternatives B, C, and D).

In addition, specific areas of high wildlife value and significance for wildlife species are managed as wildlife emphasis areas. Management actions include closing the areas to leasing and applying NSO and CSU stipulations. The externally recommended MLP area encompasses all or a portion of the following wildlife emphasis areas:

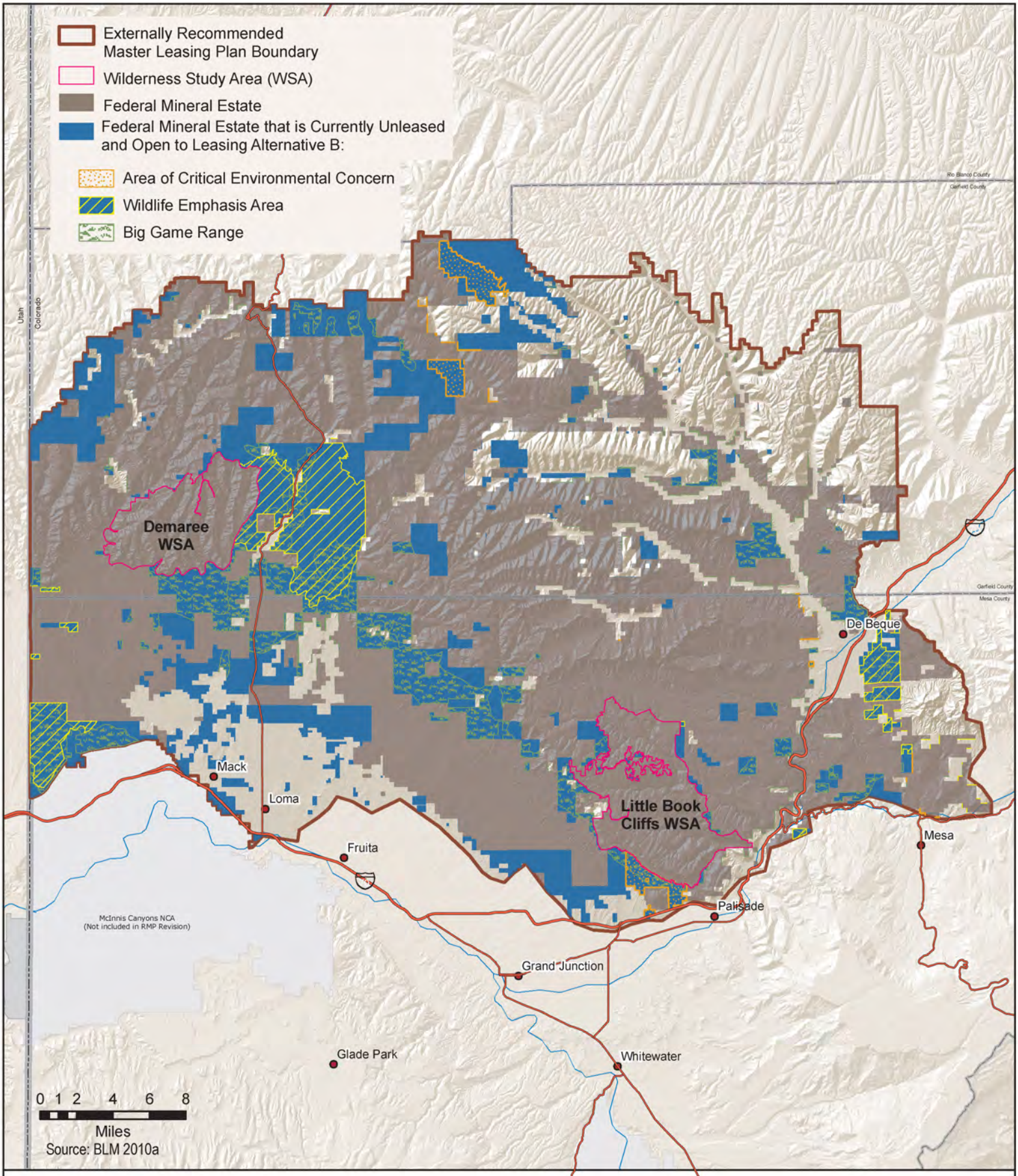
- East Salt Creek (Alternatives B and C);
- Prairie Canyon (Alternatives B and C);
- A portion of Rapid Creek (Alternatives B and C);
- Roan and Carr Creeks (Alternatives B, C, and D);
- South Shale Ridge (Alternatives B and C); and
- Sunnyside (Alternatives B and C).

These areas total 85,000 acres under Alternative B, 57,200 acres under Alternative C, and 33,400 acres under Alternative D. **Figure P-5**, Important Resources in Alternative B, displays the Wildlife Emphasis Areas in Alternative B and whether their acres are currently leased.

