Arkansas Headwaters Recreation Area Draft Management Plan and Environmental Assessment

October 2017

Cover photos by Jeremy Call (top) and CPW (bottom)

Draft Management Plan and Environmental Assessment

Arkansas Headwaters Recreation Area

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October 2017

Arkansas Headwaters Recreation Area
Vision Statement

The Arkansas Headwaters Recreation Area shall be managed to emphasize its natural and cultural resources, resource sustainability and the standards for public land health, recognizing and respecting private property, while embracing numerous recreational, educational and commercial activities. Such management will require balancing the many uses that preserve the existing natural settings and conditions as well as recognizing existing agriculture, rural, and urban conditions throughout the river corridor. Maintaining these expectations and settings for visitors and residents alike will require individualized management through different sections of the river, in recognition of varying natural and manmade influences. Where conflict over goals and objectives occurs, balance and compromise should be found that recognizes the value of authorized recreational activities without diminishing the standards for public land health or the water resources.

NEPA/Project Number: DOI-BLM-CO-F020-2016-0045 EA
Planning Unit: 1
Location: See Figure 1-1
Applicant: BLM/Colorado Parks and Wildlife/U.S. Forest Service

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LIST OF ABBREVIATIONS

ACEC	Areas of Critical Environmental Concern
AHRA-MP	Arkansas Headwaters Recreation Area Management Plan
APE	Area of Potential Effects
BCC	Birds of Concern
BLM	Bureau of Land Management
BMPs	Best Management Practices
BPD	boats per day
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CMA	Cooperative Management Agreement
CML	Cooperative Management Lands
CDOT	Colorado Department of Transportation
CFS	Cubic Feet per Second
CSLB	Colorado State Land Board
CPW	Colorado Parks and Wildlife
CTF	Citizen Task Force
CWA	Clean Water Act
DEQ	Department of Environmental Quality
DOI	U.S. Department of the Interior
DOLA	Colorado Department of Local Affairs
D&RG	Denver and Rio Grande Western Railroad
EA	Environmental Assessment
EIS	Environmental Impact Statement
EJ	Environmental Justice
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
GARNA	Greater Arkansas River Nature Association
HUC	Hydrologic Unit Code
IDT	Interdisciplinary Team
MBTA	Migratory Bird Treaty Act
NEPA	National Environmental Protection Agency
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
NVUM	National Visitor Use Monitoring
OHV	Off Highway Vehicle
PA	Programmatic Agreement

RAMP	Recreation Area Management P lan
RMP	Resource Management Plan
R&PP	Recreation and Public Purposes Act
ROS	Recreation Opportunity Spectrum
RR	Railroad
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Office
SSURGO	Soil Survey Geographic
SUP	Stand up paddleboard
TMP	Travel Management Plan
TPI	total personal income
UPRR	Union Pacific Railroad
USDA	U.S. Department of Agriculture
USFS	U.S. Forest Service
USGS	US Geological Survey
USFWS	US Fish and Wildlife Services
VFMP	Volunteer Flow Management Program
VRI	Visual Resource Inventory
VRM	Visual Resource Management
WEG	Wind Erodibility Group

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1.0 Introduction, Purpose, and Need

1.1 History or Evolution of the Recreation Area and Need for Plan Revision

The Arkansas Headwaters Recreation Area (AHRA) was created in 1989 with the passage of Colorado State House Bill 1253. Prior to this legislation, the commercial companies that operated on the Arkansas River under a Bureau of Land Management (BLM) Special Recreation Permit became concerned that the fees they were paying BLM were not being returned to the local office. The lack of boat ramps, parking, restrooms, and other amenities was hurting the growth of the young boating industry. Those outfitters organized and met with the State of Colorado Executive Director of the Department of Natural Resources to seek assistance in the management of the river. The governor was then briefed and supported Colorado State Parks (State Parks) with the management of the river. The BLM and State Parks then began negotiating plans for State Parks to manage recreation on the river, and public meetings were held to gauge the public's interest in the management scenario. The public embraced the concept, and the BLM prepared an environmental assessment with public input to analyze the management plan. The original management plan took effect in 1989, and the first revision to the plan was completed in 2001. This 2018 plan, if approved, would become the second revision.

The management plan serves as a BLM recreation area management plan (RAMP) (BLM Handbook H-8320-1). A RAMP is a "step-down" or implementation-level plan that serves to accomplish the BLM Royal Gorge Field Office (RGFO) Resource Management Plan (RMP) by providing more specific (1) direction for on-the-ground implementation of the RMP or Land Use Plan; (2) additional recreation management direction specific to the AHRA; and (3) implementation direction for issues not addressed in an RMP or Land Use Plan. A RAMP does not establish RMP or Land Use Plan allocations and precedes the site-specific detail commonly found in project-level plans. This plan conforms to the 1996 RGFO RMP, not the Eastern Colorado RMP revision currently being prepared.

1.2 Recreation Area Description, Location, and Setting

1.2.1 Park Description and Location

The AHRA manages recreation along a 152 mile extent of the Arkansas River from the confluence of the Lake Fork and the East Fork of the Arkansas River near Leadville, Colorado in the state's central mountains to Lake Pueblo State Park (Figure 1-1). Colorado Parks and Wildlife (CPW) manages the recreation under a Cooperative Management Agreement (CMA) with the BLM and U.S. Forest Service (USFS) and includes the Cooperative Management Lands (CML), which is a defined area adjacent to the river where recreation related activities occur. Through this partnership, the AHRA provides visitors with outstanding recreation opportunities and care for the nationally significant natural resources of the Upper Arkansas River Valley.

The Arkansas River is one of the nation's most popular locations for whitewater boating and is one of the most commercially rafted rivers in the United States. AHRA also offers a world class trout fishery (102 miles of Gold Medal Waters) and abundant opportunities for camping, picnicking, hiking, wildlife watching, horseback riding, mountain biking, off highway vehicle (OHV) travel and sightseeing within the Upper Arkansas River Valley.

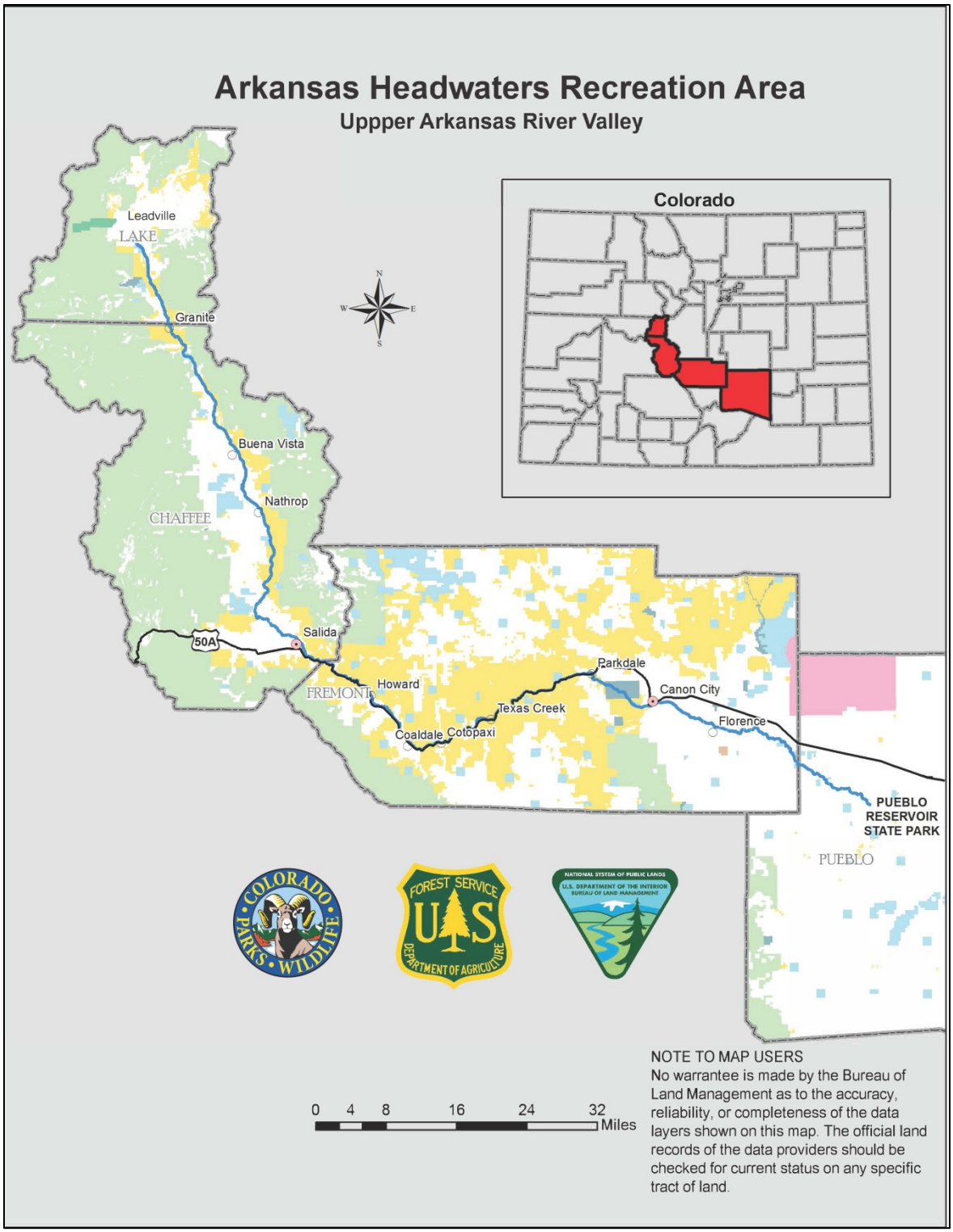


Figure 1-1. AHRA Overview Map

Note: a high resolution version is available at
http://cpw.state.co.us/placestogo/parks/ArkansasHeadwatersRecreationArea/Pages/publications.aspx

Prehistorically, there is evidence to suggest that past cultures of Native Americans used the resources of the river valley and the valley corridor and adjacent lands to travel between the mountains and the plains. In 1706, the Spaniard Juan de Ulibarri explored the region, followed a century later by Zebulon Pike. Trappers and traders explored and lived in relative solitude within the valley until 1859 when gold was discovered and prospectors began arriving in numbers. With the advent of Leadville's silver and gold rush beginning in the late 1870s, the railroad companies saw lucrative opportunities to extend lines to the upper Arkansas River Valley. A dispute between the Denver and Rio Grande and the Atchison, Topeka, and Santa Fe railroads for access up the river canyon resulted in the courts awarding the Denver and Rio Grande the line in 1880.

To date, the river corridor has been modified from its natural state by a railroad and a highway along much of its length and by substantial agricultural, residential, and commercial development near its riparian corridor. From top to bottom the river has a significant and vital impact on the valley's economy and beyond, not only because of its outstanding recreation opportunities, but also because of the water rights for irrigation, municipal, and industrial purposes, and the sale and storage of water. Today, because of its natural beauty, biological productivity, steep gradient, and diversity of river environments, the Arkansas is a destination for avid recreationists (see Table 1-1 and Table 1-2). The challenge for the AHRA is to satisfy recreational needs while at the same time maintaining both the environmental quality and the quality of visitor experiences along the river.

1.2.2 Land Ownership

Multiple public and private entities own the land that comprises the AHRA. The majority of all infrastructure and facilities development occurs on BLM and CPW land. Major recreation developments on BLM lands have typically been leased to CPW through the Recreation and Public Purpose Act (R&PP). This allows the state to invest in infrastructure and provide needed management. Access on private land exists only where there are easements or some form of agreement in place with the landowner.

1.3 Cooperative Management Agreement

Implementation of the management plan is accomplished through a CMA that creates a partnership between the BLM, CPW, and the U.S. Forest Service. A copy of the current CMA will be provided in the final management plan. This planning effort will provide updates/revisions to the CMA. Upon updating and signing the CMA, the updated partnership agreement becomes effective.

CPW will be the on-the-ground recreation manager, providing on-water and land-based recreation management within the boundary of the CMA throughout the river corridor, including the lands under special use agreement with the U.S. Forest Service. CPW will also take the lead in managing wildlife and related activities on lands and waters within the river corridor. The BLM and the U.S. Forest Service will continue to manage other multiple uses and work with the other partners to ensure compliance with the provisions of the plan and CMA. All three agencies will function as joint administrators in evaluating the adequacy of the plan, its implementation, and the need for future amendments.

1.4 River Corridor Boundary and Classifications

From Leadville, the Arkansas River flows down through the communities of Granite, Buena Vista, Johnson Village, Salida, Swissvale, Howard, Coaldale, Cotopaxi, Texas Creek, Cañon City, and Florence. While some portions of the AHRA are bordered by roads and towns, other areas of the AHRA are more remote. Each has different resource and visitor use characteristics. Six distinct river segments have been recognized and are

described below (see Figure 1-2 through Figure 1-8). These segments have further been divided into sections that are described in more detail in Chapter 2, Alternatives.

- **Segment 1: Leadville/Confluence to Buena Vista Boat Ramp**—Class I through Class V rapids (typically Class II and III) with vertical drops ranging from 26 to 66 feet per mile.
- **Segment 2: Buena Vista Boat Ramp to Salida East**—Class I through Class IV rapids (typically Class III) with a vertical drop of 30 feet per mile.
- **Segment 3: Salida East to Vallie Bridge**—Class I through Class IV rapids (typically Class II and III) with a vertical drop of 24 feet per mile.
- **Segment 4: Vallie Bridge to Parkdale**—Class I through Class V rapids (typically Class III) with a vertical drop of 30 feet per mile.
- **Segment 5: Parkdale to Cañon City/Raynolds**—Class I through Class V rapids (typically Class IV and V) with a vertical drop of 50 feet per mile.
- **Segment 6: Cañon City/Raynolds to Lake Pueblo**—Class I through Class II rapids (Typically Class II) with a vertical drop of 15 feet per mile.

Table 1-1. Recreation Use Summary

Activity	2001	2002	2003	2004	2005	2006	2007	2008
Sightseeing	282,472	217,648	286,598	283,669	283,669	252,132	256,577	235,221
Private Shore Fishing	70,011	59,377	73,975	68,570	68,570	69,390	71,206	67,053
Private Boating	30,669	23,912	31,816	28,691	28,691	29,385	30,118	27,488
Private Boat Fishing	7,089	5,446	7,441	6,895	6,895	7,241	10,615	10,211
Commercial Shore Fishing	1,372	1,749	2,143	3,056	3,056	2,995	2,858	2,351
Commercial Boating (not including float fishing)	312,784	169,557	254,808	242,090	242,090	280,180	293,038	263,805
Commercial Boat Fishing	-	607	980	1,772	1,772	2,201	2,134	1,617
Picnicking	44,826	33,324	47,293	42,740	42,740	42,173	43,879	41,909
Other (Mineral, Visitor Center, Hunting, Swimming)	-	-	-	-	-	29,131	44,839	29,008
Trail	21,646	16,742	22,065	20,715	20,715	22,898	23,980	22,640
Interpretive	12,753	20,986	29,129	29,029	29,029	9,829	10,111	7,803
Camping	24,189	14,936	23,141	17,429	17,429	28,537	35,183	30,058
Total	**807,811**	**564,284**	**779,389**	**744,656**	**744,656**	**776,092**	**824,538**	**739,164**

* **Actual number, includes guides, trainees and clients**

Source: CPW 2016

Table 1-2. Recreation Use Summary (continued)

Activity	2009	2010	2011	2012	2013	2014	2015	2016
Sightseeing	259,169	254,737	263,907	218,515	248,575	289,958	297,207	303,151
Private Shore Fishing	68,191	60,403	69,316	64,814	68,060	75,157	82,720	82,518
Private Boating	25,433	24,162	21,967	18,075	19,588	22,280	22,867	24,849
Private Boat Fishing	11,661	7,584	8,109	5,857	5,090	5,189	5,337	5,477
Commercial Shore Fishing	2,040	2,339	2,495	2,631	3,400	3,290	3,410	3,394
Commercial Boating (not including float fishing)	252,564	260,063	248,429	211,934	222,303	237,023	247,274	276,454
Commercial Boat Fishing	1,867	2,059	1,906	2,048	2,297	2,771	2,347	2,344
Picnicking	42,520	40,871	41,613	35,107	37,093	42,877	43,949	47,532
Other (Mineral, Visitor Center, Hunting, Swimming)	31,880	31,625	35,142	38,183	42,445	38,715	39,683	37,727
Trail	23,424	25,569	25,520	19,446	20,094	23,743	24,336	25,837
Interpretive	7,868	8,461	14,447	13,903	15,577	16,121	16,524	19,483
Camping	33,682	35,279	38,265	37,206	36,669	40,876	49,766	59,944
Total	**760,299**	**753,152**	**771,116**	**667,719**	**721,191**	**798,000**	**835,420**	**888,710**

* **Actual number, includes guides, trainees and clients**

Source: CPW 2016

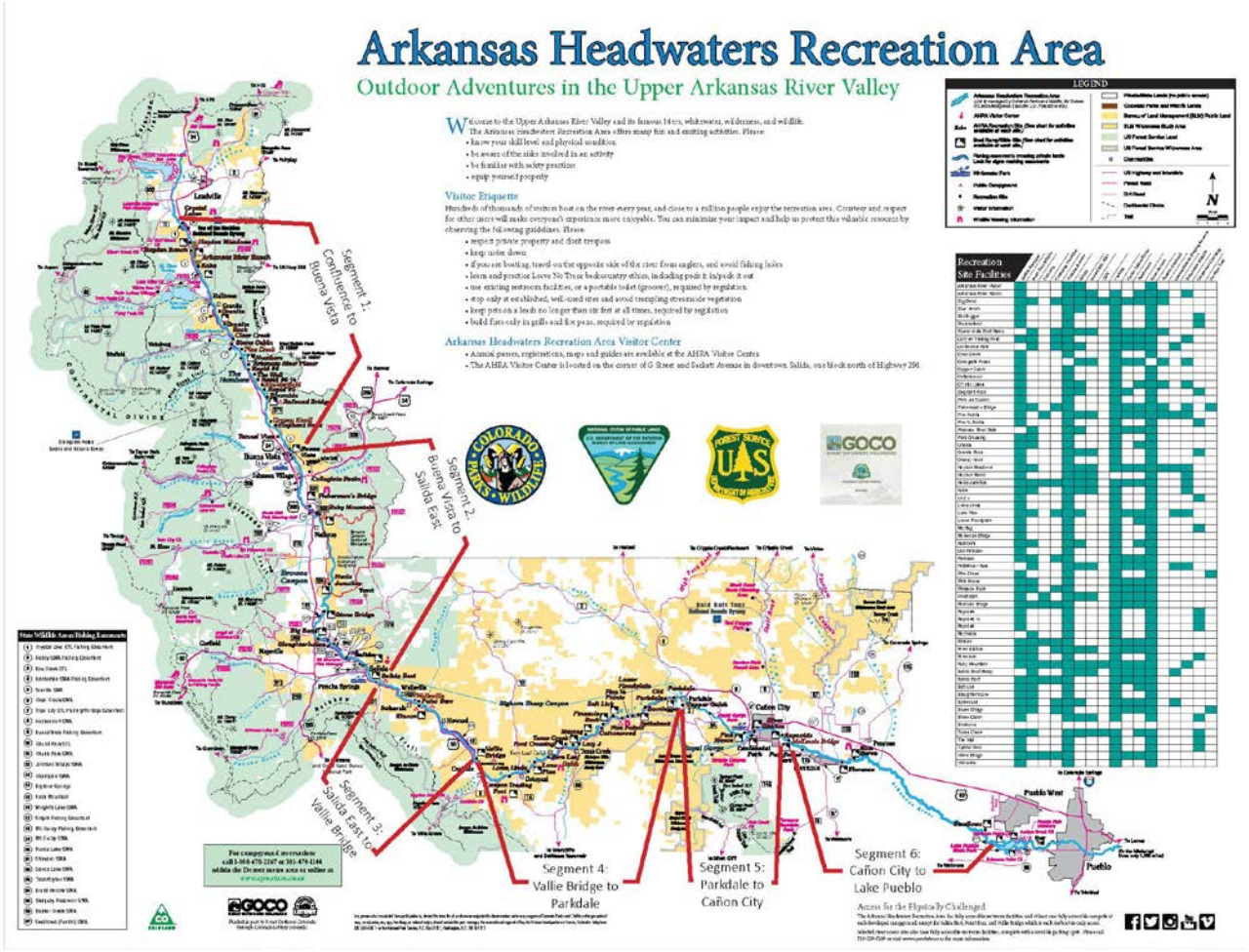


Figure 1-2. AHRA Segment Overview Map

Note: a high resolution version is available at
http://cpw.state.co.us/placestogo/parks/ArkansasHeadwatersRecreationArea/Pages/publications.aspx

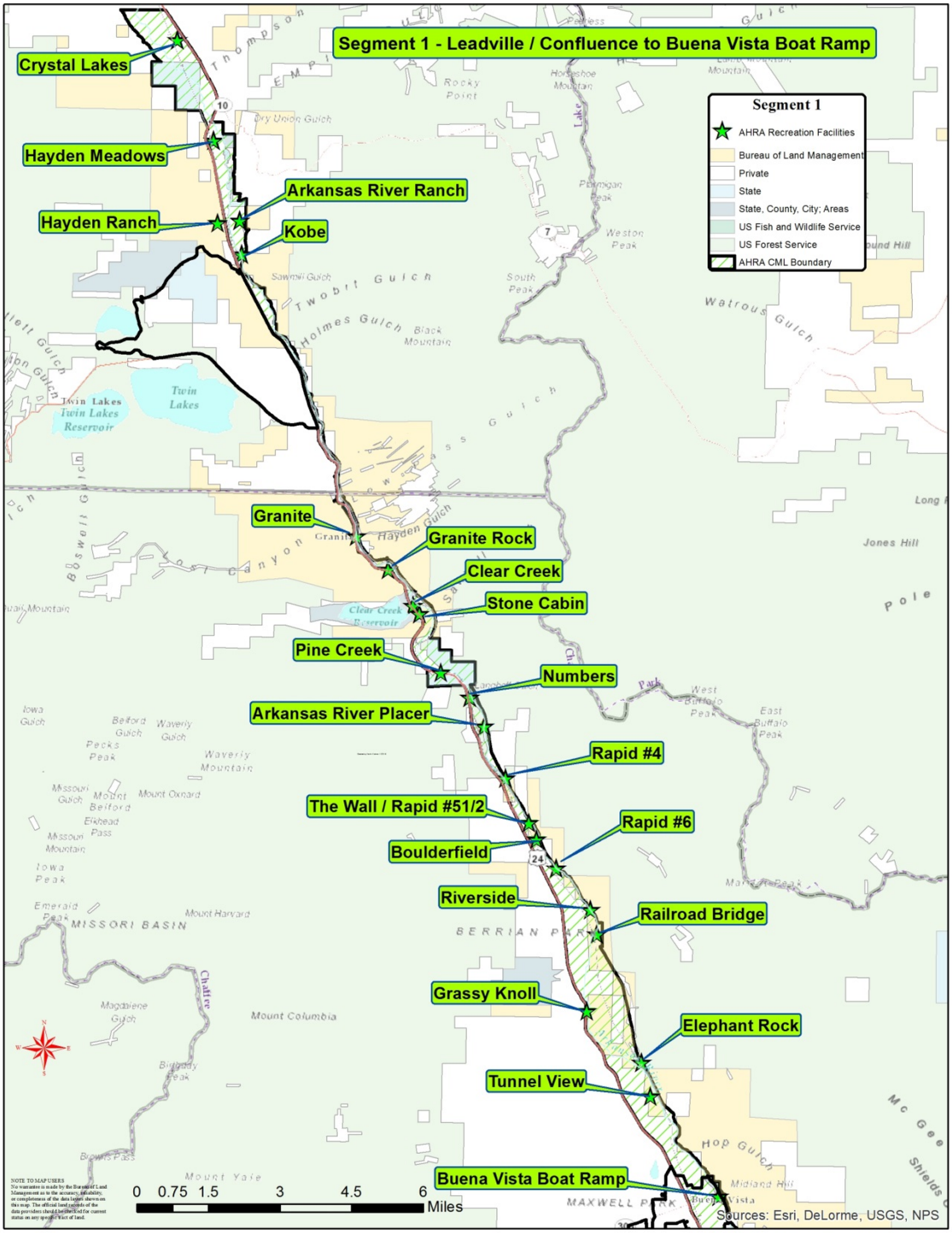


Figure 1-3. Map of Segment 1

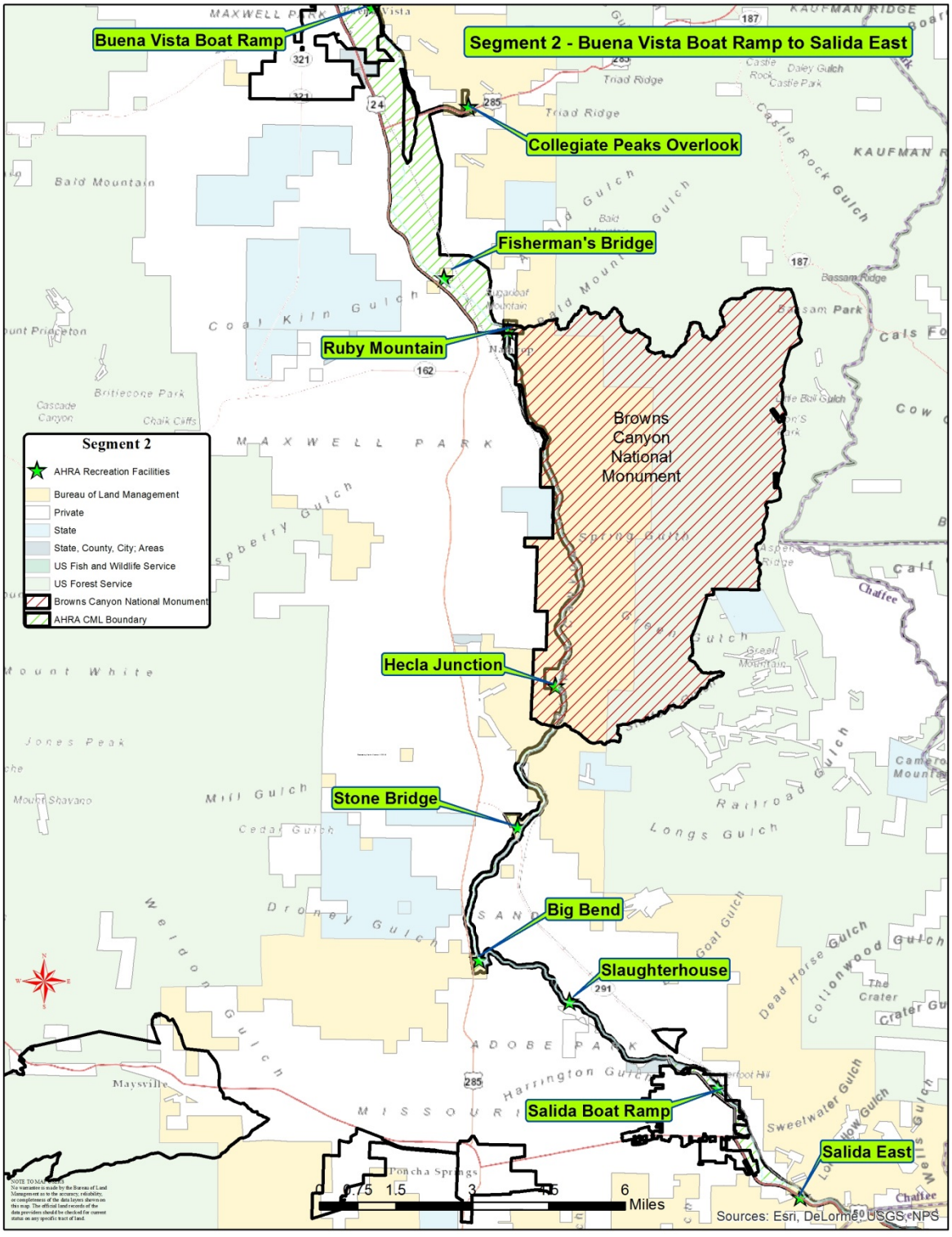


Figure 1-4. Map of Segment 2

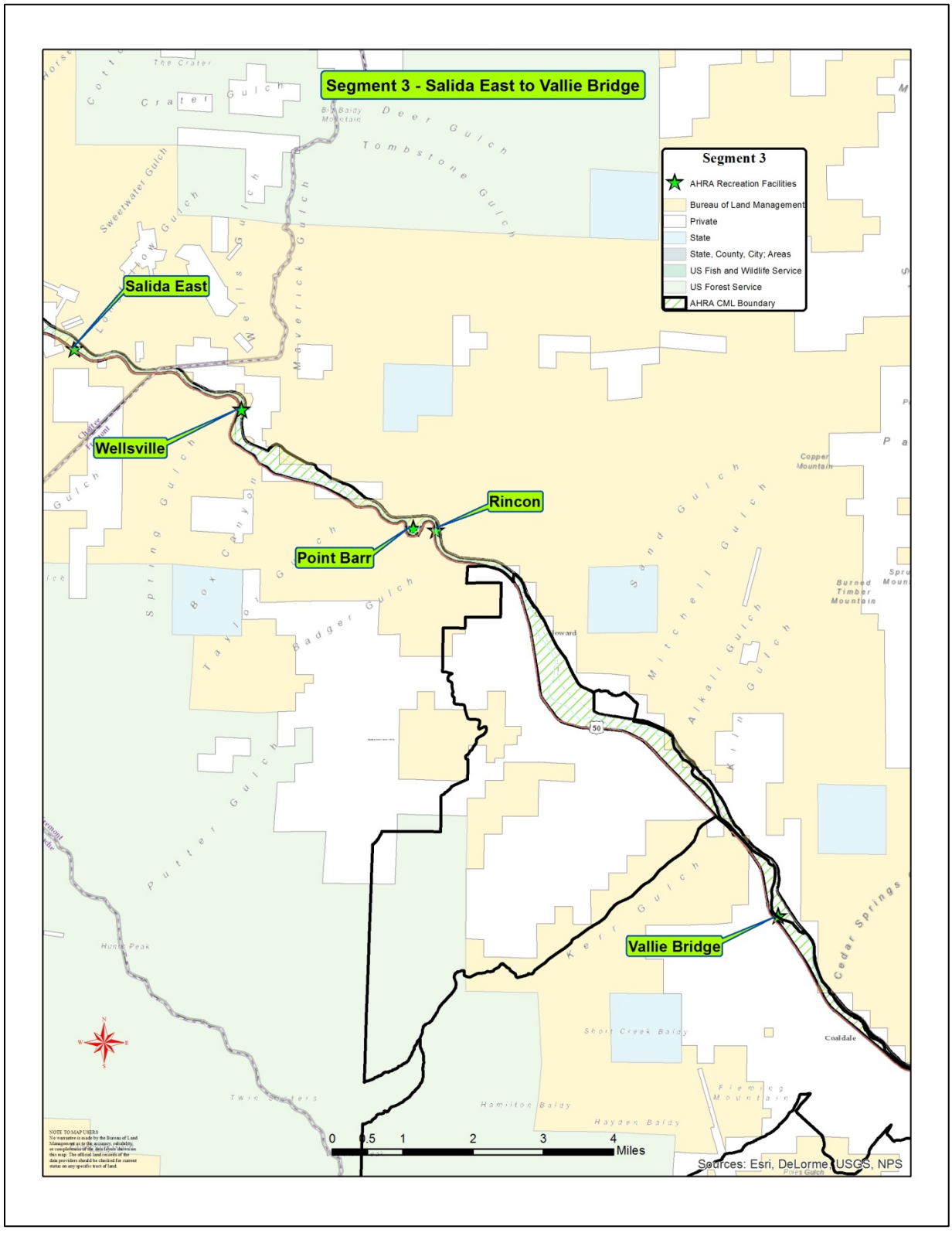


Figure 1-5. Map of Segment 3

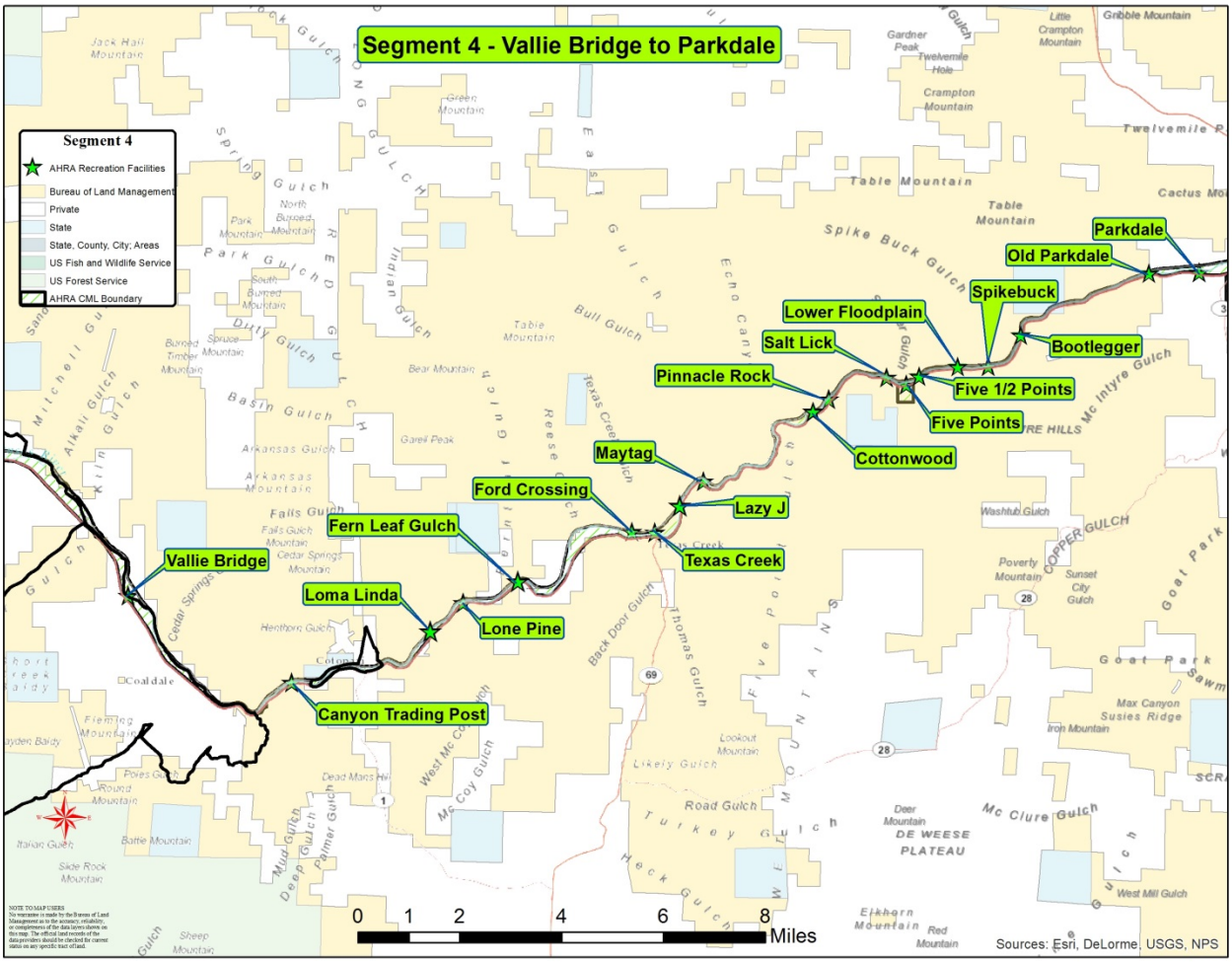


Figure 1-6. Map of Segment 4

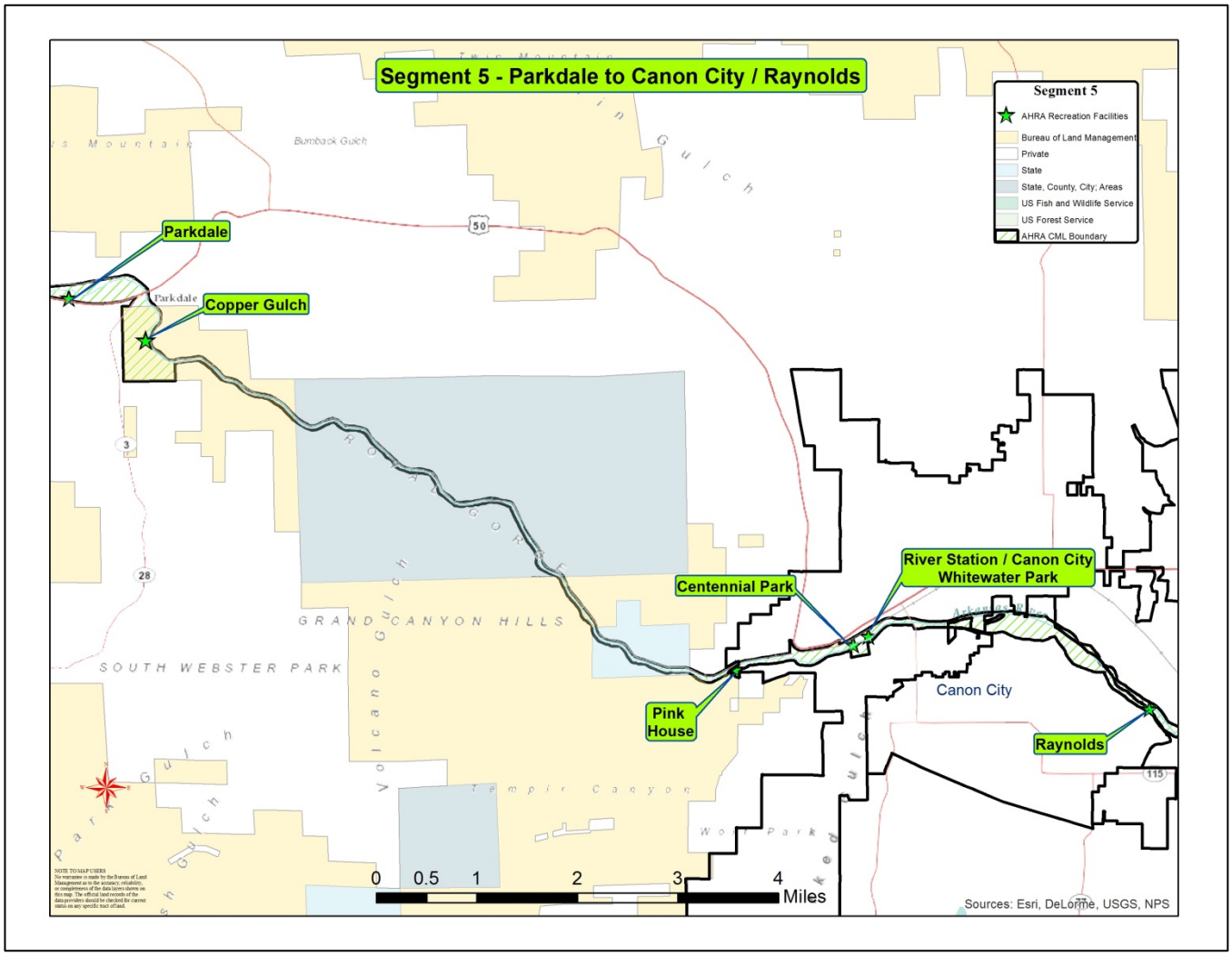


Figure 1-7. Map of Segment 5

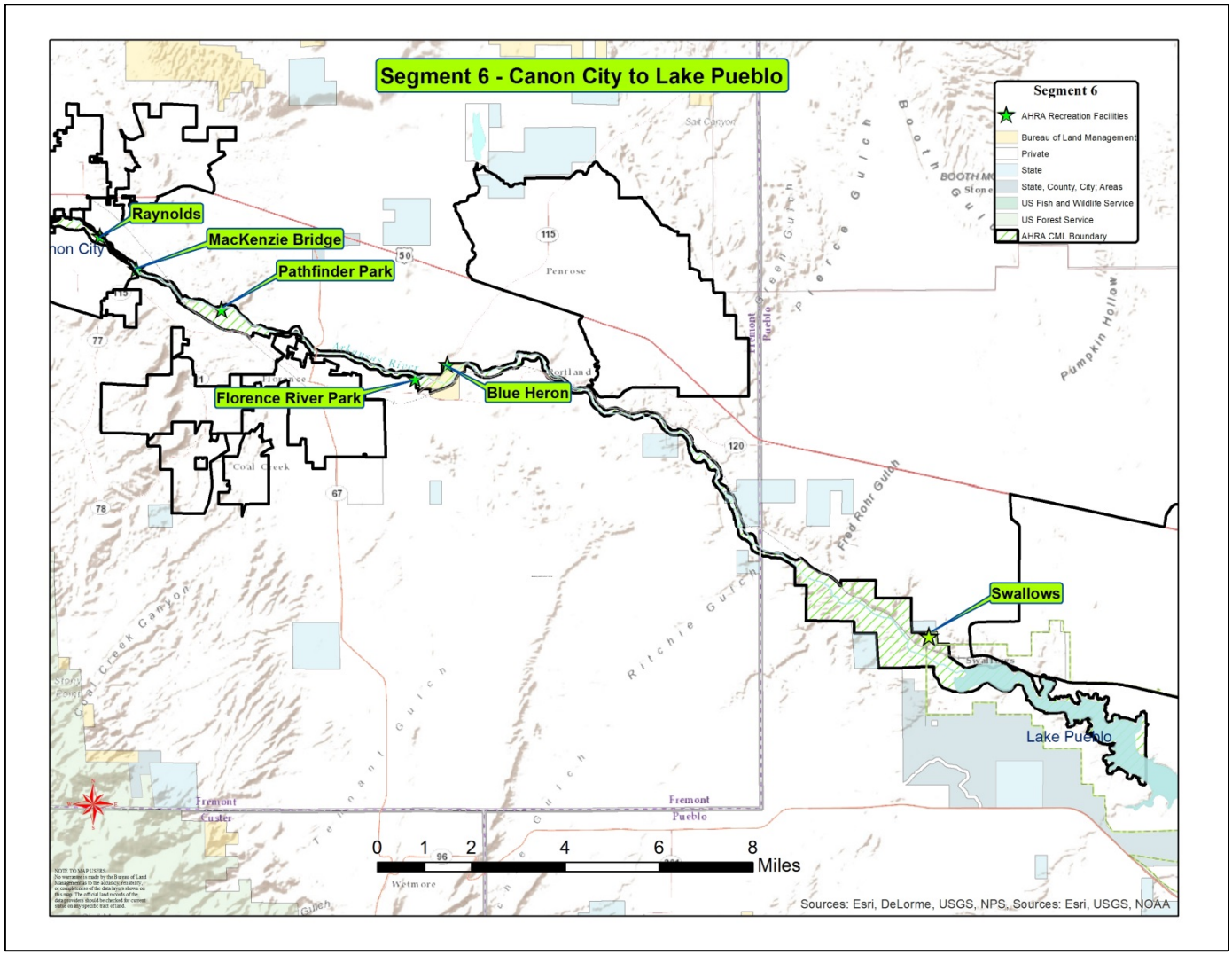


Figure 1-8. Map of Segment 6

1.5 Regional Planning Context

1.5.1 Physical and Ecological Setting

The headwaters of the Arkansas River are near Leadville in Central Colorado; it flows south through Lake and Chaffee counties before bending eastward across Southeast Colorado as it passes through both Fremont and Pueblo County. The AHRA is composed of a string of parcels located along a 152 mile stretch of the Arkansas River from just below its headwaters to where it emerges from the mountains and spills out onto the Great Plains. Within this reach the river flows through a variety of climatic, topographic, and geologic settings. The Arkansas River within the AHRA traverses through a wide elevation range, from approximately 9,400 to 4,800 feet (2865–1463 meters), and flows through areas of distinct vegetation characteristics.

Above 9,000 feet, the Arkansas River runs through sagebrush vegetation between Leadville and Granite. Between Granite and Johnson Village, the river winds through riparian shrublands with willow (*Salix* spp.) and alder (*Alnus incana*), narrowleaf cottonwood (*Populus angustifolia*), and occasionally ponderosa pine (*Pinus ponderosa*). As the Arkansas River gets closer to Johnson Village, it skirts the east side of the valley, and irrigated hayfields and pasture dominate the floodplain. The hills east of the river rise immediately from its banks, and the vegetation transitions quickly from sparse pinyon-juniper (*Pinus edulis-Juniperus scopulorum, J. monosperma*) woodlands into a ponderosa pine forest.

South of Johnson Village the river enters Browns Canyon, carving through volcanic bedrock, and the landscape then transitions into grassland vegetation as the river bends east and flows toward Salida. Downstream from Salida at about 7,000 feet the river enters Bighorn Sheep Canyon. This canyon is primarily characterized by steep, rugged, granitic hills interspersed with narrow grasslands. The hills are predominantly covered by pinyon-juniper woodlands with mountain mahogany (*Cercocarpus montanus*) shrublands at the toe of the slopes with the river largely being channeled between Highway 50 on the south and the Union Pacific Railroad on the north side to Parkdale.

Below Parkdale lies the Royal Gorge, a deep canyon of very old Precambrian bedrock. When the Arkansas River emerges from the Royal Gorge it spills onto a wider floodplain formed on the open plains. Plains cottonwood is the predominant canopy tree in a floodplain forest that has a diverse shrub component.

Differences in vegetation communities within elevation zones can be explained through more localized variations in topography and geology. At an even finer scale, more distinctions in type and quality of vegetation communities can be explained by differences in past and present vegetation management practices. Each of these scales is influential in the establishment and development of vegetation communities. However, because much of the recreation area is located on a relatively gentle environmental gradient, many parcels are relatively similar in vegetation structure and composition. Differences result from the regional and local environmental conditions and processes to create a diverse yet spatially repeating wildlife habitat mosaic. The main vegetation communities at the recreation area are as follows:

- Xeric Pinyon Juniper Woodland
- Ponderosa Pine Woodlands
- Douglas Fir Forest
- Cottonwood Riparian Forests
- Cold Desert Bottomland Shrublands
- Mixed Foothill Shrubland

- Mixed Mountain Shrublands
- Saline Bottomland Shrubland
- Riparian Shrubland
- Montane Palustrine Shrubland Wetland
- Marshes
- Grasslands
- Herbaceous Riparian Wetland

1.6 Regional Recreation and Tourism Trends, Needs, and Opportunities

1.6.1 Colorado Participation Trends

In 2013, Colorado Parks and Wildlife administered an Outdoor Recreation Participation Public Survey (Public Survey) to 7,000 Coloradans (Table 1-3). The purpose of the Public Survey was to learn about outdoor recreation participation and activity trends, where and how often people were participating in outdoor recreation activities, preferences for services and types of outdoor recreation facilities, as well as preferences for future investments and priorities for development, programming and management of public lands (Colorado Parks and Wildlife 2013). Overwhelmingly, 90% of Coloradans participated in some form of outdoor recreation in Colorado over the past year. About 66% of all Colorado residents recreated outdoors at least one day a week, on average. The survey revealed that 60% of Coloradans will either greatly increase or somewhat increase their participation in outdoor recreation over the next 5 years.

Similar to national trends, hiking, jogging, camping and wildlife viewing were also popular activities in Colorado. Walking, hiking/backpacking, and picnicking make up the three most popular outdoor recreation activities, as calculated by total statewide activity days, in each one of the regions. Fishing ranks fourth, and tent camping was the most popular overnight accommodation. Thirty-six percent of all Coloradans participate in fishing annually. Almost 16% of residents participate in hunting; 12% of Coloradans hunt for big game.

1.6.2 Regional Analysis

Compared to the average state park visitation breakdown of 88% Colorado residents and 12% out of state residents, AHRA draws more out-of-state residents. In 2009, visitation to AHRA was approximately 76% Colorado Residents and 21% out of state residents. In addition, approximately 38% of visitors to AHRA travel 100–249 miles from their homes, and 19% of visitors travel 500 miles or more. The average visitor travels 317 miles to visit AHRA versus the state average of 145 miles. Further information on how AHRA compares to the average state park metrics is found in Figure 1-9.

1.6.3 State Park Visitation

Colorado State Parks visitation has generally been increasing over the last 10–15 years, with about 12 million visits each year for the past 7 years (Figure 1-10). More than 98% of Coloradans have at least one state park within 50 miles of where they live, and more than half of the state's population (56%) lives within 50 miles of six or more state parks (Corona Research 2008).

Table 1-3. Outdoor Recreation Participation Survey

Activity	% Participated	Rank %	Activity Days	Rank Days
Walking	66.3%	1	103,861,714	1
Hiking/Backpacking	51.9%	2	47,600,791	2
Picnicking	37.1%	3	17,312,343	8
Fishing	36.4%	4	26,411,408	6
Tent camping	35.6%	5	14,158,319	12
Skiing or snowboarding at a ski area	33.5%	6	14,546,563	10
Jogging/Running (outdoors)	30.8%	7	46,888,810	3
Swimming (outdoors)	30.2%	8	17,662,875	7
Road biking	27.2%	9	32,772,438	4
Playground activities	22.3%	10	26,516,371	5
Mountain biking	22.1%	11	15,397,750	9
Wildlife viewing (including birding)	19.2%	12	14,456,827	11
Golf	18.7%	13	11,180,042	15
Snowshoeing or cross country skiing	17.7%	14	7,108,319	16
ATV riding or 4-wheel driving	16.9%	15	13,190,020	13
Sledding/tubing	15.7%	16	3,503,863	23
Team or individual sports (outdoors)	14.9%	17	12,205,823	14
Developed/RV camping	14.8%	18	6,474,549	17
Target or skeet shooting	13.7%	19	6,368,714	18
Power boating	13.3%	20	6,290,670	19
Rock climbing	12.5%	21	3,911,605	21
Big game hunting	12.0%	22	6,091,660	20
Whitewater rafting	9.3%	23	3,827,896	22
Upland bird and small game hunting	8.0%	24	2,964,683	27
Backcountry skiing	7.5%	25	2,328,741	31
Horseback riding	7.4%	26	2,874,784	28
Water skiing	7.0%	27	3,284,044	24
Off-road motorcycling	5.6%	28	2,420,919	30
Ice skating (outdoors)	5.3%	29	816,630	35
Kayaking	5.1%	30	3,191,695	25
Snowmobiling	5.0%	31	1,955,665	32
Ice fishing	4.9%	32	2,544,540	29
Jet skiing*	4.1%	33	1,678,259	33
Canoeing	3.6%	34	602,243	36
Waterfowl hunting	3.4%	35	1,420,099	34
Geocaching	2.8%	36	3,088,773	26
Stand up paddleboarding*	2.6%	37	406,957	37
Sailing*	1.3%	38	383,383	38

* = Sample size is small (<30) and results should be interpreted with caution.