Some ACECs within the externally recommended MLP area are managed to protect big game habitat, including the following:

- Atwell Gulch (NSO stipulation applied under Alternative B and closed to leasing under Alternative C);
- Prairie Canyon (closed to leasing under Alternative C); and
- South Shale Ridge (NSO stipulation applied under Alternative B and closed to leasing under Alternative C).

These areas total 31,100 acres under Alternative B and 41,200 acres under Alternative D. **Figure P-5** displays the ACECs in Alternative B and whether their acres are currently leased.



Important Resources in Alternative B

BLM Grand Junction Field Office Resource Management Plan
Appendix N- Leasing Reform and Master Leasing Plans

Figure P-5

This page intentionally left blank.

P.3.9 Raptors

The external proposal requests an analysis of protections for peregrine falcon, bald and golden eagles, and ferruginous hawk habitat, as nesting, roosting, and hunting areas for these species are within the Shale Ridges and Canyons area. The external recommendation also suggests using the US Fish and Wildlife Service's draft guidelines for managing activities in raptor habitat.

Protective measures proposed in the Draft RMP/EIS for these species include the following:

- A CSU stipulation would be applied within 0.5-mile of active ferruginous hawk nest sites and associated alternate nests under Alternatives B and D. Under Alternative C, this measure is applied as an NSO stipulation.
- A TL stipulation would be applied to prohibit human encroachment within 0.25-mile of active ferruginous hawk nests, including any alternate nests, from February 1 to July 15 under Alternatives B, C, and D.
- A CSU stipulation would be applied within 0.5-mile of active peregrine falcon nest sites under Alternatives B and D. Under Alternative C, this measure is applied as an NSO stipulation.
- A TL stipulation would be applied to prohibit human encroachment within 0.5-mile of active peregrine falcon nest cliff(s) from March 15 to July 31 under Alternatives B, C, and D.
- An NSO stipulation would be applied to prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.25-mile of active golden eagle nest sites and associated alternate nests under Alternatives B, C, and D.
- A TL stipulation would be applied to prohibit human encroachment within 0.25-mile of active golden eagle nests and associated alternate nests from December 15 to July 15 under Alternatives B, C, and D.
- An NSO stipulation would be applied to prohibit surface occupancy and surface-disturbing activities (beyond that which historically occurred in the area) within 0.25-mile of active bald eagle nests under Alternatives B, C, and D.
- A TL stipulation would be applied to prohibit human encroachment within 0.5-mile of active bald eagle nests from November 15 to July 31 under Alternatives B, C, and D.

P.3.10 Fish

The external recommendation identified concerns for ESA-listed fish species in the north-central portion of the proposed MLP area. In particular, recent

research suggests that drainages previously thought to be occupied by Colorado River cutthroat trout may be occupied by greenback cutthroat trout and vice versa. Other potentially affected listed species include razorback sucker, humpback chub, roundtail chub, and Colorado pikeminnow.

The Draft RMP/EIS proposes several protective measures for fish species, including the following:

- A TL stipulation to prohibit in-channel stream work in all occupied trout streams during appropriate spring and fall spawning periods of April 1 to August 1 for rainbow and cutthroat trout and Paiute and mottled sculpin and October 1 to November 30 for brown and brook trout under Alternatives B and C.
- A TL stipulation to prohibit in-channel work in all occupied cutthroat trout streams during spring spawning periods of April 1 to August 1 under Alternative D.
- An NSO stipulation to prohibit surface occupancy and surface-disturbing activities within 328 feet from edge of ordinary high-water mark (bank-full stage) of streams containing conservation and core conservation populations of cutthroat trout under Alternative D.

In addition, NSO and CSU stipulations to protect water resources (see **Section P.3.2**, Soil and Water Resources), wildlife emphasis area designations (e.g., Roan and Carr Creeks), and ACEC designations (e.g., Roan and Carr Creeks) directly benefit fish species.

P.3.11 Special Designations & Other Areas

When developing an MLP, IM-2010-117 directs that the effects of oil and gas leasing and development should be considered in areas such as ACECs, WSAs, lands with wilderness characteristics, and any nearby state, tribal, or other federal agency lands. **Table P-3**, Areas Emphasized in the External MLP Recommendation, shows the amount of acreage associated with these emphasis areas within the externally recommended MLP area under Alternative B.

Wilderness Study Areas

Under all alternatives the Demaree Canyon and Little Book Cliffs WSAs (52,000 acres) would remain closed to oil and gas leasing. Consistent with BLM's Interim Management Policy pending congressional action on wilderness recommendations, exceptions would be granted on a case-by-case basis for valid existing rights and grandfathered uses.