Unique Hunters	15.6%

All Trail	82.9%
All Water	57.3%
All Winter	50.4%
All Wildlife	29.4%
Other	73.0%

Source: CPW 2013.

ARKANSAS HEADWATERS

	Arkansas Headwaters	State Average
Out of State Visitors	21%	12%
Visitors in Cars	75%	74%
Visitors in RVs	10%	17%
People Per Vehicle	3.04	2.69
All-Female Groups	4%	11%
All-Male Groups	27%	19%
Groups with Kids < 6	9%	14%
Groups with Kids 6-17	22%	26%
Groups with 18-24	21%	13%
Groups with 25-34	29%	22%
Groups with 35-44	36%	31%
Groups with 45-54	35%	33%
Groups with 55-64	27%	25%
Groups with 65-74	10%	16%
Mean Travel Distance	317	145
Mean Visits to Other State Parks	5.54	6.43
% of visitors who stay overnight	32%	38%
RVs as % of Overnight	44%	60%
Mean Nights Stayed if Overnight	0.71	3.38
Average Length of Day Visits (Hours)	3.88	4.02
Back Country Oriented Visitors	56%	41%
Amenities Oriented Visitors	31%	41%

	Arkansas Headwaters	State Average
Scenery Satisfaction Rank (of 42)	14	
Information/Signage Rank (of 42)	31	
Trails Rank (of 42)	23	
Nature and Interpretive Programs Rank (of 42)	30	
Camping Rank (of 34)	28	
Marina Rank (of 12)	#N/A	
Facilities Rank (of 42)	19	
Recreational Activities Rank (of 42)	2	
Visitor Preferences		
More Primitive/Natural Experiences	0.40	0.33
More Campsites w/ Plumbing and Elec	0.12	0.27
More Campsites that are Primitive	0.35	0.20
More Group Picnic Areas/Campsites	0.16	0.17
Easier/Improved Boating Access	0.19	0.25
More Nonmotorized Trails	0.33	0.32
More Motorized Trails	-0.05	0.00
More Restrooms/Change Facilities	0.23	0.32
More Nature and Interpretive Programs	0.17	0.20
More Programs Aimed at Kids	0.25	0.24
More Cabins/Yurts w/ Plumbing/Elec.	0.08	0.16
More Cabins/Yurts w/ NO Plumbing/Elec.	0.10	0.10

Figure 1-9. AHRA Visitor Intercept Survey Results

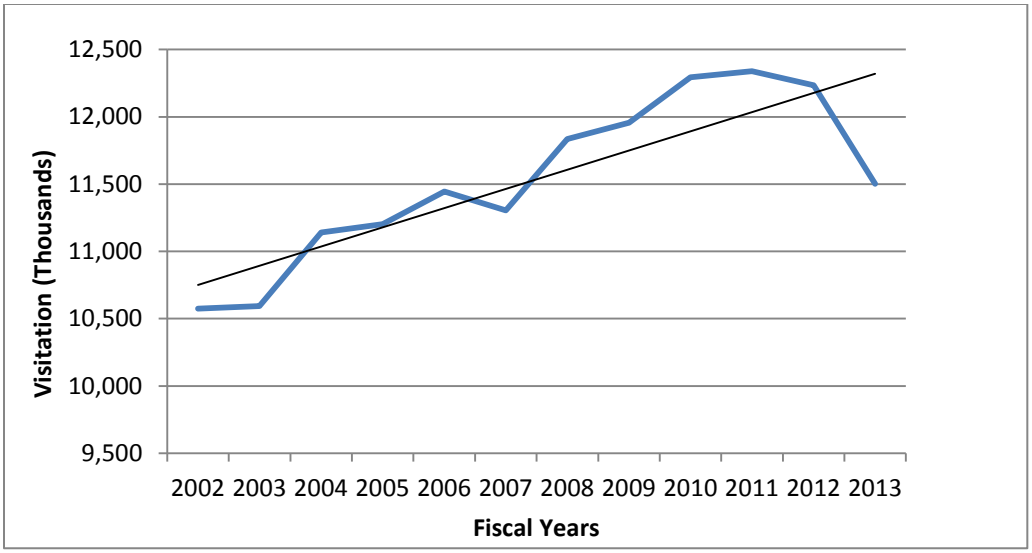
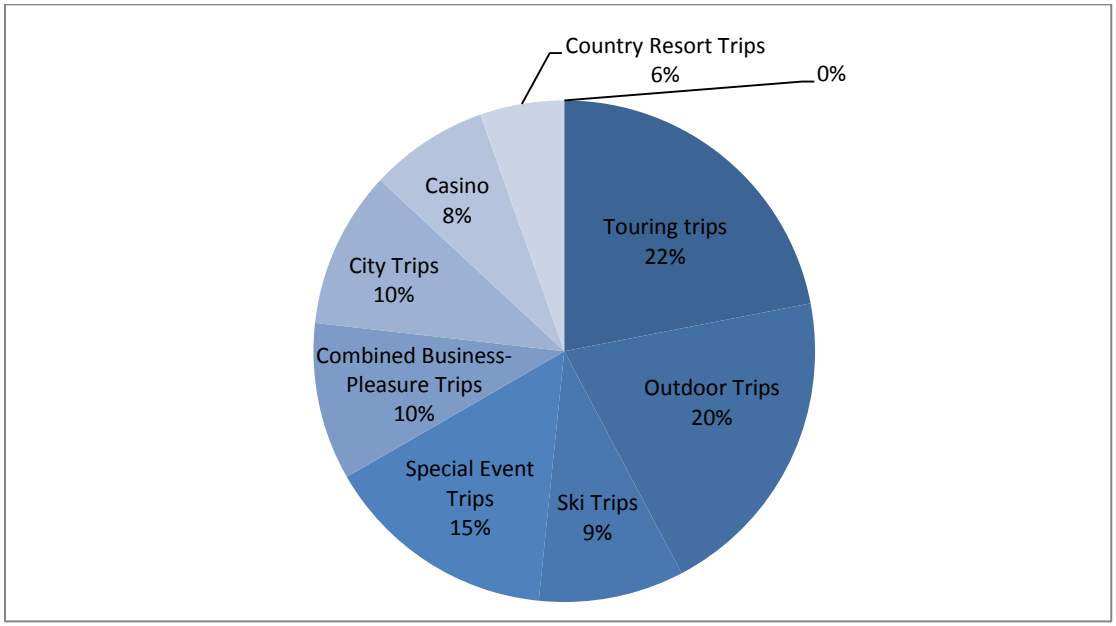


Figure 1-10. Annual Visitation at Colorado State Parks, Fiscal Years 2002–2012

1.6.4 Relevant Tourism Trends

Tourism is the second largest industry in Colorado, and a considerable portion of Colorado's tourism economy is reliant on outdoor recreation resources and public lands (Western Governors' Association 2012). Statewide, over 144,000 people are employed in the tourism sector. These employees earn nearly $4 billion annually, a significant contribution to state revenue (Dean Runyan Associates 2011). Outdoor trips, touring trips, and skiing trips accounted for about 7.3 million overnight visitors in 2011, representing approximately 25% of all overnight visitors and 51% of key marketable overnight trips (Longwoods International 2012) (Figure 1-11).



Source: Longwoods International 2011

Figure 1-11. Percentage of Visitors in Each of Colorado's Key Marketable Overnight Travel Segments by Trip Type, 2011

Total visitor spending from touring trips, outdoor trips, and ski trips contributed approximately $3.3 billion to Colorado's economy in 2011 (about 35% of all visitor spending) (Longwoods International 2012).

Figure 1-12 shows the total travel spending for each Colorado County in 2010 (Dean Runyan Associates 2011). Additional information on the economic impacts of outdoor recreation is included in Section 3.4.5.

Considering all the activities surveyed in the 2013 Public Survey, 80% of trips taken for outdoor recreation were day outings. However, one notable tourism trend is the increasing number of Colorado overnight visitors that originate from instate. About 40% of overnight visitors originated from instate in 2011, up from just over 20% in 1992 when the indicator was first measured by Longwoods International (2011) (Figure 1-13). The 2013 Public Survey asked residents about their preferences in accommodations when staying overnight. Tent camping was most preferred (43%), followed by hotel/motel (32%) stays then RV camping (18%).

In terms of services, 50% of residents indicated that they preferred basic services, such as toilets, shelters, running water, and picnic areas, in outdoor recreational areas as opposed to more developed types of areas (with concessions and guided tours) and areas that do not offer any services. A trend toward less services and away from developed services is seen from 2007 to 2013.

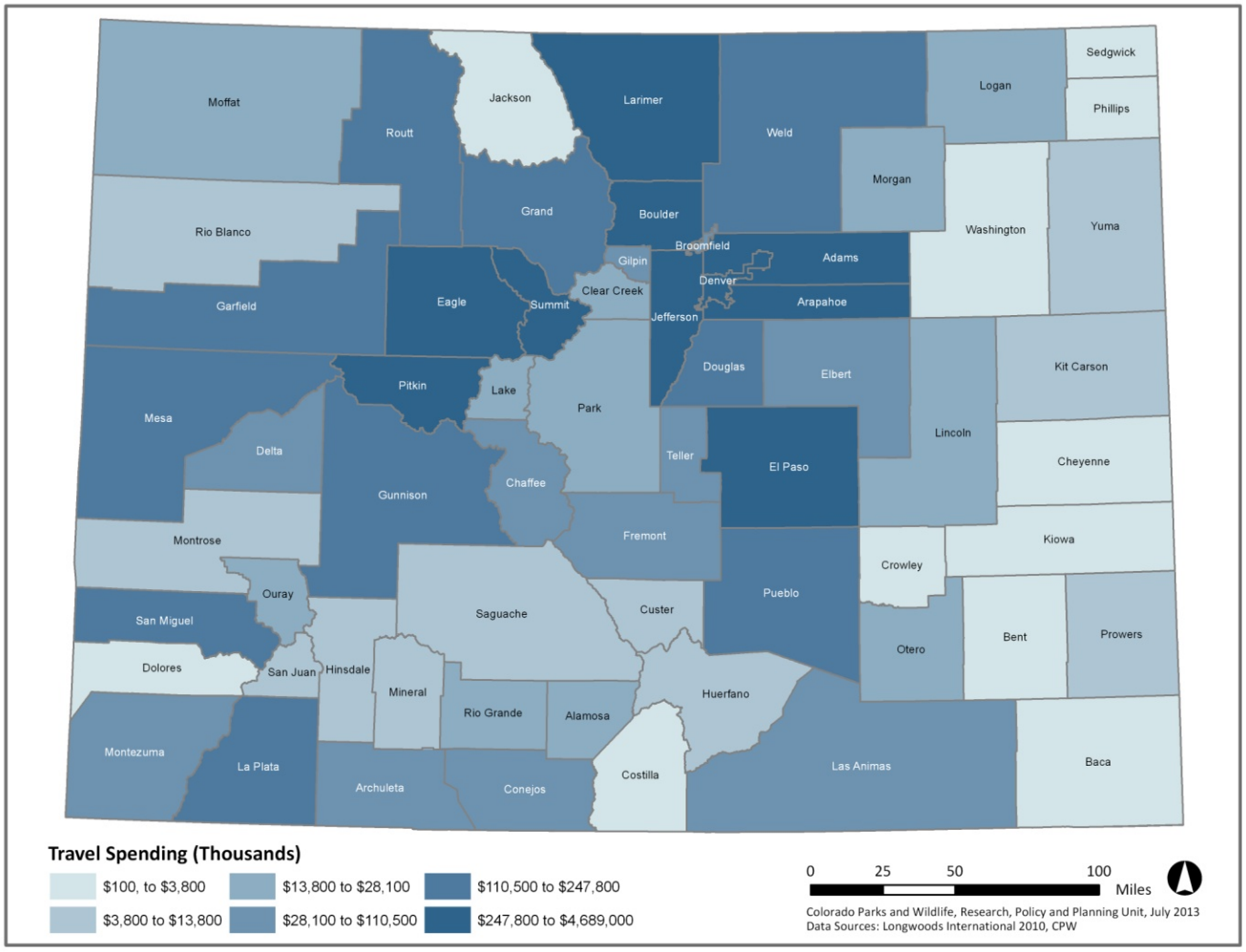
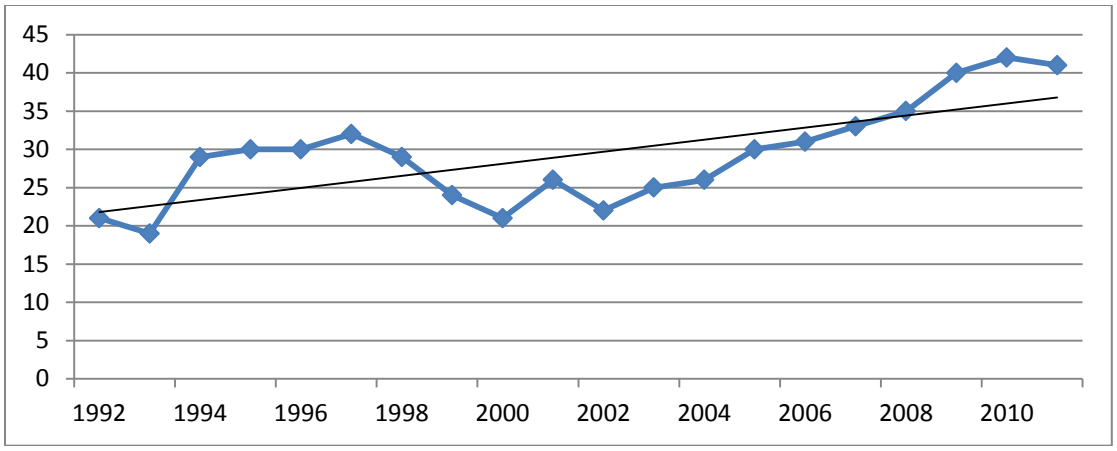


Figure 1-12.Total Travel Spending by County, 2010



Source: Longwoods International 2012

Figure 1-13. Percentage of Overnight Visitors Originating from Instate, 1992–2011

Although instate travelers spend less per trip on average compared with out-of-state tourists ($186 per compared with $386 per person in 2010) (Longwoods International 2011), the "staycation" trend should be a consideration for recreation providers and promoters looking to expand their market shares.

According to the 2013 Public Survey, residents normally travel 0–4 miles on weekdays (44%) and 20–49 miles on weekends (26%). However, one-third of residents often take trips travelling 50 to 100-plus miles. There appeared to be a greater willingness to travel longer for weekday trips compared to a similar survey completed in 2007, with 36% traveling more than 20 miles (which is 12% more than in 2007). Hispanics traveled farther for recreation, with twice the number of Hispanic residents traveling 50–99 miles both on weekdays and weekends than non-Hispanic residents.

1.6.5 Population Trends

The 2014 Statewide Comprehensive Outdoor Recreation Plan (SCORP) and the 2015 Colorado Parks and Wildlife Strategic Plan (Strategic Plan) both cite demographic changes to be one among many important future considerations in the management of Colorado's public lands. Specifically, these plans mention the changing ethnic and age structure in Colorado; most notably an increasing Hispanic population and the aging of the baby boomer generation.

According to the Colorado State Demography Office, Colorado's population is forecasted to grow by more than 40 percent between 2015 and 2040, reaching nearly 8 million residents in the next 25 years (DOLA 2016). According to the U.S. Census Bureau, the Hispanic population in Colorado has increased by 41.2 percent from 2000 to 2010 and is expected to make up one-third of the total population of Colorado in 2040 (U.S. Census 2016).

While the baby boomers represent a national trend, the significant in-migration of this group into Colorado has amplified the state's demographics. With more leisure time, comparably high disposable income, and concern for health and fitness, baby boomers are expected to increase the demand for recreation services (CPW 2008:12). The increase (as a percent change) in the age 65 and older population between the 2000 and 2010 census was 27% for Chaffee County, 26% for Lake County, 13% in Pueblo County, and 22% in Fremont County (Census Viewer 2017).

1.7 BLM Purpose and Need

The purpose of this action is to revise and update the 2001 Arkansas River Recreation Management Plan. The plan will direct how recreation and natural resources will be managed cooperatively by CPW, BLM and the U.S. Forest Service, along a 152 mile corridor of the Arkansas River from Leadville, Colorado to Lake Pueblo State Park, defined as the CML (see Figure 1-2 through Figure 1-8). The management plan addresses the management of a variety of state or Federal recreational sites and facilities from dispersed use areas to defined fee based day use sites and campgrounds. In addition, the plan manages activities such as boating, fishing, camping, recreational gold placering, and other river related activities within the CML boundary. The plan also administers commercial and public use of recreation sites and resources. Ultimately the plan will balance ever increasing recreational needs and pressure from the public with protection of the natural resources along the river corridor.

The need for the action is a requirement of BLM to balance public need and interest with preservation of natural resources in compliance with the multi-use and sustainable yield mandate of section 302 of the Federal Land Policy and Management Act and resource objectives as defined in the Royal Gorge RMP of 1996.

1.7.1 Decision to Be Made

The BLM will decide whether to implement the proposed Arkansas River Recreation Management Plan based on the analysis contained in this Environmental Assessment (EA). This EA will analyze changes in river carrying capacities, levels of future infrastructure and facilities development, and the management of recreational uses on the river to avoid user conflicts while protecting and enhancing the river corridor's natural resources. The BLM may choose to (a) implement one of the proposed alternatives, (b) implement one of the proposed alternatives with modifications/mitigation, or (c) select the no action alternative that would retain current management.

1.7.2 BLM Plan Conformance Review

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

Name of Plan: Royal Gorge Resource Management Plan
Date Approved: 5/13/1996
Decision Number/Page: 1-16, 1-24, 1-27, 1-30, 1-47, 1-50, 1-66, 1-68, 1-77, 1-82, 1-83, 1-86

Decision Language:

- 1-16: Conflicts between Wildlife Habitat and other uses e.g., grazing, mineral development, etc., will be resolved in favor of achieving vegetation management goals.
- 1-24: Conflicts between fishery habitat and other values e.g., livestock grazing, mineral development, etc., will be resolved in favor of fishery habitat.
- 1-27: Special status plants and plant community habitat will be protected through elimination of conflicting uses.
- 1-30: Special status animal species habitat will be protected through elimination of conflicting uses.
- 1-47: Conservation of historical and archaeological resources will be enhanced through:
  - Designation of Browns Canyon and Arkansas Canyonlands as Areas of Critical Environmental Concern (ACECs);
  - Potential NRHP sites (Leadville Stage Road, Midland RR Railbed, and DeReemer Forts) being: leased for fluid minerals under standard leasing stipulations; closed to locatable mineral entry and mineral materials development; and off-highway vehicle use limited to designated roads and trails.
- 1-50: The transportation system will be improved and maintained to facilitate public access and administrative monitoring to the degree of public access needed and is guided by the recreation opportunity spectrum class.
- 1-66: All or portions of Browns Canyon, Mosquito Pass, Grape Creek, and Arkansas Canyonlands are designated as ACECs and will be managed to protect and enhance their special values.
- 1-68: Motorized recreation off-highway vehicle opportunities will be enhanced; use will be managed through limitations or closures to protect values; responsible use will be encouraged throughout this sub-region where use is allowed.
- 1-77: Visual Resource Management class Resources criteria will be used as a guide for other resource management actions.
- 1-82: Recreation will be managed to provide for:

- A variety of recreational opportunities and settings;
- Additional opportunities for mountain biking, hiking, off-highway vehicle use, interpretation, and horseback riding;
- Facility development will be accomplished to reduce user conflicts and to improve visitor health and safety.

- 1-83: Recreation will be managed intensively in the special recreation management area.
- 1-86: Various actions will occur to enhance recreation:
  - River corridor and upland recreation opportunities emphasizing a balance between resource protection and tourism;
  - Coordination with various volunteer and user groups;
  - Monitoring and visitor contacts to ensure visitor safety, resource protection, and visitor information availability;
  - Provide for acquisitions or easements to enhance water-based recreation, mountain biking, off highway vehicle use, hiking, horseback riding, hunting, and natural/cultural resource interpretation.

The 1996 Royal Gorge RMP does not address the a 21,586 acre Browns Canyon National Monument, which was established on February 19, 2015, by President Barack Obama under the Antiquities Act of 1906 (Federal Register 2015). The portion of the Browns Canyon National Monument that lies within the CML is managed by BLM in partnership with CPW. Proclamation 9232 withdrew all federal lands within the boundary of the new national monument from all forms of entry, sale, selection, sale, leasing, or other disposition subject to valid existing rights. In creating the national monument, the proclamation defines several ecological, biological, geological, and cultural Resources and Objects of Value, and mandates that these objects be preserved. The proclamation further specifies that BLM lands within the monument, including lands along the Arkansas River, will be managed as a unit of the National Landscape Conservation System. Additional provisions included in the proclamation limit the use of motorized and mechanical vehicles to designated routes and limit the development of new roads and trails for motorized use to a relatively small area located west of the Arkansas River.

1.8 AHRA-Wide Recreation Goals

The following goal statements reflect agency policies and mission statements and describe the river's desired future character and associated recreation opportunities.

- Provide facilities appropriate to the amount and types of recreation opportunities outlined in this plan. Provide access and facilities in the amount, location, and character needed to provide for visitor health and safety and to facilitate public use.
- Protect the environment, while allowing for a diversity of recreation opportunities and experiences, as identified within this plan's vision statement, multiple use goals, and recreation goals. Develop strategies and criteria to provide for appropriate, compatible, new and/or different recreational technologies/activities. Those technologies and activities that are not compatible with the plan's vision statement will not be permitted.
- Encourage a river and public lands ethic through Leave No Trace, outdoor ethics, river etiquette and other educational activities. This includes respect for the river's physical, ecological, cultural, tribal, wilderness, and recreational values, as well as the social and recreation communities that live and work in the corridor.

- Implement and continually improve educational/interpretive programs (for use at developed sites) to instruct users about resource use, special or unique aspects of the resource, outdoor ethics and/or user etiquette. The AHRA will utilize all available educational tools to carry out actions that further implement the recreation area's interpretive plan.
- Keep impacts of recreation use and conflicts between recreationists, other land users and public and private landowners in a manner consistent with existing policies and laws. In cooperation with all other partners, agencies and user groups along the river (e.g., Trout Unlimited, U.S. Bureau of Reclamation, Arkansas River Outfitter Association, Greater Arkansas River Nature Association [GARNA], U.S. Corps of Engineers) the AHRA will work to implement needed actions for lessening potential conflicts. These actions may include increased signing to identify public lands, acquiring access easements or additional lands, and extensive use of educational tools.
- Implement actions to reduce trespassing on private lands.
- Maintain a good understanding of the needs and requirements of public and private landowners along the river. In cooperation with other partners, public agencies, GARNA, Cattleman's Associations, Homeowner Associations, etc., the CMA partners will promote mutual cooperation, education, and awareness.
- Continue to work towards the development of rails-to-trails and/or other trail related projects.
- The Volunteer Flow Management Program (VFMP) is essential to the continuance of adequate flows, which are essential for the maintenance of high quality recreation on the river. Respect consumptive water users' rights and structures and work closely with the Bureau of Reclamation, Southeastern Colorado Water Conservancy District, Upper Arkansas River Water Conservation District, Pueblo Water, Colorado Springs Utilities, and other irrigation districts, state and federal agencies, municipalities, etc. Consistent with Colorado's Water Plan (2015), seek the cooperation of water owners and funding sources to maintain water levels to benefit biological and recreational needs.
- The transportation system will be improved and maintained to facilitate public access and administrative monitoring through (1) exclusive easements to provide public access; (2) non-exclusive easements for nonpublic access; (3) unnecessary and unmaintained roads being closed and rehabilitated; (4) federal, state, county, and other roads with valid rights-of-way remaining open; (5) the degree of public access needed is guided by the desired recreation outcomes and settings (BLM 1996).
- The 1996 BLM RGFO RMP designated several OHV open areas and limited OHV travel to existing roads and trails in other portions of the planning area. The BLM RGFO completed the Arkansas River Travel Management Plan and Environmental Assessment (ARTMP-EA) in 2006. Individual route designations and use types have been made on BLM lands from Buena Vista downstream to Cañon City (BLM 2006). Travel management on BLM lands within the AHRA will be managed consistent with the Travel Management Plan (TMP). No travel management implementation planning has been completed upstream of Buena Vista and downstream of Cañon City. Travel alternatives addressing BLM lands upstream of Buena Vista are found in Section 2.3.3.2. Travel management planning on U.S. Forest Service lands is the subject of a separate planning effort.
- Develop information for motorized off-highway vehicle recreation users to identify appropriate areas for these activities and to encourage appropriate behaviors that minimize resource and social impacts. Materials will incorporate information from national programs (e.g., Tread Lightly), while onsite cues and physical barriers may be used to encourage users to stay on open roads and trails. Develop partnerships with local or regional off-highway vehicle clubs/groups to coordinate and enhance off-highway vehicle recreational opportunities (BLM 1996).

- Ensure continued access on federal and state highways, as well as county and city roads, that provide the primary and in some cases the only means of access for residents, recreationists and others who use AHRA. The AHRA will cooperatively work with Colorado Department of Transportation (CDOT) to improve safety and maintain access to all designated recreational use sites.
- Provide on-ground/on-river law enforcement capabilities, regulations, and visitor services adequate to protect natural and cultural resources, private property, and visitor health and safety. In addition, the CMA partners shall, where possible, assist with regulation enforcement and fulfill management prescriptions in the plan in cooperation with local law enforcement agencies.
- Pursue and implement cooperative agreements with local, county, federal, and state agencies to provide adequate recreation related public safety services (wildfire control, emergency medical services, and search/rescue operations).
- On BLM lands, work to achieve the goals, objectives, and allocations of the current RMP, as amended.

1.9 AHRA-Wide Multiple-Use Goals

As described in Section 1.13, the primary purpose of the AHRA Management Plan is to assist the partners in addressing how five categories of recreation (management, administration, education, monitoring, and adaptive management) should be applied in the future. The AHRA Management Plan is not a management plan for other resources (e.g., range and timber) within the CML, except for those affected by recreation use.

Other non-recreation resources will continue to be managed as specified in BLM's 1996 RGFO Record of Decision and Approved Resource Management Plan (currently under revision), the U.S. Forest Service's 1984 Forest Plan for the Pike and San Isabel National Forests, and CPW's 2010 Draft Comprehensive Stewardship Plan for AHRA. Decisions applicable to the AHRA and EA are listed below for reference:

- **Livestock Use:** Provide for livestock use levels throughout the river corridor according to the current Resource Management Plan, except at intensively developed sites where exclosures are needed to prevent user/livestock conflicts. Meet allotment management needs for livestock watering. Management decisions and actions for the recreation area within the CMA lands and the Salida East developed recreation sites will not conflict with those livestock decisions described within the BLM RMP. Those recreation decisions within the BLM RMP that relate to recreation use along the river and potential conflicts with livestock use will be implemented. This guidance does not necessarily apply to CPW owned properties or lands under special use agreement with the Forest Service.
- **Wildlife Management:** Provide for continued wildlife habitat protection and improvement projects. Mitigate conflicts between recreation users and wildlife species to ensure the species' continued existence. Protect bighorn sheep habitat and prevent user conflicts between bighorn sheep and recreation users. The recreation area partners will reexamine and modify, if needed, the AHRA CMA, which clarifies the roles and responsibilities for wildlife management along the river corridor within AHRA. The Draft CPW Stewardship Plan (CPW 2010) further establishes objectives to:
    - Maintain the quality of bighorn sheep habitats, including good access to the river for water, and reduce disturbance and stress to sheep by educating visitors and guides about proper viewing etiquette and managing visitor behavior.
    - Create an interpretive theme around bighorn sheep to educate children, visitors, and guides about protection of this important species. In addition, create interpretive themes around other key species, for example, brown trout, bald eagles, or American dippers.
    - Keep raptor disturbances along the river corridor to a minimum.

Fisheries Management: Provide for continued protection of fisheries and aquatic habitat. Provide for improvement projects to reduce impacts from increasing river recreation use, existing heavy metals problems, potential sedimentation stemming from developments, and possible changes in water quality. Conflicts between fishery habitat and other non-recreation values (e.g., livestock grazing and mineral development) will be resolved in favor of fishery habitat (BLM 1996).

Special Status Species: Protect federal and state-listed threatened, endangered, and BLM sensitive species. Ensure that habitats of threatened, endangered, and sensitive species are managed and/or conserved to maintain or expand their existence. The AHRA, working closely with various other agencies, will reexamine and modify, if needed, the CMA in order to clarify roles and responsibilities for management of federal/state listed and BLM sensitive species within the AHRA.

Wilderness Study Area & National Monument Management: Protect the primitive values of adjacent wilderness study areas (WSA) and maintain existing opportunities for primitive and unconfined types of recreation. Recreation area partners will carry out monitoring and management to ensure that all activities adjacent to or within the Browns Canyon and McIntyre Hills WSAs do not impair wilderness values.

The BLM Rocky Mountain District and RGFO, USFS Pike and San Isabel National Forests Cimarron and Comanche National Grasslands, and AHRA have initiated a planning process that will address all federally-administered lands (BLM and USFS) within the Browns Canyon National Monument. The joint BLM and USFS Management Plan will focus on protection of Browns Canyon National Monument Resources and Objects of Value, as established under the Antiquities Act (1906) and Proclamation 9232, considering federal landscape goals, land use allocations, and cooperator and public input. River recreation is managed according to the AHRA Management Plan with deference to the special designation.

Forestry: Maintain existing forestry resources for non-consumptive use to enhance recreation opportunities. This guidance does not necessarily apply to CPW owned properties or lands under special use agreement with the U.S. Forest Service.

Cultural and Tribal Resources: Manage cultural and tribal resources to prevent adverse effects resulting from vandalism and development, both within and immediately adjacent to the river corridor. Build an awareness and appreciation of cultural and non-proprietary tribal resources through visitor services (e.g., interpretation and information).

Visual Resources: Ensure that all facility developments are designed to be visually harmonious with adjacent environs. Scenic qualities will be protected on BLM lands by maintaining Visual Resource Management classes and appropriate stipulations contained in the current RMP (BLM 1996).

Minerals: Non-commercial recreational mineral collection would be managed per State of Colorado regulations on all sites that are part of the Recreation and Public Purposes (R&PP) Lease COC-49757-01 for the Arkansas Headwaters Recreation Area. For BLM managed federal minerals not located on these referenced R&PP lease sites, BLM laws and regulations would continue to apply.

Land Use/Realty: Provide for existing rights and accommodate public needs for new rights-of-way within the river corridor. Retain public lands within the corridor in federal public ownership unless exchanged for more important river corridor property. Allow leases, permits, and easements as necessary to accomplish BLM management objectives outlined in necessary land use/realty actions. Acquire parcels needed to accomplish objectives through exchanges or direct acquisition. The CMA partners will carry out actions that further implement the land use/realty-related decisions described within the BLM RMP. This guidance does not necessarily apply to those lands under special use agreement with the U.S. Forest Service.

Soil: Minimize natural and human-caused soil erosion and vegetation loss at developed recreation sites and other high-use areas. Incorporate best management practices into all new development projects. See Appendix B for a copy the 2001 Recreation Management Guidelines.

Vegetation: Protect and maintain vegetation communities to a good to excellent condition. See Appendix B for a copy the 2001 Recreation Management Guidelines. Rehabilitate and revegetate, to the degree possible, recreation sites that currently may not meet the Recreation Guidelines of the Standards for Public Land Health. The CPW Stewardship Plan (CPW 2010) further establishes objectives to:

- Maintain vegetation communities in good to excellent condition by preventing and/or reducing noxious weed presence, managing increased visitation, watching for increased insect or disease occurrences in forests and woodland, and planning cooperatively with the BLM and U.S. Forest Service for beetle infestations.
- Improve vegetation in fair to poor condition within AHRA to good condition by reducing noxious weeds and increasing the cover of native vegetation.
- Preserve rare plants and rare vegetation communities including river birch / mesic forbs riparian shrublands.
- Maintain riparian willow, river birch, sandbar islands, and cottonwood communities when possible.
- Noxious weed management is a mandate of federal, state, and local governmental entities. AHRA will pursue all collaborative efforts to facilitate noxious weed control.

Water Quality: Protect in-stream water quality by evaluating the need for human and solid waste disposal facilities at all intensively used recreation sites. Require commercial outfitters to provide for on-site water use sanitation as specified within their AHRA Special Use Agreement. Minimize non-point source pollution and sediment production from all recreation sites by maintaining conditions identified in the Recreation Guidelines of the Standards for Public Land Health. Protect water quality by limiting recreational use at areas where fluvial tailings containing toxic metals are potentially thought to exist until restoration efforts are completed. Protect water quality through proper education and facility design.

Air: Maintain air quality standards throughout the corridor and maintain visibility standards adjacent to Browns Canyon and the McIntyre Hills Wilderness Study Areas.

1.10 CPW Management Plan

With the CPW mission as a guide, the AHRA Management Plan serves as the primary document to guide AHRA staff on recreation area-level planning and long-term management efforts:

CPW Mission:

The mission of Colorado Parks and Wildlife is to perpetuate the wildlife resources of the state, to provide a quality state park system and to provide enjoyable outdoor recreation opportunities including hunting, angling, and wildlife viewing that educate and inspire current and future generations to serve as active stewards of Colorado's natural resources.

1.11 Public Involvement Process

1.11.1 Scoping

National Environmental Protection Agency (NEPA) regulations (40 CFR 1500–1508) require that the BLM use a scoping process to identify potential significant issues in preparation for impact analysis. The principal goals of scoping are to allow public participation to identify issues, concerns, and potential impacts that help formulate alternatives and require detailed analysis.

A public scoping comment period was held from January 6 to February 12, 2016, with public scoping meetings held in an open-house format at Buena Vista, Cañon City, Colorado Springs, and Denver from January 25 to January 28, 2016. The public, as well as federal, state, tribal, and local agencies, were solicited for comments through a variety of electronic media and given the opportunity to comment on the plan revision in writing or through a variety of online electronic means. The Citizen Task Force (CTF), an interest group that works with CPW and represents a variety of the user groups on the river, were also given the opportunity to comment on the plan revision.

In addition to soliciting general comments at the scoping meetings, "Recreational Outcomes and Settings" focus group sessions were run in tandem. The focus group sessions were designed to gain a better understanding of visitors to the AHRA and their experiences and preferences to help identify opportunities to improve future management of the recreation area.

The Scoping Report can be found under a separate cover at http://cpw.state.co.us/placestogo/parks/ArkansasHeadwatersRecreationArea/Pages/AHRA-Plan-Revision.aspx.General scoping comments and those of the focus group sessions were used to shape and inform the alternatives.

1.11.2 Preliminary Alternatives

The preliminary alternatives in this document were made available to the public for a 22-day review period to determine whether public concerns and issues were addressed in the formulation of the alternatives and whether further adjustments were necessary before the alternatives were analyzed.

1.11.3 Draft EA

In accordance with Council on Environmental Quality regulations, the BLM must make a diligent effort to engage the public in its NEPA process (40 CFR 1506.6(a)). The Draft EA will be made available to the public for a 30-day comment period.

1.12 Influences on Management

There are a number of "external" factors, or issues, that are largely beyond the control of the AHRA staff that may influence park management (e.g., adjacent land development, recreation trends, population projections, and partnerships). Some of the more significant "external" forces that either indirectly or directly influence park management that were factored into the plan are listed below:

- Budget and staffing
- Commercial use of AHRA

- Private use of AHRA
- Updated CMA between CPW, BLM, and the U.S. Forest Service
- BLM Eastern Colorado RMP
- Browns Canyon National Monument Designation and ongoing joint Management Plan between BLM and U.S. Forest Service, in cooperation with CPW
- Various property ownerships, easements, and management agreements along the river corridor
- State wildlife areas
- Federally listed or state listed species
- Planned future development of local jurisdictions

1.13 Management Considerations

Management considerations include issues and concerns that have been identified by AHRA staff based on first-hand experience, knowledge, and/or information gathered from the public during the open-house meetings. Some of the specific key management considerations addressed in this plan are listed below:

- **Management:** Includes recreation management actions such as facility development (e.g., recreation sites, roads and trails, and concessions), visitor services, and resource commitments.
- **Administration:** Includes regulatory actions, such as the implementation of allocation systems, special use agreements, special activity agreements, fees, use restrictions, and partnership agreements, as well as business plans or fiscal accountability systems and data management protocols.
- **Information and Education:** Includes information and education actions, such as providing maps, brochures, websites, outreach, events, interpretation, environmental education, signs, and other visitor information.
- **Monitoring and Adaptive Management:** Includes monitoring recreation resources and human use (i.e., visitor use patterns); changes in trends, technology, and user preferences; recreation impacts; crowding; and attainment of outcomes-focused management and visitor satisfaction objectives, recreation setting characteristics, standards, and indicators for the purpose of ensuring that defined goals and standards are being met.

2.0 Alternatives

2.1 Introduction

This chapter provides a description of the Current Plan (No Action), Alternatives 1 and 2, the Proposed Action and alternatives considered but not analyzed in detail.

The chapter begins with decisions common to all alternatives, organized according to the four implementation categories of a Recreation Area Management Plan (RAMP; BLM Handbook H-8320-1): Management, Administration, Information and Education, and Monitoring as described in Chapter 1.

Implementation is the foundation of outcomes-focused management; implementation actions interact with recreation settings to produce recreation opportunities and facilitate outcomes. The BLM provides direction to

address four implementation categories within all RAMPs: management, administration, information and education, and monitoring.

This RAMP EA will guide management of the CML and recreation sites within the AHRA and subsequent site-specific project plans. Implementation of surface-disturbing or federally-funded projects proposed in the Current Plan (and all Action Alternatives) is subject to additional site-specific analysis (including NEPA review).

Proposed management actions in this plan may be implemented on different timelines. Some elements of the proposed plan, for example boating season dates and launch windows, can be directly and immediately changed and applied to all CPW commercial outfitters. These elements will be included as standard stipulations within the AHRA rationing plan and/or AHRA's Special Use Agreements/Riders.

River corridor and developed recreation site carrying capacities changes cannot be directly implemented. Instead, use will continue to be monitored to ensure plan objectives are being met. The BLM, CPW, and U.S. Forest Service (hereafter, referred to as the AHRA in this plan) will assess how visitor use correlates with plan design prior to initiating changes. Specific procedures for allocating use within the prescribed capacities will continue to be developed in accordance with AHRA policy.

Details of managing commercial boating are contained within the AHRA Special Use Agreement, Rationing Plan and the associated Riders, available on line at http://cpw.state.co.us/placestogo/parks/ArkansasHeadwatersRecreationArea/Pages/RiverOutfitters.aspx. Modifications to the rationing plan are done periodically and do not require an amendment to the Arkansas River Recreation Area Management Plan. Instead, the rationing plan is considered as a separate, implementation-focused document that supplements the management plan.

Detailed descriptions of the alternatives are provided in summary tables for clarification and a comparison of the alternatives (see Table 2-1 through Table 2-3). The AHRA has been divided into segments, followed by sections and sites, for management and planning purposes. The tables are separated into these geographic areas where appropriate.

2.1.1 Alternatives Development

The BLM and CPW conducted a comprehensive review of potential alternatives. Key issues identified through the scoping process that informed the development of alternatives included boating capacities, conservation of fisheries and wildlife habitat, public river access, and facilities. The Core Planning Team and the BLM Interdisciplinary Team (IDT) met to identify, discuss, and evaluate all alternatives. Preliminary alternatives were published and available for public comment between June 1 and June 22, 2016. The project team reviewed public comments received and used them to inform the development of alternatives that are described below.

Aside from the No Action alternative, the management actions described as Alternatives 1 and 2 represent a mix of the various management options to achieve the recreation and multiple-use goals in Chapter 1. A Proposed Action was also developed. The four alternatives provide a diversity of recreation opportunities from primitive lower use/development opportunities to urban higher use/development opportunities. As described in Section 2.3.1, Alternative 1 emphasizes enhancing the current mix, while the Proposed Action would build on Alternative 1 and also provide additional opportunities to increase the level of use/development. Alternative 2 is identical to the Proposed Action except for some differences with respect to boating capacity and other boating-related actions. Therefore, Alternative 2 and the Proposed Action are combined in some of the tables presented in this chapter. In addition, resource effects resulting from the two alternatives are discussed together in most of the resource effects discussions presented in Chapter 3, noting any differences as needed.

The alternatives address issues identified by the interested public, agencies, and the BLM interdisciplinary team.

The alternatives were developed under the premise that all valid existing rights would be recognized and accommodated to the greatest extent possible.

Following public comment on the Draft EA, the Final EA will identify a Preferred Alternative.

2.2 Decisions Common to All Alternatives

The following list of "common to all" decisions is intended to (1) provide a diversity of recreation opportunities; and (2) improve the quality of these opportunities. Taken together, the decisions below combined with an alternative create a diversity of recreation settings (mixes of resource and social conditions with a management overlay) that allow people to visit and have high quality recreation experiences. In turn, this use produces beneficial outcomes for natural resources and for the individuals who participate in the experiences (i.e., relieved stress, enhanced social affiliations, and improved health.).

The decision language, recreation goals, and multiple use goals in Chapter 1 and the decisions common to all alternatives below serve as design criteria for this plan and for subsequent implementation projects.

2.2.1 Recreation Management

2.2.1.1 Desired Recreation Settings and Activity Opportunities

The following is a list of decisions related to general types of recreation use in the corridor; it includes general decisions about allowable recreation uses. Decisions about recreation settings and activities for specific segments/sections are discussed later in the chapter.

- Allow both private and commercial boating opportunities in the Arkansas River in compliance with this plan. Prohibit motorized watercraft for recreational purposes, except as authorized by AHRA managers for specific reasons (i.e., Search and Rescue, Public Safety, or Law Enforcement).
- Allow access for fishing (by boat, from shore, or while wading) on all public lands where feasible, consistent with state fishing regulations.
- Allow access for hunting on all public lands where feasible, except developed recreation sites and/or other sites as prohibited.
- Allow hiking, horseback riding, and mountain biking on designated trails and areas in the corridor where appropriate. Discourage the development of user-created trails through education and on-site trail design (e.g., brush, rock, or other barricades to prevent switchback short cuts).

2.2.1.2 Resource Management and Restoration

Decisions related to managing existing important species or habitats:

- Maintain the following vegetation types:
  - **Willow and cottonwood riparian communities*:*** Continue to treat weeds aggressively, intensively manage stream access points, and initiate a viable tree replacement program where feasible to assure the persistence of these woodlands.

- **Pinyon juniper, ponderosa pine, and deciduous woodlands:** Monitor major insect disease or changes in forest composition and coordinate management efforts with the U.S. Forest Service and/or the Colorado State Forest Service to mitigate impacts that could result. Evaluate options to cut and wrap and/or remove select trees in high profile areas and campgrounds.
- **Wetlands:** Avoid impacts to wetlands to the greatest extent feasible. Where wetland impacts cannot be avoided, mitigate according to laws and regulations.

- Continue to map the extent of special status plant populations and protect rare plants by continuing to enforce travel limitations on off-road vehicles in the area, impact from dispersed use, and site development.
- Use the "Ecological Sensitivity Zones" set forth in the CPW Stewardship Plan in each parcel to identify areas of potential development and protection of sensitive areas.
- Maintain beginning and ending time restrictions on commercial rafting to reduce visitor impacts on wildlife resources.
- Monitor off-road vehicle use and dispersed camping activities at affected locations. Continue to use a combination of signage, enforcement, shrub plantings, boulders, or other barriers to curtail use outside of the designated areas. Camping may be limited to designated sites where excessive impacts are occurring.
- Require the use of fire-pans and packing out of human solid waste throughout the entire river corridor wherever restroom facilities are not provided.
- Inventory special status species that are known to occur in the river corridor prior to surface disturbing actions. Conduct Endangered Species Act Section 7 consultation with the United States Fish and Wildlife Service (USFWS) if an action may affect a federally listed species.
- Conduct Section 106 consultation pursuant to the Programmatic Agreement with the State Historic Preservation Office (SHPO), including evaluation and mitigation, if necessary. In tandem with NEPA compliance, consult with tribes prior to new surface disturbing actions and resolve tribal concerns, if necessary. Ensure that sites of concern to tribes remain accessible to tribal members and do not suffer adverse effects.
- The following sensitive habitats are restricted from expanding existing sites and developing new sites:
  - Bighorn Sheep production areas
  - Peregrine nesting areas within 0.5 mile
  - Bald and Golden Eagle nest sites within 0.5 mile
  - Populations of BLM sensitive plants

Decisions related to invasive species:

- Continue the ongoing control of noxious weeds through IPM (integrated pest management), using all methods available for effective suppression, control, and eradication where possible.
- Educate all staff on the identification of noxious weeds to prevent their spread.
- Work with volunteer groups to survey the river for invasive aquatic species, such as New Zealand mud snail, and provide additional education via signs or displays for invasive mussels.

2.2.1.3 Land Acquisition and Site Development

- Acquire properties and easements to improve public river access for fishing, boating, safe portage access, trails, and other types of recreation.
- Acquire properties and conservation easements to improve protection of sensitive habitats and scenic viewsheds.
- Develop new fishing and/or boating access points and facilities where identified in the alternatives to accommodate use.
- All acquisitions by CPW and/or BLM will be with willing sellers. No eminent domain or right of condemnation authority will be used for recreation or conservation purposes.
- Provide coordination and leadership for potential stage/rail/interpretive trails and/or other trail corridor locations within the river corridor.
- Continue to work with the existing and/or new railroad right-of-way land owners to improve, add to, and/or secure public access to AHRA lands and/or recreation sites.
- On BLM lands, maintain Class II Visual Resource Management (or U.S. Forest Service High Scenic Integrity Objective) equivalent character in all site development and redevelopment plans where appropriate.
- Collaboratively examine the potential of special agreements, leases, transfers or sale of easements/lands between BLM, CPW, U.S. Forest Service, and other agencies that may prove able to better meet the needs of all agencies in a mutually acceptable manner.

2.2.1.4 Visitor Health and Safety

- Encourage courteous and safe river behavior by boaters and anglers. Develop educational materials to advise boaters to avoid floating through water being fished by an angler; advise anglers to consider the locations of other anglers when choosing where to fish; and advise all users how to choose locations and times to fish and/or boat to avoid conflicts and crowding.
- Maintain safe, appropriate vehicle access to all existing and future use areas and sites. Work with CDOT and various counties in using standard safety highway engineering principles to reduce the probability of accidents, traffic congestion, blind spots, slow moving vehicles and pedestrian traffic near highways. Pedestrian trails and wildlife turnouts should be located so through traffic is not impeded and visibility is not reduced (i.e., R&PP lease areas).
- Develop an emergency communication and response system between CPW and county/local/federal agencies to alert them of all emergencies. Where feasible, post warnings of eminent flash flood danger.
- Monitor actual costs associated with search and rescue operations in order to potentially justify cost recovery proposals or requests.
- Cooperatively develop safe passage and/or portage and scouting opportunities.
- Work with railroads to reduce pedestrian/train incidents where appropriate.
- Pursue and implement cooperative agreements for response to search and rescue emergencies with appropriate local, county, federal and state agencies and organizations.
- Coordinate and work with landowners and state, county, and municipal administrators to provide river safety criteria for road and bridge construction and other river-related construction projects.

- Continue river hazard removal activities that are coordinated with counties, municipalities, private landowners, various river safety organizations, and water managers.
- Enforce regulations to prevent animal/wildlife harassment along the river and enforce dog leash regulations within developed recreation areas. Enforce regulations to address firearm use at developed recreation sites and at undeveloped recreation sites where prohibited.
- Work with CDOT and both county and local government transportation agencies concerning transportation of hazardous materials (HAZMAT) and in HAZMAT contingency planning.
- Encourage users to respect quiet zones in residential areas, bighorn sheep lambing areas, and other appropriate areas.

2.2.2 Administration (Regulatory Decisions)

2.2.2.1 Agency Cooperation

CPW will maintain a CTF comprising of no more than 16 members to serve as representatives of eight public interests. This group does not advise the federal signatories of this document. CTF shall provide recommendations to CPW for the management of the AHRA. The public interests serving on the CTF will involve two individuals from each of the following interests:

- Anglers
- Commercial Permittees
- Private Boaters
- Environmental Interests
- Water Users
- County/Municipal Government Organizations
- River Front Property Owners
- Other Outdoor Recreationists

The CTF will meet and/or have a conference call approximately five times a year and have the following roles:

- To provide individual advice and input on resource management issue priorities along the river corridor;
- To assist in the application of the Land Health Standards and the resulting recreation guidelines where applicable;
- To assist in maintaining a watershed focus;
- To provide recommendations and direction regarding growth and value issues on development priorities along the river corridor;
- To assist in resolving other management problems along the river corridor as they arise;
- To assist in providing an open communication link to the communities along the river corridor, the state and nationally;
- To provide support in the implementation of plan goals and objectives within the AHRA.

The following ad-hoc CTF members will be encouraged to discuss respective agency issues with the CPW AHRA Park Manager and attend CTF meetings, when appropriate, to provide input and discussion on the issues that concern their mission, agency or organization:

- USFS - Leadville District Ranger or authorized FS representative
- USFS - Salida District Ranger or authorized FS representative
- CPW Fisheries Biologist
- BLM - Royal Gorge Field Office Manager
- Bureau of Reclamation - Arkansas Frying Pan Project Facilities Manager
- CPW Salida Area Wildlife Manager
- Southeast Colorado Water Conservancy District Manager
- Upper Arkansas Area Council of Governments Director
- Lake County Commission Chairperson
- Chaffee County Commission Chairperson
- Fremont County Commission Chairperson
- Pueblo County Commission Chairperson
- Lake County Open Space Initiative Chairperson

Other agency coordination decisions include:

- Continue to coordinate and utilize assistance from Lake, Chaffee, Fremont, and Pueblo counties, as well as other weed management entities, to control noxious weeds in the AHRA.
- Continue to coordinate with CPW and BLM on sheep management, habitat and corridor management, and monitoring/reducing visitor impacts on sheep.
- Coordinate with CPW and BLM on fish and fishing resources.
- Continue to coordinate with CPW and BLM on raptor management, nest/roost protection, and monitoring/reducing visitor impacts on birds of prey.
- Work with CPW and BLM on long-term conservation issues including identifying key regional, local, and site scale corridors for key species such as lynx, bighorn sheep, and large wildlife.
- Look for and act upon opportunities where appropriate to participate in the development of coordinated resource mapping with other entities.

2.2.2.2 Capacities/Use Limits

CPW establishes and enforces capacities for boating use on the river. Capacities have a long history in natural resource management and help address challenging social and resource impacts.

Capacities have units of use, timing, and location components. Capacities in this plan are expressed as boats per day on individual segments or sections. The focus on boats per day is appropriate because major social impacts include ramp space and parking at access areas, both directly related to the number of boats. Boats per day are also related to numbers of groups and people, which affect launch area congestion, on-river encounters, fishing water competition, fishery impacts, adjacent property owner concerns, and boats passing anglers. The Rationing Plan further specifies limits for boats per trip and people per boat by type of trip; these work with capacities to keep impacts at acceptable levels.

Whenever use on any one river stretch exceeds 75 percent of capacities established for the commercial sector five times in any one season, CPW will begin to determine how allowable use will be assigned within that sector. This determination will be made:

- According to Standards for Public Land Health and the Recreation Management Guidelines,
- As an addendum (not amendment) to this plan,
- With opportunity for public and CTF review and comment provided,
- Include assignment of launch times and group/party size specifications as appropriate.

Whenever use on any one river stretch exceeds 75 percent of capacities established for the commercial sector five times in any one season, CPW, utilizing the most recent studies and monitoring data available, will assess the need for establishing different carrying capacities on weekdays vs. weekends and holidays. It is expected that weekday capacities would be considerably lower than those for weekends and holidays.

Exceeding prescribed carrying capacities more than five times in a season will trigger use allocation the following year for the affected stretch of river. Use allocation will be applied only to the user group that exceeded capacities.

The allocation system may be discontinued at the discretion of CPW:

- If demand falls short of available capacity for two consecutive seasons for any river stretch, or
- If, through improved utilization of key access sites or the river corridor itself, it is determined that capacities established in this plan need to be raised and the plan amended.

At the time use allocations are implemented on each segment, place limits on maximum numbers of boats per group and on launches in each segment to reduce crowding and congestion, promote visitor safety and enhance resource appreciation.

When one sector of the boating population (i.e., private or commercial) reaches its prescribed carrying capacity ceiling, it will not be allowed to take over unused capacity from the other sector (exchange of capacities between private/commercial is allowed per approval from CPW).

The two Action alternatives and the No Action alternative have different capacities for different segments and sections as described in Section 2.3.3.

Other components of the capacity management system (common to all alternatives) include the following:

- Ensure, when feasible, that adequate facilities exist to accommodate both commercial and private boater needs at high use areas.
- The carrying capacity of each raft will be the legal capacity for that size of raft.
- Private boats do not have launch windows.
- The allocation days may be discontinued at the discretion of CPW if demand falls short of available capacity for two consecutive seasons for any river stretch.
- Through adaptive management and opportunities for public input, CPW can modify boating capacities if the total number of boats per day in a segment is not exceeded.
- Authorize established events (those that have occurred prior to this plan) by cooperative agreement (e.g., FIBArk, CW Training Camp, and Paddlefest) that may exceed carrying capacities consistent with CMA agreement, policies, procedures, and regulations. Decisions on new event proposals are discretionary, must be consistent with the AHRA vision statement and management objectives, and may or may not always fit within established carrying capacities.

- Authorize after hours commercial float fishing only under the following conditions:
  - A CPW Special Use Agreement/Rider
  - The required fishing outfitters registration
  - A maximum of four licensed (fishing) clients per boat
  - All trips must be conducted within carrying capacities as established in Table 2-8.
  - If needed, AHRA may place a limit on after hours commercial float fishing.

2.2.2.3 Commercial Use

Commercial uses, both recreation related and non-recreation related, occur or have the potential to occur within the planning area boundary. This includes authorizations such as commercial river guiding and instruction, on-river competitive events, organized groups, and commercial filming that is tied directly to recreation use such as photography of commercial rafting. Recreation related commercial activity that is non-river related may also be authorized within the CML. This includes activities such as mountain biking on existing roads and trails and rock climbing. New activities or activities occurring in new areas may require additional site specific surveys and analysis.

For R&PP lease lands CPW would be responsible for authorizing commercial vending, so long as it is related to recreation activity per the terms of the lease. Commercial vending would not be allowed on BLM lands outside of R&PP leased lands.

Non-recreational commercial use such as commercial filming not directly tied to a recreation activity may be authorized on a case-by-case basis at the discretion of the authorized agency. Additional analysis and site specific surveys may be required for these types of authorizations.

The process for reviewing and approving these types of uses along with roles and responsibilities will be outlined in the CMA.

2.2.2.4 Drone Use

- Drone use would be prohibited within CPW owned/leased lands and above the river corridor within AHRA except as authorized by an AHRA Special Activity Agreement or BLM or USFS authorization. Drone use outside of CPW owned/leased lands would follow the policy/law of the affected agency.

2.2.2.5 Recreational Mineral Collection

- Recreational mineral collection on BLM lands, which are not part of R&PP Lease COC-49757-01 for the Arkansas Headwaters Recreation Area, is regulated through 43 CFR 8365.1-5. This plan would not modify this regulation.

2.2.2.6 Travel Management

- Work with all appropriate agencies regarding the maintenance of county roads and state/federal highways that are directly tied to visitor safety within the recreation area. Seek road safety improvements from CDOT transportation funds, assuming that a substantial portion of the visiting public is doing so in relation to highway travel and not recreational access to the river.
- Motorized and mechanized travel within the CMA boundary would be limited to a designated route network and or designated areas. Designated routes and associated disturbances would be managed through the installation of barriers, signs, and rehabilitation of vegetation and soils.

2.2.2.7 Partnerships and Agreements

- Pursue mutually beneficial agreements between the recreation area and other government agencies, public/private entities and/or other organizations/groups when appropriate.
- Work with water owners to provide river recreation access along the Arkansas River corridor where needed.
- Work with local service groups/schools to cooperatively develop interpretive signing and education materials.

2.2.2.8 Supplemental Staffing

- Continue a partnership program with the Greater Arkansas River Nature Association (GARNA) and other entities to allow volunteer organizations and/or groups to provide on-going maintenance and up-keep of specifically selected and undeveloped sites, stream improvements, upland restoration, or other assistance as agreed upon.
- Contingent on funding and leadership team support, CPW will add additional staff as needed to maintain the standards and level of service achieved since the AHRA was established; to accommodate increasing visitation, responsibilities and programs; and to adequately implement the proposed plan revision.

2.2.3 Information and Education

- Continue an interpretive program focusing on resource, user and area management interpretation and user ethics. Expand this program where appropriate to include all of the communities and/or recreation sites served by AHRA.
- Provide user ethics information on wildlife viewing to prevent human disturbance of wildlife.
- Treat management problems through education and cooperation with user groups (e.g., self-policing, Leave No Trace, “pack it in–pack it out”). Develop and enforce specific regulations if problems persist. Enforce Standards for Public Land Health and the Recreation Management Guidelines and AHRA regulations.
- Encourage all commercial outfitters to send all new guides to an annual AHRA-sponsored Headwaters Institute workshop or similar event. Ensure that the information provided is shared with company staff before the commercial rafting season begins.
- Require all commercial outfitters to send representatives to an AHRA-sponsored Contractor (Outfitter) Workshop. Owners are strongly encouraged to attend. Ensure that the information provided is shared with company staff before the commercial rafting season begins.
- In cooperation with GARNA, or similar entity, provide boater safety and environmental education materials and programs.
- Provide information to recreationists about individual property rights and the location of public facilities and services.
- Work with interpretive staff and/or other entities to both continue and develop additional signage or programs.

2.2.4 Monitoring Recreation Resources and Human Use

As described under Section 1.9, AHRA-Wide Multiple-Use Goals, the primary purpose of this plan is to manage recreation use, and to also protect ecological and cultural resources over the long term. The high quality recreation experiences sought after in the AHRA are dependent on healthy natural settings. Therefore, monitoring is needed to ensure that desired recreation outcomes are achieved and visitor impacts on natural settings are mitigated.

More effective management actions are likely to emerge if monitoring can identify root causes of impacts or trends. This is likely to require considerable specificity about the ecological resources (e.g., species, life stages, habitats, behaviors) and potential human impacts such as type, amount, timing, and behavior of recreation use or development.

Common to all alternatives is monitoring the environmental effects of recreation use along the river and taking corrective actions as needed based upon the direction provided by this plan's vision statement, the Recreation Management Guidelines related to BLM's Standards for Public Land Health, and the ongoing agency monitoring program. See also Section 2.3.5, Monitoring Recreation Resources and Human Use by Alternative.

2.3 Alternatives Analyzed in Detail

2.3.1 Summary Descriptions

Specific elements of the No Action alternative are presented in Table 2-7 and Table 2-8, which also include a comparison with each of the other alternatives. The alternatives outline actions occurring on a variety of lands and water to provide overall management direction for the AHRA.

2.3.1.1 Current Plan (No Action) Summary

The No Action alternative continues current recreation and multiple use goals and management practices described in the 2001 Plan. As described in Table 2-1 and Table 2-7, 43 developed sites are currently available to AHRA visitors. Although no new initiatives would be implemented under a No Action alternative, minor adjustments would be made periodically to respond to changing needs or emerging challenges consistent with the current adaptive management program.

Existing capacity levels and use allocations would remain in place. The 2001 Plan anticipated a planning horizon of approximately 10 years. While the majority of Current Plan recommendations and projects have been accomplished, a select number of uncompleted projects remain. These are mostly moderate upgrades to existing sites that would be considered through a separate NEPA planning process. No new use areas would be developed, and no additional public access areas would be provided. Facility improvements would be limited to the replacement of old, deteriorated facilities without expanding the number of use sites or their extent. Land acquisition would be limited to the specific properties identified in the 2001 Plan.

Table 2-1. Current Plan (No Action) Existing Site Development Summary[1]

	Level of Site ROS[2] Development				
	Low	**Moderate**	**High**	**Urban**	**Total**
Number of Existing Sites	12	19	6	6	43
New Sites That May Be Developed	0	0	0	0	0
Total Number of Existing Sites Plus New Sites That May Be Developed	**12**	**19**	**6**	**6**	**43**

2.3.1.2 Alternative 1 Summary

This alternative would continue current management practices with the goal of maintaining current recreation setting characteristics while moderately changing site development and boating capacities to respond to identified issues and new needs.

In contrast to the No Action alternative, this alternative provides for a moderate increase in land acquisition, facility development, and similar improvements. New land acquisition and easements would be acquired on an opportunistic basis as private land owners express an interest in selling or donating land (see Table 2.7 for a description of development levels for each segment and section). In addition, a limited number of existing sites may be expanded or upgraded (changing their level of development) and a limited number of new sites may be developed.

As described in Table 2.7, Alternative 1 may upgrade or expand existing facilities at up to 5 existing use sites identified in specific Segments. This alternative also encourages on-going maintenance and allows replacement of any deteriorating facilities at existing facilities as long as such maintenance and replacement projects do not change the existing facility footprint or change the site's overall level of development. Any site expansion or ground disturbing activities on federal lands would be subject to NEPA review and potential analysis. The purpose of upgrading or expanding existing facilities is to respond to increases in visitation and corresponding resource damage. For example, as use increases at the Stone Cabin Recreation Site, there may be a need to protect trees by hardening (structuring) campsites. In addition, as many as 6 new access areas in different Segments may be developed with recreation facilities. These summaries for the entire river are expressed as a maximum range for individual segments—not all 11 potential sites are expected to be developed in all segments. This alternative would result in a total of 49 sites at plan build-out.

Table 2-2. Alternative 1 Site Development Summary

	Level of Site ROS Development				
	Low	**Moderate**	**High**	**Urban**	**Total**
Number of Existing Sites	12	19	6	6	43
New Sites That May Be Developed	2	2	2	0	6
Total Number of Existing Sites Plus New Sites That May Be Developed	**14**	**21**	**8**	**6**	**49**

[1] Sites listed in Tables 2-1 through 2-3 include most existing federal and state sites. A complete inventory will be updated in the Final MP-EA. It is estimated that up to 17 Undeveloped or Low Sites may be located largely on state and private leased land.

[2] Site Recreation Opportunity Spectrum (Site ROS). See Table 2-5.

Existing capacity levels and allocations would be adjusted as shown in Table 2-8. Private boating capacities would be modestly reduced in Segment 1. Commercial capacities would be reduced in Segment 2. In other Segments, modest increase would also be made to commercial capacity levels. A small number of properties would be acquired through voluntary land purchases. Interagency and volunteer monitoring information would be used to implement an adaptive management program (see Section 2.3.5). Other management practices would remain largely the same as those currently in place.

2.3.1.3 Alternative 2 Summary

Alternative 2 is identical to the Proposed Action outlined below except for differences in boating capacities, launch windows, and use seasons as outlined in Table 2.8.

2.3.1.4 Proposed Action Summary

The Proposed Action and Alternative 2 are the same in all respects (including site development) with the exception of boating related activities (see Table 2-8). The Proposed Action would expand the level of site development, acquisitions, and adjust boating capacities. As with the other alternatives, current management practices that remain relevant and effective would remain in place supplemented by new initiatives to address emerging issues and challenges.

In contrast to the No Action alternative and Alternative 1, this alternative provides for a larger increase in land acquisition, facility development, and similar improvements. New land acquisitions and easements would still be acquired on an opportunistic basis as private land owners express an interest in selling or donating land, and agencies would pursue such opportunities with greater deliberateness. Similarly, a much larger number of existing sites may be expanded or upgraded (changing their level of development) and more new sites would be developed (see Table 2-7 for a description of alternative development sites for each Segment and Section).

As described in Table 2-3, the Proposed Action may upgrade or expand existing facilities at up to 15 existing use sites on different segments (upgrading many as 11 to moderate levels, 1 to a high level, and providing for additional expansion and improvements at 3 existing urban whitewater parks). Many of these upgrades are targeted at the potential future need for permanent restroom facilities often times falling within the footprint of the existing site. The upgrading of a site could result in new fees or fee increases. This alternative also encourages on-going maintenance and allows replacement of any deteriorating facilities at existing sites as long as such maintenance and replacement projects do not change the existing facility footprint or change the site's overall level of development. Any site expansion or ground disturbing activities on Federal lands would be subject to NEPA review and potential analysis. In addition, as many as 14 new access areas may be developed with recreation facilities (as many as 6 at low levels, 5 at moderate levels, and 3 at high levels). The ranges for the entire river are summed from ranges for individual segments; however, not all potential sites are expected to be developed in all segments. These summaries for the entire river are expressed as a maximum range for individual segments; not all 29 potential sites are expected to be developed in all segments. This alternative would result in a total of 57 sites at plan build-out.

Table 2-3. Proposed Action/Alternative 2 Site Development Summary

	Level of Site ROS Development				
	Low	**Moderate**	**High**	**Urban**	**Total**
Number of Existing Sites	12	19	6	6	43
New Sites That May Be Developed	6	5	3	0	14
Total Number of Existing Sites Plus New Sites That May Be Developed	**18**	**24**	**9**	**6**	**57**

Capacities would generally be higher than those defined in Alternative 1. Private boating capacities would be modestly reduced in Segment 1. Commercial capacities would be reduced in Segment 2, and largely remain the same or increase in other segments. Most of the increased capacity levels would occur on the lower river (Segment 5). In addition, private and commercial capacities would be allowed to be exchanged as long as overall capacity in any river segment is not exceeded.

2.3.2 Recreation Management (Desired Settings, Activities, and Site Development)

Desired settings (acceptable qualities of the landscape), recreation outcomes (benefits received by people and communities), activities (how people use the area), site development (facilities that accommodate a certain number of people), and the level of management and visitor services for each river section by alternative are summarized below. The AHRA manages settings by providing or enhancing different combinations of physical, social, and operational characteristics. Overall, the river provides a range of opportunities, allowing visitors to select the settings that offer the kinds of outcomes they want, generally ranging from higher use /higher development to lower use/lower development (Figure 2-1).

Certain segments offer opportunities for exceptional activities and settings, such as backcountry camping and Class III-IV boating experiences through Browns Canyon National Monument (with day use levels relatively high); Class IV-V boating experiences and spectacular scenery through the Royal Gorge (with distinctly higher use densities at the Royal Gorge Bridge & Park); low density walk and wade fly fishing in Segment 1; or low density off-season boat-based fishing in Segment 3. While all activities are important river wide, the activity emphasis list in Table 2-7 identifies important setting-dependent experiences for each segment. In general, these specific opportunities and associated physical, social, and operational setting characteristics are identified to receive agency emphasis to ensure individuals and communities have the ability to obtain specific recreational outcomes (BLM 2014).

As described in Table 2-4, each setting's physical, social, and operational characteristics vary across segments with different overall character and within each section from one location to another (e.g., developed boat ramps or campgrounds versus less-developed river banks or dispersed camping areas). Physical characteristics include qualities related to remoteness, naturalness, and visitor facilities. Social attributes include the number of groups, group size, and evidence of use. The operational component relates to management and controls over recreational use such as access, visitor services and information, and regulations. Activities take place in different physical, social, or operational settings, providing opportunities for diverse recreation experiences for visitors.

At the scale of individual recreation sites, each facility or access point offers a spectrum of opportunities as well, referred to as a Site Recreation Opportunity Spectrum (Site ROS) (Table 2-5).

As of 2016, the AHRA offered 43 AHRA developed and managed sites, each with unique combinations of facilities and activities. Table 2-6 shows the name, acres, and Site ROS for each AHRA-managed site. Table 2-7 provides direction for primary recreational activities, desired recreation settings, and site development per river segment. Each river segment can have varying degrees of characteristics that the ROS identified for each element.

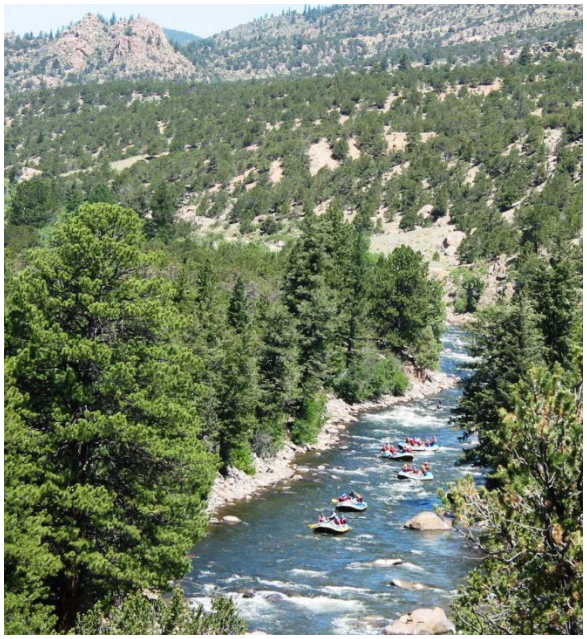
Under the No Action alternative, no new use areas would be developed, and no additional public access points or other access improvements would be provided. Sites would remain similar to those in Table 2-6. With exception of Salida East which is proposed for upgrades in the Current Plan, facility improvements would be limited to the replacement of old, deteriorated facilities without expanding the number of use sites or their extent.

Under all action alternatives, facility developments would be phased in as needed to achieve resource protection and to accommodate both commercial and private boater needs. Under both alternatives, the facility design of

roads, parking areas and campgrounds would accommodate only the types and amounts of uses planned at specific sites, so as not to create overuse problems. New sites, and expansion of existing sites, would be strategically located to disperse use throughout the CML and to reduce crowding at key sites. Sites upgraded to moderate that are located on BLM lands would be considered for leasing to CPW through the R&PP lease process, including the opportunity for additional public input.

Under Alternative 1, emphasis would be on maintaining a desired setting as close to current conditions as possible, while offering a limited number of new and expanded facilities to disperse crowding and accommodate projected visitation increases. To achieve this, Alternative 1 would emphasize upgrading or expanding existing sites as use at each site increases and to protect resource overuse, for example, resource damage, particularly at undeveloped (dispersed) sites. Private land acquired from willing sellers or public land exchanges would be acquired on an opportunistic basis for both open space conservation and recreational access/development. It is envisioned but not limited to up to 5 undeveloped open space properties (totaling approximately 100 acres) would be conserved river-wide through Colorado Parks and Wildlife fee-simple acquisition or conservation easements during the planning horizon.

The Proposed Action would build on Alternative 1 to offer a broader range of desired activities to more visitors through expansions of existing facilities and creation of new facilities. Emphasis would be on creating new sites and expanding existing sites where appropriate. More sites would be created/upgraded to moderate and high levels of development compared to Alternative 1. As sites are created and expanded, the settings in some segments would transition from less developed to more developed (i.e., from Middle Country to Front Country). A larger amount of land would be acquired from willing private sellers or public land exchanges on an opportunistic basis for both open space conservation and recreational access/development compared to Alternative 1. It is envisioned, but not limited to, that up to 10 undeveloped open space properties (totaling approximately 150 acres) would potentially be conserved river-wide through fee-simple acquisition or conservation easements during the planning horizon.

Spectrum of Recreation Setting Characteristics		
Primitive	**Back Country**	**Middle Country**
		
		

Spectrum of Recreation Setting Characteristics		
Front Country	**Rural**	**Urban**
		
		

(Photo credits: AHRA)

Figure 2-1. AHRA Photographic Examples of River Corridor Recreation Setting Characteristics

Table 2-4. AHRA River Corridor Recreation Setting Characteristics

	Primitive	Back Country	Middle Country	Front Country	Rural	Urban
1. Physical Component—Qualities of the Landscape						
Remoteness (approx. distance from routes)	More than ½ mile from either mechanized or motorized trails and routes	Within ½ mile of mechanized trails/routes	Within ½ mile of four-wheel-drive, ATV, and motorcycle routes	Within ½ mile of low-clearance or passenger vehicle routes (e.g., unpaved county roads, and private land routes)	Within ½ mile of paved/primary roads and highways or active railroad	Within ½ mile of streets and roads within municipalities and along highways
Naturalness (landscape texture, form, line, color)	Undisturbed natural landscape	Natural landscape with modifications in harmony with surroundings and not visually obvious (e.g., stock ponds and historic structures)	Character of the natural landscape retained; a few modifications contrast with character of the landscape (e.g., fences and abandoned railroad)	Character of the natural landscape partially modified but none overpower natural landscape (e.g., structures, utilities, and abandoned railroad)	Character of the natural landscape considerably modified (e.g., agriculture, rural residential uses, and second homes)	Urbanized developments dominate landscape
Visitor Facilities	No structures; foot/horse and water trails only	Developed trails made mostly of native materials such as log bridges; structures are rare and isolated	Maintained and marked trails; simple trailhead developments	Rustic facilities (see Table 2-5)	Modern facilities (see Table 2-5)	Elaborate full-service facilities (see Table 2-5)
2. Social Component—Qualities Associated with Use						
Contacts (average # of other groups)	Fewer than 3 encounters/day at campsites and fewer than 6 encounters/day on river and travel routes	7-15 encounters/day on river and travel routes	15-29 encounters/day on river and travel routes	30 or more encounters/day on river and travel routes	People seem to be generally everywhere most of the time	Busy place with other people constantly in view
Group Size (average)	See Table 2-8 in Section 2.3.3.1	See Table 2-8 in Section 2.3.3.1	See Table 2-8 in Section 2.3.3.1	See Table 2-8 in Section 2.3.3.1	See Table 2-8 in Section 2.3.3.1	See Table 2-8 in Section 2.3.3.1
Evidence of Use	No alteration of the natural terrain; footprints only observed; sounds of people rare	Areas of alteration uncommon; little surface vegetation wear observed (trails and campsites); isolated fire rings in dispersed areas; sounds of people infrequent	Small areas of alteration; surface vegetation showing wear with some bare soils; fire rings in dispersed areas; occasional sounds of people	Small areas of alteration prevalent; surface vegetation gone with compacted soils observed; sounds of people regularly heard	A few large areas of alteration; surface vegetation absent with hardened soils; sounds of people frequently heard	Large areas of alteration prevalent; some erosion; constantly hear people
3. Operational Component—Conditions Created by Management and Controls over Recreation Use						
Public Access (types of public travel allowed)	Foot, horse, non-motorized, and float boat travel	Foot, horse, mountain bikes, boat-in and walk-in is the primary access	Four-wheel-drive vehicles, ATVs, dirt bikes, or snowmobiles, in addition to non-motorized use	Two-wheel-drive vehicles predominant, but also four-wheel drives and non-motorized use	Ordinary highway auto and truck traffic is characteristic	Wide variety of street vehicles and highway traffic is ever present
Visitor Services (and information)	No maps or brochures available onsite; staff rarely present to provide onsite assistance	Basic maps, staff infrequently present (e.g., seasonally and high-use periods) to provide onsite assistance	Area brochures and maps; staff occasionally (i.e., most weekends) present to provide onsite assistance	Information materials describe recreation areas and activities, staff periodically present (i.e., weekdays and weekends)	Information materials, plus experience and benefit descriptions; staff regularly present (i.e., almost daily)	Information materials, plus regularly scheduled onsite outdoor demonstrations and clinics
Management Controls (regulations)	No onsite posts/signs of visitor regulations, interpretive info, or ethics	Basic user regulations at key access points; minimum use restrictions	Some regulatory and ethics signs; moderate use restrictions (e.g., camping and human waste)	Rules, regulations, and ethics clearly posted; use restrictions, limitations, and/or closures	Regulations strict and ethics prominent; use may be limited by permit, reservation	Enforcement in addition to rules to reduce conflicts, hazards, and resource damage

Table Source: Adapted from BLM Handbook H-8320-1 (Planning for Recreation and Visitor Services), Appendix 3.

Table 2-5. AHRA Site Recreation Opportunity Spectrum (Site ROS)

Site Recreation Opportunity Spectrum	Undeveloped	Low	Moderate	High	Urban
Physical/Facility Components	▪ Dispersed ▪ Primarily road access, trails, and open space ▪ No facilities or restrooms	▪ Designated dispersed ▪ No pit toilet; seasonally may have a portable toilet ▪ Ungraded boat ramp, primarily carry-in ▪ Emphasis on providing low impact, non-motorized and dispersed recreation ▪ Hike-in or boat-in day or overnight uses ▪ Natural character ▪ Undefined pedestrian/vehicular circulation	▪ Crusher fines ramp and parking ▪ Toilet(s) and/or changing facility ▪ Minimize utilities to the extent possible ▪ Natural or rustic character ▪ Defined pedestrian paths and parking areas	▪ Asphalt or concrete ramp or parking ▪ Water, electricity, and Wi-Fi ▪ Multiple toilets and/or changing facilities ▪ Large group day use areas ▪ Combination of multiple facilities (OHV area, campground, boat ramp, group sites) ▪ Building/facility qualities reflect natural or agricultural vernacular character	▪ Urban park-like setting, high density of recreation features and facilities, paved multi-trails ▪ Whitewater course, paved ramp ▪ Multiple parking areas, municipal street network, adjacent commercial or residential uses, lighting
Social Components	▪ Typically unmodified natural environment; minor evidence of past use ▪ 1–2 dispersed campsites	▪ Low social interaction/moderate opportunity for solitude ▪ 1–5 designated campsites	▪ Moderate social interaction/low opportunity for solitude ▪ 5–20 developed campsites	▪ High social interaction/low opportunity for solitude ▪ 20+ developed campsites	▪ High social interaction; festivals and events; vendors ▪ Noise and traffic ▪ Full-service facilities such as restaurants and grocery stores
Operational Components	▪ Least intense management needs ▪ Annual monitoring of evidence of use ▪ Preservation of sensitive resources or restriction of visitor use for resource or safety reasons	▪ Low to moderate management needs ▪ Low to moderate level of fire prevention, sanitary, and water quality restrictions ▪ Revegetate with native species ▪ Preservation of sensitive resources or restriction of visitor use for resource or safety reasons	▪ Manage to provide sustainable recreation and aesthetic qualities; prevent weed spread, erosion, or other degradation ▪ Moderate to high management needs ▪ Moderate to high level of fire prevention, sanitary, and water quality restrictions ▪ Revegetate with native species	▪ Manage to provide sustainable recreation and aesthetic qualities; prevent weed spread, erosion, or other degradation ▪ High management needs ▪ High fire prevention mitigation, sanitary, and water quality restrictions ▪ Revegetate with natives or with non-invasive landscaping	▪ Intense management and enforcement needs
AHRA Fee / Reservation System	No	No	Yes	Yes	No

Table 2-6. AHRA Recreation Sites under the Current Plan (No Action)*

Solid cells indicate provided facilities.

Unit Name	Acres (Footprint of Developed Facilities)	Recreation Site ROS*	AHRA Managed	Boat Ramp/Slide	Camping	Changing Facilities	Fishing Access	Hiking	Horseback Riding/ Mountain Biking	OHV	Parking	Picnic Tables/Grills	Toilet	River Access	Scenic Overlook	Special Needs Fishing Access	Watchable Wildlife	Dispersed Camping
Arkansas River Placer	40.0	Undeveloped	■				■	■						■				
Arkansas River Ranch	7.2	Moderate	■				■	■	■		■		■	■			■	
Big Bend	30.0	Moderate	■	■		■	■			■	■	■	■	■	■			
Blue Heron	14.1	Low	■				■	■			■			■				
Buena Vista Boat Ramp/Whitewater Park	2.6	Urban		■		■	■	■			■	■	■	■	■			
Canyon Trading Post	2.5	Moderate	■	■		■	■				■	■	■	■			■	
Centennial Park	16.5	Urban		■		■	■				■	■	■	■		■		
Clear Creek	2.9	Low	■				■				■			■				
Collegiate Peaks	6.8	High	■					■	■		■	■	■		■		■	
Crystal Lakes	2.6	Low	■				■	■			■		■	■	■		■	
Elephant Rock	2.5	Low	■				■	■			■	■		■				■
Fisherman Bridge	13.8	Moderate	■	■		■	■				■	■	■	■			■	
Five Points	9.1	High	■		■		■	■	■		■	■	■	■	■	■	■	
Florence River	20.4	Urban		■		■	■				■	■	■	■				
Granite	0.2	Moderate	■	■			■				■		■	■				
Granite Rock	30.3	Low	■				■	■			■			■				
Hayden Meadows	26.9	Moderate	■	■		■	■	■	■		■	■	■	■	■	■	■	
Hayden Ranch	12.8	Low	■				■	■	■					■			■	
Hecla Junction	13.8	High	■	■	■	■	■	■	■		■	■	■	■		■	■	
Kobe	0.2	Moderate	■				■	■	■		■		■	■			■	
Lone Pine	6.3	Moderate	■	■		■	■	■			■	■	■	■		■	■	
Maytag	4.2	Low	■	■			■				■			■				■
Numbers	8.3	Moderate	■	■			■	■			■		■	■				
Parkdale	11.3	High	■	■		■	■				■	■	■	■		■		
Pathfinder Park	183.8	Urban		■		■	■	■	■		■	■	■	■		■	■	
Pink House	3.2	Moderate	■	■			■	■			■	■	■	■				
Pinnacle Rock	6.5	Moderate	■	■		■	■				■	■	■	■			■	

Unit Name	Acres (Footprint of Developed Facilities)	Recreation Site ROS*	AHRA Managed	Boat Ramp/Slide	Camping	Changing Facilities	Fishing Access	Hiking	Horseback Riding/ Mountain Biking	OHV	Parking	Picnic Tables/Grills	Toilet	River Access	Scenic Overlook	Special Needs Fishing Access	Watchable Wildlife	Dispersed Camping
Point Bar	16.0	Moderate	■		■		■	■	■		■	■	■	■				
Railroad Bridge	4.5	High	■	■	■	■	■				■	■	■	■				
Rapid #4	0.8	Undeveloped	■				■				■			■				■
Rapid #6	0.7	Low	■				■				■			■				■
Rincon	4.9	Moderate	■	■	■	■	■				■	■	■	■				
River Station	1.5	Urban	■	■		■	■				■	■	■	■				
Riverside	1.8	Low	■				■				■	■		■				■
Ruby Mountain	6.5	High	■	■	■	■	■	■	■	■	■	■	■	■			■	
Salida Boat Ramp/Whitewater Park	0.3	Urban		■		■	■	■			■		■	■		■		
Salida East	18.9	Moderate	■	■	■	■	■				■	■	■	■				
Salt Lick	1.1	Moderate	■				■				■		■	■				
Slaughterhouse	0.2	Low	■				■				■			■				
Spikebuck	2.9	Moderate	■	■		■	■				■	■	■	■				
Stone Bridge	21.3	Moderate	■	■		■	■				■	■	■	■				
Stone Cabin	27.6	Low	■				■	■	■		■			■				■
Texas Creek	13.2	Moderate	■	■			■	■	■	■	■		■	■				
Vallie Bridge	3.2	Moderate	■	■	■	■	■	■			■	■	■	■		■		

Some existing AHRA Undeveloped (dispersed) and Low (designated dispersed) sites, largely on state and private leased land, will be added to this table for the Final MP-EA.

Table 2-7. AHRA Recreation Outcomes, Activities, Settings, and Site Development Alternatives Comparison by Section

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
SEGMENT 1—Leadville/Confluence to Buena Vista Boat Ramp				
Section 1a **Leadville/Confluence* to Hwy 24 Bridge** *Crystal Lakes* * Confluence of East Fork and Lake Fork	**Outcomes:** ▪ Improved environmental quality through reclamation efforts ▪ Maintained high-quality fisheries ▪ Increased awareness and protection of natural landscapes ▪ Improved wildlife habitat ▪ Improved trail-related recreation opportunities **Activity Emphasis:** ▪ Walk/Wade Angling Access ▪ No Commercial Boating	**Physical:** ▪ Front Country **Social:** ▪ Back Country **Operational:** ▪ Back Country **Current Site Development:** ▪ 1 Low Site (Crystal Lakes) ▪ No new undeveloped sites	**Physical:** ▪ Front Country **Social:** ▪ Back Country **Operational:** ▪ Back Country **Acquisition + Site Development** ▪ More intensive restoration: riverbank stabilization, engineered log jams, habitat improvement, floodplain bench connections. ▪ Acquisitions would be limited to improving open space, primitive access, and resource conditions. ▪ Permanent restrooms would not be installed at the Crystal Lakes site. The size of current disturbance would not increase. ▪ As necessary impacts from recreation use outside of developed sites would be managed through designated dispersed camping and vehicle controls to maintain the backcountry setting.	**Physical:** ▪ Front Country **Social:** ▪ Front Country **Operational:** ▪ Back Country **Acquisition + Site Development** ▪ The Crystal Lake Site (non-federal) would be developed to address resource impacts including adding permanent restroom facilities. The footprint of the site would not increase. ▪ Acquisitions would be limited to improving open space, primitive access (trails), and resource conditions. ▪ Impacts from recreation use outside of the Crystal Lakes Site may be managed through designated dispersed camping and vehicle controls to maintain the backcountry setting.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
Section 1b **Hwy 24 Bridge to Kobe** *Hayden Meadows* *Hayden Ranch* *Arkansas River Ranch*	**Outcomes:** ▪ Improved environmental quality through reclamation efforts ▪ Maintained high-quality fisheries ▪ Increased awareness and protection of natural landscapes ▪ Improved trail-related recreation opportunities ▪ Manage resource impacts of dispersed camping as increases in use occur ▪ Improved wildlife habitat ▪ Maintain ponderosa pine woodlands and vegetation cover at dispersed campsites **Activity Emphasis:** ▪ Walk/Wade Angling Access ▪ Special Needs Angling Access ▪ No Commercial Boating, Allow Private Boating ▪ Mountain Biking ▪ Hiking ▪ Horseback Riding	**Physical:** ▪ Front Country **Social:** ▪ Back Country **Operational:** ▪ Back Country **Current Site Development:** ▪ 1 Low Site (Hayden Ranch) ▪ 2 Moderate Sites (Arkansas River Ranch, Hayden Meadows) ▪ No new undeveloped sites	**Physical:** ▪ Front Country **Social:** ▪ Back Country **Operational:** ▪ Back Country **Acquisition + Site Development** ▪ New acquisitions of private land by CPW would be designated for open space, habitat and trail access (hiking, biking, horseback riding, non-motorized rail trail), angling access, and private boating. ▪ Focus on restoration: riverbank stabilization, engineered log jams, habitat improvement, and floodplain bench connections as needed. ▪ New sites would not be constructed at the Hayden Ranch Site. The size of current disturbance would not increase. ▪ As necessary impacts from recreation use would be managed through designated dispersed camping and vehicle controls to maintain the backcountry setting.	**Physical:** ▪ Front Country **Social:** ▪ Back Country **Operational:** ▪ Back Country **Acquisition + Site Development** ▪ New acquisitions/management of private land by CPW would be designated for trail access (hiking, biking, horseback riding, non-motorized rail trail), angling access, wildlife habitat, and private boating. ▪ Focus on restoration: riverbank stabilization, engineered log jams, habitat improvement, and floodplain bench connections as needed. ▪ Improve angling river access at the Hayden Ranch site (non-federal). ▪ Develop and provide access for non-motorized trail use including connections to the existing trail network on adjacent lands. ▪ As necessary impacts from recreation use may be managed through designated dispersed camping and vehicle controls to maintain the backcountry setting.
Section 1c **Kobe to Granite** *Kobe* *Granite*	**Outcomes:** ▪ Maintained high-quality fisheries ▪ Reduced user conflicts by limiting boating usage to give anglers adequate access ▪ Allow commercial float trips when not in conflict with angling ▪ Protection of natural landscapes and historic ranches with passive recreation uses ▪ Improved trail-related recreation opportunities ▪ Manage resource impacts of dispersed camping as increases in use occur ▪ Maintain ponderosa pine woodlands and vegetation cover at dispersed campsites ▪ Improved habitat for fisheries and aesthetics **Activity Emphasis:** ▪ Walk/Wade Angling Access ▪ Boating Access	**Physical:** ▪ Middle Country **Social:** ▪ Back Country **Operational:** ▪ Middle Country **Current Site Development:** ▪ 1 Low site (Granite Rock) ▪ 2 Moderate sites (Kobe, Granite) ▪ No new developed sites	**Physical:** ▪ Middle Country **Social:** ▪ Back Country **Operational:** ▪ Middle Country **Acquisition + Site Development:** ▪ New acquisitions of private land by CPW would be designated for open space, viewshed protection, habitat and trail access (hiking, biking, horseback riding), and angling access and private boating. ▪ More intensive restoration: riverbank stabilization, engineered log jams, habitat improvement, floodplain bench connections. ▪ Granite Rock would not be further developed, and new sites would not be constructed. The size of current disturbance would not increase. ▪ Work as a cooperator to replace Granite Bridge. ▪ As necessary impacts from recreation use would be managed through designated dispersed camping and vehicle controls to maintain the setting.	**Physical:** ▪ Middle Country **Social:** ▪ Back Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ New acquisitions/management of private land by CPW would be designated for trail access (hiking, biking, horseback riding), angling access, and private boating. ▪ Granite Rock (non-federal) could be hardened and improved, including installing a permanent vault toilet to manage visitor use and protect resources changing this to a moderate site. The footprint of the site would not increase. ▪ At Granite Bridge, improve parking/restrooms and replace the Granite Bridge as a cooperator. ▪ Impacts from recreation use outside of developed sites may be managed through designated dispersed camping and vehicle controls to maintain the setting.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
Section 1d **Granite to Numbers** *Granite Rock* *Clear Creek* *Stone Cabin* *Pine Creek (SLB lease with a portage trail)*	**Outcomes:** ▪ Maintained access to undeveloped camping ▪ Improved enforcement/mitigation ▪ Maintained and developed using natural, less obtrusive materials as much as possible ▪ Improved river access ▪ Rafting and Kayaking Class IV–V experiences ▪ Manage resource impacts of dispersed camping as increases in use occur ▪ Maintain ponderosa pine woodlands and vegetation cover at dispersed campsites **Activity Emphasis:** ▪ Boating Access ▪ Walk/Wade Angling Access	**Physical:** ▪ Front Country **Social:** ▪ Middle Country **Operational:** ▪ Front Country **Current Site Development:** ▪ 3 Low sites (Stone Cabin, Clear Creek, Pine Creek) ▪ No new developed sites	**Physical:** ▪ Front Country **Social:** ▪ Middle Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ New acquisitions would be designated for open space, viewshed protection, habitat, angling access, and private boating ▪ Existing sites would not be further developed, and new sites would not be constructed. ▪ As necessary impacts from recreation use would be managed through designated dispersed camping and vehicle controls to maintain the setting.	**Physical:** ▪ Front Country **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ New acquisitions would be designated for open space, viewshed protection, habitat, angling access, and boating. ▪ A permanent vault toilet and campground could be installed at Stone Cabin (federal) in order to manage visitor use and reduce impacts to resources if less intrusive management actions prove unsuccessful. If developed as a campground an R&PP lease from BLM would be considered transitioning the site from low to moderate. ▪ CPW would enter into a formal agreement to acquire Clear Creek (non-federal). If acquired, a permanent vault toilet could be installed at Clear Creek in response to increases in visitor use changing it to a moderate site. The footprint of the site would not increase. ▪ No new development would occur at Pine Creek. ▪ Reduce safety hazards through a boat chute and fish ladder at Granite Diversion Structure. ▪ Impacts from recreation use outside of developed sites may be managed through designated dispersed camping and vehicle controls to maintain the setting.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
Section 1e **Numbers to Railroad Bridge** *Numbers* *Arkansas River Placer* *Rapid #4* *The Wall* *Rapid #5 ½* *Boulderfield* *Rapid #6* *Riverside*	**Outcomes:** ▪ Maintained river access ▪ Maintained and develop using natural, less obtrusive materials as much as possible ▪ Improved trail-related recreation opportunities ▪ Rafting Class IV–V experiences ▪ Kayaking **Activity Emphasis:** ▪ Boating Access ▪ Angling Access ▪ Hiking ▪ Recreational Placering ▪ Dispersed Camping	**Physical:** ▪ Front Country **Social:** ▪ Middle Country **Operational:** ▪ Front Country **Current Site Development:** ▪ Undeveloped Sites (Rapid #4, etc.) ▪ 2 Low Sites , Rapid #6, Riverside) ▪ 1 Moderate Site (Numbers) ▪ No new developed sites	**Physical:** ▪ Front Country **Social:** ▪ Middle Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Develop a boat ramp, campground, and day-use parking at the Arkansas Placer Property that includes high level of facilities. ▪ Other existing sites would not be further developed, and new sites would not be constructed. ▪ Impacts from recreation use outside of developed sites would be managed through designated dispersed camping and vehicle controls to maintain the setting.	**Physical:** ▪ Front Country **Social:** ▪ Middle Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Develop a boat ramp, campground, restrooms/change facility, and day-use parking at the Arkansas River Placer Property (non-federal) that includes high level of facilities. ▪ If visitor use and demand increases and less intrusive management actions prove unsuccessful, a permanent vault toilet and formal campground would be installed in this section on federally managed land, upgrading a low site to a moderate site. If developed as a moderate, campground site an R&PP lease from BLM would be considered. Future site development plans would help assess the best location to respond to management concerns. ▪ Impacts from recreation use outside of developed sites may be managed through designated dispersed camping and vehicle controls to maintain the setting.
Section 1f **Railroad Bridge to Buena Vista Boat Ramp** *Railroad Bridge* *Grassy Knoll* *Elephant Rock* *Tunnel View*	**Outcomes:** ▪ Improved access for angling ▪ Maintained access to undeveloped campgrounds ▪ Reduced user conflicts between anglers and boaters ▪ Improved trail-related recreation opportunities ▪ Rafting Class III-IV experiences ▪ Improved quality of Railroad Bridge campgrounds including a concrete boat ramp **Activity Emphasis:** ▪ Boating Access ▪ Angling Access ▪ Hiking ▪ Recreational Placering ▪ Camping and Dispersed Camping	**Physical:** ▪ Middle Country (Urban in Buena Vista) **Social:** ▪ Middle Country (Urban in Buena Vista) **Operational:** ▪ Front Country (Urban in Buena Vista) **Current Site Development:** ▪ Undeveloped Sites ▪ 2 Low Developed Site (Elephant Rock, Tunnel View) ▪ 1 High Site (Railroad Bridge) ▪ No new developed sites	**Physical:** ▪ Middle Country (Urban in Buena Vista) **Social:** ▪ Middle Country (Urban in Buena Vista) **Operational:** ▪ Front Country (Urban in Buena Vista) **Acquisition + Site Development:** ▪ Upgrade Elephant Rock (federal land) from a low to a moderate site by installing a permanent vault toilet and designate campsites to address resource impacts and increased levels of use. The footprint of the site would not increase. ▪ Other sites would not be further developed, and new sites would not be constructed. ▪ Impacts from recreation use outside of developed sites would be managed through designated dispersed camping and vehicle controls to maintain the setting.	**Physical:** ▪ Front Country (Urban in Buena Vista) **Social:** ▪ Front Country (Urban in Buena Vista) **Operational:** ▪ Front Country (Urban in Buena Vista) **Acquisition + Site Development:** ▪ Upgrade Elephant Rock (federal land) from a low to a moderate site by installing a permanent vault toilet and designate campsites to address resource impacts and increased levels of use. The footprint of the site would not increase. ▪ A permanent vault toilet could be installed at Tunnel View (federal land) along with designated dispersed camping in order to manage visitor use and reduce impacts to resources if less intrusive management actions prove unsuccessful. This would remain as low site, despite toilet, to retain the dispersed setting. The disturbance footprint would be equal to or less than existing conditions. ▪ Impacts from recreation use outside of developed sites may be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
SEGMENT 2—Buena Vista Boat Ramp to Salida East				
Section 2a **Buena Vista Boat Ramp to Fisherman's Bridge** *Buena Vista Boat Ramp* *Collegiate Peaks Overlook*	**Outcomes:** ▪ Maintained natural setting ▪ Increased awareness and protection of natural landscapes ▪ River supports local economic development ▪ Improved trail-related recreation opportunities ▪ Rafting Class III-IV experiences **Activity Emphasis:** ▪ Boating Access ▪ Whitewater Park ▪ Picnicking ▪ Scenic Overlook ▪ Angling Access ▪ Multi-use Trail	**Physical:** ▪ Urban (in Buena Vista) to Rural **Social:** ▪ Urban (in Buena Vista) to Front Country **Operational:** ▪ Urban (in Buena Vista) to Front Country **Current Site Development:** ▪ Undeveloped Sites ▪ 1 High Site (Collegiate Peaks) ▪ 1 Urban Site (Buena Vista Whitewater Park) ▪ No new developed sites	**Physical:** ▪ Urban (in Buena Vista) to Rural **Social:** ▪ Urban (in Buena Vista) to Front Country **Operational:** ▪ Urban (in Buena Vista) to Front Country **Acquisition + Site Development:** ▪ CPW work with partners to acquire private land for river access and open space. This could include an existing boat ramp requiring support facilities such as parking and restrooms. ▪ Impacts from recreation use outside of developed sites would be managed through designated dispersed camping and vehicle controls to maintain the setting.	**Physical:** ▪ Urban (in Buena Vista) to Rural **Social:** ▪ Urban (in Buena Vista) to Rural **Operational:** ▪ Urban (in Buena Vista) to Rural **Acquisition + Site Development:** ▪ CPW work with partners to acquire private land for river access and open space. This could include an existing boat ramp requiring support facilities such as parking and restrooms. ▪ Consider other potential acquisitions in this stretch of largely private land to protect open space and improve river access. ▪ Continued build out of the Buena Vista Whitewater Park (non-federal) and associated event spaces as a cooperator. ▪ Impacts from recreation use outside of developed sites may be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
Section 2b* **Fisherman's Bridge to Stone Bridge (incl. Browns Canyon National Monument)** *Fisherman's Bridge* *Ruby Mountain* *Hecla Junction* * Recommendations in Section 2b are subject to the decisions of the ongoing Browns Canyon National Monument Management Plan	**Outcomes:** ▪ Maintained and improved integrity of Browns Canyon National Monument Resources and Objects of Value including scientifically significant geological, ecological, riparian, cultural and historic (tribal) resources, and research of paleoecology, mineralogy, archaeology, and climate change ▪ Increased awareness and protection of natural landscapes ▪ Reduced impacts of high boating capacities ▪ Retained backcountry setting and undeveloped camping ▪ Reduced user conflicts ▪ Rafting Class III–IV experiences **Activity Emphasis:** ▪ Boating Access ▪ Angling Access ▪ Camping ▪ Watchable Wildlife	**Physical:** ▪ Back Country **Social:** ▪ Front Country **Operational:** ▪ Front Country **Current Site Development:** ▪ 17 day use and dispersed camping sites; users can pioneer new sites ▪ 1 Moderately Developed Site (Fisherman's Bridge) ▪ 2 Highly Developed Sites (Ruby Mountain, Hecla Junction) ▪ No new developed sites	**Physical:** ▪ Back Country **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Apply monitoring and adaptive management to manage dispersed sites and close new sites as determined through annual monitoring; no fire rings or benches would be allowed; annual monitoring would continue; no new sites would be pioneered. ▪ Consider going to a designated dispersed system. ▪ If commercial and non-commercial camping demand exceeds available designated dispersed sites, adaptive management would include a reservation system. ▪ Upgrade ramp at Fisherman's Bridge on CPW owned land. ▪ Expand the Fisherman's Bridge Recreation Site on adjacent private land to provide boat ramps and improved float fishing access. ▪ No additional sites would be developed in this segment.	**Physical:** ▪ Back Country **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Apply monitoring and adaptive management to manage non-commercial dispersed camping sites, sites primarily used by commercial operators, and other sites and close new sites as determined through annual monitoring; the standard would be no fire rings or benches; no new sites would be pioneered; annual monitoring and peak season management. ▪ Consider going to a designated dispersed system or applying other capacity management model or approach. ▪ If commercial and non-commercial camping demand exceeds available designated dispersed sites, adaptive management may include a reservation system or other capacity management model or approach. ▪ Consider potential acquisitions of private land by CPW in this stretch of river to protect open space and improve river access. This could include support facilities such as parking and restrooms. ▪ Construct boat ramp at Fisherman's Bridge on CPW owned land. ▪ Establish parking and angler access trail on the downstream portion of Fisherman's Bridge Recreation Site.
Section 2c **Stone Bridge to Big Bend** *Stone Bridge*	**Outcomes:** ▪ Maintained and improved float and walk/wade angling experiences ▪ Improved camping and recreation amenities ▪ Increased awareness and protection of natural landscapes ▪ Improved trail-related recreation opportunities ▪ Increased land conservation for recreational access **Activity Emphasis:** ▪ Angling Access ▪ Boating Access ▪ OHV Area	**Physical:** ▪ Rural **Social:** ▪ Front Country **Operational:** ▪ Front Country **Current Site Development:** ▪ 1 Moderately Developed Sites (Stone Bridge) ▪ No new developed sites	**Physical:** ▪ Rural **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ New acquisitions of private land by CPW would be designated for open space, viewshed protection, habitat and general river access. ▪ Impacts from recreation use outside of developed sites would be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting.	**Physical:** ▪ Rural **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Pursue acquisitions of private land near Stone Bridge in order to protect open space values. ▪ The acquired land would be managed by CPW. ▪ Impacts from recreation use outside of developed sites may be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
Section 2d **Big Bend to Salida East** *Big Bend* *Slaughterhouse* *Salida Boat Ramp*	**Outcomes:** ▪ Maintained and improved float and walk/wade angling experiences ▪ User conflicts are managed ▪ River supports local economic development and community identity ▪ Improved trail-related recreation opportunities ▪ Increased land conservation for recreational access **Activity Emphasis:** ▪ Walk and Wade Angling ▪ Float Angling ▪ Boating Access ▪ Special Needs Angling Access ▪ River Festivals and Events ▪ Whitewater Park ▪ Multi-use Trail	**Physical:** ▪ Front Country to Urban (in Salida) **Social:** ▪ Rural to Urban (in Salida) **Operational:** ▪ Rural to Urban (in Salida) **Current Site Development:** ▪ 1 Low Site (Slaughterhouse) ▪ 1 Moderate Site (Big Bend OHV and Boat Ramp) ▪ 1 Urban Site (Salida Whitewater Park, Boat Ramp), including a multi-use trail and bridge, public art, vendors, urban street network ▪ No new developed sites	**Physical:** ▪ Front Country to Urban (in Salida) **Social:** ▪ Rural to Urban (in Salida) **Operational:** ▪ Rural to Urban (in Salida) **Acquisition + Site Development:** ▪ At the Big Bend Boat Ramp (non-federal) improve deeper water ramp. ▪ Continue to build out a multi-use trail (non-federal) as a cooperator. ▪ A permanent vault toilet could be installed at Slaughterhouse (non-BLM lands) along with additional visitor controls in order to manage visitor use and reduce impacts to resources if less intrusive management actions prove unsuccessful. ▪ Continue maintenance and improving the existing motorized track. The footprint would not be enlarged.	**Physical:** ▪ Front Country to Urban (in Salida) **Social:** ▪ Rural to Urban (in Salida) **Operational:** ▪ Rural to Urban (in Salida) **Acquisition + Site Development:** ▪ At the Big Bend Boat Ramp (non-federal): add walk-in campsites in one area on state owned land; improve deeper water ramp. ▪ At Big Bend OHV Park, construct BMX (non-motorized) features (federal land). ▪ A permanent vault toilet could be installed at Slaughterhouse (non-BLM lands) along with additional visitor controls in order to manage visitor use and reduce impacts to resources if less intrusive management actions prove unsuccessful. ▪ Develop an additional boat ramp on river left on private land to reduce congestion at the existing Salida boat ramp. ▪ Continued build out of the Salida Whitewater Park and associated event spaces on private land as a cooperator. ▪ Continued build out of multi-use trail on private land as a cooperator. ▪ Continue maintenance and improving the existing motorized track. Add Trials Area to the Big Bend Motorized Track (federal land). ▪ Acquire river left Union Pacific property in Salida to improve trail connectivity and boater and angler access. ▪ Develop a non-motorized trail on the Union Pacific Rail Line from Salida to Leadville.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
SEGMENT 3—Salida East to Vallie Bridge				
Section 3a **Salida East to Rincon** *Salida East* *Wellsville* *Point Barr*	**Outcomes:** ▪ Maintained natural setting ▪ Manage the impacts from dispersed camping demand while also providing primitive opportunities ▪ User conflicts are managed ▪ Maintain vehicular access to AHRA recreation sites ▪ Improved fisheries and angling access ▪ Maintained and improved float and walk/wade angling experiences **Activity Emphasis:** ▪ Walk and Wade Angling ▪ Angling Access ▪ Boating Access ▪ Camping	**Physical:** ▪ Middle Country **Social:** ▪ Rural **Operational:** ▪ Front Country **Current Site Development:** ▪ Undeveloped Sites ▪ 1 Moderate Site (Point Barr): 8 designated dispersed sites with no fee ▪ Salida East would be Moderate in the Current Plan (decision will be made through separate R&PP/EA process)	**Physical:** ▪ Front Country **Social:** ▪ Rural **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Improve walk-in / boat-in dispersed day use north of Salida East (federal land). ▪ Designate campsites at the Point Barr R&PP lease site on the AHRA reservation system utilizing basic camping fees. The footprint would not increase from the current site, and overall disturbance area would potentially decrease. ▪ Manage Salida East per separate planning document to address public health and safety issues and impacts to resources.	**Physical:** ▪ Front Country **Social:** ▪ Rural **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Improve walk-in / boat-in dispersed day use north of Salida East (federal land). ▪ Pursue private land acquisitions to remain in state ownership/management along this stretch to improve angling and river access and preserve open space. May include support facilities such as parking and restrooms. If the site is already impacted, consider restoration of areas not necessary for recreation facilities. ▪ Designate campsites at the Point Barr R&PP lease site on the AHRA reservation system utilizing basic camping fees. The footprint would not increase from the current site, and overall disturbance area would potentially decrease. ▪ Manage Salida East per separate planning document to address public health and safety issues and impacts to resources.
Section 3b **Rincon to Vallie Bridge** *Rincon*	**Outcomes:** ▪ Maintained natural setting and access to undeveloped camping ▪ Rafting Class II–III experiences **Activity Emphasis:** ▪ Angling Access ▪ Boating Access ▪ Camping ▪ Picnicking ▪ Recreational Placering	**Physical:** ▪ Rural **Social:** ▪ Front Country **Operational:** ▪ Front Country **Current Site Development:** ▪ Undeveloped Sites ▪ 1 Moderately Developed Site (Rincon) ▪ No new developed sites	**Physical:** ▪ Rural **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Same as Current Plan	**Physical:** ▪ Rural **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ Pursue private land acquisitions to remain in state ownership/management along this stretch to improve angling and river access and preserve open space. May include support facilities such as parking and restrooms. If the site is already impacted, consider restoration of areas not necessary for recreation facilities.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
SEGMENT 4—Vallie Bridge to Parkdale				
Section 4a **Vallie Bridge to Texas Creek** *Vallie Bridge* *Canyon Trading Post* *Loma Linda* *Lone Pine* *Fern Leaf Gulch* *Ford Crossing*	**Outcomes:** ▪ Maintained public access ▪ Improved boater safety ▪ Rafting Class III–IV experiences **Activity Emphasis:** ▪ Angling Access ▪ Boating Access ▪ Camping ▪ Picnicking ▪ Special Needs Angling Access	**Physical:** ▪ Rural **Social:** ▪ Rural **Operational:** ▪ Front Country **Current Site Development:** ▪ Undeveloped Sites ▪ 3 Moderately Developed Sites (Canyon Trading Post, Lone Pine, Vallie Bridge) ▪ No new developed sites	**Physical:** ▪ Rural **Social:** ▪ Rural **Operational:** ▪ Front Country **Acquisition + Site Development** ▪ No new sites would be developed in this segment. ▪ Impacts from recreation use outside of developed sites would be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting and reduce impacts to bighorn sheep.	**Physical:** ▪ Rural **Social:** ▪ Rural **Operational:** ▪ Front Country **Acquisition + Site Development** ▪ Acquire private land near Texas Creek to improve river access. Disturbance would remain in existing footprint. ▪ Development of 1 new low site on private land would be in response to public demand/increased visitation, demonstrated need for more developed facilities to protect resources. ▪ No other new recreation sites on BLM land would be pursued to reduce impacts to bighorn sheep. ▪ Impacts from recreation use outside of developed sites may be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting and reduce impacts to bighorn sheep.
Section 4b **Texas Creek to Parkdale** *Texas Creek* *Lazy J* *Maytag* *Cottonwood* *Pinnacle Rock* *Salt Lick* *Five Points* *Five ½ Points* *Lower Floodplain* *Spikebuck* *Bootlegger* *Old Parkdale*	**Outcomes:** ▪ Improved access on lower river ▪ Improved river safety and elimination of obstructions ▪ Improved habitat for fisheries and aesthetics ▪ Rafting Class IV–V experiences ▪ Maintained livestock access to the river as a water source (avoid conflicts arising from site development) **Activity Emphasis:** ▪ Boating Access ▪ Angling Access ▪ Special Needs Angling Access ▪ Watchable Wildlife	**Physical:** ▪ Rural **Social:** ▪ Rural **Operational:** ▪ Front Country **Current Site Development:** ▪ Multiple Undeveloped Sites (Devil's Hole, Cottonwood, Three Rocks, Lower Floodplain, and Bootlegger.) ▪ 1 Low Developed Site (Maytag) ▪ 4 Moderately Developed Sites (Texas Creek, Salt Lick, Spikebuck, and Pinnacle Rock) ▪ 1 Highly Developed Site (Five Points) ▪ No new developed sites	**Physical:** ▪ Rural **Social:** ▪ Rural **Operational:** ▪ Front Country **Acquisition + Site Development** ▪ No new developed sites or development of existing sites. ▪ Impacts from recreation use outside of developed sites would be managed, as necessary, through designated dispersed camping and vehicle controls to maintain the setting and reduce impacts to bighorn sheep.	**Physical:** ▪ Rural **Social:** ▪ Rural **Operational:** ▪ Front Country **Acquisition + Site Development** ▪ Upgrade Texas Creek boat ramp to reduce maintenance. A vault toilet could also be installed if necessary to reduce impacts from visitor use within existing footprint upgrading a low site to moderate. ▪ Provide river access at Five Points within the R&PP lease site. ▪ No other new recreation sites would be pursued in this segment to reduce impacts to bighorn sheep. ▪ Impacts from recreation use outside of developed sites may be managed, as necessary, such as designating dispersed camping or vehicle controls to maintain the setting and reduce impacts to bighorn sheep.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
SEGMENT 5—Parkdale to Cañon City/Raynolds (incl. Royal Gorge)				
Parkdale *Copper Gulch* *Pink House* *Centennial Park* *River Station*	**Outcomes:** ▪ Enhanced access for family whitewater trips ▪ Increased seasonal and river usage windows for boating ▪ Improved portage access and trails for boater safety ▪ Improved angling and hiking access to Grape Creek ▪ Rafting Class IV-V experiences **Activity Emphasis:** ▪ Boating Access ▪ Whitewater Park ▪ Sightseeing ▪ Multi-use Trails ▪ Special Needs Angling Access ▪ River Festivals and Events	**Physical:** ▪ Middle Country **Social:** ▪ Front Country **Operational:** ▪ Front Country **Current Site Development:** ▪ Undeveloped Sites ▪ 1 Moderately Developed Site (Pink House) ▪ 1 Highly Developed Site (Parkdale) ▪ Open boating from Pink House to Raynolds Park ▪ 1 Urban Site (River Station) as well as other Cañon City Parks ▪ No new developed sites	**Physical:** ▪ Middle Country **Social:** ▪ Front Country **Operational:** ▪ Front Country **Acquisition + Site Development:** ▪ On private land, develop new sites downstream of Pink House in order to facilitate enhanced river access in this section and meet community goals. ▪ Existing sites, located on non-federal lands, could be upgraded/improved, within the existing footprint, to achieve desired outcomes. ▪ Extension of Tunnel Drive as a multi-use trail as a cooperator upstream of Cañon City. ▪ On non-federal land continue build-out of Cañon City Riverwalk and Whitewater Park as a cooperator. ▪ Reconstruct existing dams/diversions/fish ladders to provide a fish ladder and boat chute. ▪ No new developed sites on BLM land above Pink House would occur. ▪ Pursue private acquisitions to remain in state ownership to preserve open space upstream of the Royal Gorge.	**Physical:** ▪ Middle Country **Social:** ▪ Rural **Operational:** ▪ Rural **Acquisition + Site Development:** ▪ On private land, develop new sites downstream of Pink House in order to facilitate enhanced river access in this section and meet community goals. ▪ Existing sites, located on non-federal lands, could be upgraded/improved, within the existing footprint, to achieve desired outcomes. ▪ Extension of Tunnel Drive as a multi-use trail as a cooperator upstream. ▪ On non-federal land continue build-out of Cañon City Riverwalk and Whitewater Park as a cooperator ▪ Reconstruct existing dams/diversions/fish ladders to provide a fish ladder and boat chute. ▪ Pursue private acquisitions to remain in state ownership to preserve open space upstream of the Royal Gorge. ▪ No new developed sites on BLM land above the Pink House and Copper Gulch.