Table P-3
Areas Emphasized in the External MLP Recommendation

Emphasis Area	Shale Ridges and Canyons Alternative B
Wilderness Study Areas	52,000
Areas of Critical Environmental Concern	53,800
Citizen Wilderness Proposals[1]	15,700
Colorado Natural Heritage Program PCAs[2]	31,400

[1]Acreage includes only areas outside of WSAs and within federal mineral estate.
[2]Acreage includes only areas outside of ACECs and within federal mineral estate.

Areas of Critical Environmental Concern

Figure P-5 shows the proposed ACECs under Alternative B and whether they are currently leased. Under all alternatives, an NSO stipulation would be applied to all ACECs within the externally recommended MLP area. In addition to the species-specific stipulations described above, ACEC stipulations provide place-based protections for species and other sensitive resources.

Under Alternative A, Pyramid Rock and Badger Wash ACECs (2,500 acres) are protected by NSO stipulation within the externally recommended MLP boundary. Under Alternative B, ACECs include Pyramid Rock, Badger Wash, Roan and Carr Creeks, South Shale Ridge, Atwell Gulch, and Mt. Garfield (53,800 acres). Under Alternative C, this includes Pyramid Rock, Badger Wash, Roan and Carr Creeks, South Shale Ridge, Atwell Gulch, Mt. Garfield, Prairie Canyon, and Colorado River Riparian (84,800 acres). Under Alternative D, Pyramid Rock and Badger Wash ACECs (3,500 acres) are protected.

CNHP Potential Conservation Areas

The Colorado Natural Heritage Program identifies PCAs as the estimated area required to support the long-term (100 years or more) survival of targeted species or natural communities. There are 149,900 acres of PCAs within the externally recommended MLP boundary. The targeted species within most of the PCAs are rare plants, including those specifically managed for by the BLM as either BLM Sensitive species or federally listed species. Descriptions of stipulations and management actions for ACECs, special status plants, and sage-grouse are provided above.

As discussed under Soil and Water Resources, important plant and wildlife habitat, including major river corridors and areas adjacent to perennial waters and springs are all protected through the use of either a CSU or NSO stipulation.

P.4 THE RMP/EIS AND ANALYSIS OF THE EXTERNALLY RECOMMENDED MASTER LEASING PLAN

P.4.1 Summary of Stipulations Under Alternative B

As analyzed in the Draft RMP/EIS and summarized in this appendix, areas with important resource values (e.g., wildlife emphasis areas, ACECs, and other special designations) are often protected through the application of targeted NSO, CSU, or TL stipulations. However, stipulations are not restricted to special designation area boundaries; rather, they apply to the broader boundaries of many species' habitat and other wide-ranging geographic values.

Under Alternative B, 631,900 acres of federal mineral estate with oil and gas development potential would be open for leasing. Only 177,100 of those acres (28 percent) are currently unleased. The remaining 454,800 acres (72 percent) that are already leased would not be subject to any proposed leasing stipulations in this RMP/EIS unless a lease expires and is resold.

Within the 177,100 unleased acres with development potential, 93,900 acres (53 percent) are protected by a mapped NSO stipulation, 113,800 acres (64 percent) are protected by a mapped CSU stipulation, and 73,200 acres (41 percent) are protected by a mapped TL stipulation. Unmapped stipulations (e.g., those for special status species) may apply to additional acres. As shown in this appendix and in Chapter 4, these stipulations would protect the resources identified in the external MLP recommendation in a manner consistent with an MLP.

P.4.2 Conclusion

Per IM 2010-117, the preparation of an MLP is required when all four of the following criteria are met:

- A substantial portion of the area to be analyzed in the MLP is not currently leased.
- There is a majority Federal mineral interest.
- The oil and gas industry has expressed a specific interest in leasing, and there is a moderate or high potential for oil and gas confirmed by the discovery of oil and gas in the general area.
- Additional analysis or information is needed to address likely resource or cumulative impacts if oil and gas development were to occur where there are:
  - multiple-use or natural/cultural resource conflicts;
  - impacts to air quality;
  - impacts on the resources or values of any unit of the National Park System, national wildlife refuge, or National Forest

wilderness area, as determined after consultation or coordination with the NPS, the USFWS, or the USFS; or

– impacts on other specially designated areas.

As described above, the Shale Ridges and Canyons area fails to meet all of the above-listed criteria. Therefore, preparation of an MLP is not required. Although not required, the GJFO has reviewed the sections of the RMP/EIS pertaining to fluid minerals leasing and determined that it is consistent with the intent of the MLP concept and addresses all of the concerns discussed in the external recommendation. The RMP/EIS is a comprehensive look at resource management, including oil and gas development, over the next 20 years and considers a range of protective measures designed to minimize conflicts between oil and gas development and resource protection. Indeed, the RMP/EIS incorporates nearly all of the examples given in IM 2010-117 of the types of decisions that may be made during preparation of an MLP. As such, the GJFO feels it is unnecessary to prepare an MLP for this area at this time.

This page intentionally left blank.