	Recreation Outcomes & Activities (Common to All)	Desired Recreation Setting / Site Development Alternatives		
		No Action (Current Plan)	**Alternative 1**	**Proposed Action/Alternative 2**
SEGMENT 6—Cañon City/Raynolds to Lake Pueblo				
Raynolds *McKenzie Bridge* *Pathfinder Park* *Florence River Park* *Blue Heron* *Swallows*	**Outcomes:** ▪ Improved river access and river-related recreation opportunities (paved multi-use trail and whitewater park) ▪ Improved opportunities for a stretch of floatable water for novice boaters from Cañon City to below Florence ▪ Maintained access for beginner boaters and training ▪ Improved spacing of put in/take out ramps and day use areas for day trips ▪ Improved river safety and elimination of obstructions ▪ Improved boater education and awareness, especially for inner tubers ▪ River supports local economic development ▪ Increased land conservation for recreational access **Activity Emphasis:** ▪ Angling Access ▪ Boating Access ▪ Birdwatching ▪ Watchable Wildlife	**Physical:** ▪ Urban (in Cañon City) to Middle Country **Social:** ▪ Urban (in Cañon City) to Primitive **Operational:** ▪ Urban (in Cañon City) to Primitive **Current Site Development:** ▪ Undeveloped Sites ▪ 1 Low Developed Sites (Blue Heron) ▪ 2 Urban Site (Centennial Park/Whitewater Park, Pathfinder Park) ▪ No new developed sites	**Physical:** ▪ Urban (in Cañon City) to Middle Country **Social:** ▪ Urban (in Cañon City) to Back Country **Operational:** ▪ Urban (in Cañon City) to Back Country **Acquisition + Site Development** ▪ Develop new non-federal land sites in order to facilitate enhanced river access in this section and meet community goals. ▪ Utilizing existing CPW lands provide a take-out/put-in upstream of Lake Pueblo State Park along Swallows Road or alternate areas. ▪ Portage and/or boat chute improvements through Minnequa and other dams/diversions. ▪ Continued build-out of Cañon City Riverwalk (multi-use trail) as a cooperator. ▪ Develop a site master plan for Blue Heron (federal lands) in conjunction with community partners.	**Physical:** ▪ Urban (in Cañon City) to Front Country **Social:** ▪ Urban (in Cañon City) to Middle Country **Operational:** ▪ Urban (in Cañon City) to Middle Country **Acquisition + Site Development** ▪ Develop new non-federal land sites in order to facilitate enhanced river access in this section and meet community goals. ▪ Existing sites (non-federal) could be upgraded/improved to achieve desired outcomes. ▪ Utilizing existing CPW lands provide a take-out/put-in upstream of Lake Pueblo State Park at Swallows or alternate areas. ▪ CPW pursue acquisitions of non-federal land for boat-in day-use and dispersed campsites between Blue Heron and Lake Pueblo SP, one of which would be the State Land Board property ▪ Portage/removal of dam structures / boating hazards through Minnequa and other dams/diversions. ▪ Continued build-out of Cañon City Riverwalk (non-federal) as a cooperator. ▪ Develop a site master plan for Blue Heron (federal lands) in conjunction with community partners.

2.3.3 Administration (Regulatory Decisions) by Alternatives, Segments, and Sections

2.3.3.1 Boating Capacities/Use Limits by Alternative (with narrative summarizing differences between alternatives)

This section is a summary of boating carrying capacities, use seasons, and special use windows shown by river segment and section (see Table 2-8). An explanation of color codes and other explanatory information is provided at the end of Table 2-8.

Under the No Action alternative, current boats per day (bpd), use seasons, and commercial launch windows would stay the same as the 2001 Plan. Segment and section boundaries would also remain the same.

Under the Action Alternatives, several adjustments have been made to section or segment boundaries to clarify administration of boating capacities and types. Sections within Segment 1 have been adjusted from four sections to six sections. Segment 3 was divided into two sections, and the segment boundary at the downstream end of 2d was adjusted to include Salida East. The Section 3a boundary was adjusted to encompass Salida East downstream to Rincon. The Section 3b was adjusted to encompass Rincon to Vallie Bridge.

Under the No Action alternative, AHRA would continue to allow a level of no more than 45 commercial boating outfitters. As of May 2017, AHRA manages 48 commercial boating outfitters. Under Alternative 1, AHRA would potentially reduce the number of commercial boating outfitters to 25 or less. This number would continue to be reduced through attrition. Under the Proposed Action/Alternative 2, AHRA would potentially reduce the number of commercial boating outfitters to no less than 25. This number would continue to be reduced through attrition. This reduction in commercial boating outfitter agreements is unlikely to result in less commercial use since other authorized outfitters have the capacity to increase the number of clients they serve. Under all alternatives, if the existing number is higher than the plan limit, AHRA will not issue new agreements. Under both Alternative 1 and the Proposed Action/Alternative 2, the number of agreements could also be reduced through incentives and/or increased minimum fees.

AHRA has been monitoring commercial and private boat use for many years, and emerging use trends and a review of potential impacts suggest consideration of some capacity adjustments. In general, monitoring suggests that commercial boating on several segments would exceed capacities without constraints from the existing rationing program. In contrast, private boating use remains relatively stable and has generally not reached per day capacities identified in the 2001 Plan with the exception of Segment 3.

Under the Proposed Action/Alternative 2, private and commercial capacities would be allowed to be exchanged as long as overall capacity in any river segment is not exceeded. These exchanges would not be allowed in Alternative 1 or in the No Action Alternative.

For some segments in both alternatives, private boater capacities are substantially higher than reasonably foreseeable use levels indicate and would be lowered. Under Alternative 1, private boats per day capacities would be decreased in Segment 1. Boats per day would be decreased for commercial boaters in Segment 2 (where they have never approached 2001 Plan capacities). Boats per day would be decreased for private boaters in Segment 5 and increased for commercial boaters. High use seasons would also be extended in Segment 3.

Off-season capacities for Segment 5 Parkdale to Cañon City have been adjusted to correspond with periods of low water, which exacerbate congestion at Sunshine Falls Rapid (Figure 2-2). All low water periods in the No Action

and Alternative 1 between September 8 and April 30 have lower commercial capacities (75 or 30) than their peak capacities (175). Under Alternative 1, private capacities would decrease from 150 to 75 during two use seasons. Commercial capacities would increase from 75 to 100 between May 1 and May 19 and from 125 to 150 between August 16 and September 7, but they would decrease from 75 to 30 between September 8 and September 30. Under the Proposed Action/Alternative 2, the private capacities would increase to 150 during one use season, and commercial capacities would increase to 175 during one use season.

Figure 2-2. Portage Congestion at Sunshine Falls Rapid

All increases in section capacities under Alternatives 1 and 2 will continue to be implemented over the life of this plan if the following conditions can be met, as determined by AHRA and with input from the CTF:

- Existing facilities can be expanded if needed to accommodate the increase in commercial boating traffic/use, as described in Table 2-7.
- Additional resource degradation can be negated through monitoring and adaptive management.
- Increases in conflicts between user groups can be negated through enforcement and education.

Table 2-8. Boating Capacities, Use Season and Launch Windows Comparison Table by Segment and Section (continued on next page)

		AHRA Boats Per Day (bpd) Capacities								
		No Action (Current Plan)		Alternative 1		Alternative 2		Proposed Action		
Sec.	Section Description	Private	Commercial	Private	Commercial	Private	Commercial	Private	Commercial	Commercial & Private Rationing Exceptions / Special Considerations
1a	Leadville/Confluence to Hwy 24 Bridge	10	0	0	0	0	0	10	0	--
1b	Hwy 24 Bridge to Kobe	10	0	10	0	20	0	10	0	--
1c	Kobe to Granite	10	0	10	10	20	20	10	0	Safety Boater Exception
1d	Granite to Numbers Site	350	30	150	30	250	30	250	30	Safety Boater Exception
		200	10	150	10	200	10	200	10	
1e	Numbers Site to Railroad Bridge	320	90	150	90	250	90	250	90	Safety Boater Exception
		200	10	150	10	200	10	200	10	
1f	Railroad Bridge to Buena Vista Boat Ramp	150	150	150	150	150	150	150	150	Safety Boater Exception
		100	50	100	50	100	50	100	50	
2a	Buena Vista Boat Ramp to Fisherman's Bridge	150	450	150	150	150	360	150	360	Safety Boater Exception Allow Kayak/Canoe instruction and private boating from 600 feet above the Midland Trail foot bridge to the Ramsour Bridge above capacities. (Buena Vista Open Boating Zone)
		100	50	100	50	100	50	100	50	
2b	Fisherman's Bridge to Stone Bridge	240* / 150	360	240* / 150	360	240* / 150	360	240* / 150	360	Safety Boater Exception
		100	50	100	50	100	50	100	50	
2c	Stone Bridge to Big Bend	150	150	150	150	150	150	150	150	Safety Boater Exception / Rationed Days: allow 1 commercial trip per day (4 boat max.) for pass through camping. Off Season only.
		30	20	30	20	50	20	30	20	
2d	Big Bend to Salida	150	150	--	--	--	--	--	--	Safety Boater Exception / Rationed Days: allow 1 commercial trip per day (4 boat max.) for pass through camping. Off season only.
		30	10	--	--	--	--	--	--	
2d	Big Bend to Salida East - New Section	150	150	150	--	150	--	150	150	Current Plan: Allow Kayak/Canoe instruction and private boating from the low head dam above Salida to Riverside Park above capacities. (Salida Open Boating Zone). Alternatives 1, 2 & Proposed: Salida Open Boating Zone: from Low Head Dam to Salida East, no capacity limits for private or commercial year-round.
		30	10	30	--	50	--	30	10	
3	Salida to Vallie Bridge	150	150	--	--	--	--	--	--	Safety Boater Exception / Rationed Days: allow 1 commercial trip per day (4 boat max.) for pass through camping. Off season only.
		30	10	--	--	--	--	--	--	
3a	Salida East to Rincon - New Section	150	150	150	150	150	150	150	150	Safety Boater Exception
		30	10	50* / 30**	10	50	20	30	10	
3b	Rincon to Vallie Bridge - New Section	150	150	150	150	150	150	150	150	Safety Boater Exception
		30	10	30	10	50	20	30	10	
4a	Vallie Bridge to Texas Creek	100	150	100	150	100	150	100	150	Safety Boater Exception / Rationed Days: allow 1 commercial trip per day (4 boat max.) for pass through camping. Off season only.
		30	10	30	10	30	10	30	10	
4b	Texas Creek to Parkdale	150	300* / 240**	150	300* / 240**	150	300* / 240**	150	300* / 240**	Safety Boater Exception
		40	30	40	30	40	30	40	30	
5	Parkdale to Cañon City/Raynolds	150	75	75	100	175	175	175	175	Safety Boater Exception Current Plan: Allow Kayak/Canoe instruction and private boating from the Pink House (mile #107) to the Ninth Street Bridge (mile #108.5). Alternatives 1, 2 & Proposed: Cañon City Open Boating Zone: No private/commercial boating capacities from Pink House (mile #107) to Raynolds Park.
		150	175	150	175	150	175	150	175	
		150	125	75	150	125	175	125	125	
		75	75	75	30	150	175	75	75	
		75	30	75	30	75	75	75	30	
6	Cañon City/Raynolds to Lake Pueblo	40	40	40	40	40	40	40	40	Safety Boater Exception: Allow kayak and canoe instruction from Canon City to Florence above capacities.

Table 2-9. (continued on next page)

		AHRA Use Seasons				
		No Action (Current Plan)	Alternative 1	Alternative 2	Proposed Action	
Sec.	Section Description					Days in ea. Season
1a	Leadville/Confluence to Hwy 24 Bridge	n/a	n/a	n/a	n/a	365
1b	Hwy 24 Bridge to Kobe	Year-round	Year-round	Year-round	Year-round	365
1c	Kobe to Granite	Year-round	Year-round	Only when flows > 2,400 cfs at the Numbers/Below Granite Guage 10:00 am - 2:00 pm	Year-round	365
1d	Granite to Numbers Site	May 15 - Sept 7	May 15 - Sept 7	May 1 - Sept 7	May 15 - Sept 7	116
		Sep 8 - May 14	Sep 8 - May 14	Sep 8 - Apr 30	Sep 8 - May 14	249
1e	Numbers Site to Railroad Bridge	May 15 - Sept 7	May 15 - Sept 7	May 1 - Sept 7	May 15 - Sept 7	116
		Sep 8 - May 14	Sep 8 - May 14	Sep 8 - Apr 30	Sep 8 - May 14	249
1f	Railroad Bridge to Buena Vista Boat Ramp	May 15 - Sept 7	May 15 - Sept 7	May 1 - Sept 7	May 15 - Sept 7	116
		Sep 8 - May 14	Sep 8 - May 14	Sep 8 - Apr 30	Sep 8 - May 14	249
2a	Buena Vista Boat Ramp to Fisherman's Bridge	May 15 - Sept 7	May 15 - Sept 7	May 1 - Sept 7	May 15 - Sept 7	116
		Sep 8 - May 14	Sep 8 - May 14	Sep 8 - Apr 30	Sep 8 - May 14	249
2b	Fisherman's Bridge to Stone Bridge	May 15 - Sept 7	May 15 - Sept 7	May 1 - Sept 7	May 15 - Sept 7	116
		Sep 8 - May 14	Sep 8 - May 14	Sep 8 - Apr 30	Sep 8 - May 14	249
2c	Stone Bridge to Big Bend	May 15 - Aug 15	May 15 - Aug 15	May 15 - Sept 7	May 15 - Aug 15	93
		Aug 16 - May 14	Aug 16 - May 14	Sept 8 - May 14	Aug 16 - May 14	272
2d	Big Bend to Salida	May 15 - Aug 15	May 15 - Aug 15	May 15 - Sept 7	--	93
		Aug 16 - May 14	Aug 16 - May 14	Sept 8 - May 14	--	272
2d	Big Bend to Salida East - New Section	May 15 - Aug 15	May 15 - Aug 15	May 15 - Sept 7	May 15 - Aug 15	93
		Aug 16 - May 14	Aug 16 - May 14	Sept 8 - May 14	Aug 16 - May 14	272
3	Salida to Vallie Bridge	May 15 - Jul 14	--	--	--	61
		Jul 15 - May 14	--	--	--	304
3a	Salida East to Rincon - New Section	May 15 - Jul 14	May 15 - Jul 14	May 15 - Aug 15	May 15 - Aug 15	93
		Jul 15 - May 14	Jul 15 - May 14	Aug 16 - May 14	Aug 16 - May 14	272
3b	Rincon to Vallie Bridge - New Section	May 15 - Jul 14	May 15 - Aug 15	May 15 - Aug 15	May 15 - Jul 14	61
		Jul 15 - May 14	Aug 16 - May 14	Aug 16 - May 14	Jul 15 - May 14	304
4a	Vallie Bridge to Texas Creek	May 15 - Aug 15	May 15 - Aug 15	May 15 - Aug 15	May 15 - Aug 15	93
		Aug 16 - May 14	Aug 16 - May 14	Aug 16 - May 14	Aug 16 - May 14	272
4b	Texas Creek to Parkdale	May 15 - Sept 7	May 15 - Sept 7	May 1 - Sept 7	May 15 - Sept 7	116
		Sep 8 - May 14	Sep 8 - May 14	Sep 8 - Apr 30	Sep 8 - May 14	249
5	Parkdale to Cañon City/Raynolds	May 1 - May 19	May 1 - May 19	May 1 - Aug 15	May 1 - Aug 15	107
		May 20 - Aug 15	May 20 - Aug 15			
		Aug 16 - Sep 7	Aug 16 - Sep 7	Aug 16 - Sep 30	Aug 16 - Sep 30	46
		Sept 8 - Sep 30	Sept 8 - Sep 30			
		Oct 1 - Apr 30	Oct 1 - Apr 30	Oct 1 - Apr 30	Oct 1 - Apr 30	212
6	Cañon City/Raynolds to Lake Pueblo	Year-round	Year-round	Year-round	Year-round	365

Table 2-10. (continued)

		AHRA Commercial Launch Windows			
		No Action (Current Plan)	Alternative 1	Alternative 2	Proposed Action
Sec.	Section Description				
1a	Leadville/Confluence to Hwy 24 Bridge	None	None	None	None
1b	Hwy 24 Bridge to Kobe	None	None	None	None
1c	Kobe to Granite	None	None	Only when flows > 2,400 cfs at the Numbers/Below Granite Guage 10:00 am - 2:00 pm	None
1d	Granite to Numbers Site	8:30 am - 11:00 am	8:30 am - 11:00 am	8:30 am - 12:00 am	8:30 am - 12:00 am
1e	Numbers Site to Railroad Bridge	8:30 am - 2:00 pm 8:30 am - 11:00am	8:30 am - 1:00 pm 8:30 am - 11:00am	8:30 am - 3:00 pm 8:30 am - 11:00am	8:30 am - 2:00 pm 8:30 am - 11:00am
1f	Railroad Bridge to Buena Vista Boat Ramp	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 3:30 pm
2a	Buena Vista Boat Ramp to Fisherman's Bridge	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 3:30 pm
2b	Fisherman's Bridge to Stone Bridge	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 4:00 pm	8:30 am - 3:30 pm
2c	Stone Bridge to Big Bend	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm
2d	Big Bend to Salida	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	--
2d	Big Bend to Salida East - New Section	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm
3	Salida to Vallie Bridge	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	--
3a	Salida East to Rincon - New Section	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm
3b	Rincon to Vallie Bridge - New Section	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm
4a	Vallie Bridge to Texas Creek	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm
4b	Texas Creek to Parkdale	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 5:00 pm	8:30 am - 3:30 pm off river by 6:00 pm	8:30 am - 3:30 pm off river by 5:00 pm
5	Parkdale to Cañon City/Raynolds	8:30 am - 4:00 pm	8:30 am - 4:00 pm	8:30 am - 4:00 pm	8:30 am - 4:00 pm
6	Cañon City/Raynolds to Lake Pueblo	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 3:30 pm	8:30 am - 3:30 pm

Table Notes:

- New Segment/Section boundaries are shown in red.
- Cells highlighted in yellow in Alternative 1 indicate changes from the No Action alternative, cells highlighted in Green represent Alternative 2 changes from the No Action alternative, and the highlighted cells in the Proposed Action show proposed changes from the No Action Alternative and the color represents which alternative they were selected from.
- To accommodate self-contained, multi-day river trips during the "off season", one commercial trip per day above the established capacity limits will be allowed to enter the river stretch between Stone Bridge and Texas Creek (Sections 2c through 4a) for pass through camping. Such trips will be allowed on a reservation basis as specified in the AHRA Special Use Agreement/Riders. For purposes of this exemption, trips shall consist of a maximum of four boats, boaters shall spend no more than two consecutive nights within the defined river stretch, and boats shall be completely self-contained (i.e. carry all necessary camping equipment and supplies.). Trips using vehicle support shall not be eligible for this exemption, and the four boats shall not be split among multiple outfitters or multiple trips. No historic use will accrue to outfitters for these trips, and penalties will be imposed for failure to comply with conditions and provisions as outlined in the AHRA Special Use Agreement/Riders.
- For the purposes of this plan, “boats” refers to craft such as rafts, kayaks, drift boats, canoes, inflatable kayaks, stand up paddleboards (SUPs), downriver tubes (multiple chambered vessels), or pack rafts. In contrast, “pool toys” refers to users who may swim with or float on tubes or other similar floating devices (single chambered vessels, air mattresses, inner tubes, and pool toys). All occupants of pool toy type devices must wear a U.S. Coast Guard approved I, III, or V personal floatation device.
- Boats count toward stated capacities for different segments and sections (see 2.3.3). Pool toys do not count toward capacities and are generally used only in whitewater parks that have no boating capacities.
- The carrying capacity of each raft will be the legal capacity for that size of raft.
- To provide a safe boating experience for the public, the AHRA managers may declare a “Safe Boating Experience” to make temporary modifications on an as needed basis in segment(s)/section(s) boundaries and/or capacities that do not unduly impact other user groups or resources. A Safe Boater Experience includes, but is not limited to, “high water” (flows exceeding 2,400 cubic feet per second (cfs) at the Numbers (Below Granite) gauge; flows exceeding 2,500 cfs at the Wellsville gauge; flows exceeding 3,200 at the Parkdale gauge); fires, rescue operations, and/or hazardous materials in the river. No historic use will accrue to outfitters during these times or at these locations.
- A permanent change in capacities would require an amendment or modification the plan.
- During low flow periods of less than 700 cfs at the Wellsville gauge, the AHRA managers, on a year-to-year basis, may allow commercial outfitters to utilize the Ruby Mountain Recreation Site for the purpose of launching commercial trips.
- Safety Boater Exception/Rationed Days: 1 safety boat per pod above allocation. Safety boats are identified by a red vessel ID tag on the front and rear grab loops of the boat. Specifics are outlined in the AHRA Special Use Agreement.

2.3.3.1.1 Registration and Reservation System for Private Boaters

Although the current plan establishes capacities for private boaters, a permit system or other tools to actively manage private use levels have not been developed or implemented to date. Given population growth estimates over the life of this plan, it is possible and perhaps even likely that a fee based registration and/or private boat permit system may need to be implemented.

Under all of the action alternatives, when use in any segment exceeds 75 percent of prescribed private boat capacities more than two days per season, the AHRA would initiate a user education effort to redistribute use from higher use sections and times in hopes of postponing direct use limitations as long as possible.

However, if use on any one section exceeds 75 percent of prescribed private boat capacities more than five days in any one season, AHRA will develop a web-based registration system designed to help redistribute use prior to developing a full permit system that would directly limit private use. A web-based registration system would require all private boaters to register their trips online before getting on the river (identifying the number of boats and which sections they plan to run). This will allow agencies to track use more accurately and provide the public with a real-time tally of use (that should eventually allow boaters to recognize and become calibrated to how daily numbers of boats equate with conditions such as encounters, time in sight of others, or waiting times at launches and rapids). The information will help boaters sensitive to crowding to voluntarily avoid crowded time periods and sections; if this redistributes use, such a registration system may eliminate the need for a direct permit system (which would change the registration system to a reservation-based permit system). However, if use on any one section exceeds prescribed carrying capacities more than five days in a season, CPW will implement a direct use limitation through a reservation-based permit system.

Under both Alternative 1 and 2 and the Proposed Action, development of a registration and/or permit system will be made:

- Based on Standards for Public Land Health and the Recreation Management Guidelines.
- Based on monitoring data to assess perceived crowding/conflicts.
- Provide opportunities for public and CTF review and comment.
- Assess the need for establishing different carrying capacities on weekdays vs. weekends and holidays. It is expected that weekday capacities would be considerably lower than those for weekends and holidays. The most recent studies and monitoring data available will be utilized in making the assessment.
- Possibly include assignment of launch times and group/party size specifications as appropriate.
- Be an addendum (not amendment) to this plan.
- Would be monitored continually, and adaptive management would be used to improve these systems with an opportunity for public and CTF review and comment.

2.3.3.2 Commercial Walk and Wade Angling

Two of the alternatives would increase the number of commercial walk and wade angling agreements. Currently, there are 15 agreements allowed, which would remain the number allowed under the No Action Alternative. Under Alternative 1 the number of agreements allowed would increase to 25 agreements. The Proposed Action/Alternative 2 would allow an increase to 20 agreements. This increase is in response to public demand and could eventually result in an increase in the number of commercial walk and wade use on the river.

2.3.3.3 Travel Management by Alternative

The BLM Royal Gorge Resource Management Plan directed that motorized travel be limited to designated routes. These routes were established through travel management plans that cover the majority of this documents planning boundary. The decisions in these plans will continue to direct motorized and mechanized travel within the CML boundary. BLM lands upstream of Buena Vista are not covered by a previous travel management plan where travel has been restricted to routes that existed at the time the RMP was signed.

Under the No Action alternative, designated routes would remain unchanged. Subsequent planning documents would assess and designate routes in the area upstream of Buena Vista where travel management planning has not yet occurred. Under all of the action alternatives, routes would be designated per Table 2-9. Barriers would be installed and rehabilitation efforts put in place where new routes are being established or disturbances expanded.

Table 2-9 Route designations by Alternative

Alternative	Open to All Vehicles	Closed	Authorized use Only
No Action Alternative	7.2 miles	0 miles	0 miles
All Action Alternatives	6.5 miles	0.6 miles	0.1 miles

2.3.4 Information and Education by Alternative

Interpretation and environmental education would be implemented, as described in each river section by alternative in Table 2-7. General information/education for the AHRA is described below and would include elements such as:

- Post recreation area and public land boundaries along the river to reduce trespass.
- Develop visitor information, interpretive and educational displays for resource protection, outdoor ethics and user etiquette at developed sites and high use areas.
- Develop recreation area brochures and post informational signs/displays at access sites discussing:
    - Boating, fishing, camping and multiple use etiquette
    - River use/conservation/stewardship ethics
    - Private property rights/recreation user privileges
    - Available support facilities
    - Available services and points of interest in communities
    - Recreation opportunities including gold panning
    - Permit and fee requirements
    - The AHRA partnership
    - Historic/cultural/geological points of interest
    - Fisheries and wildlife features
    - Multiple use resource management highlights
    - Recreation and wildlife regulations
- If needed and funding allows, provide maps showing recreation prescriptions for each segment in an area wide users guide, including available types of recreation and the settings in which each occurs.

- Continue an interpretive ranger program for the area focusing on resource, user and area management interpretation and user ethics (e.g., Browns Canyon).
- Provide for portage and/or scouting at locations where needed and feasible.
- Post signs warning of flash flood dangers, especially at Chalk Creek, Badger Creek, Bernard Creek, and Texas Creek.
- Provide user ethics information on wildlife viewing to prevent human disturbance of wildlife.

2.3.5 Monitoring Recreation Resources and Human Use by Alternative

2.3.5.1 Current Plan (No Action)

Under the Current Plan (No Action) managers would continue to independently monitor the environmental effects of recreation use along the river and take corrective actions as needed based upon the direction provided by the Current Plan's vision statement, the Appendix B (Recreation Management Guidelines related to BLM Standards for Public Land Health),and the ongoing related monitoring program. Based on resource surveys, rehabilitate or close any river site found to be below acceptable public land health levels. Monitoring includes annual surveys to document the number of fire rings, expansion of undefined parking areas, human waste, bare earth at campsites, and other resource conditions. Over the last 10 years, monitoring results indicate that site conditions have improved in specific areas such as Browns Canyon where the occurrence of fire rings, human waste, trash, and new sites have drastically decreased (Figure 2-3).

2.3.5.1.1 Monitoring Recreation Setting Characteristics under the Current Plan (No Action)

- Rehabilitate vegetation and natural resources, where needed, at sites identified through monitoring. Re-plant trees as needed and consider adding photovoltaic powered watering systems if feasible.
- Based on resource surveys, rehabilitate, redesign, or close any recreation site found to be below acceptable public land health levels.
- When possible, assist CPW fisheries biologists with a fish creel census and electro-fishing study to determine fish biomass, density, growth, and condition factors for the river corridor.
- Utilize federal, state, local, and volunteer resource specialists to establish appropriate procedures and monitor fish creel census, electro-fishing, and bighorn sheep.
- Utilize federal, state, local, and volunteer resource specialists to inventory all riparian areas and identify those areas that require special protection.
- Identify areas where erosion/water quality problems can be alleviated.
- As requested, help local communities obtain assistance in order to minimize impacts of recreation on the community's infrastructure.
- On an annual basis, review data relevant to flows and if needed adjust flow recommendations accordingly.
- Monitor visitor use/impacts within the CML to assure the vegetation resource is not overly susceptible to irreversible damage or decline.
- Monitor/track weed-control efforts and effectiveness.

- Utilize federal, state, local, and volunteer resource specialists to monitor raptor nests and wintering bald eagles and blue herons along the river as well as those in the area that could be using the river corridor as a foraging area. These efforts should lead to assisting a volunteer from the state wide raptor monitoring program to continuously collect data on the recreation area's raptors.
- Review resource monitoring methodology as needed.

Browns Canyon 2001: Photopoint 9

Browns Canyon 2013: Photopoint 9

Browns Canyon 2001: Photopoint 4

Browns Canyon 2013: Photopoint 4

Figure 2-3. Photopoint Monitoring at Dispersed Recreation Sites in Browns Canyon National Monument Showing Improvement in Resource Conditions between 2001 and 2013 (BLM 2016)

2.3.5.1.2 Monitoring Visitor Outcomes

- On an annual basis, develop visitor counts for established sites and on-surface use of the river.
- Continue to maintain long-term user preference surveys as part of the monitoring program for the river; monitor visitor preferences and perceptions regarding public visitation.
- Work with federal, state, and local agencies and other appropriate entities, such as academic, to monitor and analyze economic and population impacts of recreation use on the local area.

- Monitor sanitation problems and work collaboratively with users, public agencies, and private and commercial organizations to provide appropriate on-river sanitation facilities.

All of the alternatives would incorporate the monitoring under the Current Plan through the use of federal, state, and local agencies and volunteers for monitoring recreational impacts. Independent of the content being monitored, a recreation monitoring process would resemble the process used in ecological monitoring. Key elements of a monitoring program include:

- Convene a working group of relevant agencies and resource specialists.
- Review existing information about the impacts of concern.
- Identify and prioritize impacts and issues.
- Develop potential indicators of resource health or high quality experiences. Indicators should be measurable, replicable, correlated with the problem, and able to be monitored over time with likely agency resources.
- Identify potential standards (or thresholds) that define healthy ecological or high quality experiential conditions, using the Standards for Healthy Public Lands as a basis.
- Allow public and stakeholder comment on indicators and standards (possibly through the CTF or other mechanism).
- Develop funding or partnerships to implement a long-term monitoring program and document findings.
- Periodically reconvene the monitoring working group to review findings and suggest potential management responses or adjustments to the monitoring program.

Under all of the alternatives, annual monitoring would assess whether Standards for Healthy Public Lands are met utilizing federal, state, local and volunteer resource specialists. CPW may also utilize the CTF to recruit volunteers for monitoring purposes. Both social (e.g., crowding, encounters, user conflicts, waiting times at rapids) and ecological (e.g., campsite perimeters, amount and locations of user-created trails, numbers and sizes of fire rings) indicators would be measured and communicated to partners. Increases in visitation may necessitate an adaptive management approach to managing user conflicts, such as designating sites as boat-in camping only or a camping reservation/permit system for certain segments/sections.

If resource damage exceeds a Standard for Healthy Public Lands, managers would implement strategies to address resource impacts. Under both alternatives, the four steps in this adaptive management approach include:

a. **Process:** If resource impact symptoms are present, communicate with appropriate partners. Increase inventories and monitoring to verify trends, if needed. Share interagency monitoring results with appropriate partners annually.

b. **Standards:** Confirm whether the condition trend exceeds or will exceed established thresholds.

c. **Compliance and Notification:** If standards are not met, initiate formal project planning and associated compliance (NEPA, Section106) with appropriate partners (CPW, BLM, U.S. Forest Service, SHPO).

d. **Take Action:** Implement corrective actions including but not limited to facility hardening, restoration, site-specific education, and regulatory actions (e.g., reduce capacities, seasons, windows).

2.4 Alternatives Considered but Not Analyzed in Detail

2.4.1 Decrease in Capacity Levels/No Additional Site Development

This alternative would decrease boating capacity levels and not allow additional recreation site development or access improvements.

AHRA is an extremely popular recreation area that receives over 800,000 annual visits, and long-term trends suggest demand for such use is likely to increase in concert with projected population growth in Colorado and the surrounding area. The state is expected to add more than 2 million new residents between 2015 and 2035, increasing its population to nearly 7.5 million (a roughly 40 percent increase). Given this underlying demand, AHRA determined it was unrealistic to consider a detailed alternative with substantially lower capacities for multiple sections (a "lower use alternative"). Lower capacities would have major negative economic impacts on the state and local economy and reduce the diversity of opportunities that include a range of higher and lower use levels. Scoping suggested there was little public support for these kinds of reductions. This alternative was therefore not carried forward for analysis in the EA.

As discussed in Section 2.3.3, however, the defined capacity levels for commercial and private boating were reduced on some river sections because actual use levels were far below defined capacities, suggesting that those capacities were set too high in the previous plans.

2.4.2 No (i.e., Unlimited) Capacities for Private Boaters

Some private boaters are philosophically opposed to limits on private boating and urge the elimination of private capacities on some or all segments. AHRA considered but rejected this concept, recognizing that the area's legislation required establishment of capacities for all types of on/in-river recreation.

2.4.3 Capacities (Permitting Program) for Walk and Wade Fishing

River managers considered establishing fishing capacities that would require walk and wade anglers to reserve space online and print permit. Managers explored increasing capacities of No Capacity (No Action), 100 anglers per day (Alternative 1) to 200 per day (Proposed Action/Alternative 2) as similarly implemented on other rivers. This concept was developed to reduce conflicts between boaters/anglers, anglers/anglers, and campers/anglers. This would create opportunities for higher quality fishing, but it also creates an exclusive use and limits universal access. This concept was dismissed because it would be difficult to enforce, and there does not appear to be either stakeholder or public support for this per scoping.

2.4.4 No Boating on Specific Days, or Postponing or Curtailing Launch Windows (also known as "No Boat Times")

This alternative would eliminate boating for specific days or eliminate morning launch windows to allow for more solitude walk/wade fishing. This concept was considered during alternative development to address increasing potential conflicts. However, it was dismissed because this would limit float fishing as well as private and commercial rafters and kayakers, and it would not likely gain much public support.

3.0 Affected Environment and Effects

3.1 Introduction

This section provides a description of the human and natural environmental resources that could be affected by federal actions in the Proposed Action and presents comparative analyses of the direct, indirect, and cumulative effects on the affected environment stemming from the implementation of the federal actions under the Proposed Action and other alternatives analyzed. While the alternatives outlined in Chapter 2 occur across a range of land owners/managers, this chapter documents only those effects related to federal actions or considered to have a federal nexus as required by NEPA regulations shown in Table 3-1. In general, the project area is the CML boundary however individual resources may vary. This is described in each resource section where this occur. The Alternative 2/Proposed Action is the same except for boating capacities and therefore are discussed together for resource effects. Any differences in effects between Alternative 2 and the Proposed Action are noted as needed under the individual resource sections.

Impacts to various resources are described in this section of the document. Where appropriate, findings on the Public Land Health Standards (see Appendix A) are included. Terms for level of impacts are defined as;

Negligible: Effect is at the lowest level of detection and causes very little or no disturbance or improvement.

Minor: Effect that is slight but detectable, with some perceptible effects of disturbance or improvement.

Moderate: Effect is readily apparent and has measurable effects of disturbance or improvement.

Table 3-1. Site development and acres directly affected as a result of three alternatives analyzed in the Arkansas River Recreation Management Plan, 2017.

Segment	Section	Proposed Development[1,2]	No Action		Alt 1		Proposed Alt/Alt 2	
			# of Federal Sites	Federal Acres Affected	# of Federal Sites	Federal Acres Affected	# of Federal Sites	Federal Acres Affected
1	1a	None Present	0	0	0	0	0	0
	1b	None Present	0	0	0	0	0	0
	1c	Low Site	1	21.5	1	21.5	0	0
	1c	Moderate Site	1	0.2	1	0.2	2	21.7
	1d	Low Site	2	27.5	2	27.5	0	0
	1d	Moderate Site	0	0	0	0	2	27.5
	1e	Low Site[3]	2	2.5	2	2.5	1	1.8
	1e	Moderate Site[3]	0	0	0	0	1	8.0
	1f	Low Site	1	2.5	0	0	0	0
	1f	Moderate Site	0	0	1	2.5	2	2.5
	1f	High Site	1	4.5	1	4.5	1	4.5
2	2a	High Site	1	4.3	1	4.3	1	4.3
	2b	Moderate Site	1	12.5	1	12.5	1	12.5
	2b	High Site	2	20.3	2	20.3	2	20.3
	2c	Moderate Site	1	21.0	1	21.0	1	21.0
	2d	Moderate Site	1	19.9	1	19.9	1	19.9

Segment	Section	Proposed Development[1,2]	No Action		Alt 1		Proposed Alt/Alt 2	
			# of Federal Sites	Federal Acres Affected	# of Federal Sites	Federal Acres Affected	# of Federal Sites	Federal Acres Affected
3	3a	Moderate Site	2	34.9	2	34.9	2	34.9
	3b	Moderate Site	1	4.9	1	4.9	1	4.9
4	4a	Moderate Site	2	8.8	2	8.8	2	8.8
	4b	Low Site	1	4.2	1	4.2	1	4.2
	4b	Moderate Site	4	23.7	4	23.7	4	23.7
	4b	High Site	1	9.1	1	9.1	1	9.1
5	5	None Present	0	0	0	0	0	0
6	6	Low Site	1	14.1	1	14.1	1	14.1
Total Federal Sites		Low Site	8	72.3	7	69.8	3	20.1
		Moderate Site	13	125.9	14	128.4	19	185.4
		High Site	5	38.2	5	38.2	5	38.2
Total Federal Acres Directly Affected				236.4		236.4		243.7

[1]Undeveloped sites were not included in the analysis.
[2]Urban sites were not included in the analysis.
[3]For analysis purposes, assumed Riverside would remain as a Low site and an upgrade of Rapid #6 to a Moderate site. Due to unknown size of upgrade at Rapid #6, assumed an increase of footprint to eight (8) acres.

The affected resources brought forward for analysis include physical, biological, cultural, and land as described below:

3.2 Physical Resources

3.2.1 Geological and Mineral Resources

3.2.1.1 Affected Environment:

The Arkansas River from Pueblo to Leadville cuts through various geologic formations, ranging in age from 1.8 billion years (Precambrian) to recent. Various rock lithologies in combination with faults and folding are present. Several areas are of interest to miners, recreational mineral collectors, as well as educational institutions that use the region as a study area.

The area, which includes the Arkansas Headwaters Recreation Area, has a history of mineral development and continues to see varying levels of development and mineral collection along the Arkansas River corridor. Rocks and minerals, including fluorite, industrial building stone, perlite, placer gold, sand and gravel, aggregate, feldspar, pegmatite and others, have been discovered and mined in the Arkansas Headwaters Recreation Area and surrounding areas in the river corridor.

Many of Colorado's most productive placer deposits, such as California Gulch, Derry Ranch, and Cache Creek, are located in the Arkansas River valley. To this day, the most common recreational collection and mining activities in this area involve placer gold. Multiple levels of gold placer activity occur along the Arkansas River. Some of this activity is categorized as recreational, but a majority of it is subject to the Federal Mining Laws and includes collection, exploration, and extraction. Mining claims are regularly located along the river within the Arkansas Headwaters Recreation Area for this purpose as well.

Mineral materials are some of our most basic natural resources, such as sand, gravel, dirt, and rock used in every day building and other construction. There are several BLM managed quarries and collection sites along the Arkansas River where mineral materials are currently being produced. Some of these activities are located within the Recreation Area.

The BLM RGFO works to improve public safety and water quality by reducing or eliminating the effects of past hardrock mining in the Arkansas River corridor. The BLM RGFO has partnered with the Colorado Division of Reclamation, Mining, and Safety Inactive Mines Program to effectively safeguard many abandoned mine features within this area. However, many features remain that still require safeguarding and projects are ongoing within the area.

3.2.1.2 Environmental Effects

3.2.1.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: There would be no direct impacts, unless an R&PP is pursued, as this will segregate the federal minerals from the mining laws and inhibit access. Any R&PP lease proposals will require additional public input including a Notice of Realty Action (NORA) in the Federal Register.

Protective/Mitigation Measures: Any federal mineral materials used by Colorado AHRA will be subject to regulation by 43 CFR 3600. Exercise caution in areas of abandoned mine openings and coordinate with BLM, as applicable.

Cumulative Impacts: The mineral resources throughout Front Range are slowly being encumbered by various surface uses that may not be compatible with future mineral extraction efforts needed to meet the public and market demands.

3.2.1.2.2 Alternative 1

Direct and Indirect Impacts: Same as the Proposed Action/Alternative 2 but to a lesser degree. Fewer recreation use sites are proposed under this alternative; therefore fewer minerals are likely to be encumbered by R&PP lease segregations.

Protective/Mitigation Measures: Same as the Proposed Action/Alternative 2

Cumulative Impacts: Same as the Proposed Action/Alternative 2

3.2.1.2.3 No Action Alternative

Direct and Indirect Impacts: None
Protective/Mitigation Measures: None

3.2.2 Soils (includes a finding on standard 1)

3.2.2.1 Affected Environment:

The project area includes all six segments of AHRA. Past and present actions include activities that have influenced and affected the current condition of the environment around the project area. The existing condition of soil health results from natural and anthropogenic impacts. The project area is located in the Arkansas Headwaters and Upper Arkansas sub basin of the Upper Arkansas basin, where the area has been used intensively in the past and in the present, including mining, recreation activities, grazing, roads, logging, and OHV use. These uses have resulted in increased runoff and accelerated soil erosion and sedimentation and soil compaction has occurred on some parts of the project area. In addition, the project area has been modified by railroad/highways and agricultural, residential, and commercial developments. High levels of uses of the project

area have reduced vegetation cover to some extent and led to soil compaction and erosion on some highly impacted sites. Roads, trails, and compacted soils have created an impervious surface that has reduced the infiltration rate and contributes to surface runoff and soil erosion, which is often deposited along roads, depressions, and streams. Erosion potential is higher on steep slopes and adjacent to less permeable surfaces such as rock outcrops or compacted areas, such as roads. The project area is managed for multiple uses and ground disturbing activities, and associated impacts to soil resources are generally unavoidable.

The soil within the project area is described in the BLM GIS Soil Survey Geographic (SSURGO) Database, which is derived from NRCS Web Soil Survey database (USDA 2016). Various soil types within the project area are situated on flat to extremely steep gradient (0 to 90 percent slopes). The parent materials for the majority of the soils are mainly non-calcareous stratified alluvium, moderately coarse-textured gravelly outwash/alluvium, sand & gravel alluvium, and slope alluvium over residuum weathered from limestone. Some properties of soils for each segment within the corridor are described in the following sections. Although there are several soil types found in each segment, only major soils that largely cover each segment are presented here. Additional detail analysis would be required for any specific project or site planning.

Segment 1—Leadville to Buena Vista: About 60% of segment 1 is comprised of San Isabel stony sandy loam (1 to 5 percent slopes), Dominson gravelly sandy loam (1 to 9 percent slopes), Wet alluvial land, and water. Soil properties for Dominson gravelly sandy loam soil are discussed under segment 2. The other two soils have stony sandy loam and variable surface texture, respectively. These soils have low erosion hazard rating for construction of roads/trails. The erosion hazard ratings are based on soil erosion factor K, slope, and content of rock fragments. Flooding is likely to occur often under normal weather conditions on the Wet alluvial land soil, while the chance of flooding is nearly zero percent in any year or flooding occurs less than once in 500 years for San Isabel stony sandy loam soil. The San Isabel stony sandy loam soil is well suited for natural surface roads, indicating the soil has features that are favorable for the specified kind of roads and has no limitations. The San Isabel stony sandy loam soils have somewhat limited rating for camp area development. Somewhat limited rating indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. No camp-area development rating is available for the Wet alluvial land soil. Camp areas are used intensively as sites for tents, trailers, campers, and the accompanying activities of outdoor living. A Wind Erodibility Group (WEG) consists of soils that have similar properties in relation to their susceptibility to wind erosion. The WEG of the San Isabel stony sandy loam soils is 5 and no rating available for the Wet alluvial land soil. The soils within WEG-1 are the most susceptible to wind erosion and WEG 8 soils are the least susceptible. Hydrologic Soil Group for San Isabel stony sandy loam soils is group-A, and the Wet alluvial land soil has dual group-A/D. Group A soils have a high infiltration rate (low runoff potential), and group D has a very slow infiltration rate (high runoff potential) when thoroughly wet. The natural drainage class is somewhat excessively drained and depth to water table is greater than 200 centimeters for San Isabel stony sandy loam soils, while the Wet alluvial land soil is poorly drained and depth to water table is 69 centimeters.

Segment 2—Buena Vista to Salida East: More than 72% of segment 2 of the project area comprises Dominson gravelly sandy loam (1 to 9 percent slopes with Stony sandy loam surface texture), San Isabel stony sandy loam, Ouray gravelly loam thick surface variant (Sandy loam surface texture), Rock outcrop (Unweathered bedrock surface texture), Gravelly alluvial land (Very gravelly sandy loam surface texture), and water. Soil properties for San Isabel stony sandy loam soil are discussed under segment-1. The Dominson gravelly sandy loam and Gravelly alluvial land soils have moderate and severe erosion hazard ratings for construction of roads/trails, respectively. However, the Ouray gravelly loam thick surface variant soil has slight or low erosion hazard rating for construction of roads/trails, and no rating is available for the Rock outcrop soil type. The chance of flooding is nearly zero percent in any year for all soils. The Dominson gravelly sandy loam soil is well suited for natural surface roads, indicating the soil has features that are favorable for the specified kind of roads and has no limitations. The Gravelly alluvial land soil is poorly suited, and the Ouray gravelly loam soil has a moderate rating for natural surface roads. The Dominson gravelly sandy loam soil has a well-suited rating for campsite development, indicating that the soil has features that are favorable for this use. The Gravelly alluvial land and Ouray gravelly loam soils have very limited or somewhat limited ratings, respectively for camping use. Very limited rating indicates that the soil has one or more features that are unfavorable for the specified use. Campsite

development rating is not available for the other soils. The WEG of Dominson gravelly sandy loam soil, Ouray gravelly loam, and Gravelly alluvial land soil is 6, and Rock outcrop is 8. Hydrologic Soil Group for Dominson gravelly sandy loam soil, Ouray gravelly loam, and Gravelly alluvial land soil is group-A (high infiltration rate or low runoff potential), and the rock outcrop has group-D (low infiltration rate or high runoff potential). Depth to water table is greater than 200 centimeters for all soils. The natural drainage class for Ouray gravelly loam, Dominson gravelly sandy loam, and Gravelly alluvial land soils is well drained, somewhat excessively drained, and excessively drained, respectively.

Segment 3—Salida East to Vallie Bridge: More than 81% of segment 3 in the project area is comprised of Mussel-Bronell complex (2 to 15 percent slopes), Querida gravelly sandy loam (2 to 8 percent slopes), Aquolls (0 to 5 percent slopes), Dominson gravelly sandy loam (1 to 9 percent slopes), and water. The remaining soils are Redcameron-Rock outcrop-Teaspoon complex. Soil properties for Dominson gravelly sandy loam soil are discussed under segment 2. The other soils have Sandy loam, Gravelly sandy loam, fine sandy loam, and Channery loam surface texture, respectively. The Mussel-Bronell complex and Querida gravelly sandy loam soils have a moderate erosion hazard rating for construction of roads/trails, while the Redcameron-Rock outcrop-Teaspoon complex soil has severe. Aquolls soil has a slight erosion hazard rating for construction of roads/trails. The chance of flooding is nearly zero percent in any year for all soils but Aquolls soils, which have a frequent flooding rating. The Mussel-Bronell complex and Querida gravelly sandy loam are moderately and well suited for natural surface roads, respectively, while Redcameron-Rock outcrop-Teaspoon complex and Aquolls soils are poorly suited for natural surface roads. All four soil types have somewhat limited or very limited ratings for campsite development. Mussel-Bronell complex and Aquolls soils haveWEG-3, and Querida gravelly sandy loam soil and Redcameron-Rock outcrop-Teaspoon complex soil have WEG-8. Hydrologic Soil Group for Mussel-Bronell complex is group-B (moderate infiltration rate), for Querida gravelly sandy loam soil is group-A (high infiltration rate or low runoff potential), Aquolls soil is group A/D, and for Redcameron-Rock outcrop-Teaspoon complex is group-D (very slow infiltration rate or high runoff potential). Depth to water table is greater than 200 centimeters for all soils, except for Redcameron-Rock outcrop-Teaspoon complex and Aquolls soils that have depth to water table of 30 centimeters. The natural drainage class is well drained for all three soils except for Aquolls soil, which is poorly drained.

Segment 4—Vallie Bridge to Parkdale: About 75% of segment 4 in the project area comprises Ustic Torriorthents, bouldery-Rock outcrop complex (35 to 90 percent slopes), Cascajo variant gravelly sandy loam (5 to 12 percent slopes), Mussel-Bronell complex (2 to 15 percent slopes), Querida gravelly sandy loam (2 to 8 percent slopes), and water. Soil properties for Mussel-Bronell complex and Querida gravelly sandy loam soils are discussed under segment 3. The other two soils have very bouldery sandy loam and Gravelly sandy loam surface texture, respectively. The Ustic Torriorthents, bouldery-Rock outcrop complex soil has severe erosion hazard rating for construction of roads/trails, while the Cascajo variant gravelly sandy loam soil has moderate rating. The chance of flooding is nearly zero percent in any year for both soils. The Ustic Torriorthents, bouldery-Rock outcrop complex, and Cascajo variant gravelly sandy loam soils are poorly and moderately suited for natural surface roads, respectively. The two soil types have somewhat limited or very limited rating for campsite development. The WEG for Ustic Torriorthents, bouldery-Rock outcrop complex soil is group-6, and Cascajo variant gravelly sandy loam soil is group-5. Hydrologic Soil Group for Ustic Torriorthents, bouldery-Rock outcrop complex is group-D (very slow infiltration rate or high runoff potential), and Cascajo variant gravelly sandy loam is group-A (high infiltration rate or low runoff potential). Depth to water table is greater than 200 centimeters for both soils and the natural drainage class ranges from well drained to somewhat excessively drained.

Segment 5—Parkdale to Cañon City (Royal Gorge): More than 86% of segment 5 in the project area comprises Ustic Torriorthents bouldery-Rock outcrop complex on (35 to 90 percent slopes), Wann-Shanta dry association, Aquic Ustifluvents (on one percent representative slope), Riverwash, and water. Soil properties for the Ustic Torriorthents, bouldery-Rock outcrop complex are discussed under Segment-4. The other three soils have fine sandy loam, loam, and very gravelly sand-surface texture, respectively. Both Wann-Shanta and Aquic Ustifluvents soils have slight erosion hazard rating for construction of roads/trails, but the Riverwash soil is not rated. The soils have occasional flooding frequency class, meaning that flooding occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year), except the Riverwash soil that is frequently flooded. The Wann-Shanta dry association and Aquic Ustifluvents soils are well and moderately suited

for natural surface roads, respectively, while the Riverwash soil is not rated. Wann-Shanta dry association and Aquic Ustifluvents soils have very limited ratings for campsite development. The WEG for Wann-Shanta dry association soil is group-3, Aquic Ustifluvents soil is group-4L, and Riverwash soil is group-2. Hydrologic Soil Group for the two soils is group-B (moderate infiltration rate) and Riverwash soil is not rated. Depth to water table is 61 centimeters for Wann-Shanta dry association soil, and this soil is somewhat poorly drained. Depth to water table is 76 centimeters for the Aquic Ustifluvents soil, and this soil is moderately well drained. Depth to water table for Riverwash soil is greater than 200 centimeters, and no rating is available for this soil.

Segment 6—Cañon City (Centennial Park) to Lake Pueblo: More than 67% of segment 6 in the project area comprises Penrose-Rock outcrop complex (25 to 65 percent slopes), Aquic Ustifluvents, Penrose-Minnequa complex dry (1 to 15 percent slopes), Wann-Shanta, dry, association, and water. Soil properties for the Aquic Ustifluvents soils and Wann-Shanta dry, association are discussed under Segment-5. The Penrose-Rock outcrop complex and Penrose-Minnequa complex dry soils have Channery-loam and silt-loam surface texture and have severe and moderate erosion hazard ratings for construction of roads/trails, respectively. The chance of flooding is nearly zero percent in any year, and the drainage class is well drained for both soils. The Penrose-Rock outcrop complex and Penrose-Minnequa complex dry soils are poorly and moderately suited for natural surface roads, respectively. The two soil types have very limited and somewhat limited ratings for camp site development. The WEG for Penrose-Rock outcrop complex soil is group-5, and Penrose-Minnequa complex dry soil is group-4L. Hydrologic Soil Group for the two soils is group-D (very slow infiltration rate or high runoff potential). Depth to water table is greater than 200 centimeters for both soils.

Overall, there are 97 soil types within the entire project area. However, the vast majority of these soils cover a very small area in the project area. The most dominant soil types include San Isabel stony sandy loam (17%), Dominson gravelly sandy loam (7%), and Penrose-Rock outcrop complex and Querida gravelly sandy loam soils, which each cover 4%. Soil properties for these dominant soils are discussed under each segment above. The total water surface in the project area is about 15% and surface soil comprises the remaining 85%.

The condition of soil resources is determined by the degree and extent of impacts such as erosion, compaction, soil vegetation cover, and soil productivity. Adequate soil infiltration and permeability allows for the accumulation of soil moisture necessary for optimal plant growth and vigor and minimizes surface runoff. Soil features such as rills, active gullies, pedestals, surface litter and plant cover are important indicators of Standard 1 (see Appendix A). In general, most areas of upland soils within the project area exhibit infiltration, vegetation cover and permeability rates appropriate to soil type, climate, landform, and geologic processes.

3.2.2.2 Environmental Effects

3.2.2.2.1 Proposed Action/Alternative 2

Under the Proposed Action/Alternative 2, there would be up to 57 recreation use sites, including 43 existing and 14 new sites that may be developed. The Proposed Action/Alternative 2 would expand recreation opportunities and beneficial outcomes to a greater number of participants at additional locations and would provide the greatest recreational opportunity. In contrast to the No Action alternative and Alternative 1, this alternative provides a larger increase in land acquisition, facility development, and similar improvements. Alternative 2 and the Proposed Action are similar except for differences in boating capacities, launch windows, and use season as outlined in Chapter 2.

Direct and Indirect Impacts: The total area directly affected because of this alternative is 243.7 acres Federal land (see Table-3-1). Based on information available, the exact locations of future development cannot be determined at this time due to the Proposed Action/Alternative 2. However, soil impacts expected to occur in the watershed overtime and the Proposed Action/Alternative 2 would have direct, indirect, and cumulative impacts to soil resources. The impact on soils in the AHRA is mainly related to compaction and hardening of surface soil due to parking lots, trails, roads, camping areas, boat ramps, riprapping of stream banks, and other campsite facilities. Compaction and hardening will reduce soil permeability and increase impervious area creating high rate and amount of runoff. This increase in runoff will create increased scouring riverbank and bed.

Construction activities associated with new campground development, expansion, and upgrade would require excavation, grading, and associated soil disturbance. New campground roads, parking areas and campsite construction, grading, installation of toilets, development of a host site, fire ring, picnic table, and tent pads are some of the activities that would occur on existing and new sites. The activities on future campground development and improvement sites would result in soil displacement, soil horizon mixing, disturbance, vegetation removal, compaction, and increased potential for surface runoff, erosion, and sediment delivery. Some of these activities would occur within previously disturbed areas, but most of the work would occur in areas of undisturbed soils. Erosion can be so severe when soil-surface horizons are lost, and long-term soil productivity is decreased. Soil contamination would also occur due to machinery involved with construction activities that may deposit small amounts of petro-hydrocarbons onto soils through equipment failure or normal operations. Exposed soil material during construction would be subject to erosion until stabilized or revegetated and this condition will be worse at moderately steep or steeper slopes. Planned use of temporary erosion-control measures would reduce the potential for short-term erosion and soil loss during construction. The impact on soils would be short-term, moderate, and adverse from construction disturbances.

Impacts on soil resources would continue at a reduced degree after completion of construction activities due to use and maintenance of new and existing campsites. Soil erosional processes in the campground and downstream lands, including surface and channel erosion from runoff would continue after completion of campsite construction and development activities. Soil erosion from runoff events and soil compaction near campsites would continue, resulting in increased runoff that further contributes to soil erosion. Continued erosion and soil loss would reduce soil productivity, which would affect existing vegetation and any revegetation efforts. In general, adverse impacts on site soil resources would be moderate with little substantial change in topography or impact on important soil features or processes. A long-term beneficial effect on soils would occur from drainage improvements, road reconfiguration, and campsite layout improvements that reduce erosion and soil loss

Protective/Mitigation Measures: The design and construction of all facilities should employ soil erosion and sediment control measures to prevent possible accelerated surface, rill, and gully erosion and subsequent water quality impacts. Use the applicable recreation planning process to develop measures to avoid, minimize, or mitigate adverse effects to soil resource during recreation activities. Identify areas where the adverse effects of recreational use to soil health and land cover condition outweigh the benefits and select site locations for recreation facilities that avoid or minimize the potential for adverse effects to soil health. Design recreation sites to limit the amount of exposed or disturbed soil at any one time to the minimum necessary to complete construction operations. Use appropriate resource conservation measures when designing facility construction, access roads, and sanitation systems at recreation sites to incorporate proper sediment and storm-water controls in the project design to prevent and minimize erosion and siltation during construction and during the period needed to reestablish permanent vegetative cover on disturbed sites. Plan, develop and implement a post-construction site vegetation plan using suitable species. Detailed protection/mitigation measures will be established during a new project is initiated to develop a new recreation site.

3.2.2.2.2 Alternative 1

The total area directly affected because of this alternative is 236.4 acres of Federal land (see Table 3-1). Under this alternative, there would be 49 sites including 6 new sites that may be developed and 43 existing sites. In contrast to the No Action Alternative, this alternative provides a moderate increase in land acquisition, facility development, and similar improvements. This alternative would moderately change site development and boating capacities to respond to identified issues and new needs.

Direct and Indirect Impacts: Based on information available under Alternative 1, the exact locations of new sites to be developed cannot be determined at this time. However, soil impacts expected to occur in the watershed over a period of time and Alternative 1 would have direct, indirect, and cumulative impacts to soil resources. All potential direct impacts described under Proposed Action/Alternative 2 would be applicable for Alternative 1. However, the impacts under Alternative1 would have a lower level of disturbance from construction activity and campground use compared to the Proposed Action/Alternative 2 because Alternative 1 provides a lesser increase in land acquisition, facility development, and similar improvements. In general, adverse impacts on site soil

resources would be minor with little substantial change in topography or impact on important soil features or processes.

Protective/Mitigation Measures: All Protective/Mitigation Measures described under Proposed Action/Alternative 2 would be applicable for Alternative 1.

3.2.2.2.3 No Action Alternative

Under this alternative, there are 43 existing developed sites located on 236.4 acres of Federal land (see Table 3-1). The No Action alternative continues current recreation and multiple use goals and management practices described in the 2001 Plan.

Direct and Indirect Impacts: No new disturbance to soils resources would be introduced under the no action alternative except the ongoing activities needed to maintain and operate current campground sites and disturbances related to proposed expansion or upgrading of one campground site. Soil erosional processes in the campground and downstream lands would remain similar to historical conditions, including continued surface and channel erosion from runoff. Soil erosion from runoff events would continue to occur without improvements to surface drainage in the campground. Soil compaction near campsites would remain, resulting in increased runoff, which further contributes to soil erosion. Continued erosion and soil loss would reduce soil productivity, which would affect existing vegetation and any revegetation efforts. The no action alternative would have a long-term minor adverse effect on soils resources from continued erosion related to insufficient drainage and inadequate campsite capacity.

Protective/Mitigation Measures: No protective/Mitigation measures are required except the ongoing activities that require application erosion-control measures to maintain existing campground roads, campground sites, and operations to reduce impacts and protect soil resources from erosion.

Cumulative Impacts: Past actions, such as existing recreation activities along the AHRA corridor, grazing, OHV use, roads, and inadequate drainage, mining, wildfire and fuel reduction activities have affected soils resources and created soil compaction, erosion and sediment transport, vegetation removal, and increased runoff. Future recreational activities, maintenance work, grazing, and other past activities would continue to impact soil resources in the watersheds. The cumulative effects on soil resources due to the Proposed Action/Alternative 2 combined with adverse effects of past, present, and reasonably foreseeable actions on soils resources would be moderate, and long-term. In contrast, Alternative 1 will have lesser cumulative effects compared to the Proposed Action/Alternative 2 and higher cumulative effects compared to the no action alternative. The overall cumulative effects on soils resources from the no action alternative, in combination with past, present, and reasonably foreseeable future actions would be long-term, minor, and adverse with a minor contribution from the no action alternative

Finding on the Public Land Health Standard for Upland Soils: Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate, landform, and geologic processes. There are some areas along the AHRA corridor that are not meeting soil health standards due to compacted soils and inadequate vegetation cover, but in general, standard 1 is being achieved in most of the watersheds and there would be minimal anticipated impacts due to the Proposed Action/Alternative 2 and other alternatives with proper application of Protective/Mitigation Measures.

3.2.3 Water (Surface, and Ground, Floodplains) (includes a finding on standard 5)

3.2.3.1 Affected Environment:

The groundwater and surface water data, described in this section, is available in the BLM GIS hydrology database. The project area is located in the Arkansas Headwaters (Hydrologic Unit Code-HUC8: 11020001) and Upper Arkansas (HUC8: 11020002) sub basin of the Upper Arkansas basin (HUC6: 110200). The project area covers approximately 135 miles of the Arkansas River. About 105 miles of the upstream portion of the Arkansas

River, within the AHRA, is located on the Arkansas Headwaters sub basin, and the remaining 30 miles of the downstream segment is located on the upstream portion of the Upper Arkansas sub basin. Elevation within the two sub-basin ranges from approximately 5,000 feet along the outlet of Arkansas River to over 13,000 feet in northwest part of the Arkansas Headwaters sub basin. The project area has a general west to east drainage pattern. Precipitation varies with elevation. Lower areas of the sub basins receive about 10 inches, and higher mountain areas receive about 50 inches of annual precipitation, with most of the rainfall events occurring in July and August.

Within the Arkansas Headwaters sub basin, there are 14 HUC-10 watersheds, and there are eight HUC-10 watersheds in the Upper Arkansas sub basin contributing flow to the Arkansas River within the project area. In the Upper Arkansas sub basin, there are a total of 12 HUC-10 watersheds, but four of the watersheds are not contributing flow to the project area. The project area comprises the entire area of the Arkansas Headwaters sub basin (7,933 square kilometers) and the Upper Arkansas sub basin (5,966 square kilometers) with a total area of 13,899 square kilometers. Water quality and quantity within the project area is impacted by many activities in the sub basins including mining, grazing, logging, construction of roads and ponds/small dams, water withdrawal/use, and recreation activities. These activities have resulted in increased runoff and hence accelerated soil erosion and sedimentation. The Arkansas River exhibits spatial and temporal variation in water quality where stream quality is highly influenced by mineralized drainage from mines. As indicated below in each segment description, some tributaries of the Arkansas River are under the 303(d) listing. The Colorado Section 303(d) List identifies waterbodies where there are exceedances of water quality standards or nonattainment of uses. This includes waters impaired because of nonpoint source, point source discharges or combined point source and nonpoint source contributions including natural sources (CDPHE 2015). BLM follows federal, state, and local water quality regulations and provisions. Section 404 permits should be obtained from the Army Corps of Engineers before any work is permitted in perennial stream channels.

Annual peak streamflow is evaluated from three US Geological Survey (USGS) gauging stations located at upstream (07081200 near Leadville, CO), downstream (07096000 at Cañon City, CO), and midpoint (07091200 near Nathrop, CO) of the Arkansas River segment within the project area (USGS 2016). At the upstream location, the mean annual peak streamflow from 41 years of record available at this station is 678 cfs. The minimum annual peak streamflow occurred in 5/31/2002 (142 cfs) and the maximum annual peak streamflow occurred in 6/9/1997 (3,137cfs). At the mid location, near Nathrop gauging station, the mean annual peak streamflow from 45 years of record available at this station is 3,137 cfs. The minimum annual peak streamflow occurred in 5/22/2002 (674 cfs) and the maximum annual peak streamflow occurred in 6/18/2015 (5,560 cfs). At the downstream Cañon City location, the mean annual peak streamflow from 127 years of record available at this station is 4,807 cfs. The minimum annual peak streamflow occurred in 5/17/2002 (496 cfs), and the maximum annual peak streamflow occurred in 8/2/1921 (19,000 cfs). The maximum annual peak streamflow that occurred in 8/2/1921 (19,000cfs) is unusually high, and there could be error in the data. The next higher annual peak streamflow occurred in 8/3/1933 (12,760 cfs). At all three gauging stations, the minimum peak streamflow occurred in 2002, indicating a drought condition in that year. Average or mean annual peak streamflow increases from the upstream towards downstream gauging station of the Arkansas River due to many additional tributaries draining into the river, although upstream surface water withdrawal affects the streamflow.

About 201.5 square miles of major alluvial aquifers are located within the project area along the Arkansas River, Brush Creek, Eight Mile Creek, Grape Creek, Low Buck Creek, South Arkansas River, Taylor Creek, Turkey Creek, and Willow Spring Creek. In addition to an alluvial aquifer, about 14 square miles of South Park Basin and 255 square miles of Huerfano/Wet Mountain Valley Basin bedrock aquifers are located within the Arkansas Headwaters and Upper Arkansas sub basins. Groundwater quality around the project area depends on the rate of groundwater flow and type of aquifer. Mineralization has greatly impacted groundwater quality. Groundwater sourced from the alluvial aquifers is less mineralized compared to the bedrock aquifers. Over pumping of the aquifers, due to population increase, has resulted in groundwater depletion and aquifer contamination from sewage and septic tanks. More than 30,300 water wells are located within the two sub basins. These wells are used to pump groundwater for domestic, agricultural, commercial, and other uses. Most of the wells are shallow, but there are deep wells drilled at a depth reaching up to 3,000 feet.

Most of the Arkansas River within the project area is located in a confined valley defined by the surrounding geology. There are about 2,886 miles of perennial streams, 11,189 miles of intermittent streams, and 5,124 miles of ephemeral drainage within the Arkansas Headwaters and Upper Arkansas HUC-8 sub basins. Although there are several intermittent and perennial streams located in each segment, only major streams that largely contribute flow to each segment are presented here. Additional detail analysis would be required for any specific project or site planning. Watersheds and streams contributing flow to each segment are discussed below.

Segment 1—Leadville to Buena Vista: Headwaters Arkansas River, Lake Creek, Clear Creek-Arkansas River, and Cottonwood Creek watersheds contribute flow to Segment 1. In addition, an upstream portion of the Trout Creek-Arkansas River watershed drains into this segment of the Arkansas River. There are several water wells, ponds, and four water diversion structures located within these four watersheds to pump and divert surface water and groundwater for domestic, agricultural, and other activities. The Clean Water Act (CWA) requires that chemical, physical, and biological integrity of all waters, stream channels, and wetlands be protected. Within this segment of the project area, the mainstem of Lake Creek and all tributaries from source to Arkansas River located within the Lake Creek watershed are currently in the 303(d) listing due to low dissolved oxygen and outside standard range of pH values. The mainstem of the Arkansas River from the confluence with the Lake Fork to the confluence with Lake Creek is currently in the 303(d) listing due to a high level of arsenic. Lake Fork below Sugarloaf Dam to the confluence with the Arkansas River in the Headwaters Arkansas River watershed is currently in the 303(d) listing due to a high level of zinc. Twin Lake (West) located in Lake Creek watershed is currently in the 303(d) listing due to a high level of copper.

Willow Creek, Halfmoon Creek, Box Creek, and Big Union Creek, located in the Headwaters Arkansas River watershed, drain into the Arkansas River within this segment. Lake Creek is the major stream located in the Lake Creek watershed. North Fork Lake Creek and South Fork Lake Creek drains into Lake Creek within this watershed. Clear Creek, Pine Creek, and Four Mile Creek are major streams that are located in Clear Creek-Arkansas River watershed, and these creeks drain into the Arkansas River within this segment. Several small streams are tributaries to these major streams within the watershed. North Cottonwood Creek, Middle Cottonwood Creek, South Cottonwood Creek, and Cottonwood Creek are major streams located within the Cottonwood Creek watershed. All streams within the Cottonwood Creek watershed drain to Cottonwood Creek and finally join the Arkansas River. Trout Creek and Maxwell Creek, the main streams located within Trout Creek-Arkansas River watershed, drain to the Segment 1 portion of the Arkansas River.

Segment 2—Buena Vista to Salida East: Trout Creek-Arkansas River and Chalk Creek watersheds are contributing flow to Segment 2. There are several water wells and ponds located within the two watersheds to pump and divert surface water and groundwater for domestic, agricultural, and other activities. Within this segment of the project area, about 24.8 miles of mainstem of Chalk Creek from the source to the confluence with the Arkansas River located within the Chalk Creek watershed are currently in the 303(d) listing due to high level of cadmium. Dry Creek, Halfmoon, Browns Creek, Three Mile Creek, Squaw Creek, Ute Creek, and Cottonwood Creek, located in the Trout Creek-Arkansas River watershed, finally drain into the Arkansas River within this segment. Several small streams are tributaries to these major streams within the watershed. Chalk Creek is the major stream located in the Chalk Creek watershed. North Fork Chalk Creek and Baldwin Creek are the main tributaries of Chalk Creek.

Segment 3—Salida East to Vallie Bridge: Big Cottonwood Creek-Arkansas River, South Arkansas River, and Badger Creek watersheds are contributing flow to segment 3 of AHRA. In addition, upstream portion of the Royal Gorge-Arkansas River watershed drains to this segment of the Arkansas River. There are several water wells, ponds, and one water diversion structures located within these watersheds to pump and divert surface water and groundwater for domestic, agricultural, and other activities. About 17 miles of mainstem of the Arkansas River from the Chaffee/Fremont County Line to the downstream end of this segment located within the Big Cottonwood Creek-Arkansas River watershed are currently in the 303(d) listing due to high levels of copper. The mainstems of Badger, Hayden, Hamilton, Big Cottonwood Creek, Stout Creek and tributaries in the Badger Creek, and Big Cottonwood Creek-Arkansas River watersheds are currently in the 303(d) listing due to high level of arsenic.

Bear Creek, Howard Creek, West Creek, Cherry Creek, Stout Creek, Hamilton Creek, Hayden Creek, and Big Cottonwood Creek are located in the Big Cottonwood Creek-Arkansas River watershed, and all streams finally

drain into the Arkansas River within this segment. Badger Creek is the major stream located in the Badger Creek watershed. Several small streams are tributaries to Badger Creek within the Badger Creek watershed. South Arkansas River and Poncha Creek are major streams located in the South Arkansas River watershed. The Poncha Creek and all other small streams located within the South Arkansas River watershed are all tributaries of the South Arkansas River that finally drain to the Arkansas River.

Segment 4—Vallie Bridge to Parkdale: Portions of Royal Gorge-Arkansas River, Tallahassee Creek-Currant Creek, and Texas Creek watersheds are contributing flow to Segment 4. There are several water wells and ponds located within the three watersheds to pump and divert surface water and groundwater for domestic, agricultural, and other activities. About 26 miles of mainstem of the Arkansas River from downstream of Segment 3 to the end of this segment located within the Royal Gorge-Arkansas River watershed are currently in the 303(d) listing due to a high level of copper. The mainstems of Texas Creek and its tributaries within the Texas Creek watershed and the mainstem of Grape Creek and tributaries from the source to the outlet of DeWeese Reservoir within the Headwaters Grape Creek watershed are currently in the 303(d) listing due to high levels of arsenic. Miller Creek, Bernard Gulch, and Oak Creek are located in the Royal Gorge-Arkansas River watershed and drain into the Arkansas River within this segment. Texas Creek is the major stream located in the Texas Creek watershed. Several small streams are tributaries (including Lake Creek) to Texas Creek within the Texas Creek watershed. Tallahassee Creek, Cottonwood Creek, and Currant Creek are major streams located in the Tallahassee Creek-Currant Creek watershed. North, South, and Middle Tallahassee Creeks, Fear Creek, and Kelly Creek are all tributaries of Tallahassee Creek. Squaw Creek and Salt Creek are tributaries of Cottonwood Creek. All main streams and tributaries in the Tallahassee Creek-Currant Creek watershed are tributaries of Tallahassee Creek and finally drain to the mainstem Arkansas River.

Segment 5—Parkdale to Cañon City (Royal Gorge): Portions of Royal Gorge-Arkansas River, Outlet Grape Creek, a portion of Eight Mile Creek-Arkansas River, and Headwaters Grape Creek watersheds are contributing flow to segment 5. There are several water wells and ponds located within these watersheds to pump and divert surface water and groundwater for domestic, agricultural, and other activities. About 7 miles of the mainstem of the Arkansas River located within the Royal Gorge-Arkansas River watershed are currently in the 303(d) listing due to high level of copper. There are no major streams located in the Royal Gorge-Arkansas River watershed within Segment 5. Grape Creek and Sandy Creek are the main streams located in Outlet Grape Creek and Headwaters Grape Creek watersheds, and all streams originated from Headwaters Grape Creek drain to the Outlet Grape Creek.

Segment 6—Cañon City (Centennial Park) to Lake Pueblo: Eight Mile Creek-Arkansas River, Outlet Four Mile Creek, Headwaters Four Mile Creek, Hardscrabble Creek, Red Creek-Arkansas River, Beaver Creek, Pueblo Reservoir-Arkansas River, and Turkey Creek watersheds contribute flow to Segment-6. There are several water wells, ponds, and nine water diversion structures located within these watersheds to pump and divert surface water and groundwater for domestic, agricultural, and other activities. About 10 miles of the mainstem of the Arkansas River within this segment located within the Royal Gorge-Arkansas River watershed are currently in the 303(d) listing due to high levels of copper. Newlin Creek from the National Forest boundary to the City of Florence water diversion within Hardscrabble Creek watershed is currently in the 303(d) listing due to a high level of arsenic. The mainstem of Cripple Creek from the source to a point 1.5 miles upstream of the confluence with Four Mile Creek within the Outlet Four Mile Creek watershed is provisionally listed in the 303(d) for aquatic life. Brush Hollow Reservoir located in the Eight Mile Creek-Arkansas River watershed is in the 303(d) listing due to high level of mercury in fish tissue.

Four Mile Creek is a major stream located in the Outlet Four Mile Creek watershed. Streams originated from the Outlet Four Mile Creek watershed are all tributaries of Four Mile Creek. All streams originated from the Headwaters Four Mile Creek drain to the Outlet Four Mile Creek watershed located downstream. West Four Mile Creek, Four Mile Creek, Hay Creek, and Oil Creek are the main streams located within the Headwaters Four Mile Creek watershed.

Hardscrabble Creek is a main stream located in the Hardscrabble Creek watershed. Other small streams (Newlin Creek, Mineral Creek, North Hardscrabble Creek, and South Hardscrabble Creek) are all tributaries of Hardscrabble Creek. Rush Creek, Peck Creek, Rock Creek, and Boggs Creek are the main streams located in the

Pueblo Reservoir-Arkansas River watershed. These streams, originated from Pueblo Reservoir-Arkansas River watershed, drain to the Arkansas River. Beaver Creek is a major stream located in the Beaver Creek watershed, and the creek drains to the Arkansas River. Turkey Creek is the main stream located in the Turkey Creek watershed. Turkey Creek and Little Turkey Creek are perennial streams in the Turkey Creek watershed. Little Turkey Creek is tributary of Turkey Creek and Turkey Creek finally drains to Arkansas River.

3.2.3.2 Environmental Effects

3.2.3.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: The total area directly affected because of this alternative is 243.7 acres Federal land (see Table-3-1). Based on information available, the exact locations of future development cannot be determined due to the Proposed Action/Alternative 2. However, the Proposed Action/Alternative 2 would have direct, indirect, and cumulative effects on water quality and hydrologic processes. New campground development, expansion, and upgrade include a mix of new roads and parking areas, as well as installation of toilets, development of a host site, fire ring, picnic table, tent pads, and other campground facilities. AHRA development, expansion, and upgrade would involve excavation, grading, ground clearing, and additional exposure of soil material that would temporarily increase the potential for erosion until the drainage system, road paving, and revegetation work are finished.

Streambank stabilization problems and increased sedimentation that affects the water quality Arkansas River and Pueblo Reservoir, located at downstream portion of AHRA corridor, would occur because of the additional disturbance due to new campsite developments. The net change in the impervious surface area would be minimal from a watershed perspective. This would slightly increase surface runoff but with improved drainage and revegetation efforts, the adverse effect on water resources would be minimized. Short-term moderate adverse effects on water quality and hydrology are possible during construction, but in the end, these effects would be minimized in the long-term due to improvements of drainage system and proper application of Protective/Mitigation Measures. The flow in downstream drainages from the AHRA would not increase much due to high storm events and any sediment contribution to the drainage during project construction would be minor in relation to the supply of sediment and erosion that naturally occurs in the watersheds. The drainage modifications or any erosion control physical structures in the campground would slightly change hydrologic conditions or water quality downstream of the campground. Minimal effects on water quality would occur with the use of proper sediment and erosion control practices.

Protective/Mitigation Measures: Use applicable recreation planning process to develop measures to avoid, minimize, or mitigate adverse effects to water quality during recreation activities. Identify areas where the adverse effects of recreational use to water quality and watershed condition outweigh the benefits and select site locations for recreation facilities that avoid or minimize the potential for adverse effects to water quality. Use appropriate resource conservation measures when designing facility construction, access roads, and sanitation systems at recreation sites to incorporate proper sediment and stormwater controls in the project design. Hazardous spill plan would be required and clean-up materials would be on-site at all times. This measure is designed to avoid/minimize the introduction of chemical contaminants associated with machinery (e.g. fuel, oil, and hydraulic fluid) used in project implementation. Incorporate Clean Water Act (CWA) 404 and other Federal, State, and local permits or requirements into the project design and plan. In addition, apply mitigation measures indicated in the soils section to protect water quality.

3.2.3.2.2 Alternative 1

Direct and Indirect Impacts: The total area directly affected because of this alternative is 236.4 acres of Federal land (see Table-3-1). Based on information available under Alternative 1, the exact locations of new sites to be developed cannot be determined. However, soil impacts expected to occur in the watershed over a period of time and the Proposed Action/Alternative 2 alternative would have direct, indirect, and cumulative impacts to soil resources.

All potential direct impacts described under Proposed Action/Alternative 2 would be applicable for Alternative 1. However, the impacts under Alternative 1 will have less impact compared to Proposed Action/Alternative 2 because Alternative 1 provides for a lesser increase in land acquisition, facility development, and similar improvements.

Protective/Mitigation Measures: All Protective/Mitigation Measures described under Proposed Action/Alternative 2 would be applicable for Alternative 1.

3.2.3.2.3 No Action Alternative

Direct and Indirect Impacts: No new disturbance to soils resources would be introduced under the no action alternative except the ongoing activities needed to maintain current campground sites and some disturbance due to one site that may be expanded or upgraded. The no action alternative would have negligible new impact on water resources within AHRA. Watersheds, stream channels, floodplains and riparian areas would be remained in their existing condition and would be expected to display current trends. High rainfall events would continue to cause erosion, transport, and deposition of sediment in the campground and downstream areas. In addition, Maintenance of the campground sites and roads would continue to have local long-term moderate adverse impacts on water resources.

Protective/Mitigation Measures: No protective/Mitigation measures are required except the ongoing activities that require application erosion-control measures to maintain existing campground roads, campground sites, and operations to reduce impacts and protect water resources. Protective or Mitigation Measures indicated under Proposed Action/Alternative 2 would also apply here to reduce disturbance related to expansion or upgrading of one campground site proposed under this alternative.

Cumulative Impacts: The watersheds within the analysis area have been altered by past and present uses. Past measurable detrimental impacts to water quality, floodplain and hydrologic functioning are associated with historic mining, timber harvesting, camping and campground maintenance, roads and road maintenance, OHV use, livestock grazing, fire, fuels reduction projects, and water supply infrastructure (wells, diversions, etc.), which are still exist on the watershed at present. Roads are probably the largest contributor of sediment to ephemeral/intermittent streams on BLM administered lands. The Proposed Action/Alternative 2 alternative is expected to have moderate cumulative effect when added to the other stressors in the watersheds. In contrast, Alternative 1 will have lesser cumulative effects compared to the Proposed Action/Alternative 2 and higher cumulative effects compared to the no action alternative. The overall cumulative effects on to water quality, floodplain and hydrologic functioning from the no action alternative in combination with past, present, and reasonably foreseeable future actions would be long-term, minor, and adverse with a minor contribution from the no action alternative.

Finding on the Public Land Health Standard for Water Quality: The water quality of Nation's waters, including ground water, located on or influenced by BLM lands, will achieve or exceed the Water Quality Standards established by the State of Colorado. As indicated above, there are a number impaired streams listed under 303(d) within the watersheds. Most of the streams under 303 (d) listing are not related to recreation activities. A change to surface or ground water quality or quantity is minimal due to the Proposed Action/Alternative 2 or other alternatives and the rest of streams that are not in 303(d) listing are meeting Standard-5.

3.3 Biological Resources

3.3.1 Invasive Plants

3.3.1.1 Affected Environment:

Invasive plants are common in the area due to historical agricultural practices, mining, construction and increasing recreational use. The ecological sites that make up the project area are prone to a variety of weed

infestations if soil surface disturbance occurs. New infestations may also occur when noxious weed seeds are transported to new locations. Invasive plants within 5 miles of the river corridor can include, but are not limited to, black henbane, bull thistle, Canada thistle, common tansy, dalmation toadflax, diffuse knapweed, downy brome, elongated mustard, field bindweed, flixweed, houndstongue, leafy spurge, musk thistle, myrtle spurge, oxeye daisy, perennial pepperweed, plumeless thistle, Russian knapweed, Russian olive, saltcedar, scentless chamomile, Scotch thistle, spotted knapweed, water milfoil, white top, and yellow toadflax.

3.3.1.2 Environmental Effects

Additional disturbance associated with installation of new improvements will result in damage to and/or complete removal of existing native vegetation. The reduction of competition provided by desirable vegetation creates areas that are more susceptible to infestation by invasive species (weeds).

Recreational foot traffic and other human activities also may result in surface disturbance or vegetation damage. People, pets, vehicles, and gear also may act as vectors, unknowingly transporting weed seeds. Primitive areas that are subject to heavy recreation use may be more likely to be negatively impacted by human traffic than areas that are managed to handle heavy traffic, such as properly maintained developed recreation sites with appropriate facilities.

Site specific analysis related to invasive species will take place before any new ground disturbing activities are authorized.

3.3.1.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Under this alternative, more ground is likely to be disturbed than the other alternatives because it has more potential for construction of facilities. More ground disturbance is likely to increase the risk for invasive species establishment, as will the increased traffic that these new facilities will likely attract. Installation of adequate facilities that are properly maintained (adherence to mitigation measures below) may reduce unregulated recreation use in undeveloped areas, which may result in less impact to these areas. With strict adherence to the mitigation measures, there should be little to no new impacts resulting from invasive species under this alternative.

Protective/Mitigation Measures: For developed sites maintained or managed by CPW on BLM surface lands, the following will apply:

CPW will be required to revegetate disturbed areas not required for long term use after construction has concluded with desirable species in order to prevent establishment of invasive species in these areas. Areas that will remain disturbed for the long term (e.g., trails, roads, and parking areas) must be hardened with road base, gravel, concrete, asphalt or other suitable surfacing material.

- CPW shall effectively monitor for, and if present, effectively control A and B species on the Colorado Noxious Weed List. Other species may be controlled at the CPW's discretion (such as bare ground treatments of campsites, parking areas, and surfaced trails) if such species interfere with the intended use of the sites. Chemical treatments must be performed in accordance with BLM chemical pest control policy (such as working under approved Pesticide Use Permit(s), submission of application records and GIS data to RGFO, and exclusive use of appropriately licensed applicators). CPW must coordinate with RGFO weed manager for weed control on BLM owned surface.
- These and other possible site specific mitigations may be included as conditions of approval to
- Any agreements (such as future R&PP leases) with CPW under this plan.

3.3.1.2.2 Alternative 1

Direct and Indirect Impacts: Impacts from invasive species would be very similar to those resulting from the proposed action, possibly to a lesser degree due to less potential surface disturbance and traffic associated with recreation. With strict adherence to the mitigation measures, there should be little to no new impacts resulting from invasive species under this alternative.

Protective/Mitigation Measures: Same as Proposed Action/Alternative 2.

3.3.1.2.3 No Action Alternative

Direct and Indirect Impacts: Under the no action alternative no new areas would be developed. Surface disturbance would be limited to what is currently existing, except for possible surface disturbance caused by largely unregulated recreation in undeveloped areas. Assuming CPW adheres to existing mitigation measures, BLM policy and laws pertaining to weed control, there is expected to be little to no impacts from invasive species.

Protective/Mitigation Measures: The existing mitigation measures in the current river plan apply, along with noxious weed control required by state and federal law, and BLM policy.

Cumulative Impacts: The project area is already modified by a highway, roads, a railroad, housing, recreation developments, historic mining, recreation use and other human activities. These impacts have contributed to the establishment of invasive species in the area. With strict adherence to the mitigation measures, there should be little to no cumulative impacts resulting from invasive species under this alternative.

3.3.2 Threatened, Endangered, and Sensitive Species (includes a finding on standard 4)

3.3.2.1 Affected Environment:

This section addresses all wildlife and plant species protected by the Endangered Species Act (ESA) as federally threatened or endangered, and BLM sensitive. Federally threatened and endangered species are referred to as "T&E" or "T&E Species"; T&E Species and BLM sensitive species are referred to collectively as "special status species."

Species listed under the ESA of 1973 as threatened, endangered, or candidate species are protected under the U.S. Code of Law and managed by US Fish and Wildlife Services (USFWS).The ESA protects all species listed as T&E, and USFWS has the authority to enforce the unlawful taking ("to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct") of T&E wildlife.

Candidate species under the ESA are species the USFWS has enough information to warrant proposing, but are precluded from listing because of higher priorities. USFWS works with states, tribes, private landowners, private partners, and other federal agencies to prevent further decline and possibly eliminate the need for listing these candidate species. USFWS also protects all native bird species under the Migratory Bird Treaty Act (MTBA); these species are addressed in the Avian Wildlife and Habitat section.

The BLM sensitive species list includes those species that are sensitive to the potential of becoming endangered or extinct in Colorado. The ESA requires federal agencies to ensure that all actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any T&E species or result in the destruction or adverse modification of their critical habitats. In addition, BLM policy requires that BLM sensitive species are given the same consideration and protection as listed species. The BLM sensitive species designation is intended to focus species management efforts towards maintaining habitats under a multiple use mandate, consider species when making land management decisions, prevent species from being listed under the ESA, and prioritize conservation work.

Mammals

Big free-tailed bat (Nyctinomops macrotis). This is the largest bat found in Colorado, but little is known of their occurrence or natural history. It is listed as a BLM sensitive species. Generally, they are moth feeders that roost in cliff crevices and buildings. There are no breeding records from Colorado and just a scant five records statewide of occurrence, indicating that Colorado might be out of breeding range and only hosts occasional wandering bats (Fitzgerald 1994). Potential habitat with rough cliff country occurs in the project area, but the big free-tailed bat would be expected only as a rare migrant. There are no documented occurrences of this species in the analysis area.

Canada lynx (Lynx canadensis). The Canada lynx has been listed as a federally threatened species by the USFWS. The preferred habitat of the lynx is uneven-aged stands of coniferous forest with an open canopy and well developed under-story. Snowshoe hares are the preferred food source. There are no barriers to lynx movements, and the animals could be found in all habitats in the state. Recent reintroduction of lynx in Colorado have been relatively successful, and lynx are forming home ranges in suitable habitats. Segment 1 contains slivers of modeled primary and secondary lynx habitat while the lower segments contain none. In general, lands within the AHRA boundary are not considered suitable lynx habitat, but the animals may be seen during exploratory movements through these habitats.

Fringed myotis (Myotis thysanodes). The fringed myotis bat is a BLM sensitive species that is uncommon in Colorado and is found in ponderosa woodlands, greasewood, oakbrush, and saltbush. Caves, mines, and buildings are used as maternity colonies, solitary day and night roosts, and hibernacula. They feed on a broad variety of insects near the plant canopy, picking prey off the vegetation in slow controlled flight (Fitzgerald et al. 1994). There is potential habitat for this bat in the analysis area.

Gunnison's prairie dog (Cynomys gunnisoni). The Gunnison's prairie dog is a yellowish buff color mixed with black above and slightly paler below with a short, white-tipped tail. It is the smallest of the three prairie dog species found in Colorado: approximately 12 to 14 inches in length, between 12 to 15 inches tall, weighing about 23 to 42 ounces. Gunnison's prairie dogs inhabit grasslands and semidesert and montane shrublands (Fitzgerald et al. 1994), and are a keystone species of the sagebrush ecosystem (USFWS). Their diet consists mostly of grasses and sedges, and they do not require open water sources. Gunnison's prairie dogs hibernate from October through mid-April. The species' distribution in Colorado is limited mostly to the southwestern portion of the state and includes both Chaffee and Fremont County. The USFWS has determined that populations of the Gunnison's prairie dog located in central and south-central Colorado and north-central New Mexico are warranted for protection under the ESA. However, listing these populations at this time is precluded by pending actions for other species with higher listing priorities (USFWS). There is potential for this species to occur in the project area; however, there are no documented occurrences of this species in the project area.

Townsend's big-eared bat (Corynorhinus townsendii). Bat species in the project area utilize the natural caves and mine shafts for colonial roosting and trees and rock crevices for individual roosts. Bats also require flat water areas for drinking and insect hatches for feeding. Both drinking and feeding likely draws bats into the project area along the river. The Townsend's big-eared bat is on the BLM and USFWS sensitive lists, is a state species of concern, and the BLM considers it imperiled in the state because of its rarity. This bat species inhabits semidesert shrublands, piñon-juniper woodlands, and open montane forests. These bats predominantly use caves, abandoned mines for day roosts and hibernacula, but they also use rocky crevices and buildings as refugia. Townsend's are late flyers, emerging after dark to feed on caddisflies, moths, and flies. Much of the foraging occurs over water and along the vegetation margin, gleaning insects from leaves. They are easily disturbed and will leave caves or mines where human harassment occurs (Fitzgerald et al. 1994). Winter retreats to hibernacula in early fall are followed by breeding in the hibernacula in late fall and winter. Young are born in May or June, and females assemble into maternity colonies forming dense clusters for shared heat. Females leave young to feed. During surveys in 1993, Townsend's big-eared bat was documented within the Royal Gorge region of the Arkansas River (Navo 1999 as cited in J.F. Sato 2007).

Birds

Bald eagle (Haliaeetus leucocephalus). The bald eagle is a BLM sensitive species. In Colorado, bald eagles are often found near reservoirs and rivers with abundant prey, such as fish. In Colorado, bald eagles use large trees often located along rivers and reservoirs for their nest sites (Kingery 1998). Colorado is also host to a large number of wintering bald eagles. The majority of bald eagle use in the project area occurs along private lands in the Howard, Coaldale, and Swissvale areas where there are large perch trees along the river.

Mexican Spotted Owl (Strix occidentalis lucida). Mexican spotted owls are a federally threatened species. Mexican spotted owls use old growth forests within steep, rocky canyons in Colorado. Spotted owls are rare in the state as the species is at the northern limit of its range. Extensive inventory for spotted owls in the past eight years have resulted in the discovery of several canyons occupied by spotted owls, particularly in the area along the Front Range from Colorado Springs and to the south. While the habitat along the Arkansas River contains rocky cliffs and canyons, the vegetation is not typical of other nearby occupied sites. No inventory work has been completed in the river valley, but owls are not suspected of occupying the project area.

Peregrine falcon (Falco peregrinus anatum). The peregrine falcon has rebounded from a population of 4 nesting pairs in Colorado in 1977 to 68 pairs nesting in 1985 (Kingery 1998). They have been removed from the federal endangered species list; however, the species remains listed as BLM sensitive. Peregrine falcons prefer to nest on ledges of high cliffs and mate for life. Nests located in more assessable sites, such as dikes, have not withstood increasing human disturbance. Preferred habitats for the falcon include piñon-juniper or ponderosa pine forests and are near water and plentiful prey. An ideal eyrie also is in an area with little disturbance (Kingery 1998). On BLM administered lands, there is one (1) known peregrine eyrie within 0.5 miles of an existing site (Stone Cabin).

Amphibians

Northern leopard frog (Rana pipiens). This frog species is BLM sensitive and occurs throughout much of Colorado, except for the southeastern portions of the state where the plains leopard frog (*Rana blairi*) range begins (Hammerson 1999). Population declines in Colorado are primarily due to habitat loss and degradation and especially due to competition with bull frogs (Natureserve 2002, CDOW 2006). Typical habitat for the northern leopard frog includes wet meadows and shallows and banks of marshes, ponds, lakes, reservoirs, streams, and irrigation ditches. Leopard frogs are most often found at the water's margin but will also disperse from this habitat, especially during wet weather or just after metamorphosis (personal observation, Hammerson 1999). Records exist for Fremont County along the Arkansas River, and the most likely habitat would be old oxbow bends in the river, irrigation ditches, and manmade ponds and lakes.

Plants

Brandegee wild buckwheat (Eriogonum brandegei). The Brandegee wild is a BLM sensitive species and found in the upper Arkansas River valley in Chaffee and Fremont Counties, Colorado. This species occurs in open pinon-juniper stand on exposed soil associated with Dry Union and Morrison Formation. Several thousand individual plants are found in many sites within the project area. The Colorado Natural Areas Program, in cooperation with the Nature Conservancy, designated a site in Chaffee County as the Droney Gulch State Natural Area. The site, consisting of 294 acres, is located in T. 50 N., R. 8 E., Sections 16, 17, 20, and 21. It lies immediately west of Highway 285 near Big Bend. The Droney Gulch site represents the best known occurrence in the world for this species. The site contains approximately 3,000 individuals of the species. Although most of the site is on public land administered by BLM, some plants occur on private land. An equally important site is the Cleora site, located southeast of Salida, in T.49N.,R.9E., Sections 9 and 16.

Rock-loving aletes (Neoparrya lithophila). Rock-loving aletes are a BLM sensitive species that grow on volcanic substrates in cracks and shelves usually with minimal talus. It is seen in moderate to steep rock outcrops. The surrounding habitat is typically grasslands or pinon-juniper woodlands. There are known populations of this species within the project area.

Arkansas Canyon stickleaf (Mentzelia densa or Nuttallia densa). The stickleaf is a BLM sensitive species that typically grows in naturally disturbed areas such as washes and rocky slopes. It can be found on dry, open sites often with pinon-juniper or mountain mahogany. Approximately 30 square miles of potential habitat occur within

the project area, although actual specimens have only been collected along the Arkansas River and associated side canyons.

Degener beardtongue (Penstemon degeneri). Degener beardtongue is a BLM sensitive species that occurs in pinon-juniper woodlands and montane grasslands. It may be located in coarse gravelly or rocky reddish soil with igneous bedrock, or it may be found in cracks of large rock slabs. The known populations are concentrated in the area of the Royal Gorge, with one outlying population found in a similar habitat near the Five Points recreation site. This species has a broad range of adaptability; however, heavy recreation use in this habitat may reduce Degener beardtongue's viability.

3.3.2.2 Environmental Effects

3.3.2.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Only federal sites were considered for analysis.

Big free-tailed bat – See bat analysis in terrestrial wildlife.

Fringed myotis bat – See bat analysis in terrestrial wildlife.

Townsend's big-eared bat – See bat analysis in terrestrial wildlife.

Gunnison's prairie dog – The Gunnison's prairie dog may inhabit areas of Chaffee and Fremont Counties; however, there are no data available that indicate specific occurrences within the project area or along the Arkansas River corridor. Should they be present within the project area, only minor short-term impacts to the Gunnison's prairie dog would result due to increased human activity.

Canada lynx – Lynx habitat within the analysis area is limited. Lynx use of the analysis area is expected to be uncommon. The proposed action would have no effect on Canada lynx.

Bald eagle - Researchers who studied the effects of non-motorized recreational boating on non-breeding bald eagles in Alaska noted that 58% flushed in response to rafts approaching (Steidl and Anthony 1995). The flush distance was related to the distance that the boats were first sighted; only 23% flushed at distances greater than 100 meters. Other researchers studied bald eagle distribution in relation to human activity in the Grand Canyon National Park and determined that eagle distribution was negatively correlated with the amount of human activity (Brown and Stevens 1997). Eagles were flushed as boats passed hunting perches and roosts, but at the low level of present winter use, the effects on the eagle population are probably within the range of natural variability. A strong negative correlation has been found between eagle distribution and human activity, even at low levels of winter use (Brown and Stevens 1997). With the present low level of winter use, impacts to the bald eagle would be adverse but localized and short-term.

Golden eagle – Direct interaction between golden eagles and river recreationists would be unlikely. Noise levels could indirectly affect eagles, causing them to temporarily leave an area. Eagles may be disturbed by river runners while nesting or foraging, but they would be able to return to the activity once the disturbance was gone. Alternatively, they would relocate to a less disturbed area. Impacts to the golden eagles would be adverse but localized and short-term.

Mexican spotted owl – Mexican spotted owl is not present along the Arkansas River corridor. No effect to Mexican spotted owl is expected to occur as a result of the proposed action.

Peregrine falcon - Direct interaction between peregrine falcons and river recreationists would be unlikely. Noise levels could indirectly affect peregrines, causing them to temporarily leave an area. Falcons may be disturbed by

river runners while nesting or foraging, but they would be able to return to the activity once the disturbance was gone. Alternatively, they would relocate to a less disturbed area. Impacts to the peregrine falcon would be adverse but localized and short-term.

Northern leopard frog – See amphibian analysis in terrestrial wildlife.

Arkansas Canyon stickleaf – The expansion of recreation facilities may destroy plant populations and permanently remove habitat for the species. However, the specific location of proposed new facilities has not been established. Therefore, additional analysis will be required when site location is determined. Effects to the stickleaf will be addressed at that time.

The rock-loving aletes, brandegee wild buckwheat, and Degener's beardtongue are found in the vicinity of the project area within the Arkansas River Canyon, but they are not likely to be directly or indirectly affected by the proposed action.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In Alternative 2, there will be three low, 19 moderate, and five high federal sites. In total, the removal of 243.7 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 243.7 to 468.9.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g., trails, campgrounds, and day use sites) through revegetation efforts.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally but greatly increase the impact footprint.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

3.3.2.2.2 Alternative 1

Direct and Indirect Impacts: Only federal sites were considered for analysis.

Impacts to terrestrial species in Alternative 1 would be similar in scope to the Proposed Action/Alternative 2. However, the impact footprint will be increased with the construction of additional sites.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In Alternative 1, there will be seven low, 14 moderate, and five high federal sites. In total, the removal of 236.4 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying

spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 236.4 to 466.5.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g., trails, campgrounds, and day use sites) through revegetation efforts.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative to new site development is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

3.3.2.2.3 No Action Alternative

Direct and Indirect Impacts: Only federal sites were considered for analysis.

The impacts to special status species will be similar to impacts described in the Proposed Action/Alternative 2; however, the impact area would be significantly reduced.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In the No Action Alternative, there would remain eight low, 13 moderate, and five high federal sites. In total, the removal of 236.4 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 236.4 to 466.5.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect, vegetation and wildlife, and prevent wildlife harassment. Educate river users about the presence of special status species and encourage avoidance of these species. Actively manage unauthorized user created impact areas (e.g., trails, campgrounds, and day use sites) through revegetation efforts.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative to new site development is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

Finding on the Public Land Health Standard for Threatened & Endangered Species: The action will reduce available habitat for these species at a local level. However, at the landscape scale the impact will be negligible.

The disturbance impact will not be expanded appreciable in any alternative. The action area is a disturbed area, impacted by major highways, railway, mining, and grazing. No alternatives will substantially modify the affected environment beyond the current existing condition. Therefore, the proposed action will maintain the standard.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

3.3.3 Vegetation (includes a finding on standard 3)

3.3.3.1 Affected Environment:

The Arkansas River between Leadville and Pueblo consists of a wide variety of vegetation communities due to the variation in elevation (10,151 FT – 4,692 FT), climate and topography. The river corridor is made up of four major vegetation groups classified as riparian, grassland, shrub land, and forest land. Riparian vegetation is addressed in the Riparian section of this chapter.

The river parallels highways and a vacant railroad corridor that influence the native vegetation communities on public land. The railroad corridor has not been maintained since the late 1990s, and the corridor is experiencing a severe weed infestation - most notably cheat grass. The highways are generally maintained but still contain undesirable vegetation within the right-of-ways. Weeds are beginning to expand onto the adjacent public lands due to recent drought the area has experienced. As the climate becomes warmer and drier this expansion, would be expected to continue into the future.

Vegetation communities are summarized by section and limited to the sections that contain major BLM lands.

Segment 1 (Leadville – Buena Vista): Segment 1 is the higher elevation zone dominated by a grass: shrub community intermixed with lodgepole and ponderosa pine woodlands. Grasses are primarily cool season species consisting of Arizona fescue, Mountain muhly, needle and thread, June grass, and sedges. The lower elevation portions of this segment include pinyon pine, blue grama, Indian ricegrass, sand dropseed and pine dropseed. Shrubs include fringed sage, shrubby cinquefoil, big sagebrush, and rabbitbrush. Forbs common to this segment include pingue, lupines, and phlox.

Segment 2 (Buena Vista – Salida East): Pinyon pine woodlands intermixed with open grassland and shrub parks make up this segment. Grasses are a mixture of warm and cool season species including Arizona fescue, mountain muhly, needle and thread, Indian rice grass, Junegrass, sand dropseed, pine dropseed and blue grama. Shrubs include big sagebrush, rabbitbrush, mountain mahogany, fringed sage, and current. Forbs are primarily pingue and lupine. The dominant woodland is pinyon pine intermixed with ponderosa pine.

Segment 3 (Salida East – Vallie Bridge): Pinyon pine and juniper intermixed with grass/shrub parks dominate this area. Grasses include mountain muhly, needle and thread, Indian rice grass, Junegrass, western wheatgrass, sand dropseed, pine dropseed, and blue grama. Shrubs consist of rabbitbrush, mountain mahogany, fringed sage, winter fat, green sage, oak brush and current. Forbs are primarily pingue, scarlet globe mallow, allium, and various annuals. Ponderosa pine is present and isolated to the river's edge.

Segment 4 & 5 (Vallie Bridge – Cañon City): The segments are described together due to similar characteristics. The area is dominated by pinyon pine and juniper intermixed with grasses and shrubs. The grass community tends to be dominated by warm season species, but cool season grasses are intermixed. Grasses include blue grama, sideoats grama, sand dropseed, western wheatgrass, Indian ricegrass, needle and thread, and little bluestem. Shrubs include rabbitbrush, oakbrush, mountain mahogany, and currant. Forbs consist of pingue, scarlet globe

mallow, buckwheat, prickly pear cactus, and cholla. Ponderosa pine occurs as minor component and primarily found closer to the river's edge.

3.3.3.2 Environmental Effects

3.3.3.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Vegetation resource impacts are directly associated with the expansion and development of new facilities throughout the planning area where existing vegetation is directly and permanently displaced. The permanent loss of native vegetation could be considered a negative impact. The Proposed Action/Alternative 2 demonstrates the greatest expansion for recreational opportunities through higher existing facility expansion and development of new sites throughout the river segments. For the planning area, this alternative could result in 15 sites expanded or upgraded and 14 new sites planned for development. The acreage of new disturbance is 7.3 acres throughout all river segments. Thus this alternative results in a moderate impact to native vegetation resources. Changes in boating capacities would have negligible impacts to vegetation resources.

Protective/Mitigation Measures: Monitor and treat for noxious weeds especially in areas where soil disturbance activity occurs. Where possible, more emphasis should be placed on the control of cheat grass expansion along both sides of the river.

Promote ground cover of native vegetation where possible. Any reclamation work should include a reclamation plan that defines goals, a seeding strategy and post reclamation monitoring.

Cumulative Impacts: Historically the Arkansas River corridor was limited to railroad/highway operations and occasional access by fisherman and boaters. Today human demands have shifted to increased public recreation on and along the river. The increased demand for whitewater rafting, fishing, and camping has made the river more desirable to the public today than ever before. The future demand is expected to increase resulting in more use along the river and possibly further development to meet this demand. Overtime, river recreation demand will overflow further onto the public uplands where more development would be required promoting further impacts to the vegetation resource. In contrast, increased and uncontrolled use that is not managed through intensive development also poses impacts to vegetation resources.

3.3.3.2.2 Alternative 1

Direct and Indirect Impacts: Vegetation resource impacts are directly associated with the expansion and development of new facilities throughout the planning area where existing vegetation is directly and permanently displaced. The permanent loss of native vegetation could be considered a negative impact. Alternative 1 continues current management while moderately changing site development. A limited number of existing sites may be expanded or upgraded (changing their level of development), and a limited number of new sites may be developed. For the planning area, this alternative could result in 5 sites expanded or upgraded and 6 new sites planned for development. The associated impact to native vegetation from this alternative is minor in comparison.

Protective/Mitigation Measures: Same as Proposed / Alternative 2

Cumulative Impacts: Same as Proposed / Alternative 2

3.3.3.2.3 No Action Alternative

Direct and Indirect Impacts: Vegetation resource impacts are directly associated with the expansion and development of new facilities throughout the planning area where existing vegetation is directly and permanently displaced. The permanent loss of native vegetation could be considered a negative impact.

The No Action alternative continues current recreation and management practices described in the 2001 Plan. Development would be limited to maintenance of existing infrastructure and moderate upgrades. No new use areas would be developed, and no additional public access areas would be provided. In comparison, the No Action alternative results in the least impact to native vegetation resources throughout the planning area.

Protective/Mitigation Measures: Continue to monitor and treat for noxious weeds especially in areas where soil disturbance activity occurs. Where possible, more emphasis should be placed on the control of cheat grass expansion along both sides of the river.

Finding on the Public Land Health Standard for Plant and Animal Communities: The majority of the planning area is meeting Standards for Public Land Health under current management. As stated above, there are isolated upland areas along the river where cheat grass has expanded and is the dominate plant community. These areas would be considered as "not meeting" or "at risk of not meeting". Management under either alternative would continue to maintain achieving standards as long as area wide multiple use goals and best management practices are followed.

3.3.1 Wetlands and Riparian Zones (includes a finding on standard 2)

3.3.1.1 Affected Environment:

Riparian and wetland resources within the project area are structured to a large degree by natural geomorphology. Much of the Arkansas River is confined by solid rock with limited floodplain area during high flows. Many reaches that were confined naturally are now even more confined as a result of highway and railroad construction and channelization. The rocky and narrow canyon topography combined with high spring, and sometime late summer storm flows, limits soil development and plant establishment so riparian vegetation is commonly only a narrow band of wetland plants, or absent of plants due to solid rock. In less confined reaches however, meander bars, islands and stream-side flood plains allow for a lush band of riparian vegetation. For example, downstream of Canon City, and for a short reach between Leadville and Granite, the river features a well-developed floodplain with substantial acres of riparian vegetation per mile of stream. The predominant channel types though throughout the entire project area however are not suited for the development of extensive riparian and wetland vegetation, especially on public lands that were less productive, rugged, and were not sought out for homesteading.

Most infrastructure along the entire river is actually at higher elevation than the elevation of the riparian plant community, including most recreation facility development. The riparian community along the river is composed of differing species of grasses, sedges, rushes, willows, alders, birch and cottonwood and evergreen trees adjacent to the river. There is limited emergent or submergent aquatic vegetation except in side channels and backwaters. Though limited in total acreage, these riparian bands do have high resource values and are also important to a recreating public where the vegetation shields visitors from highway infrastructure offering a sense of seclusion.

Site-specific land use, development, and to a lesser extent recreation pressure can further determine the composition of the vegetation community. Historic mine tailing deposits affected riparian stability in certain upstream locations through impacts to soil quality and some areas are void of vegetation (Arkansas Water needs Assessment, 2000). Substantial rehabilitation efforts have been targeted to address these mine impact issues because banks without vegetation are instable.

Activity within the private riparian zones can alter floodplain and riparian resources but are not managed under this plan. Continual development is occurring and development trends continue. Smaller pastures used similar to corrals are also present as ranchlands subdivide along the corridor and permanent land use conversion creates compacted soil areas that affects runoff and sedimentation; generally privates lands are highly altered which includes the towns in the basin.

Traditional public land riparian resource historic impacts have subsided through time and most resource conditions are now meeting BLM land health standards, but there are localized high recreation pressure areas and potential degradation is possible with excessive unmanaged recreation. Recreation use has been planned for (previous River Plans) and is generally accomplished by steering high use to developed sites where increased use impacts can be controlled. However, a substantial portion of public use increase is dispersed away from developed sites and this recreation activity, along with the population trends discussed early in the document for the state of Colorado requires continual re-evaluation relative to minimizing cumulative impact. Camping, fishing, and picnicking are examples where trampling of vegetation and trailing may need to be addressed, so ongoing management of increasing public use is a central point of focus for this plan.

The length of the Arkansas River under AHRA planning is 152 miles as described. River miles that border public lands are less however, and are only in Lake, Chaffee and Fremont Counties (approximately 45 miles). The river has sinuosity, which adds length compared to that of a straight line and affects the amount of bank riparian, and similarly, the acreage per miles of riparian resources fluctuates because at some locations, both sides of the river are not in public ownership, or boundaries are at odd angles. The width of the AHRA polygon over 152 miles varies considerably and there are locations of substantial uplands such as the Collegiate Peaks Overlook and other areas relatively far from the river are included as some upland areas are necessary for the management of the overall River Recreation Area. A GIS evaluation of only BLM public land along the AHRA river course, and buffered out to a width of 250 feet on either side of the river channel does however include much of the area where intense riverside recreation activity occurs as public land is targeted more for recreation than private lands. At a few locations, 250 feet extends beyond the AHRA boundary width where AHRA boundaries were designated tight to the river's edge; regardless, there are approximately 2700 acres of public land within 250 feet either side of the river on the roughly 45 miles of public land. Pueblo County has no riverbank BLM, but does have substantial private land riparian resource and the river there is in a setting of a broad floodplain. The acre value presented is to frame a reference later though analysis because there is variability in the Alternatives as to what could be acquired, and or developed under various Alternatives. The 250 foot buffer from the rivers' margins includes most of the band of most riparian vegetation, and associated wetland habitat and overlaps the substantial recreation activity areas of AHRA. The width of riparian within this distance varies but generally, riparian and wetland resource impacts associated with this project are contained in a 250-foot distance from the river. Large recreation sites such as Hecla Junction and Parkdale have developed footprints of approximately 13.8 and 11.3 acres respectively, and are largely within 250 feet of the river. Those locations however have relatively narrow bands of riparian so the direct riparian vegetation impact from converting riparian areas through feature developments such as boat ramps and trails is less at approximately 0.1 acre. However, BLM recognizes riparian area wildlife disturbance and change to other riparian functions adjacent to recreation areas. Typically, most existing recreation sites have smaller overall and direct riparian disturbance footprints comparatively; they also have most of actual disturbance activity upon the adjacent river terrace. Evaluating beyond the rivers' edge 250 feet generally captures the overlap area of high public recreation and riparian habitat interaction. Presently, physical disturbance generally is at separated isolated sites and on adjacent river terrace with small overall riparian acreage disturbance and high quality habitat in-between. Riparian habitat in-between recreation sites gets disturbed more from activity rather than development. New site development generally will target areas within the space of close proximity to the river.

3.3.1.2 Environmental Effects:

This section evaluates proposed new disturbances from AHRA activities within these acreage values, but can only generalize without site development plans. However, even in a total build out of any action alternative, recreation site development remains small in total and would be partially offset by minimizing dispersed use impacts. Furthermore, much of what could occur is actually proposed for non-federal lands, which comparatively can be subject to other permanent land conversion. Wildlife disturbance in riparian habitats is also important when discussing recreation and is further discussed in the wildlife section, but increased public use increases wildlife disturbance without additional mitigation unless some parcels acquired are true open space in the future.

Determining possible impacts to public land riparian resource along the river from recreation facilities "potentially" necessary to manage increasing recreation requires analyzing acreage totals of current and proposed disturbance discussed in the alternatives. However, interpreting the value gained by restoring areas damaged by dispersed use that partially transfers to a developed site is also important, but difficult to quantify.

There are *common to all* concepts to all alternatives that have emerged from more than 27 years of active management of the AHRA. In addition, there are common decisions, and AHRA-wide recreation and AHRA-wide multiple-uses goal contained in the plan that are protective:

1) Since AHRA inception, there is broad understanding of public use patterns by river managers after recreation sites become developed or more intensely managed. AHRA is a busy river corridor with respect to public use and riparian habitat interaction. Targeting high use to facilities planned to handle the use (developed launch sites for instance) has protected the overall area, and has allowed dispersed use affected areas to recover.

2) As visitation to AHRA continues to increase as projected, there will perpetually be a need to manage dispersed use because public use spreads without containment even if most use increases happen on managed sites. Management actions ranging from signage to parking controls up to recreation site development offsets resource degradation inherent with dispersed use.

3) Riparian areas rested from intense dispersed pressure along the Arkansas River corridor do recover with respect to riparian habitat condition when adaptively managed.

4) Developed recreation sites have had a high percentage of their total footprint up on the river terrace with usually only boat ramps and minor trailing into flood prone riparian areas. Proximity to the river is often close, but the elevation of developments is generally separate from the riparian zone. Resource condition improvements have justified the management actions to development sites.

Given existing AHRA management controls, area wide resource protection goals, public lands along the Arkansas River corridor have sustained riparian resources and functions with a high degree of integrity where public use patterns received targeted management; following are affects by alternative.

3.3.1.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: The Proposed Action results in minimal new disturbance on existing BLM lands in the riparian zone, rather, it targets much of projected growth in visitation to potentially acquired non-federal lands that would have varying development needs to handle projected visitation (population section 1.65). Specific to public lands, new developments are planned in the uplands at several locations: Hardening Granite Rock with vault toilet; similar at Stone Bridge; enhancements at Elephant Rock, Tunnel View, and Big Bend all in the uplands; ramp enhancement at Fisherman's Bridge; camping north of Salida East; camping improvements at Point Barr; improvement to minimize maintenance needs at Texas Creek to the Boat Ramp; and undefined impacts depending upon community involved site planning at Blue Heron, are all foreseeable public land actions. These actions would have negligible direct impact to existing public land riparian resources and are mostly only on adjacent upland terrace next to the river.

This Alternative relies heavily on the opportunity to acquire non-federal lands for added recreation development and does not involve significant change to existing BLM lands. Most riparian functions can be compatible with high use, but repetitive or near constant disturbance from riparian area visitors along the river does affect wildlife habitat values of obligate riverine wildlife species. Commercial boater capacity increase in any area from none to some, or some amount to more, will not generally degrade riparian functions as boats float from developed site on to developed site, but added disturbance affects wildlife use of the riparian wildlife habitat. Projected population growth (section 1.65) will reduce the value of riparian habitat even if riparian conditions are sustained.

Protective/Mitigation Measures: Continued to be managed under AHRA are-wide recreation, multiple use, and Adaptive Management goals and principals discussed earlier in the document to protect against increasing

dispersed use impacts such as soil compaction and vegetation trampling. Designated dispersed camping management as planned is recommend until potential new camp locations are secured.

Cumulative Impacts: This Alternative's needs on non-federal lands coupled with Colorado population growth and AHRA visitation increases has more impacts to river-wide riparian resources on purchased private lands than federal lands if lands were acquired as described in Table 2-7. New sites would have disturbance impacts, yet the goals have some acquisitions targeted for open space that potentially is much less influencing than a permeant development of some from; however, they would be speculative, and it is hard to project as there is also many private land conservation activities ongoing. Management of existing public lands and future lands acquired under AHRA are-wide recreation, multiple use, and Adaptive Management goals and principals to protect against increasing dispersed use impacts would help offset potential new sites that may be acquired then hardened with facilities.

3.3.1.2.2 Alternative 1

Direct and Indirect Impacts: Same as the proposed action; however, higher boater numbers floating through riparian areas would have higher disturbance affects to wildlife.

Protective/Mitigation Measures: Same as the proposed action. Open space acquisitions to offset increased boater numbers would be beneficial and are a recommended mitigation.

Cumulative Impacts: Same as the proposed action, but some segments of the river as shown in Table 2-8 have added wildlife disturbance.

3.3.1.2.3 No Action Alternative

Direct and Indirect Impacts: Considering the concepts discussed in the Environmental Effects (overview) from above, taking No Action in the Management of AHRA given the increases in use projected would result in continual increase in angling, camping, and other dispersed use compaction of more soil and trampling of more vegetation without substantial management of new targeted areas to handle some of this increase. The common to all management of existing public lands principals and AHRA are-wide recreation, multiple use, and Adaptive Management goals to protect against increasing dispersed use impacts would still occur, but no new sites or facilities would be added. Protection is still afforded with this alternative, but with increasing visitation, dispersed use expands as certain areas become too crowded to use.

Protective/Mitigation Measures: If this alternative is selected, adaptive management would continue, and resource damage could force AHRA to take unplanned steps to alleviate increased crowds.

Finding on the Public Land Health Standard for Riparian Systems: Except for direct disturbance for boat ramps and a few similar features, BLM land health standards for riparian conditions will continue to function under any Alternative along most public land along the AHRA river corridor. However wild habitat values do get compromised in certain times of the year at some locations due to public use.

3.3.2 Aquatic Wildlife (includes a finding on standard 3)

3.3.2.1 Affected Environment:

Information in this section is general in nature and obtained from published reports (see also the riparian and wetland section). No new information related to aquatic wildlife was specifically collected for this planning effort, but updated recreation use for angling, boating, and other uses appears in the recreation section and tables within this document that relate back to aquatic resources. Angling on the Arkansas has substantial economic impact to the region. Additionally, in the time since the AHRA Plan update in 2001, the Arkansas River fishery received

"Gold Medal Status". This is a CPW designation reserved for high quality angling locations and only select streams statewide meet the qualifications. The Arkansas River had 102 miles from near Leadville down to Parkdale qualify. In order to qualify, a stream must sustain 60 pounds of trout per acre with at least 12 quality fish per acre being greater than 14 inches. Gold Medal designation came in early 2014. Then, 2015 was an extreme water year with sustained high flow that deters angling generally, so there is little more than observational information from 2014 and 2016 to document any angling pressure differences due to designation (see Figure 1-2). However, the importance of the Arkansas River fishery is clear to the angling public.

The Arkansas River begins at the confluence of the East Fork of the Arkansas River and Tennessee Creek. Aquatic life, habitat and the influences upon them vary considerably along an elevation gradient leading to Pueblo Reservoir, approximately 152 miles downstream, and there is a continuum of changing aquatic habitat. The river has a variation of alternating natural geomorphic features throughout the corridor that do not necessarily match the segments divided for recreation management purposes (see section maps in Chapter 1). Natural and manmade conditions shape the aquatic community structure that is further influenced by adjacent vegetation and tributary stream riparian health conditions. The river was partitioned into six distinct aquatic habitat types defined by river geomorphology ranging from low gradient and wide channel, often with islands, all the way to tight canyons with large boulders and steep gradients when previous flow evaluation studies were performed on the Arkansas River (Arkansas Water Needs Assessment 2000).

Channel characteristics are important for flow management discussions, but flow is largely not at issue in this plan as noted above that the AHRA operates under the voluntary flow program. However, recognition of the alternating fishery habitat differences is interesting if in the future, anglers seeking certain types of angling water begin to concentrate and any adaptive management actions are necessary. The upper Arkansas River is recognized for its exceptional brown trout fishery and has a developing rainbow trout component. Surveys conducted by the CPW document that brown trout are present throughout the project area. Brown trout number about 2,000 fish / mile throughout much of the river while rainbow trout are about 100 fish / mile (in some reaches where present) but with more variation relative to density than brown trout. Brown trout are sustained by natural reproduction while rainbow trout are supplemented by stocking. For this planning effort, consideration for these two trout are emphasized because of their recreation fishing value.

Although emphasis is upon managing game species, there are a number of non-game species also present. BLM sensitive fish species have not been affected by AHRA management actions in sections of the main stem as they are more typically found in offsite tributaries, backwater or in lower elevation sections of the AHRA. Habitat conditions favorable for the trout species is supports the other species. There is also considerable knowledge about the aquatic invertebrate community and to a lesser extent, the herpetofauna in the Arkansas River corridor (Hammerson, 1999). With the Arkansas River being a cold environment throughout much of the planning area, aquatic amphibians are limited; mainly downstream, but can be found in limited but suitable off channels areas, (see Terrestrial Wildlife). Fish habitat is seasonally dependent on runoff and high discharge results in substantial areas of the river simply becoming too swift for fish to occupy and at times of the year angling shuts down substantially. Brown trout spawn in the Arkansas River from mid-October to mid-November. The amount of suitable spawning habitat (depth, velocity, substrate, and water temperature) is also dictated by discharge existing at the time of spawning. Tributary streams are also important spawning areas and may be selected if conditions are unsatisfactory in the Arkansas. Cottonwood, Grape, Chalk and Texas Creek are typical tributary streams where brown trout spawning is known to occur.

Much more specific fishery information can be found in the 2000 Arkansas Water Need Assessment. That document should be consulted while making any decision concerning flow management of the river that could arise during the life of this plan. Rainbow trout have been very susceptible to whirling disease and the present stock is a rebuilding effort by the CPW to introduce new strains less prone to disease affects to replace the rainbow fishery mostly lost in the 1990's to disease. Some information about rainbow trout would be supplemental in CPW files since the time of the Water Needs Assessment; however, CPW is reporting promise for rebuilding a quality rainbow fishery.

Water quality is equally important as physical aquatic habitat. Water quality of the upper Arkansas River basin is generally good. Tributary streams in the basin show high levels of dissolved oxygen and low levels of organic material such as nitrogen, phosphorus, fecal coliform counts and total dissolved solids. Historic discharges from hard-rock mine activity near Leadville has been aggressively managed since the initial AHRA planning effort and improvements in the watershed are documented, though there are still some periods of elevated metal concentrations that exceed state water quality standards in some sections. Sediment pulses, both natural and human accelerated, affect the biotic community and express at times during heavy precipitation and are well known to disrupt angling for short periods of time when the river gets turbid.

There have been extensive studies on the importance of the aquatic macroinvertebrates and their production as it also relates to water quality. There is a high dependence upon this community of insects by the fishery and other animal life. Over 60 aquatic insect species inhabit the river expressing a complex annual and seasonal variation in population dynamics that links directly to the fishery. Some species are dependent upon adjacent riparian conditions. Many bird and several bat species (see Terrestrial Wildlife) also forage heavily upon river produced aquatic insect life during different times of the year. The direct link between physical variables, macroinvertebrates and the fisheries are fairly well understood for the Arkansas River's aquatic life.

CPW manages fishery resources on the river primarily for the benefit of users on public lands, but private as well. To monitor the effects of various management practices, CPW conducts sampling of the fish populations in many different sections of the river. Creel census information, catch composition and catch rate are factored into the fisheries management. The lower elevations of much of the river and generally mild winters does allow for some angling year-round on many miles of river that is public land. The proximity of the river to large metropolitan areas such as Denver, Colorado Springs and Pueblo makes it attractive to day trip anglers. The Arkansas River is also noted for its excellent fly fishing with insect hatches being common, the most notable being the caddis fly hatch in the spring. More information concerning angling is provided in the recreation section.

3.3.2.2 Environmental Effects

Recreation management actions can subtly, but directly or indirectly affect the integrity and interaction of the biota at point locations, related by riparian function and plant health. Cumulative land conversion practices affects within the watershed are a contributor to the cloudy turbulence the river frequently exhibits. Ongoing efforts to support BMPs related to storm water runoff, livestock management, road drainage, and other actions are constant management actions for protection of the river which should not be ignored relative to recreation.

3.3.2.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Presently, angling effort and catch rates affecting population level fish mortality has not been of concern to CPW, and anticipated growth in angling for the life of this plan is believed to be sustainable for the fishery. Factors discussed in the riparian section have kept riparian disturbance minimal when comparing new disturbance to that of recovered dispersed areas and the present and foreseeable quality of the fisheries. Anglers have some propensity to distribute away from each other, and the number at any location is sustainable for the near future. The proposed action results in minimal new disturbance on existing BLM lands in the riparian zone; rather, it targets much of the projected growth in visitation to potentially acquired non-federal lands that would have varying development needs to handled projected visitation (population section 1.65).

Specific to public lands, new developments are planned in the uplands at several locations: Hardening Granite Rock with vault toilet; similar at Stone Bridge; enhancements at Elephant Rock, Tunnel View, and Big Bend all in the uplands; ramp enhancement at Fisherman's Bridge; camping north of Salida East; camping improvements at Point Barr; improvement to minimize maintenance needs at Texas Creek to the Boat Ramp; and undefined impacts depending upon community involved site planning at Blue Heron, are all foreseeable actions. These actions would have negligible direct impact to existing public land riparian aquatic wildlife resources and are mostly only on adjacent upland terrace next to the river. This

Alternative relies heavily on the opportunity to acquire non-federal lands for added recreation development and does not involve significant change to existing BLM lands. Acquired lands would likely add additional angling opportunity.

Protective/Mitigation Measures: none required for angling concern. Continued to be managed under AHRA are-wide recreation, multiple use, and Adaptive Management goals and principals to protect against increasing dispersed use impacts such as soil compaction and vegetation trampling. Designated dispersed camping management as planned is recommend until potential new camp locations are secured.

Cumulative Impacts: This alternative coupled with Colorado's population growth and AHRA visitation increases would have more impacts to river-wide riparian resources on purchased private lands than federal lands if lands are acquired as described in Table 2-7. Acquisitions of new sites for conservation purposes would have beneficial effects. Management of existing public lands and future lands acquired under AHRA would have area-wide riparian protections that would minimize impacts.

3.3.2.2.2 Alternative 1

Direct and Indirect Impacts: Same as the proposed action; however, higher boater numbers may cause conflict with shore anglers.

Protective/Mitigation Measures: Same as the proposed action. Open space acquisitions to offset increased boater numbers would be beneficial.

Cumulative Impacts: Same as the proposed action, but some segments of the river as shown in Table 2-8 have added disturbance.

3.3.2.2.3 No Action Alternative

Direct and Indirect Impacts: Considering the concepts discussed in the Environmental Effects (overview in riparian section), the No Action Alternative would result in continual increase in angling, camping, and other dispersed use compaction more soil and trampling more vegetation without substantial management of new targeted areas to handle some of this increase. The common to all management of existing public lands principles and AHRA are-wide recreation, multiple use, and Adaptive Management goals to protect against increasing dispersed use impacts would still occur, but no new sites or facilities are added. Protection is still afforded with this alternative, but with increasing visitation, dispersed use expands as certain areas become too crowded to use.

3.3.3 Terrestrial Wildlife (includes a finding on standard 3)

3.3.3.1 Affected Environment

The Arkansas Headwaters Recreation Area contains a diversity of terrestrial wildlife species. Each of these species has a relationship with the Arkansas River, which depends on a complex web of habitat functions to live, eat, mate, and raise young. Terrestrial species with potential to occur in the project area include, but are not limited to, large mammals such as bighorn sheep, mountain lions, black bears, mule deer, and elk; small mammals such as mice, voles, coyotes, gray fox, red fox, bobcats, beaver, weasels, cottontail rabbits, ground squirrels, and various bat species; and reptile and amphibian such as western rattlesnake, coachwhip, bull snake, prairie lizard, six-lined racerunner, great-plains skink, tiger salamander, northern leopard frog, Woodhouse's toad, and western chorus frog. Some of these species, such as black bears or coyotes, habituate to human activities and human food sources, while other species, such as bighorn sheep, are sensitive to or deterred by human activity. Habituation of

wildlife species, such as black bears and coyotes, to humans is often negative and may lead to increased human wildlife conflicts.

Bighorn sheep (Ovis Canadensis): Big-horn sheep prefer the open grasslands and steep topography, typical of the project area. Grasses and sedges as well as shrubs constitute most of the bighorn sheep's diet. Areas where piñon-juniper and scrub oak begin to dominate the vegetation have reduced habitat quality for bighorn sheep, both because the forage is less suitable and the closed canopy increases the chances of predation (Reed et al. 1994).

Bighorn sheep generally rut in November through December, and lambing occurs in May through late June (Fitzgerald et al. 1994). Bighorn sheep are highly dependent on reliable water and typically stay within 2.0 miles of a water source; ewes with lambs tend to stay much closer to dependable water sources. (Geist 1971, Van Dyke et al. 1983 as cited in BLM 2001b; Leslie and Douglas 1980, McCarty and Bailey 1994 as cited in BLM 2001b). Many areas within the project area are considered optimal lambing range as mapped by Colorado Parks and Wildlife. During the lambing season (May–June), watering areas are critical for lactating ewes and new lambs (Reed et al. 1994 as cited in J.F. Sato 2007). Colorado Parks and Wildlife has mapped bighorn sheep production areas along the Arkansas River. Seven existing sites intersect with bighorn sheep production areas including: Five Points, Granite Rock, Pinnacle Rock, Salt Lick, Spike Buck, Stone Cabin, and Texas Creek.

Research is conclusive that stress, such as human contact, vehicles, dust, noise, and harassment on bighorn is a factor in their susceptibility to disease (Spraker et al. 1984). Stress has been measured in the canyon using heart rate monitors. In one instance in January 1999, a bighorn was observed at the river with a resting heart rate of 75 beats per minute (bpm). As humans on the opposite bank began to yell, wave arms, and whistle, the ewe stared back without a flight response, but her heart rate jumped to 85 bpm. With continued harassment (5 minutes) the ewe did not flee, but she eventually had a heart rate raised to 120 bpm, showing that behavioral response is not necessarily an adequate measure of stress in bighorn (Baker et al. 1999). The added stress of increased human presence can cause an increase of steroid secretion from the adrenal cortex. High levels of steroids inhibit the inflammatory process, in turn resulting in susceptibility to bacterial pathogens.

The results of multiple studies concur that the bighorn sheep population north of the Arkansas River in Bighorn Sheep Canyon is closely tied to the river corridor throughout the year, without much room for dispersal from stressors (Reed et al. 1994, Backstrand 1991, Baker et al. 1999). In general, animals adapt to consistent predictable disturbance, and it is not known how well these sheep will habituate to stimuli that are infrequent and unpredictable (Baker et al. 1999 as cited in J.F. Sato 2007). While, in general, bighorn sheep are notorious for being negatively affected by humans and by anthropogenic disturbances of any sort, the populations in the project area have been living and persisting in a very noisy and heavily human used environment for years. To some extent they appear to have habituated to the presence of noise produced by cars, motorcycles, trucks, rafts and rafters, fishermen, and other humans on foot.

Mule Deer (Odocoileus hemionus): Mule deer are common in Colorado and occur statewide in a wide variety of habitats. Mule deer are nocturnal or crepuscular in warmer months, but they are known to be more active during the day in winter. They are a migratory species ranging from a few kilometers (km) to over 80 km seasonally. In general, they prefer meadows and forest edges in the warm seasons and lower elevations and south-facing slopes in the winter. Mortality of deer is variable depending on age class. Fawn mortality is primarily due to starvation and predation, while older animal mortalities are split between winter starvation, annual harvest, and predation (Fitzgerald et al. 1994).

Mule deer utilize most of the habitats found in the project area, including the riparian zone, grassy meadows, upland shrub areas, and piñon-juniper habitats. Although mule deer can traverse steep rocky terrain, it is a less important habitat characteristic for deer than it is for the bighorn sheep. Mule deer have patterns that change with the season and other factors, such as predator and human avoidance. Mule deer feed in the shrub or riparian areas during crepuscular hours in the early to late evening and in the early morning hours. During other times of day and night, mule deer are likely to spend time away from the river corridor in the piñon-juniper uplands.

Elk (Cervus elaphus): Elk are a large species of deer native to Colorado, common to the western two-thirds of Colorado as well as pockets of eastern Colorado. In general, elk are nocturnal or crepuscular, but they are known to be more active during the day in areas without disturbance. They favor steep slopes of 15% to 30% gradient. Mortality of elk in Colorado is split relatively evenly between calve starvation, annual harvest, and predation (Fitzgerald et al. 1994). Elk are uncommon along the riparian corridor in the canyon, but they are more common upstream. Elk occur in the forested and open grassy habitats at the higher elevations near the project area. Portions of the project area are fairly important elk production areas. Winter concentration and severe winter areas occur in close proximity, but are located at slightly higher elevations above the river.

Mountain Lion (Puma concolor): Mountain lion are common throughout the project area. Their habitat consists primarily of canyon country associated with piñon-juniper woodland, which is considered to be preferred habitat for mountain lion in Colorado (Fitzgerald et al. 1994). Mountain lion mainly prey on mule deer but also take bighorn sheep, elk, and other small mammals that are available (Fitzgerald et al. 1994, NDIS 2006). Mountain lion are primarily nocturnal mammals and likely use the river corridor for hunting, denning, and access to water.

Black Bear (Ursus americanus): Black bear are a common species in the project area. Black bear are adaptable to almost any environment as long as food and cover are available (Fitzgerald et al. 1994). Denning in Colorado begins between October and December, and bears generally use rock cavities or dens dug under shrubs. Breeding occurs in June through August. Black bear summer concentration areas occur throughout the project area. There are several documented bear/human conflict areas in the project area. Black bear are adaptable to living in proximity to humans and can become dependent on food sources associated with people, such as areas around campgrounds, garbage dumps, or garbage cans. In a more natural setting, bears are elusive and forage on what is seasonally available, such as grasses, forbs, berries, fruits, acorns, insects, small mammals, amphibians, young ungulates, and carrion.

Small and Medium-size Mammals: Within the project area, there are a number of small mammal species. These mammal species utilize a variety of habitats, including riparian areas, floodplains, and uplands for food, water, and shelter. Most species use all three zones to some extent. Many of these species are active nocturnally or during crepuscular hours. Many small to medium-size mammals inhabit, or potentially inhabit, the project area including, but not limited to, mice (*Peromyscus* spp., *Reithrodontomys* spp.), voles (*Microtus* spp.), Mexican woodrat (*Neotoma mexicana*), raccoon (*Procyon lotor*), ringtail (*Bassariscus astutus*), striped skunk (*Mephitis mephitis*), western spotted skunk (*Spilogale gracilis*), longtailed weasel (*Mustela frenata*), mink (*Mustela vison*), beaver (*Castor canadensis*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and coyote (*Canis latrans*)Fitzgerald et al. 1994). During 2009 field surveys, potential river otter (*Lontra canadensis*) sign was observed. During surveys in the late 1990s, species documented at the rock quarry near Browns Landing included northern pocket gopher (*Thomomys talpoides*), rock squirrel (*Spermophilus variegatus*), least chipmunk (*Neotamias minimus*), bushy tailed woodrat (*Neotoma cinerea*), and Nuttall's (or mountain) cottontail (*Sylvilagus nutallii*) (EMS 1997 as cited in J.F. Sato 2007).

Bat species in the project area utilize the natural caves and mine shafts for colonial roosting and trees and rock crevices for individual roosts. Bats also require flat water areas for drinking almost immediately after emergence from the roost and for feeding on insect hatches. Both drinking and feeding likely draw bats into the project area along the river. There are two known maternity roost sites for the Townsend's big-eared bat (*Plecotus townsedii*), a State Species of Concern and BLM sensitive species, in proximity to the County Line and Parkdale panel areas (Wertsbaugh 2009); see also Section 3.2.5, Threatened, Endangered, and Sensitive Species for more information. Other bat species that potentially occur in the canyon include, but are not necessarily limited to, western small-footed myotis (*Myostis ciliolabrum*), little brown myotis (*M. lucifugus*), fringed myotis (*M. thysanodes*), long-legged myotis (*M. volans*), long-eared myotis (*M. evotis*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), and big brown bat (*Eptesicus fuscus*) (Fitzgerald et al. 1994).

Reptiles and Amphibians: Several species of reptiles and amphibians are likely to inhabit the project area. Many of the reptile species primarily use upland habitats. However, in some areas there is a sharp transition from riparian to upland vegetation within a meter or less, creating opportunities to potentially find many of these snakes and lizards close to the river within the project area. Upland reptile species include, but are not necessarily limited to, eastern collared lizard (*Crotaphytus collaris*), short-horned lizard (*Phrynosoma hernandezi*), triploid Colorado checkered whiptail (*Cnemidophorus neotesselatus*), six-lined race runner (*Cnemidophorus sexlineatus*), smooth green snake (*Liochlorophis vernalis*), coachwhip (*Masticophis flagellum*), bull snake (*Pituophis melanoleucos*), plains garter snake (*Thamnophis radix*), western terrestrial garter snake (*Thamnophis elegans*), prairie rattlesnake (*Crotalus viridis*), and Corn snake (*Elaphe guttata*) (Hammerson 1999).

Amphibian species utilize a different set of resources than reptiles. The wetlands in the project area along the Arkansas River are limited by the steep terrain and ephemeral side drainages in the canyon. There are some locations, such as the perennial and seasonal ponds on the north side of the railroad, in the project area along the Arkansas River that flatten out enough to provide habitat for frogs, toads, and salamanders and to sustain breeding populations. Potential amphibians in the analysis area include, but are not limited to, northern leopard frog (*Rana pipiens*), Woodhouse's toad (*Bufo woodhouseii*), western chorus frog (*Pseudacris triseriata*), bullfrog (*Rana catesbeiana*), and tiger salamander (*Ambystoma tigrinum*) (Hammerson 1999).

3.3.3.2 Environmental Effects

3.3.3.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Only federal sites were considered for analysis.

Many bighorn concentration areas do not contain significant site development. The major physical modification of habitat associated with these areas has already occurred, and continued degradation (e.g., removal of forage plants and creation of new social trails) would continue to occur, but the rate is not expected to accelerate under current use levels. Despite degradation of habitat immediately adjacent to developed sites, these highly mobile large mammals are capable of dispersing to undisturbed areas and spend relatively little time in the vicinity of sites. The presence of humans in these sites for extended periods effectively eliminates them as suitable habitat during those periods, but large mammals generally make use of these areas shortly after the departure of humans (Van Dyke et al. 1986; Edge et al. 1985; Edge and Marcum 1985). These disruptions would occasionally produce measurable declines in population numbers, but the mobility and fecundity of these species should result in rebounds to pre-impact levels.

Direct disturbance to large mammals from noise and the presence of humans would also result short-term, adverse impacts. Anecdotal observations indicate that adult bighorn and deer seldom react to observations of boats on the river, but young-of-the-year react vigorously and unpredictably. Research conducted with simulated low level aircraft on these species indicate that noise levels have to be significant to induce flight responses (Krausmen et al. 1998), but the mere presence of humans on shore will produce the same effect as high-decibel noise. Researchers studied the reaction of mountain sheep approached by humans and noted increased heart rates and flight responses (MacArthur et al. 1982). The reaction to humans on foot was greater than reactions to road traffic, helicopters, or fixed-wing aircraft.

A variety of studies on ungulates have shown that this group is relatively flexible with respect to habitat use when confronted with noise disturbance. When regularly presented with a disturbance on a scheduled basis deer, elk, and sheep avoid areas when noise is present and return when the disturbance subsides (Van Dyke et al. 1986; Edge and Marcum 1985; Leslie and Douglas 1980). When exposure is brief or if sufficient hiding cover is available, changes in home range size have been undetectable (Eckstein et al. 1979; Edge et al 1985). At the current level of operations, it is anticipated that daily exposure to noise would consist of brief, repeated bouts in

the summer, and that ungulates would occasionally be subject to stress, but would, for the most part, continue to adapt and habituate to the present level of disturbance.

By serving as a major prey base for bird, reptile, and mammal predators, as well as fulfilling an important role in soil aeration and seed dispersal, rodents and their population dynamics can serve as a tool for making assessments of general ecosystem health. Within the riparian zone of the river corridor, rodents are the most common small mammals. The removal or modification of riparian vegetation by recreationists is an ongoing source of impacts to small mammals throughout the corridor. The modification of habitats occurs in both the vegetation of the new and old high-water zones (Brown and Jalbert 2003).

Disturbance impacts on small mammals by recreationists include injury, mortality, and stress resulting from handling, removal or displacement of habitat, or displacement of young or nursing females from nursery areas. Small mammals that use driftwood piles and understory for shelter and forage areas may be negatively affected when river runners remove wood to make fires or when woody debris is removed for trail restoration and campsite grooming. Indirect impacts on small mammal populations are likely to be more substantial than direct impacts. Negative effects of recreational activity on small mammals have been documented in the literature (Knight and Cole 1995). These include:

Chapter 1b Disruption of foraging or breeding behavior

Chapter 2b Reduced parental attentiveness to young

Chapter 3b Soil compaction at campsites and trails affecting burrows of some small mammals

Chapter 4b Use of driftwood for campfires, temporarily reducing habitat for small mammals at some locations

Chapter 5b Feeding unsuitable food to animals, particularly rock squirrels, resulting in individual animals habituating to frequently used camp and attraction sites.

Habitat modification from river recreationists visiting bat roosting areas would produce negligible to minor adverse impacts to crack and crevice dwelling bat species for a short duration until new roost sites have been located and occupied. The Arkansas River provides abundant habitat for crack and crevice dwelling bats. However, habitat modification to areas where bats are present in maternity colonies or are hibernating can have adverse, long-term impacts that may affect breeding BLM sensitive bats species during a vulnerable life stage.

Human disturbance is probably the biggest threat to roosting bats. While vandalism and direct aggression toward roosting bats definitely occurs and can cause large amounts of damage, even responsible visitors may unknowingly cause harm to roosting bats simply by being present. Repeated disturbance at a roost site may cause bats to abandon the roost and move into a less favorable (but less disturbed) alternative roost.

Impacts to reptiles and amphibians generally take the form of occasional opportunistic collecting or harassment by river recreationists. Direct human contact, especially handling, can result in stress, injury, or mortality of an individual. Rattlesnakes are occasionally relocated to prevent potentially dangerous confrontations. Removed individuals suffer a loss of home range, increased competition, and increased potential for predation. Tadpoles and juvenile amphibians in springs and tributaries may be trampled by recreationists during the spring and summer, and aquatic habitat may be permanently disrupted. Much of this sporadic damage is offset at individual camping beaches by increased invertebrate prey sources created by food sources left by recreationists. In summary, impacts to reptiles and amphibians would be adverse and short-term, but not likely measurable.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In Proposed Action/Alternative 2, there will be three (3) low, 19 moderate, and five (5) high federal sites. In total,

the removal of 243.7 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 243.7 to 468.9.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g. trails, campgrounds, day use sites) through revegetation efforts.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

For most terrestrial species, all action alternatives are expected to result in perceptible or measurable impacts, but would not be expected to be outside the natural variability and would not be expected to have effects on wildlife populations or ecosystems. Impacts will also likely be short-term due to the seasonality of use along the river. Bighorn sheep are a possible exception to this conclusion. Sheep herds in the project area have reached stable populations. However, due to disease, lamb survival rates are below desired levels in several herd components within the Arkansas River Canyon. This trend, when combined with the impacts of most project alternatives, may result in measurable cumulative effects on bighorn sheep resulting in an increase in mortality and a decrease in population levels within the Arkansas River Canyon.

A number of new recreation sites and exiting site expansions are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites on federal lands to properly assess the impacts to plant and animal species

3.3.3.2.2 Alternative 1

Direct and Indirect Impacts: Only federal sites were considered for analysis. Impacts to terrestrial species in Alternative 1 would be similar in scope to the Proposed Action/Alternative 2. Bighorn sheep, mule deer, elk, small mammals, bats, reptiles and amphibians will be impacted in similar manner. However, the impact footprint will be increased with the construction of additional sites.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In Alternative 1, there will be seven (7) low, 14 moderate, and five (5) high federal sites. In total, the removal of 236.4 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 236.4 to 466.5.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g. trails, campgrounds, and day use sites) through revegetation efforts.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

For most terrestrial species, all action alternatives are expected to result in minor to moderate short-term effects. Bighorn sheep are a possible exception to this conclusion. Sheep herds in the Project Area have reached stable populations. However, due to disease, lamb survival rates are below desired levels in several herd components within the Arkansas River Canyon. This trend, when combined with the impacts of most project alternatives, may result in measurable cumulative effects on bighorn sheep resulting in an increase in mortality and a decrease in population levels within the Arkansas River Canyon.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

3.3.3.2.3 No Action Alternative

Direct and Indirect Impacts: Only federal sites were considered for analysis.

Impacts to terrestrial species in the No Action Alternative will similar in scope to the Proposed Action/Alternative 2. Bighorn sheep, mule deer, elk, small mammals, bats, reptiles and amphibians will be impacted in similar manner. However, the impact footprint will be decreased without the construction of additional sites

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In the No Action Alternative, there will be eight low, 13 moderate, and five high federal sites. In total, the removal of 236.4 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 236.4 to 466.5.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g., trails, campgrounds, and day use sites) through revegetation efforts.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (excessive grazing, mining, irrigation, etc.) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

For most terrestrial species, all action alternatives are expected to result in minor to moderate short-term effects. Bighorn sheep are a possible exception to this conclusion. Sheep herds in the Project Area have reached stable

populations. However, due to disease, lamb survival rates are below desired levels in several herd components within the Arkansas River Canyon. This trend, when combined with the impacts of most project alternatives, may result in measurable cumulative effects on bighorn sheep resulting in an increase in mortality and a decrease in population levels within the Arkansas River Canyon.

Finding on the Public Land Health Standard for Plant and Animal Communities: The proposed action will reduce available habitat for these species at a local level. However, at the landscape scale the impact will be negligible. The disturbance impact will not be expanded appreciable in any alternative. The action area is a disturbed area, impacted by major highways, railway, mining, grazing, etc. No alternatives will substantially modify the affected environment beyond the current existing condition. Therefore, the proposed action will maintain the standard.

3.3.4 Migratory Birds

3.3.4.1 Affected Environment

The Arkansas River Headwaters Recreation Area (AHRA) contains a wide variety of song birds, raptors, and waterfowl, some of which habituate to human activities while others are very sensitive to or deterred by human activity. While some species, such as riparian nesters, may spend the majority of their time in the project area, the volant nature of bird species would suggest that a majority (if not all) species in the project areas will enter the river area at some point to feed, drink, or pass through. These species can be grouped into three major categories: raptors, passerines, and waterfowl/shorebird/wading bird/gull/pelicaniform. Raptors in the project area include golden eagle (*Aquila chrysaetos*), peregrine falcon (*Falco peregrinus*), prairie falcon (*Falco mexicanus*), bald eagle (*Haliaeetus leucocephalus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). Passerines found in the area include a wide variety of small and medium-size birds. Waterfowl and wading birds include ducks, geese, and sandpipers.

Raptors: Raptor species that have been recorded nesting within the project area, either along the corridor or in the vicinity of the river, include the golden eagle, prairie falcon, American kestrel, and red-tailed hawk. Raptor species generally nest between March and July.

There are several golden eagle nests occurring within the a half mile of the AHRA, and one is located within 60 meters of the project area at Vallie Bridge (J.F. Sato 2007). The Vallie Bridge golden eagle nest occurs on the cliffs just south of the highway and was active during the summer of 2016 (Rustand 2016). Other golden eagle nests also occur: south of the highway approximately 2.25 miles southeast of the Parkdale, 1.25 miles southwest of the Texas Creek, and north of the river approximately 0.7 miles northeast of the Three Rocks. The nest near Texas Creek was active in 2006 (Brekke 2006). More recent activity is unknown at these three nest locations.

Ospreys (*Pandion haliaetus*) are closely associated with water and fish as they are obligate fish eaters. They migrate along river corridors during the spring and fall as they travel between winter and summer home ranges. Osprey use large dead snags along the river banks as perch sites while hunting. Osprey are frequently observed along the Arkansas River during the spring and summer, although there have not been any birds documented as nesting in the river canyon. In recent years a pair of osprey has nested on the cliffs near Granite.

Other raptor species observed within the Arkansas River corridor include American kestrel, red-tailed hawk, sharp-shinned hawk (*Accipiter striatus*), and turkey vulture (*Cathartes aura*). The great-horned owl (*Bubo virginianus*), western screech owl (*Megascops kennicottii*), northern saw-whet (*Aegolius acadicus*), and flammulated owl (*Psiloscops flammeolus*) are likely to occur in the project area (Kingery 1998).

Passerines: Many small and medium-size passerine bird species use the project area. Riparian corridors are used by neotropical migrants, spring and summer breeders, and year-round residents. Some of these species, such as

warblers, wrens, sparrows, and tanagers, nest in thick vegetation and will often move nest locations from year to year. Other species, such as dippers, swallows, and phoebes, also nest in the riparian corridor but have higher nest site fidelity. Other bird species, such as the belted kingfisher, use the riverside vegetation and banks as feeding perches to hunt for small fish and use tree cavities for nest sites (Kingery 1998). White-throated swift is a species that nests in rock cliffs and is noted for high-speed swooping dives while hunting (Kingery 1998). Breeding confirmation was also documented for Canada goose (*Branta Canadensis*), broad-tailed humming bird (*Selasphorus platycercus*), belted kingfisher (*Megaceryle alcyon*), black-billed magpie (*Pica hudonia*), northern rough-winged swallow (*Stelgidoptyerx serripennis*), yellow warbler (*Setophaga petechial*), western tanager (*Piranga ludoviciana*), lark sparrow (*Chondestes grammacus*), blue grosbeak (*Passerina caerulea*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglectaIa*), brewer's blackbird (*Euphagus cyanocephalus*), common grackle (*Quiscalus quiscula*), brown-headed cowbird (*Molothrus ater*), and Bullock's oriole (*Icterus bullockii*) (Mitchell and Lundberg 2007).

The four basic habitats include: riparian, grassland, shrubland, and piñon-juniper. The Arkansas Valley Audubon Society lists the following passerine birds as likely to occur in the project area:

- Riparian habitat: yellow warbler, yellow-rumped warbler (*Setophaga cornata*), Bullock's warbler, blue grosbeak, warbling vireo (*Vireo gilvus*), western wood-peewee (*Contopus sordidulus*), American robin (*Turdus migratorius*), belted kingfisher, song sparrow (*Melospiza melodia*), Lazuli bunting (*Passerina amoena*), yellow-breasted chat (*Icteria virens*), house wren (*Troglodytes aedon*), cordilleran flycatcher (*Emphidonax occidentalis*), and black-billed magpie.
- Grassland habitat: mountain bluebird (*Sialia currucoides*), western meadowlark.
- Shrubland habitat: Virginia's warbler (*Leiothlypis virginiae*), spotted towhee (*Pipilo maculatus*), and broad-tailed hummingbird.
- Piñon-juniper habitat: chipping sparrow (*Spizella passerine*), vesper sparrow (*Pooecetes gramineus*), lark sparrow, black-headed grosbeak (*Pheucticus melanocephalus*), lesser goldfinch (*Spinus psaltria*), black-throated grey warbler (*Setophaga nigrescens*), hepatic tanager (*Piranga flava*), western tanager, canyon towhee (*Melozone fusca*), mountain chickadee (*Poecile gambeli*), juniper titmouse (*Baeolophus ridgwayi*), bushtit (*Psaltriparus minimus*), white-breasted nuthatch (*Sitta carolinensis*), rock wren (*Salpinctes obsoletus*), canyon wren (*Catherpes mexicanus*), blue-grey gnatcatcher (*Polioptila caerulea*), grey flycatcher (*Empidonax wrightii*, ash-throated flycatcher (*Myiarchus cinerascens*), Plumbeous vireo (*Vireo plumbeus*), western scrub-jay (*Aphelocoma californica),* piñon jay (*Gymnorhinus cyanocephalus*), Clark's nutcracker (*Nucifraga Columbiana*), American crow (*Corvus brachyrhynchos*), and common raven (*Corvus corax*). (Moss 2009).

Waterfowl/Shorebirds/Wading Birds/Gulls/Pelicaniformes: Waterfowl that occur in the project area include, but are not necessarily limited to, great blue heron (*Aredea Herodias*), double-crested cormorant (*Phalacrocorax auritus*), mallard (*Anus platyrhynchos*), common merganser (*Mergus merganser*), Canada goose, spotted sand piper (*Actitis macularius*), killdeer (*Charadrius vociferous*), and herring gulls (*Larus argentatus*).

3.3.4.2 Environmental Effects

3.3.4.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Only federal sites were considered for analysis.

Direct disturbance to avian species from noise and the presence of humans at the present level of river use is an ongoing adverse, short-term impact. This conclusion is based primarily on a review of the literature as no studies have been undertaken in to measure the disturbance effects on avian species in the action area. The effect of noise

on avian species other than waterfowl and raptors has been given little research attention. Waterfowl are demonstrably more overtly responsive to noise than other species (Edwards et al. 1979), but reports of impacts on raptors are somewhat more ambiguous.

A limited number of studies have evaluated the effects of human-induced disturbance and noise on raptors. Predictably, raptor responses to noise and disturbance in these studies have varied. Most studies reported impacts that may be perceptible. Human activity creates a visual change in the behavior of nesting raptors suggesting that frequent human activity near nests could negatively affect nestling survival (Steidl and Anthony 2000). Tolerance limits to disturbance vary among as well as within raptor species. As a rule, ferruginous hawks and golden eagles respond to human activities at greater distances than do ospreys and kestrels (Holmes 1993, Suter and Joness 1981).

The term "disturbance" is ambiguous, and experts disagree on what actually constitutes a disturbance. Reactions may be as subtle as elevated pulse rate or as obvious as vigorous defense or abandonment (Wiedmann and Bleich 2014, MacArthur et al. 1982). Impacts of disturbance may not be immediately evident. A pair of raptors may respond to human intrusion by defending the nest, but well after the disturbance has passed, the male may remain in the vicinity for protection rather than forage to feed the nestlings (Klute 2008). Golden eagles rarely defend their nests but merely fly a half-mile or more away and perch and watch (Holmes 1993). Chilling and overheating of eggs or chicks and starvation of nestlings can result from human activities that appeared not to have caused an immediate response (Call 1979, Suter and Joness 1981).

Human presence in breeding areas of various birds can alter species richness, abundance and composition. In a 1984 study it was determined that the abundance of 11 of 12 bird species was lower in areas of high recreation intensity than in areas less frequented by visitors (Van der Zande et al. 1984). The areas of high visitor use were those where 8 to 37 people per hectare were present at one time. This density of people would frequently be present on most camping beaches in the summer throughout the river corridor.

Changes in species richness and community composition can be brought about by the activity of recreationists. In campgrounds environmental structure and complexity are usually reduced, which can decrease species diversity (Hammitt and Cole 1987). Researchers found species of birds that responded negatively to campgrounds were ground or shrub nesting, or ground foraging (Blakesley and Reese 1988). Changes in habitat structure (tree and shrub density, volume of down woody vegetation) provided likely explanations for the species response.

In summary, impacts to birds on federal lands generated by Alternative 2 would be perceptible, but the severity and timing of would not be expected to be outside the natural variability and would not be expected to have effects on bird populations or ecosystems. Key ecosystem processes might have slight disruptions that would be within natural variability, and habitat for all species would remain functional.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In the Proposed Action/Alternative 2, there will be three low, 19 moderate, and five high federal sites. In total, the removal of 243.7 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 243.7 to 468.9.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g., trails, campgrounds, and day use sites) through revegetation efforts.

In addition, to be in compliance with the Migratory Bird Treaty Act (MBTA) and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a "take" of migratory birds. Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to Birds of Conservation Concern (BCC), no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15: the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. A qualified breeding bird surveyor shall conduct surveys between sunrise and 10:00 a.m. under favorable conditions.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative to new site development is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

3.3.4.2.1 Alternative 1

Direct and Indirect Impacts: Only federal sites were considered for analysis. The impacts to migratory bird species will be similar to impacts described in the Proposed Action/Alternative 2. However, the impact area will be less.

A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In Alternative 1, there will be seven low, 14 moderate, and five high federal sites. In total, the removal of 236.4 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 236.4 to 466.5.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g. trails, campgrounds, and day use sites) through revegetation efforts.

In addition, to be in compliance with the MBTA and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a "take" of migratory birds. Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to the BCC, no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15, the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. A qualified breeding bird surveyor shall conduct surveys between sunrise and 10:00 a.m. under favorable conditions.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

3.3.4.2.1 No Action Alternative

Direct and Indirect Impacts: Only federal sites were considered for analysis.

The impacts to migratory bird species will be similar to impacts described in the Proposed Action/Alternative 2; however, the impact area will be significantly reduced. A quantitative impact analysis can state the acres of potential habitat lost on federal lands due to site development. In the No Action Alternative, there will be eight low, 13 moderate, and five high federal sites. In total, the removal of 236.4 federal acres of potential wildlife habitat has occurred due to the current infrastructure (Table 3-1). In addition, degradation of wildlife habitat has occurred due to its proximity to existing sites. Wildlife species have varying spatial tolerances to human activity, but for reference purposes, assume affected wildlife habitat extends 100 feet beyond the site footprint. A 100-foot buffer around each disturbance footprint equates to an increase of affected acres from 236.4 to 466.5.

Protective/Mitigation Measures: Continue to educate river recreation participants to respect wildlife and prevent wildlife harassment. Actively manage unauthorized user created impact areas (e.g. trails, campgrounds, and day use sites) through revegetation efforts.

In addition, to be in compliance with the MBTA and the Memorandum of Understanding between BLM and USFWS required by Executive Order 13186, BLM must avoid actions, where possible, that result in a “take” of migratory birds. Pursuant to BLM Instruction Memorandum 2008-050, to reduce impacts to the BCC, no habitat disturbance (removal of vegetation such as timber, brush, or grass) is allowed during the periods of May 15 - July 15, the breeding and brood rearing season for most Colorado migratory birds. The provision will not apply to completion activities in disturbed areas that were initiated prior to May 15 and continue into the 60-day period.

An exception to this timing limitation will be granted if nesting surveys conducted no more than one week prior to vegetation-disturbing activities indicate no nesting within 30 meters (100 feet) of the area to be disturbed. A qualified breeding bird surveyor shall conduct surveys between sunrise and 10:00 a.m. under favorable conditions.

Cumulative Impacts: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the

river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

3.4 Cultural Resources

3.4.1 Culture History

Most of the description of the affected environment is excerpted from a report prepared by AK Pioneer Consulting, for analysis of the effects of the river management undertaking on historic properties (Bailey and Gray, 2017). The report contains proprietary information and is not available to the public. Cultural stages discussed in the text are presented in Table 3-2, below.

Table 3-2. Cultural Stages in the Arkansas River Basin

Cultural Taxon		Temporal Range
Paleoindian Stage		**>11,500 – 7,800 B.P.**
	Pre-Clovis Period	>11,500 B.P.
	Clovis Period	11,500 – 10,950 B.P.
	Folsom Period	10,950 – 10,250 B.P.
	Plano Period	10,250 – 7,800 B.P.
Archaic Stage		**7,800 – 1,850 B.P. (A.D. 100)**
	Early Archaic Period	7,800 – 5,000 B.P.
	Middle Archaic Period	5,000 – 3,000 B.P.
	Late Archaic Period	3,000 – 1,850 B.P. (A.D. 100)
Late Prehistoric Stage		**1,850 – 225 B.P. (A.D. 100 – 1725)**
	Developmental Period	1,850 – 900 B.P. (A.D. 100-1050)
	Diversification Period	900 – 500 B.P. (A.D. 1050 – 1450)
	Apishapa Phase	900 – 500 B.P. (A.D 1050-1450)
	Sopris Phase	900 – 750 B.P. (A.D 1050-1200)
	Protohistoric Period	500 – 225 B.P. (A.D. 1450 – 1725)

The following discussion of the pre-contact culture history of the Arkansas River Basin is based on *Colorado Prehistory: A Context for the Arkansas River Basin* (Zier et al. 1999), which builds on the scholarship synthesized in Colorado Mountains Prehistoric Context (Guthrie et al. 1984) and Colorado Plains Prehistoric Context (Eighmy 1984).

3.4.1.1 Paleoindian Stage: >11,500 – 7,800 B.P.

The Paleoindian Stage has few representative examples, beyond isolated surface finds, in the Arkansas River Basin. The Paleoindian Stage is divided into four Periods: Pre-Clovis, Clovis, Folsom, and Plano. No Pre-Clovis sites are known to be present in the CML.

Clovis Period sites are typically near water and appear to be temporary sites occupied by small groups of people. Large lanceolate dart points, sufficient to kill mammoth and other large game, are found on Clovis sites. Other site types include butchering locales and campsites, with artifact assemblages that include bifaces, blades, and modified flakes. Clovis populations used their projectile points for multiple purposes, as evidenced by reworked edges.

Folsom Period sites are more common than Clovis sites, and include kill, butchering, and campsites, probably used by small mobile groups of people. Sites with structures and landforms for trapping and killing bison are common in the Folsom Period. Folsom projectile points are considerably smaller than Clovis projectile points, suggesting that they might have been used to hunt smaller game. Lithic bifaces and modified flake tools are common in Folsom artifact assemblages. Bone items, such as awls, beads, scrapers, and incised disks have also been recovered from Folsom sites.

Extensive bison kill and butchering sites characterize the Plano Period. Projectile points recovered from Plano Period sites are diverse in style, but they are large and typically lanceolate in form. As in the previous periods, populations reworked their tools. They also often imported high-quality silicates from distant places, such as western North Dakota and Texas. The size of the kill and butchering sites leads researchers to conclude that hunting practices shifted from small-scale to large, communal hunts, and the presence of preserved seeds and groundstone, along with pollen data, suggest that the diet was more varied than in earlier periods.

3.4.1.2 Archaic Stage: 7,800 – 1,850 B.P. (A.D. 100)

A climatic shift that occurred during the Archaic stage might have partially influenced changes in stone tool technology and subsistence strategies during the period. The Archaic Stage is divided into the Early Archaic, the Middle Archaic, and the Late Archaic Periods.

The Early Archaic Period is poorly represented in the archaeological record, but sites dating to that period are more common in the mountains and foothills than on the plains. A few Early Archaic sites are on or near mountain passes in the upper Arkansas River Basin. During the Early Archaic, populations replaced lanceolate hunting tools with large, side-notched projectile points, and preferred local toolstone sources. Stemmed and corner-notched points dating to the Early Archaic have been found in the upper Arkansas River Basin. The people that lived during that time also built subterranean pithouses and shallow basin houses, although none have been found in the Arkansas River Basin.

In contrast to the Early Archaic, Middle Archaic sites are much more common, possibly as a result of increasing populations. Sites are often present near permanent or intermittent water sources, and basin-type structures are not uncommon on Middle Archaic sites. Numerous sites dating to this period have been discovered in the Upper Arkansas Basin. Consumption of smaller game and wild plants continued from the Early Archaic into the Middle Archaic, as evidenced by the presence of groundstone, faunal remains, and relatively small projectile points.

Late Archaic Period sites are very common in the Arkansas River Basin. Evidence of in situ population growth during the Late Archaic has been found in rockshelters containing Late Archaic cultural deposits that are thicker than deposits dating to earlier occupations. The deep stratigraphy of the cultural deposits suggests that people intensively used rockshelters for extended periods. Dart points from Late Archaic sites suggest that the occupants

used on smaller and more diverse game. Wild plants were also consistent food sources in the Late Archaic and although uncommon, maize has been recovered from some Late Archaic rockshelters.

3.4.1.3 Late Prehistoric Stage: 1,850 – 225 B.P. (A.D. 100 – 1725)

Although people continued with many Late Archaic aspects of culture, important technological, demographic, settlement, and trade changes differentiate the Late Prehistoric stage. Ceramic vessel fragments and bow and arrow-related artifacts are found on sites from the Late Prehistoric. Most researchers believe that the people during the Early Late Prehistoric Stage were hunter-gatherers, whose culture developed out of the Late Archaic, without significant influence from outside forces. Population increased, and sedentism evolved during this stage.

Residential architecture and evidence of limited maize horticulture are also present on sites dating to this period. Small, corner-notched projectile points were the stone tools typically used by Late Prehistoric populations. Groundstone assemblages usually include flat or shallow basin slab metates. Potters made their ceramic vessels using local clays and crushed-rock temper, and cord-marked the exterior of the pots.

In the Arkansas River Basin, the beginning of the Protohistoric Period is marked by the end of the Apishipa Phase and the arrival Athapaskan groups into the area. The languages of the Navajo, Jicarilla Apache, Mescalaro Apache, Chiracahua Apache, and Kiowa Apache have Athabaskan origins. Just before 1700, the European expeditions of Oñate, Valverde, Ulibarri, and Zaldivar documented the harassment of Jicarilla Apache in the Arkansas River Basin by Comanche and Ute groups. Protohistoric sites are difficult to differentiate from sites dating to earlier periods, because the culture remained much the same. The Protohistoric is the time period during which “tribes” were identified by name (e.g., Utes and Comanches).

3.4.1.4 Historic Period

With the signing of the Louisiana Purchase in 1803, half of what would become Colorado belonged to the United States of America. The other half belonged to Spain. The Arkansas and Red Rivers demarcated the boundary between the U.S. to the north and east and Spain to the south and west. Spanish explorers had been wandering through Colorado, however, since the Spanish settlement of Santa Fe in 1610. At that time, Santa Fe was the northernmost Spanish settlement of the Spanish empire in the New World. In 1779, Juan Bautista de Anza led soldiers, colonists, and Pueblo Indians into the San Luis Valley in pursuit of Comanche Indians, who had been causing trouble. Following the Comanches, they crossed Poncha Pass into the Arkansas River Basin. Eventually, de Anza’s expedition engaged the Comanches at Greenhorn Mountain in the Wet Mountain range south of the Arkansas River (Sprague 1984:3-5).

At the behest of President Thomas Jefferson, Zebulon Montgomery Pike led 16 soldiers from St Louis, Missouri to the western reaches of the Louisiana Purchase in 1806, and they spent a few auspicious months in the Arkansas River Valley (Simmons 1991). During the 1820s and 1830s, fur trappers explored the Upper Arkansas River watershed and the Indian trails that crossed it. Lieutenant John Charles Frémont led an exploration and mapping party, which passed through South Park, and then down Four Mile Creek to the Arkansas River, eventually reaching Bent’s Fort. Frémont returned in 1845 to locate the headwaters of the Arkansas River (Simmons 1991:37; Sprague 1984:13-20).

In 1858, gold was discovered in Colorado, near present-day Denver, in Cherry Creek and the South Platte River. The discovery of gold spurred a migration of fortune seekers to Colorado. Over 50,000 people came to the Pikes Peak area. They explored every gulch and tributary of the upper Arkansas River (Sprague 1984:26-28). The first discovery of gold along the Arkansas River was made by G.A. Kelley in 1859, approximately four miles south of Granite.

Between 1869 and 1882, Colorado experienced rapid growth in the mining industry. The seat of this growth was Leadville and surrounding areas in Lake County. Between these years, Lake County accounted for almost two thirds of the production of lead and silver in Colorado. The success of the mining economy hinged on getting the product to market. Lacking the support of federal and territorial funding, local interests pooled their resources to engineer and build roads, such as the Leadville Stage Road and the wagon road to Cañon City, through the mountains. Leadville's growth was explosive. Thousands of mining claims were staked, and hundreds of buildings were constructed. Over 25,000 people made Leadville home by 1880. When the railroad arrived in 1881, Leadville boasted 12 smelters (Wyckoff 1999:48-53).

Such growth required support services and goods, such as food. The Homestead Act of 1862 encouraged some miners to take up farming and ranching along the Arkansas River instead of mining (Simmons 1990:68-70). Ranches supplying meat, dairy, and produce to the miners were established.

Railroads were essential to the settlement of the Arkansas Valley, opening up formerly hard to reach areas to settlement. General William Jackson Palmer, the founder of Colorado Springs, built the Denver and Rio Grande Railroad (D&RG), eventually reaching mining districts throughout the mountains of Colorado. The D&RG and various subsidiaries of the Atchison, Topeka, and Santa Fe Railroad were competing for the same routes through the mountains. The competition was particularly acute for access through the Arkansas Canyon to eventually serve Leadville. A two year standoff, known as the Royal Gorge Railroad War, ended with no fatalities. Confrontations ensued and shots were fired; however, the real battles occurred in court (Simmons 1990:155-156).

The construction of the Colorado Midland Railway began in 1886, snaking its way through Ute Pass west of Colorado Springs, then across South Park to Trout Creek Pass. Once over the pass, it headed to the Arkansas River and then north to Leadville. The Colorado Midland Railway competed with D&RG and other railroads for space to lay track. In the Arkansas Canyon, the grades of the Colorado Midland Railway and the D&RG run parallel for long distances (Simmons 1991).

Despite an emerging tourist industry, the Panic of 1893 had dire effects on Leadville and other silver mining districts in Colorado. Mines and mills closed, businesses were boarded up, and residents moved elsewhere in pursuit of better opportunities. The narrow and standard gauge railroads built to service mines and mills throughout the Colorado Mountains were soon used to transport tourists who wanted to enjoy the natural beauty of the mountains. Word spread of the healing effects of Colorado's dry climate, sunshine, and clean air drawing thousands of people with respiratory ailments to the area. The Upper Arkansas River Valley has geothermal mineral springs scattered throughout it. The mineral springs attracted locals and tourists, alike. Luxury hotels were built and mineral springs were developed to attract newcomers in Cañon City, Chalk Creek, Florence, Poncha Springs, Salida, and Wellsville, to name a few. Between 1890 and 1920, new resorts, campgrounds, and tourist attractions lured vacationers to Colorado (Simmons 1990:300-305 and Wyckoff 1999:78-82).

By 1900, the Rainbow Route, a road from Cañon City to Salida through the Arkansas Canyon, was under construction. Inmates from the penitentiary in Cañon City built the first few miles. The Rainbow Route was not completed until 1915 (Simmons 1990:309). In the 1920s, U.S. Highway 24, which linked Colorado Springs to Buena Vista and Leadville, was completed. The Rainbow Route extended over Monarch Pass in 1922 and became U.S. Highway 50. In many cases, abandoned railroad grades and tunnels were repurposed for automobile roads (Simmons 1990:309).

3.4.2 Cultural Resources

A total of 6,153.3 acres have been inventoried for cultural resources in the CML including 2,366.9 acres of BLM-administered land, 114.5 acres of USFS-administered land, and 3,671.9 acres of non-federal land (see Table 3-3

below). Almost half (49.8%) of the developed areas in the CML have not been inventoried for cultural resources. The developed areas without inventory include 28.7% of BLM-administered land, 60% of USFS-administered land, and 88.2 % of non-federal land. The reason for the discrepancies in inventory between federal and non-federal land is that the National Historic Preservation Act (NHPA) applies only to lands managed by federal agencies and activities with federal involvement.

Table 3-3. Inventory of Developed Areas

Landowne	Total Acres in CMA	Percent of CMA	Acres of Developed Areas	Total Acres of Cultural Resources Inventory	Percent of Developed Ares* Uninventoried
BLM	3889.3	17.4	1200.3	856.2	28.7
USFS	287.4	1.3	284.4	113.7	60
Non-federal	18191	81.3	585.9	68.9	88.2
TOTAL	22367.7	100	2070.6	1038.8	49.8

*Recreation parcels and facilities.

Of the total disturbance on BLM-administered land, 13.4% has not been inventoried, and 41% of the disturbed USFS land in the CMA has not been inventoried. On non-federal land, 91.3% of the disturbance areas are without cultural resources inventory.

The archaeological site density by AHRA CML segment is detailed below (see summary in Table 3-4 below). A total of 586 sites have been recorded in the CML, mostly on federal land. The highest density of recorded sites is in Segment 6, with Segment 5 not far behind. A general correlation between inventoried acreages and recorded sites is discernable, but the resulting density data are within the normal range of professional expectations.

Table 3-4. Archaeological Site Density

Segment	Total Acres of Inventory	Total Number of Recorded Sites	Density
1	1,458.3	102	14
2	789.3	210	4
3	447.2	86	5
4	758.9	90	13
5	265	13	20
6	2,434.6	85	29

3.4.2.1 Environmental Effects

3.4.2.1.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: A complete assessment of effects to cultural resources cannot be determined until an on-the-ground cultural resources inventory of disturbance or proposed disturbance has been conducted. Given the size of the Area of Potential Effects (APE), this was not possible prior to the completion of this activity plan.

Direct effects to cultural resources in the APE can result from recreation facility construction, vehicle pull-offs and parking areas, pedestrian and bike paths, road and trail construction, outfitter use, facility maintenance, recreational vehicle use, reclamation, ditch improvements, mining, bridge and highway improvements, culvert installation, timber sales, fence installation, and utility development. Adverse direct effects to cultural resources may include, but are not limited to, the following:

- Surface and subsurface disturbance of artifacts and features destroying the historical context
- Collection of artifacts or looting
- Vandalism by way of removing, spray painting, carving or moving artifacts, features or structures
- Destruction of features and artifacts through unauthorized excavation
- Degradation of site integrity through natural processes

Indirect effects to cultural resources usually include visual, auditory, or atmospheric intrusions, but can also include effects to the stability of vegetation and soils, leading to increased risk of damage from erosion. Adverse visual effects result from the intrusion of modern visual elements such as structures, fences, roads, and utilities, into a cultural resource's historic viewshed, reducing its integrity of historic setting, feeling, and association.

Atmospheric effects are usually introduced through unnatural lighting from facilities, as well as fine dust and particles from construction activities, vehicle traffic and OHV use. Potential auditory effects may be caused by utility and vehicle (e.g., car, motorcycle, OHV, and construction equipment) noise. Vibration from heavy equipment during construction of facilities or other projects can also have indirect adverse effects on the structural integrity of significant architectural resources.

The compliance report prepared by AK Pioneer Consulting contains a table that lists AHRA facilities with potential direct effects or future risk of adverse effect to cultural resources. The table identifies areas of disturbance without adequate inventory, which may have affected unknown archaeological resources. Resources that are not fully evaluated, or eligible historic properties in a recreation parcel, are at risk for future impacts. The information is based upon available GIS spatial data, site records, and inventory reports provided by the BLM, CPW, and the FS.

The report also includes an analysis of additional disturbance areas without inventory noted during visual inspection of aerial photography. In total, potential direct effects were identified in 27 of 43 existing facilities, and six facilities were identified with risk for potential indirect effects to cultural resources. In the APE, seven linear cultural resources that will require analysis and management for direct and indirect effects were identified. Twenty-one additional disturbance areas that have not been inventoried for cultural resources were identified during visual inspection of aerial photographs. However, until field inspection is completed, the disturbance and effect on historic properties cannot be identified. Therefore, adverse effects to historic properties is assumed.

Protective/Mitigation Measures: Coordination between CPW, the BLM, and the USFS, to anticipate potential impacts to cultural resources as a result of recreation activities, facilities maintenance and development, is essential for the preservation of these resources and the information they contribute to our understanding of history and the historic use of the AHRA. Therefore, the parties, along with any interested parties, the Colorado SHPO, and the ACHP (if they choose to participate), will together develop a Programmatic Agreement (PA) that addresses both the current situation (uninventoried acreage and potential adverse effects) and future management of the AHRA. Stipulations in the PA will be guided by the CMA and will depend on the roles of the federal government established in that document. The fact that the CMA is a federal undertaking does not imply that federal historic preservation laws and regulations will be imposed on lands outside of the federal government's jurisdiction. Instead, the goal of the PA will be to allow the federal government to resolve any adverse effects on

historic properties that it has already caused and to avoid causing adverse effects in the future, pursuant to the definition of an undertaking in 36 CFR 800.16.

Cumulative Impacts: Over time, as facility and recreation development continue in the APE, these activities may result in increased loss of cultural resources that would contribute to future research questions and improved methodology. Improving access to the Arkansas River enhances the recreational experience for the public, resulting in an increase in public use, and therefore exposure to cultural resources. A positive result of increased public exposure to cultural resources is that it provides opportunities for public outreach and education. However, increased use may cause a reduction in archaeological site integrity through surface disturbance and the other possible direct effects discussed above. Historic settings for architectural, linear, and other resources could be diminished before they are identified or fully evaluated for their historic significance.

3.4.2.1.2 Alternative 1

Direct and Indirect Impacts: The impacts identified in the Proposed Action/Alternative 2 would apply to Alternative 1 as well, but it would vary depending on the level and type of disturbance. For example, restorative activities such as riverbank stabilization might have a greater impact on a buried site than if the stabilization were not performed. Therefore, the number of direct and indirect impacts to historic properties would probably not be substantially different than under the Proposed Action/Alternative 2.

Protective/Mitigation Measures: The PA as a resolution of adverse effects that applies to the Proposed Action/Alternative 2 would also apply to Alternative 1.

Cumulative Impacts: As with direct and indirect impacts, activities carried out under Alternative 1 would likely have similar cumulative impacts.

3.4.2.1.3 No Action Alternative

Direct and Indirect Impacts: The report completed by AK Pioneer Consulting detailed a substantial lack of inventory and cultural resource management in the AHRA since the previous plan. As a result, there are likely historic properties that have been adversely affected by activities associated with the plan, and these adverse effects will continue, and worsen, unless a resolution is applied to them.

Protective/Mitigation Measures: None.

3.4.3 Native American Religious Concerns

3.4.3.1 Affected Environment

Numerous tribes throughout history have inhabited the mountains and plains in Colorado. Because of their itinerant lifestyle, most historic-era populations used items that were easily transported and light, and therefore, they generally left little material evidence of habitation or traditional cultural properties.

In addition to sites, places of traditional cultural importance to Native American people include the following:

- locations associated with traditional beliefs, such as tribal and human origins, oral tales and tribal history, religious and ceremonial practices, and past or present significance and use
- ancestral habitation and burial sites
- trails
- areas where food, mineral, and water resources that possess healing powers or were used for subsistence might be present or were historically obtained

A consultation with potentially interested Native American tribes to identify sites and places concluded on June 27, 2016 (Report CR-RG-16-135 NA). The BLM contacted the following tribes: Apache Tribe of Oklahoma, Cheyenne and Arapaho Tribes of Oklahoma, Cheyenne River Sioux Tribe, Comanche Tribe of Oklahoma, Crow Creek Sioux, Eastern Shoshone, Jicarilla Apache Nation, Kiowa Tribe of Oklahoma, Northern Arapaho Tribe, Northern Cheyenne Tribe, the Ute Tribe, Oglala Sioux Tribe, Rosebud Sioux Tribe, Southern Ute Tribe, Standing Rock Lakota Tribe, and the Ute Mountain Ute Tribe.

3.4.3.2 Environmental Effects

3.4.3.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Direct and indirect impacts to sites and places would be identical to those discussed under Proposed Action/Alternative 2 impacts discussed in the Cultural Resources section. Also, the Rosebud Sioux indicated concern about the size of the AHRA and BLM's ability to identify sites in the APE. No other comments were received.

Protective/Mitigation Measures: BLM responded to the Rosebud Sioux explaining that some inventory has already been done, and some sites have been identified. Also, a PA concerning the management of the sites in the APE will be completed. In addition, BLM has invited the Rosebud Sioux to participate in the PA.

Cumulative Impacts: Direct and indirect impacts to sites and places would be identical to those discussed under Proposed Action/Alternative 2 impacts discussed in the Cultural Resources section above.

3.4.3.2.2 Alternative 1

Direct and Indirect Impacts: Same as Proposed Action/Alternative 2.

Protective/Mitigation Measures: Same as Proposed Action/Alternative 2.

Cumulative Impacts: Same as Proposed Action/Alternative 2.

3.4.3.2.3 No Action Alternative

Direct and Indirect Impacts: A substantial lack of inventory and cultural resource management in the AHRA since the previous plan also applies to places of concern to Native Americans. As a result, there are likely sites and places of concern that have been affected by activities associated with the plan, and these negative effects will continue, and worsen, unless a resolution is applied to them.

Protective/Mitigation Measures: None.

3.4.4 Visual Resources

3.4.4.1 Affected Environment:

The project area consists of about 1/3 mountainous terrain and 1/3 canyon topography, and the remaining 1/3 is rolling hills and broad valleys. All of the area is located in the Southern Rocky Mountain physiographic province. The character of the landscape is determined by relationships between four basic elements: color, line, form and texture. The dominant colors in the area vary with the weather and time of day and year. They include the browns, reds, and greys of soils and rocks and the greens, yellows, reds, and browns of vegetation. Occasional blues, greens, and browns are added by water. Lines are distinct in soil layers, changes in vegetation types, along ridgetops, and in drainage patterns. Topography varies from sheer-walled canyons to flat-topped mesas. Texture results from the different vegetative types and erosion patterns.

The overall area also has several cultural modifications as it travels through multiple urban areas as well as agriculture lands and low density home developments. Early mining activities, development of ranches and farms, infrastructure supporting recreation use, construction of homes, energy supply, mineral extraction and transportation infrastructure have all created varying degrees of contrasts with the natural environment. Contrasts on public lands within the planning area are relatively minor and offer the more scenic stretches of the river including Browns Canyon and Bighorn Sheep Canyon.

BLM's planning guidance directs that the agency conduct an inventory of visual resources and then assign management objectives through the land use planning process. In 2014 the BLM conducted a Visual Resource Inventory (VRI) that included the project area for this management plan. An inventory looks at distance zones from major travel corridors, scenic quality, and viewer sensitivity. These values are then combined to assign overall rating classes ranging from 1 to 4. An inventory class I rating is reserved for areas protected for scenic values, such as wilderness or wilderness study areas representing the most valued landscapes, with a score of four representing areas with the lowest scenic value based on the combined inputs. The majority of the project area was identified as an inventory class II based on its high scenic values, proximity to major travel corridors, and a very high level of viewer sensitivity.

The next step in BLM's visual resource management policy is to establish Visual Resource Management (VRM) classes on public lands through a land-use plan. These management, or VRM, classes establish a desired future condition for visual resources on public lands within the field office. The VRM classes range from Class I, reserved for protected areas such as wilderness where management desires are to have no changes to visual resource values, to Class IV where major modifications of the landscape are appropriate. The majority of the lands within the planning area have been assigned a VRM Class II through the 1996 Resource Management Plan. Management objectives in a Class II zone require that any changes in the basic elements not be evident in the landscape. Contrasts may be seen but must not attract attention.

The remainder of the planning area lies in either VRM Class III or Class IV zones.

VRM Class III zones, which are located along the river and mountain sides, are not areas of proposed development. Within VRM Class III zones, contrasts to the basic elements caused by management activity are evident, but they remain subordinate to the existing landscape. The towns and residential areas lie within the VRM Class IV zone, where contrasts attract attention and are a dominant feature of the landscape.

3.4.4.2 Environmental Effects

3.4.4.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: The only actions outlined in any of the action alternatives located on BLM managed lands and have the potential to impact visual resources are the development of recreation facilities such as restrooms, boat ramps, and campgrounds. These types of developments have the potential to introduce contrasts in color, form, texture, and line. The level of this contrast would greatly depend on the location and nature of the development. Mitigation measures such as appropriate color of facilities, minimizing cut and fill, and good use of topography for screening would greatly reduce the potential for impacts. It is anticipated that many of the future sites would not be on BLM managed lands that would still have similar impacts as described above but beyond the authority or scope of this document. All of the action alternatives would meet the VRM class objectives established for the area.

Protective/Mitigation Measures: Use best management practices for facility development to reduce visual impacts. This includes painting facilities a color that blends in, minimize cuts and fills, and good use of topography for screening.

Cumulative Impacts: Human habitation of the Arkansas River Valley has led to large changes to the natural environment and the visual resources. As populations continue to grow this trend is anticipated into the future, including on public lands as the need for supporting infrastructure only increases. These types of impacts would

not be anticipated in places such as wilderness study areas that area protected from development while other areas impacts to visual resources would be expected. Recreation development as identified in this management plan would contribute to changes in visual resources but at negligible levels when compared to other changes anticipated in the future.

3.4.4.2.2 Alternative 1

Direct and Indirect Impacts: Same as the Proposed Action and Alternative 2 except to a lesser degree. Under this alternative there would be less site development resulting in less contrast and impacts to visual resources.

Protective/Mitigation Measures: Same as the Proposed Action/Alternative 2.

Cumulative Impacts: Same as the Proposed Action/Alternative 2.

3.4.4.2.3 No Action Alternative

Direct and Indirect Impacts: Same as the Proposed Action and Alternative 2 except to a lesser degree. Under this alternative there would be less site development resulting in less contrast and impacts to visual resources.

Protective/Mitigation Measures: Same as the Proposed Action/Alternative 2.

3.4.5 Socioeconomics

3.4.5.1 Affected Environment:

Although the AHRA is proximate to several communities, including Granite, Buena Vista, Johnson Village, Salida, Swissvale, Howard, Coaldale, Cotopaxi, Texas Creek, Cañon City, and Florence; the economic and social relationships between the AHRA and communities within the upper Arkansas River Valley extend well beyond the boundaries of the recreation area. To more effectively assess how regional economic conditions and quality of life may be affected by changes in the management of AHRA, the project area for the socioeconomic analysis has been expanded to include the entire counties of Lake, Chaffee, Fremont, and Pueblo.

Since the social and economic conditions in these counties are discussed in detail in the Eastern Colorado Resource Management Plan, the following affected environment section will provide a brief overview of current socioeconomic conditions within the four counties that include portions of the AHRA. For historical data and greater information on trends in demographics, land uses, and economic conditions, please refer back to the Eastern Colorado Resource Management Plan.

Population and Demographics

Understanding population size, distribution, composition, and the processes driving population change are an important part of developing and implementing management actions that serve local communities that surround public lands. Historical and projected population growth are important socioeconomic indicators. Table 3-5 shows historical and projected populations for each of the five counties that make up the economic analysis areas, along with those for the entire socioeconomic study area and the state. Table 3-6 further breaks down baseline populations to assess the racial and ethnic composition of the study area's population, as well as each of the five counties in the study area. The 2000 and 2010 population counts in Table 3-5 are decennial census figures compiled by the State Demography Office, a component of the Colorado Department of Local Affairs (DOLA). The 2015 estimates and 2030 projections presented in Table 3-5 and Table 3-6 were prepared by the State Demography Office.

Population

Relative to population growth across Colorado, population growth rates for communities within the Upper Arkansas River Valley have remained low over the past 15 years. In 2015, the project area was estimated to have

a total population of 235,994 people. Approximately 69 percent of the total project area's population lived in Pueblo County, with more than half of Pueblo County's 163,348 living in the county seat of Pueblo in 2015. Although the project area experienced considerable growth in the early 2000s, most of this growth was concentrated in Chaffee and Pueblo counties, while Lake County experienced an 8 percent decrease in its population (Table 3-5). Overall population changes between 2010 and 2015 occurred at much lower rates than during the previous 10 years, with the total project area population increasing by roughly 2 percent. Other counties within the project area have experienced more moderate population growth and declines in recent years. The most notable declines occurred in Lake County, where the total population declined by 457 people, or nearly 6 percent, over the last 15 years.

Table 3-5. Historical and Projected Population

Geography	Historical Population			Rate of Population Change (AARC)		Projected Population	Projected Change 2015 to 2030	
	2000	2010	2015	2000 to 2010	2010 to 2015	2030	Total Change	AARC
Chaffee County	16,312	17,797	18,604	9.10%	4.53%	24,809	6,205	1.94%
Fremont County	46,370	46,854	46,559	1.04%	-0.63%	57,348	10,789	1.40%
Lake County	7,940	7,282	7,483	-8.29%	2.76%	8,774	1,291	1.07%
Pueblo County	141,854	159,496	163,348	12.44%	2.42%	189,431	26,083	0.99%
4-County Study Area	212,476	231,429	235,994	8.92%	1.97%	280,362	44,368	1.16%
Colorado	4,338,801	5,050,332	5,456,584	16.40%	8.04%	6,970,646	1,514,062	1.65%

AARC = Average Annual Rate of Change

Source: Colorado Department of Local Affairs, State Demography Office (2016a).

Forecasts by the Colorado State Demography Office indicate that the project area is anticipated to grow by more than 244,000 people between 2015 and 2030. While the majority of overall regional population growth is forecasted to be concentrated in Pueblo County, annual average rates of population change in Chaffee, Fremont, and Lake Counties are estimated to be slightly higher than that for Pueblo County, indicating that population growth in these more rural areas is anticipated to occur at a slightly faster rate (Table 3-5).

Changes in a region's population can be attributed in part to natural increases (births minus deaths) and in part to migration (people moving in or out of an area). According to the State Demography Office, 54 percent of the population change in the project area between 2000 and 2010 could be attributed to net migration, where more people moved into the area than moved out. Between 2010 and 2015, net migration's share of population change across the region increased to 57 percent (DOLA 2016b). The increasing rate of net migration in the project area suggests that its communities are becoming increasingly attractive to new residents who may value more rural settings and outdoor-oriented lifestyles.

Research has found that areas characterized as having high levels of natural amenities (unique land and water features, mild temperatures, scenic quality, and outdoor recreation opportunities) experience greater population growth than areas with fewer natural amenities (Rudzitis and Johansen 2000, Johnson and Beale 1994, Johnson and Beale 1998, McGranahan 1999, Hunter et al. 2005, Frentz et al. 2004), and that this growth occurs increasingly at the boundaries of public lands (Radeloff et al. 2001). The public lands in the river valley, natural settings and recreational opportunities supported by the AHRA contribute to the river valley's unique sense of place and supports an outdoor orientated lifestyle that attracts and keeps local residents living in surrounding areas.

Demographics

Race and ethnicity have important implications for culture, identity, and well-being. According to the National Research Council, race is a social category determined both by genetically transmitted physical attributes (skin color, hair texture, and so on) and by the "individual, group, and social attributes" associated with those physical

characteristics (Smelser 2001). Race is distinguished from "ethnicity" and reflects the ethnic and cultural heritage from where families originated, rather than physical characteristics. In the United States, minorities include persons who self-identify as any race other than white alone (i.e., black/ African Americans, American Indians or Alaska Natives, Native Hawaiians and Other Pacific Islanders, Asians, and individuals who are bi or multi-racial). In addition to racial minorities, Hispanic populations are considered to be minorities regardless of an individual's racial identity.

Table 3-6 shows the racial and ethnic composition of 2015 populations in the project area to provide a more detailed description of the local populations and enable comparison between regions. Relative to the general state population, the 4-county project area had larger concentrations of minority populations. Although the population within the project area is predominately white (> 50 %), minorities were estimated to account for 40 percent of the total project area population in 2015. In Lake and Pueblo counties, minority individuals respectively accounted for 43 and 48 percent of the total 2015 population.

The relatively large proportions of minority populations within the project area are primarily associated with long-standing Hispanic communities, some of which predate Anglo exploration in the region. Even today, many Hispanics in this region of Colorado consider themselves to be Hispanos, or of Spanish or Amerindian-Hispanic decent with a lineage that can be traced to the early Spaniards who settled in New Mexico and southern Colorado before the influx of Mexican migrants. In 2015, Hispanics were reported to account for 31 percent of Colorado's total population. Within the project area, they were estimated to account for 40 percent of the total population, and more than 40 percent in Lake and Pueblo Counties (Table 3-6). While Hispanics account for the largest share of minority populations within the project area, black/ African American, American Indian, and Asian American populations are also present. Relative to the overall racial composition of Colorado, American Indians/ Alaska Natives account for a slightly high share of the population in Fremont County.

Table 3-6. Population by Race and Hispanic Origin, 2015

Geography	Total Population	Race				Hispanic	All Minorities
		White	Black/ African American	American Indian/ Alaska Native	Asian		
Chaffee County	18,604	86%	2%	1%	1%	11%	14%
Fremont County	46,559	80%	4%	2%	1%	13%	20%
Lake County	7,483	57%	0%	1%	1%	41%	43%
Pueblo County	163,348	52%	2%	1%	1%	44%	48%
Socioeconomic Study Area	235,994	60%	2%	1%	1%	35%	40%
Colorado	5,456,584	69%	4%	1%	4%	22%	31%

*Population counts by racial group exclude individuals who identify as being Hispanic. Thus, these are non-Hispanic population estimates.

Source: Colorado Department of Local Affairs (DOLA), State Demography Office (2016c).

Population forecasts by the State Demography offices indicate that the racial and ethnic composition of local populations within this region will change as the region's population grows. Over the next 15 years, the project area is expected to become more racially and ethnically diverse, with minorities accounting for larger shares of populations in all five counties (DOLA 2016d). Changes in the demographics of populations within the project area may affect community values and local uses of the AHRA over time.

Economic Conditions

The previous section discussed the size, trends, and composition of local populations surrounding the AHRA relative to the state. The following section will focus on economic conditions within the project area to further develop a baseline in which potential effects of alternative management actions can be compared. Indicators of economic conditions discussed below include employment by industry, unemployment rates, earnings and other components of personal income, and poverty rates.

Employment

The local economy surrounding the AHRA is diverse and was reported to support more than 108,500 full-time, part-time, and temporary jobs in 2015 (IMPLAN Group LLC, 2017). Employment across the project area can be characterized as being highly concentrated in the public and service related sectors. Employment in service related sectors include a mix of high-skilled occupations (e.g., doctors, software developers, and teachers) and low-skilled occupations (e.g., restaurant workers, tour bus operators, and retail clerks), who typically provide a service rather than creating tangible objects. Table 3-7 shows employment in aggregated industrial sectors as a share of total 2015 employment in each county within the project area.

According to a 2017 Comprehensive Economic Development Strategy for the Southern Colorado Economic Development District, the Upper Arkansas River Valley has been experiencing modest growth in the light manufacturing and telecommuting population and industry. While transportation remains a key challenge, the ability of individuals to work from home and the lifestyle within the area are attracting entrepreneurs and businesses not totally dependent on remaining in or near large metropolitan areas. Growth in the tech sector has encouraged Fremont County to establish a tech accelerator and the county plans to emerge as a strong technology community. Lake and Chaffee Counties have both seen the establishment of co-working and makerspaces in order to support this budding industry, while a housing shortage has inspired a burst in construction activity (SCEDD 2017).

Table 3-7.County Employment by Industry, Percent of Total 2015 Employment

NAICS Industry Sector	Chaffee County	Fremont County	Lake County	Pueblo County
Government Sector[1]	**15.8%**	**25.4%**	**21.4%**	**16.9%**
Goods-Producing Sectors	**17.0%**	**16.1%**	**28.4%**	**15.2%**
Service-Related Sectors[2]	**67.2%**	**58.5%**	**50.2%**	**67.9%**
Private Sectors				
Agriculture, Forestry, Fish & Hunting	3.8%	4.8%	0.2%	1.5%
Mining	1.5%	0.7%	9.9%	0.3%
Utilities	0.4%	0.3%	0.4%	0.6%
Construction	9.2%	6.0%	12.4%	6.7%
Manufacturing	2.5%	4.5%	5.9%	6.7%
Wholesale Trade	2.2%	1.0%	1.5%	1.9%
Retail trade	11.5%	10.7%	7.3%	11.4%
Transportation & Warehousing	1.9%	3.1%	6.0%	3.2%
Information	1.1%	0.7%	0.9%	0.9%
Finance & insurance	3.8%	2.8%	1.9%	3.6%
Real estate & rental	5.9%	4.4%	0.7%	3.4%
Professional- scientific & tech services	6.5%	4.2%	3.9%	4.5%
Management of companies	3.0%	0.0%	0.0%	0.2%
Administrative & waste services	2.6%	2.7%	4.9%	7.4%
Educational services	1.1%	2.9%	1.8%	0.8%
Health & social services	5.8%	11.9%	5.2%	16.2%
Arts- entertainment & recreation	5.6%	2.5%	4.6%	1.7%
Accommodation & food services	11.6%	6.5%	8.6%	8.5%
Other services	4.0%	4.9%	2.5%	3.5%

IMPLAN Group LLC, 2017

[1] Government Sector includes all federal, state and local government employment.

[2] Industrial sectors considered to be service related include: Utilities; Wholesale Trade; Retail Trade; Transportation & Warehousing; Information; Finance & Insurance; Real Estate & Rental & Leasing; Professional, Scientific, & Tech.; Mgmt. of Companies & Enterprises; Administrative & Support Services; Educational Services; Health Care & Social Assistance; Arts, Entertainment, & Recreation; Accommodation & Food Services; and Other Services.

Comparing the relative size of industries within the project area to the broader state economy can also provide insight into the structure of the regional economy surrounding the AHRA. Employment specialization can be examined using a ratio of industry employment in a local area of interest (four-county AHRA project study area)

to the percent of employment supported by that industry in a larger reference region (the state of Colorado) (Figure 3-1). When the proportion of project area employment in a given industry is greater than in the larger reference region, local employment specialization exists in that industry (USDA Forest Service 1998). Relative to the larger state economy, the project area is more specialized with respect to the government, which includes all federal, state, and local government entities (+5.7%); health and social assistance services (+5.0%); retail trade (+2.3%); and manufacturing (+1.4%). Other local industries that are equally, or slightly more, specialized than broader state economy include Agriculture; Forestry; Fish & Hunting (+0.8%); construction (+0.6%); Accommodations & food service (+0.4%); Utilities (+0.2%); Transportation & Warehousing (+0.1%); and Administrative & waste services (+0.1%) (IMPLAN 2017).

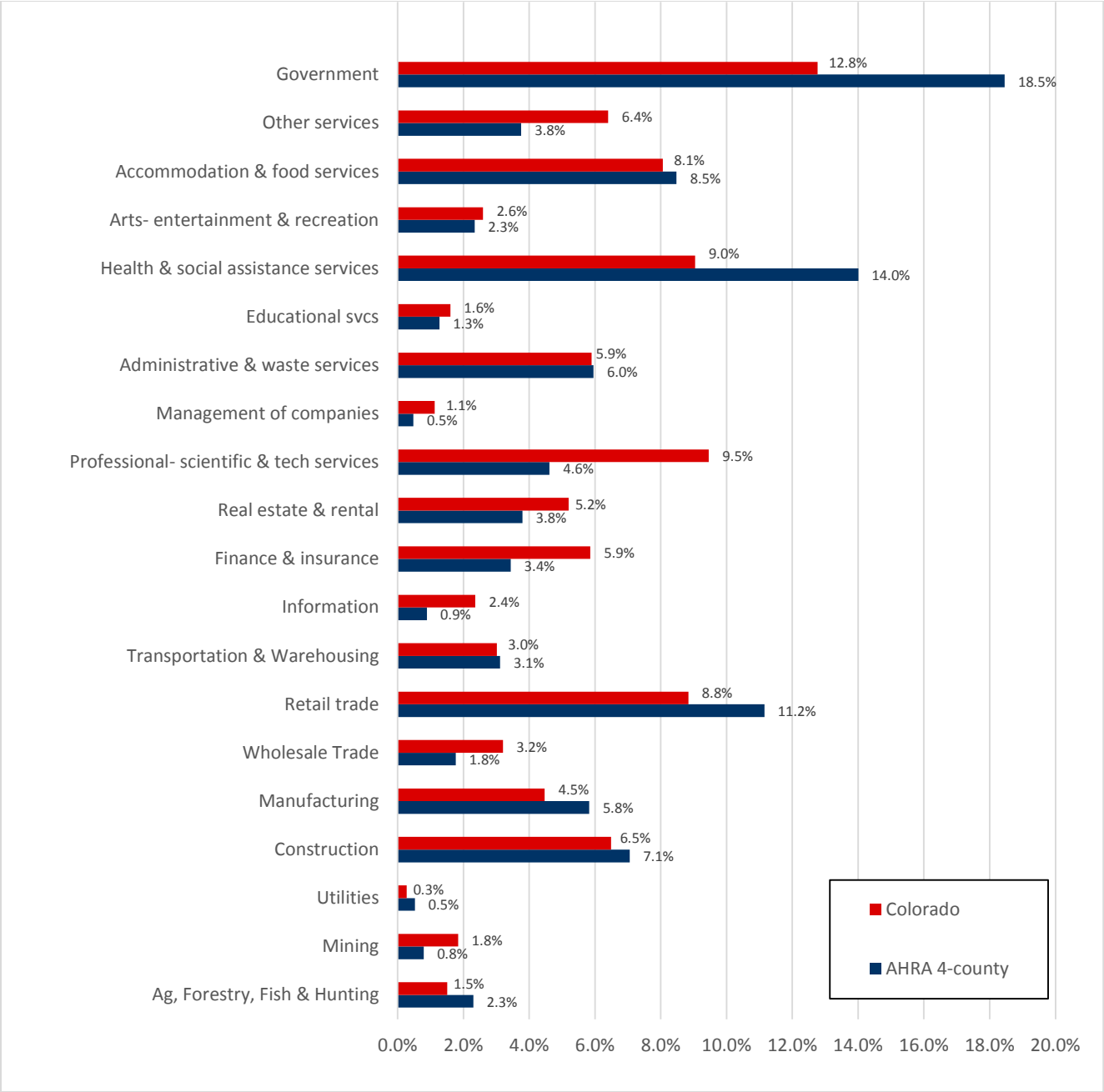


Figure 3-1. Project Area and State Employment by Industry, Percent of Total Employment by Industry, 2015 (IMPLAN Group LLC, 2017)

Employment specialization is of particular interest when it occurs in sectors affected by AHRA management decisions. Relevant sectors associated with the AHRA include the government sector, since government employees manage infrastructure; environmental quality; and uses of the AHRA, as well as, industries that support local tourism and outdoor recreation. Unlike other industries tourism and outdoor recreation is not captured in one single industrial sector, instead, it stimulates economic activity in a wide range of industrial sectors, including the accommodations and food services, arts, entertainment and recreation, retail trade, and passenger transportation sectors (Marcouiller and Xia 2008). In this manner, a portion of regional employment specialization in these sectors can be attributed to recreation on, and management of, the AHRA.

Unemployment

Since 1976, the annual unemployment rate for the 4-county project area ranged from a low of 3.9% in 2000 to a high of 16.2% in 1982 (Figure 3-2). Unemployment in the region spiked following the Great Recession, reaching 10.4 percent in 2010, and remained above 10 percent for a few years (U.S. Department of Labor, 2017). Recent trends show that the unemployment rate for the collective project area has been declining since its peak in 2010, dropping to 4.6 percent in 2016. Average annual county unemployment rates within the project area ranged from just below 3 percent in Chaffee and Lake Counties to approximately 5 percent in Fremont and Pueblo counties in 2016 (U.S. Department of Labor 2017). Relative to the national average annual unemployment rate during at that time (4.9 %), unemployment in the region was slightly lower. Although the region has supported above national average job growth in recent years, unemployment in the region remains high compared to Colorado's state average of 3.3 percent in 2016.

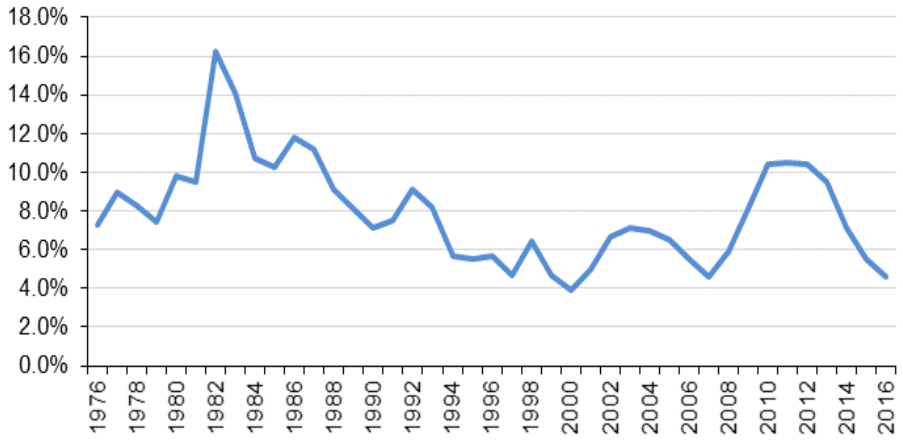


Figure 3-2. Average Annual Unemployment Rate for the AHRA Socioeconomic Study Area, 1976-2016 (U.S. Department of Labor. 2017.)

Average annual unemployment rates for the region do not reflect the highly seasonal nature of the regional economy. Local communities in the upper river valley rely heavily on tourism and outdoor recreation, specifically rafting and fishing on the Arkansas River, to inject new money into their rural economies and support jobs and income for the valley's residents. Outdoor activities on the river are highly seasonal and dependent on weather in terms of snow fall, runoff, and river flows in the spring and summer. Average monthly unemployment rates between 2010 and 2016 for the four counties in the project area are shown below in Figure 3-3. Historically, the labor force, which includes the number of people employed or actively looking for work, and employment in the Upper Arkansas Region peak in or around the month of July, while unemployment rates peak in the months of January and June.

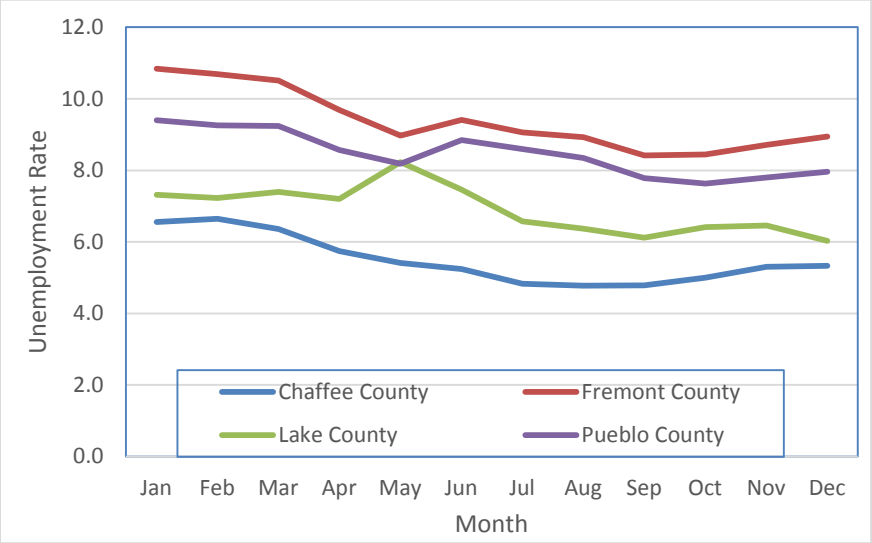


Figure 3-3. Average Monthly Unemployment Rates, 2010-2016 (U.S. Department of Labor. 2017.)

Personal Income

In 2015, total personal income (TPI) for the project area topped $37.3 billion. Approximately 70 percent of TPI was concentrated in Pueblo County. The remainder of TPI in the project area was distributed across Chaffee (9%), Fremont (18%), and Lake (3%) counties (Table 3-8). Total personal income includes the three major sources of personal income: (1) labor earnings or income earned through employment, (2) investment income (e.g., dividends, interest, and rents), and (3) transfer payments from governments and businesses to individuals (e.g., social security, retirement, disability, income maintenance programs, and unemployment).

As shown in Table 3-8, the composition of TPI in each county varies. Across the four county project area labor earnings accounted for the largest share of TPI, ranging from 46 percent of TPI in Chaffee County to 62 percent of TPI in Lake County. Although investment income and transfer payments' share of TPI within the project area were equal, their proportion of TPI in individual counties indicates that some counties may be slightly more dependent on one type of non-labor income relative to the other. In general, higher reliance on these forms of non-labor income suggest that communities within the project area may have higher concentrations of retirees or households that rely on government assistance programs to supplement household income.

Table 3-8. Components of Total Personal Income, millions of 2015 Dollars

Components of Personal Income	Chaffee County	Fremont County	Lake County	Pueblo County	AHRA Study Area
Total Personal Income (TPI)	$715.2	$1,443.8	$240.8	$5,698.1	$8,097.9
Components of Personal Income (Percent of 2015 TPI)					
Labor Earnings*	46%	49%	62%	53%	60%
Dividends, interest, and rents	31%	19%	20%	17%	20%
Personal current transfer receipts	23%	32%	18%	30%	20%

U.S. Department of Commerce. 2016
*labor earnings have been adjusted to account for contributions to government social insurance and for residence is the net inflow of the earnings of inter-area commuters, and thus reflect net earning's share of TPI.

As discussed above, the majority of personal income within the project area is derived through employment. Employment income, or labor earnings, is the sum of wages and salaries (less contributions to government social insurance), supplemental wage and salary benefits from employers, and proprietors' income. Labor earnings as a percent of total labor earnings in each county are reported below Table 3-9 by aggregated industrials sectors.

Table 3-9. Labor Earnings by Industry, Percent of Total 2015 labor Earnings

NAICS Industry Sector	Chaffee County	Fremont County	Lake County	Pueblo County
Government Sector[1]	**27.8%**	**41.0%**	**30.0%**	**20.7%**
Goods-Producing Sectors	**16.1%**	**17.0%**	**31.6%**	**18.6%**
Service-Related Sectors[2]	**56.0%**	**42.0%**	**38.4%**	**60.7%**
Private Sectors				
Ag, Forestry, Fish & Hunting	1.1%	0.6%	0.0%	0.3%
Mining	1.2%	1.1%	12.3%	0.2%
Utilities	1.6%	0.7%	0.9%	1.6%
Construction	11.1%	6.4%	12.1%	7.3%
Manufacturing	2.8%	8.9%	7.2%	10.8%
Wholesale Trade	3.1%	1.0%	2.5%	2.5%
Retail trade	10.3%	6.9%	5.3%	7.6%
Transportation & Warehousing	2.2%	3.8%	3.2%	4.7%
Information	1.8%	0.8%	0.3%	0.8%
Finance & insurance	4.4%	2.4%	0.9%	2.4%
Real estate & rental	2.0%	0.8%	0.6%	0.8%
Professional- scientific & tech services	6.2%	3.5%	3.0%	6.0%
Management of companies	0.2%	0.1%	0.0%	0.4%
Administrative & waste services	0.8%	1.4%	2.3%	4.6%
Educational services	0.6%	0.1%	1.5%	0.6%
Health & social services	6.9%	12.7%	6.5%	21.0%
Arts- entertainment & recreation	4.1%	0.9%	3.7%	0.8%
Accommodation & food services	8.0%	3.2%	5.6%	3.5%
Other services	3.8%	3.9%	2.1%	3.3%

IMPLAN Group LLC, 2017
[1] Government Sector includes all federal, state and local government employment.
[2] Industrial sectors considered to be service related include: Utilities; Wholesale Trade; Retail Trade; Transportation & Warehousing; Information; Finance & Insurance; Real Estate & Rental & Leasing; Professional, Scientific, & Tech.; Mgmt. of Companies & Enterprises; Administrative & Support Services; Educational Services; Health Care & Social Assistance; Arts, Entertainment, & Recreation; Accommodation & Food Services; and Other Services.

Like employment, local labor earnings in the project area are more heavily concentrated in the government and service-related sectors. However, when these sectors' share of total local labor earnings are compared to their share of total local employment (Table 3-7), the disparities in earnings paid in these sectors becomes highly apparent. For example, employment in Chaffee County's Government sector accounted for nearly 16% of total county employment but nearly 28% of total labor earnings in the county. At the same time, employment in service related sectors in Chaffee County accounted for 67% of the jobs in the county but supported only 56% of the

county's total labor earnings. The proportional differences in levels of employment and earnings supported by these sectors highlights the fact that many of the jobs in the region are lower wage positions, often seasonal in support of tourism and outdoor recreation.

Since the project area has become an increasingly desirable location for those who enjoy a more outdoor-oriented lifestyle, many "location-neutral" residents have been giving up the opportunity to earn a higher salary in order to enjoy the quality of life provided by smaller communities with greater access to the valley's many natural amenities. In this manner, some residents may benefit from a "secondary income" not provided by their place of employment but by the benefits they gain from the quality of life they enjoy while living in the Upper Arkansas River Valley. The Comprehensive Economic Development Strategy for the Southern Colorado Economic Development District recognized that desirability of living in the area and low wages have led to job shortages and mix-matches in the skill sets of the local labor force. Local communities in the upper river valley have recognized that an inadequate number of workers creates a problem for the community. More specifically, the number of jobs is not enough to support the number of people who want to live in the area for recreational and other quality of life purposes. Although committed community members may be willing to work for lower wages in order to stay in the area, it is difficult to retain attract workers in some industries when wages are uncompetitive for the skilled and educated part of the labor pool (SCEDD 2017).

Poverty

Poverty rates can provide insight into the social and economic well-being of residents, as well as, demand for local social services, by providing a measure for their material well-being. The U.S. Census Bureau determines poverty status of individuals and families by comparing pre-tax cash income against a threshold that is set at three times the cost of a minimum food diet in 1963. This amount is updated annually for inflation using the Consumer Price Index, and adjusted for family size, composition, and age of householder. "Family" is defined by the official poverty measure as persons living together who are related by birth, marriage, or adoption. Those who live in households with earnings below those incomes are considered to be poor and living in poverty. Poverty rates for the four counties within the project area are reported in Table 3-10, along with state level statistics to provide context relative to other parts of Colorado.

Table 3-10. Percent of Families & People Whose Income in the Past 12 Months was Below the Poverty Level

Geography	Families	People
Chaffee County	5.9%	8.7%
Fremont County	14.1%	17.4%
Lake County	6.6%	11.5%
Pueblo County	15.1%	19.8%
Colorado	8.5%	12.7%

U.S. Census Bureau, 2011-2015

Although income and poverty rates are highly correlated with people's material circumstances, they do not take into account living costs besides food, the depth or intensity of deprivation, or how long people have been struggling with poverty. Many struggling with poverty in the Upper Arkansas River Valley may fall just below the poverty line and are considered working poor or struggle with poverty as a result of lack of housing affordability or the seasonal nature of local work.

Contributions of Boating and Fishing within the AHRA

The AHRA is recognized as one of the nation's most popular locations for whitewater rafting and kayaking on the Arkansas River, the most commercially rafted river in the United States, and it is noted for its world class fishery, which supports outstanding opportunities for trout fishing. Each year, the AHRA welcomes hundreds of thousands of visitors who primarily visit during the spring and summer months when the weather warms and river flows become more favorable for water-based activities. Between 2012 and 2016, the AHRA was reported to support the annual average boating and fishing use levels shown in Table 3-11.

Table 3-11. Annual Average Fishing and Boating AHRA Users between 2012 and 2016

	Private Users	Commercial Users			# of Boats
		Clients	Staff	Trainees	
Fishing					
Shore	74,654	2,169	1,057	0	--
Boat	5,398	1,535	827	0	827
Boating					
Commercial[1]	--	190,706	40,268	8,023	42,352
Private	21,532	--	--	--	4,804*

Data provided by John Kreski from CPW in emails on 6/20/2017, 6/21/2017 and 7/6/17
[1] Excludes commercial float fishing
**Calculated based on the average number of recreationists per commercial boat*

As shown in Table 3-11, many people use river outfitters to enjoy rafting or fishing experiences within the Upper Arkansas River. In 2016, there were 47 outfitters permitted to offer guided boating tours through the AHRA. These outfitters paid more than $800,000 in use fees to operate on the river, and they collected $14.9 million in gross receipts from taking more than 220,000 clients on half, single, and multi-day float fishing and whitewater rafting and kayaking tours. In addition to boating outfitters, there were 15 outfitters permitted to operate guided walk and wade fishing tours. These permitted outfitters paid approximately $17,000 in use fees and collected more than $334,000 in gross receipts from serving 2,200 clients. Use fees paid to CPW by permitted outfitters are allocated back to the AHRA, helping to fund operations, maintenance, and improvements within the recreation area.

The high quality recreational opportunities supported by the AHRA attract visitors from near and far. According to a previous survey of AHRA visitors, approximately 20 percent of visitors were reported to live within 50 miles of the AHRA, while the remaining 80 percent traveled 50 miles or more to get to the AHRA (Corona Research 2009). The majority of visitors visit the AHRA for just one day and then leave the river valley; however, 27 percent of visitors on average stay overnight within Chaffee, Fremont, Lake, or Pueblo counties before, after, or in between recreational days on the river (Table 3-12). Although some visitors camp or stay overnight in RVs at one of six campground areas within the AHRA, most overnight visitors stay outside the park on other public lands, in hotels, motels; or in temporary vacation rentals. On average, visitors to the AHRA who stay overnight stay 3 days in the 4-county project area before heading home or traveling elsewhere (Personal communication Rob White and John Kreski on 6/26/17 and 7/6/17).

Table 3-12. Distribution of Annual Average Visitation to AHRA

Trip Type	% of Annual AHRA Visitation
Local[1]	
Day Trips[2]	17%
Overnight in Park[2]	2%
Overnight outside of Park[2]	1%
Non-Local[1]	
Day Trips[2]	56%
Overnight in Park[2]	5%
Overnight outside of Park[2]	19%

[1] Corona Research, Inc. 2009

[2] Personal communication with Rob White and John Kreski on 7/6/17

Boating and fishing along the Arkansas River is an important part of the social and economic structure of communities in the upper river valley. On annual average, commercial and private fishing on the Arkansas River within the AHRA is estimated to collectively stimulate $10.5 million in recreation related spending by local and non-local anglers within the project area. Commercial and private boating is estimated to stimulate another $39.9 million in recreation related spending by local and non-local boaters on annual average in the regional economy. As these dollars flow through the regional economy, they further stimulate additional economic activity in local businesses that support those that directly serve recreationists as well as those that support local household spending. Combined, fishing, and boating on the Arkansas River within the AHRA is estimated to support $57.6 million in economic activity across the four county project area (Table 3-13).

Table 3-13. Estimates of Economic Output, 2015 Dollars

	Fishing		Boating	
	Commercial	***Private***	***Commercial***	***Private***
Direct Effect	$ 715,230	$ 7,834,925	$ 30,661,042	$ 1,754,585
Indirect Effect	$ 144,469	$ 1,582,575	$ 6,193,219	$ 354,408
Induced Effect	$ 146,807	$ 1,608,186	$ 6,293,444	$ 360,144
Total Effect	*$ 1,006,507*	*$ 11,025,687*	*$ 43,147,705*	*$ 2,469,137*

IMPLAN, 2015

These recreation related expenditures stimulate employment and income for those who live, work, and invest in the area as well as contribute to the region's growth, both in terms of attracting and retaining seasonal workers and those with seasonal homes in the area. On annual average, these recreational opportunities support 674 jobs and $17.7 million in labor income across Chaffee, Fremont, Lake, and Pueblo Counties (Table 3-14 and Table 3-15). Guided fishing and boating on the Arkansas River can also contribute to non-local economies since many of the outfitters are owned by larger companies that have offices located outside of the river valley. Therefore, some of the expenditures, such as rafting trip costs, leak out of the local economy and support seasonal employment in those non-local economies. (BLM 2015).

Table 3-14. Employment Estimates, Jobs[1]

	Fishing		Boating	
	Commercial	***Private***	***Commercial***	Private
Direct Effect	9	101	395	23
Indirect Effect	1	14	55	3
Induced Effect	1	14	55	3
Total Effect	*12*	*129*	*505*	*29*

IMPLAN Group LLC, 2017

[1] Estimates of employment include any part-time, seasonal, or full-time job, and can be interpreted as 1 job lasting 12 months; 2 jobs lasting 6 months each; 3 jobs lasting 4 months; etc., these are not full-time equivalents.

Table 3-15. Labor Income Estimates, 2015 Dollars

	Fishing		Boating	
	Commercial	***Private***	***Commercial***	***Private***
Direct Effect	$ 223,845	$ 2,452,084	$ 9,595,937	$ 549,130
Indirect Effect	$ 41,386	$ 453,354	$ 1,774,147	$ 101,526
Induced Effect	$ 44,632	$ 488,913	$ 1,913,301	$ 109,489
Total Effect	*$ 309,862*	*$ 3,394,350*	*$ 13,283,385*	*$ 760,145*

IMPLAN Group LLC, 2015

3.4.5.2 Environmental Effects

The socioeconomic analysis conducted for this RAMP includes an economic contribution analyses, which examines the economic output, employment, and labor income stimulated across the four-county analysis area by recreation related spending associated with local and non-local fishing and boating on the Arkansas River within the AHRA. This analysis was conducted using a four-county 2015 IMPLAN model for Chaffee, Fremont, Lake, and Pueblo Counties based on the following assumptions:

- Baseline private and commercial client use was estimated by averaging annual use over the past five years (2012-2016) (Table 3-11) to capture variations resulting from changes in precipitation and from broader trends in river use and regional population growth.
- Annual boating and fishing visitation is highly variable and dependent on weather in terms of snow fall, runoff, and river flows in the spring and summer as well as the health of the fishery, gas prices, and personal tastes and preferences for outdoor recreation experiences. While these factors are driving forces behind fluctuations in river use, changes in visitor use resulting from these factors are independent of AHRA's management and not included in estimates of visitation under the alternatives.
- Future levels of boating and fishing on the Arkansas River may increase over time as a result of broader trends in population growth and outdoor recreation preferences, but these increases are independent of management actions implemented under any of these alternatives.
- Under the action alternatives, adjustments to section/ segment boundaries to clarify administration of boating capacities and types would be made. While established daily boat capacities for private and commercial use many change in several parts of the river under these alternatives, most of these changes would occur in sections/ segments where actual use was determined to be well below established capacities and would have not net effect on actual boat use in these areas (Personal communication Rob White and John Kreski on 6/26/17 and 7/6/17).

- CPW would issue fewer permits to commercial boating outfitters and increase the number of permits they issue for walk/wade operators over time. While these changes may affect the number of outfitters operating on the river, they are anticipated to result in a redistribution of clients among permitted outfitters rather than increasing or decreasing the number of guided anglers or boaters that will take trips down the river in a given year (Personal communication Rob White and John Kreski on 6/26/17 and 7/6/17).
- Since management actions implemented under the alternatives are not anticipated to affect annual average boating and fishing use levels, average annual visitation was held constant across the alternatives (Personal communication Rob White and John Kreski on 6/26/17 and 7/6/17).
- Spending profiles (i.e., the distribution of trip expenditures among industrial sectors) of AHRA recreationists are similar to those developed and used by the US Forest Service as part of their National Visitor Use Monitoring (NVUM) Program for the Pike- San Isabelle National Forest.
- The distribution of local (20%) and non-local (i.e., those who travel ≥ 50 miles) (80%) visitors to the AHRA is similar to that reported in the 2009 Colorado State Parks Marketing Assessment: Visitor Intercept Survey Report.
- Local and non-local overnight visitors camp within the park, outside the park on neighboring public lands or at private campgrounds, stay with friends or family, rent a temporary vacation rental, or stay in one of the valley's many hotels or motels.
- On average, AHRA visitors who stay overnight stay 3 days in the 4-county socioeconomic study area before heading home or traveling outside the study area (Personal communication Rob White and John Kreski on 6/26/17 and 7/6/17).
- Per person per day visitor expenditures were adapted from *The Use and User Characteristics, Management Preferences, and Satisfaction of Boaters and Anglers on the Arkansas Headwaters Recreation Area Report* prepared by Roggenbuck et al. in 1993. Average expenditures per person per day for private and commercial boating were inflated to 2015 dollars. Average per person per day expenditures for anglers in Segment 3 were inflated to 2015 dollars and used for private fishing. Per person per day expenditures associated with commercial fishing were estimated by scaling up private fishing expenditures by the percent difference between private and commercial boating.
- New recreational facilities proposed under the alternatives would be constructed to meet future demand for recreation access and facilities as funding becomes available. Since investment to improve/ construct new recreational infrastructure would occur in response to demand rather than inducing it, and there is high level of speculation surrounding what and when facilities enhancements would occur, economic activity associated with the construction of these facilities was not analyzed in this analysis.

The IMPLAN model is a powerful tool that can be used to estimate the total economic activity associated recreation spending by modeling the way a dollar injected into one sector is spent and re-spent in other sectors of the economy, generating waves of economic activity commonly referred to as "multiplier" effects. This type of modeling not only examines the direct contributions of recreation spending in industrial sectors that serve recreationists within the analysis area, but it also examines the indirect and induced contributions stimulated in seemingly unrelated industrial sectors through the use of industry-specific multipliers, local purchase coefficients, income-to-output ratios, and other factors and relationships. Indirect employment and labor income contributions occur when a sector purchases supplies and services from other industries in order to produce their products. Induced contributions are the employment and labor income generated as a result of spending new household income generated by direct and indirect employment.

3.4.5.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Although there would be changes in management of resources and infrastructure within the AHRA under the Proposed Action/ Alternative 2, the Arkansas River within the AHRA would continue to support high quality boating and fishing experiences which would attract thousands of non-local visitors to the valley each year, and contribute to the local sense of place and quality of life which helps to attract and sustain businesses and residents within the Upper Arkansas River Valley. Although changes in number of commercial permits and daily boat capacities under this alternative have the potential to affect river use levels, changes proposed under this alternative are anticipated to have a negligible effect on overall river use across the AHRA.

Under this alternative, some river segments would be subject to changes in daily boat capacities and the start/end dates of use seasons. While these changes may affect which segments will have capacity to meet demand on any given day, they are not anticipated to affect overall annual use of river. Since established boat capacities have been considerably higher than actual use levels in many river segments, changes to daily boat capacities during peak and non-peak seasons in many of these river segments will have a negligible effect on actual use levels in these segments. In segments where rationing periodically occurs, changes in boat capacities proposed under this alternative may cause more frequent shifts in use from one segment and/or section of the river to another as boaters adjust where they put in based on river conditions and use levels on any given day. On annual average, these changes are not anticipated to have a net effect on actual boat use across the Arkansas River with the AHRA.

Under this alternative, CPW would gradually reduce the number of outfitters they permit to guide rafting and float fishing within the AHRA, while increasing the number of outfitters permitted for wade/walk fishing. Since commercial use of the river has remained relatively constant and has been limited by customer demand rather than outfitters' ability to serve clients, changes in commercial permitting are not anticipated to affect commercial use levels. As the number of outfitters serving clients on the river changes, recreationists seeking out guides for boating and fishing experiences on the Arkansas River will continue to have several outfitters to choses from. As a result, management anticipates changes in the number of outfitters serving river clients within the AHRA to result in a redistribution of clients among permitted guides rather than any increases or decreases in commercial use. As individual outfitters adjust to changes in the demand for their services, staff numbers and sale prices may change to reflect more or less completion among outfitters.

While management actions implemented under this alternative may affect visitor use patterns within the AHRA, they are anticipated to have a negligible effect on actual use levels by commercial and private anglers and boaters across river segments in any given year. Thus, recreation related spending by local and non-local anglers and boaters who use the Arkansas River within the AHRA would not be affected by changes in management actions implemented under this alternative. Economic contributions in terms of regional economic output, employment, and labor income supported by the direct, indirect, and induced effects of these dollars circulating within the socioeconomic study area would be the same as those presented in Socioeconomic Affected Environment in Boating and fishing along the Arkansas River is an important part of the social and economic structure of communities in the upper river valley. On annual average, commercial and private fishing on the Arkansas River within the AHRA is estimated to collectively stimulate $10.5 million in recreation related spending by local and non-local anglers within the project area. Commercial and private boating is estimated to stimulate another $39.9 million in recreation related spending by local and non-local boaters on annual average in the regional economy. As these dollars flow through the regional economy, they further stimulate additional economic activity in local businesses that support those that directly serve recreationists as well as those that support local household spending. Combined, fishing, and boating on the Arkansas River within the AHRA is estimated to support $57.6 million in economic activity across the four county project area (Table 3-13 through Table 3-15). Therefore, the overall effect of the Proposed Action/Alternative 2 on regional socioeconomic conditions would be negligible.

Protective/Mitigation Measures: None

Cumulative Impacts: Cumulative Impacts: Although boating and fishing use levels within the AHRA have remained relatively constant over the past five years, future boat use under this alternative will continue to be largely dependent on factors independent of AHRA management of recreation resources, such as weather,

precipitation, river flows and stages, health of the fishery, gas prices, and personal tastes and preferences for outdoor recreation experiences. It is anticipated that recreation use will continue to grow in this region as a result of regional population growth and long-term outdoor recreation use. This growth would be independent of management decisions made in this RAMP and would likely result in cumulative, yet subtle changes in recreation settings within the AHRA. If the Colorado population continues to grow over the life of the plan then additional commercial and private use of the river within the AHRA will likely occur in the future under this alternative. As a result, recreation related spending within the project area will likely increase. Although it is uncertain what type of effect increases in recreation related spending associated with river use within the AHRA will have on the overarching health or structure of the local economy, this economic activity will continue to support local businesses and residents who directly and indirectly earn livings from the economic activity stimulated by boating and fishing use of the AHRA. Future population growth and increased river use may affect the rural character of the river valley over time. While some residents may appreciate the additional economic activity these river users would stimulate, increased noise, traffic, and congestion on and off the river could change the character of local communities and detract from the quality of life of some residents.

3.4.5.2.2 Alternative 1

Direct and Indirect Impacts: Same as Proposed Action/Alternative 2.

Protective/Mitigation Measures: Same as Proposed Action/Alternative 2.

Cumulative Impacts: Same as Proposed Action/Alternative 2.

3.4.5.2.3 No Action Alternative

Direct and Indirect Impacts: Same as Proposed Action/Alternative 2.

Protective/Mitigation Measures: Same as Proposed Action/Alternative 2.

Cumulative Impacts: Same as Proposed Action/Alternative 2.

3.4.6 Environmental Justice

3.4.6.1 Affected Environment:

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations states, “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations…”.

Executive Order 12898 also applies to federally recognized Indian tribes, and therefore, it is important to determine whether any Indian tribes are present in the area, have treaty or reserved rights for lands and resources in the project area, or have traditional cultural and historical use ties to lands and resources in the project area. This requires Federal agencies to determine what, if any, interests federally recognized tribes may have in a given project area.

The purpose of EO 12898 is to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, or Indian tribes that may experience common conditions of environmental exposure or effects associated with a plan or project. It is important to note that minority populations, low-income populations, or tribes may experience common effects from a project even if they do not reside in the immediate study area. EO 12898 requires Federal agencies to ensure opportunities for effective public participation by potentially affected low-income populations, minority

populations, or Indian tribes. These populations are considered to be potential "environmental justice populations" of concern that should be addressed throughout the planning effort.

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

- At least one-half of the population is of minority or low-income status; or
- The percentage of population that is of minority or low-income status is at least five (5) percentage points higher than for the State of Colorado.

Minority populations as defined by Council on Environmental Quality (CEQ) guidance under the National Environmental Policy Act (CEQ 1997) include individuals in the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; black, not of Hispanic origin; or Hispanic. A minority population is identified where "(a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater…" (CEQ 1997). Additionally, "[a] minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds" (CEQ 1997). Low-income populations are determined by the U.S. Census Bureau based upon poverty thresholds developed every year. Local statistics, as well as those for the state, are presented below in Table 3-16.

CEQ guidance does not provide specific criteria for determining low-income populations as it does for minority populations, so for this planning effort we will use the same "meaningfully greater" criteria for minority populations. Therefore, we identify low-income population and minority population percentages that are "meaningfully greater" as at least five (5) percentage points higher than for the State of Colorado. Based on this criteria, meaningfully greater Environmental Justice (EJ) populations are identified to be present in Fremont, Lake, and Pueblo Counties.

Table 3-16. Minority Population and Poverty Rates

	Total Population	Percent of Total Population								
		Race alone								
		% White	% Black or African American	% American Indian and Alaska Native	% Asian	% Native Hawaiian and Other Pacific Islander	% Two or More Races	% Hispanic	% Total Minority	% Poverty, all ages
Chaffee County	18,658	94.1%	1.8%	1.5%	0.8%	0.1%	1.6%	10.4%	15.0%	11.7%
Fremont County	46,692	91.4%	4.0%	1.9%	1.0%	0.1%	1.7%	13.2%	20.9%	**17.2%**
Lake County	7,485	93.9%	0.6%	2.5%	0.6%	0.1%	2.3%	**37.7%**	**40.8%**	15.7%
Pueblo County	163,591	90.6%	2.5%	3.1%	1.0%	0.2%	2.6%	**42.7%**	**47.4%**	**19.8%**
Colorado	5,456,574	87.5%	4.5%	1.6%	3.2%	0.2%	2.9%	21.3%	31.3%	11.5%

Note: highlighted cells indicate when county populations exceed the established threshold to identify the presence of meaningfully greater EJ populations
Sources: U.S. Census Bureau 2016a and 2016b

3.4.6.2 Environmental Effects

3.4.6.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Although minority populations in Fremont, Lake, and Pueblo counties exceeded the minority and/ or poverty thresholds to identify the presence of meaningfully greater EJ populations, management actions proposed under this alternative are anticipated to have negligible effects on annual average recreation use levels, and any temporary adverse impacts associated with the upgrade or construction of new AHRA facilities (i.e. production of noise and dust, restricted access, and visual impacts) would be felt by the population at large. Thus, the Proposed Action would not disproportionately affect environmental justice populations in these three counties. Potential tribal concerns are addressed under the Cultural and Native American Religious Concerns resource sections. The BLM has considered all input from persons or groups regardless of age, income status, race, or other social or economic characteristics. The outreach and public involvement activities taken by the AHRA for this effort, including the consultation of tribes, are described in Sections1.11.1 Scoping.

Protective/Mitigation Measures: None

Cumulative Impacts: Since this alternative is not anticipated result in direct or indirect impacts which would have disproportionately high and adverse effect local EJ populations, management actions under this alternative would not contribute to disproportionately high and adverse cumulative impacts to EJ populations.

3.4.6.2.2 Alternative 1

Direct and Indirect Impacts: Same as Proposed Action/Alternative 2.

Protective/Mitigation Measures: Same as Proposed Action/Alternative 2.

Cumulative Impacts: Same as Proposed Action/Alternative 2.

3.4.6.2.3 No Action Alternative

Direct and Indirect Impacts: Same as Proposed Action/Alternative 2.

Protective/Mitigation Measures: Same as Proposed Action/Alternative 2.

Cumulative Impacts: Same as Proposed Action/Alternative 2.

3.5 Land Resources

3.5.1 Recreation

3.5.1.1 Affected Environment:

The recreation opportunity spectrum (ROS) should be used to provide a conceptual framework for inventory, planning, and management of the recreational resources in the project area, which is defined as the CML. ROS is used to characterize recreation opportunities in terms of setting, activity, and experience. The majority of AHRA falls into one of three classes: roaded natural, semi-primitive motorized, and semi-primitive non-motorized. The communities along the river are classified as rural. The three basic components of natural resource outdoor recreation settings described here are recreation resources (physical), visitor use (social), and current management

(managerial). Each influences the quality, nature, and types of recreation activities and experiences that are available to the public.

Physical: relates to the resource itself; considers the area's remoteness and accessibility, its degree of naturalness and both the amount and type of land improvements and developed facilities.

Social: refers to people that use the area; includes both numbers and types of contacts with others, and evidence of their use.

Operational: defines how the area and its recreation visitors are being managed; includes on-the-ground visitor management controls, regulations, multiple-use management practices and types of vehicles allowed.

AHRA visitation is dynamic because of multiple factors including the Colorado economy, surrounding states' economies, gas prices, the weather from winter snowpack and summer rain events, and the availability of multiple and competitive recreation activities around the state of Colorado. Commercial and private boat use is influenced by these dynamic factors. Existing data shows that the number of paying clients for commercial boating has averaged (ten-year figure) around 253,000. The same data shows that private boat use has averaged around 31,000 private boaters per year (see Table 1-1 and Table 1-2).

The above-noted factors have kept both commercial and private boat numbers relatively constant for the past ten years.

The AHRA is split into segments for management purposes. The following discussion provides a description of each segment and describes the river, types of activities that occur and the recreation sites found in each segment. From Leadville, the Arkansas River flows down through the communities of Granite, Buena Vista, Johnson Village, Salida, Swissvale, Howard, Coaldale, Cotopaxi, Texas Creek, Cañon City and Florence. While some sections are bordered by roads and towns, other sections are more remote. Each has different resource and visitor use characteristics. Each segment has a private and commercial boating capacity for in season and off season use and launch window times. Six distinct river segments have been recognized. Recreational use figures by various activities from 2001 through 2016 can be found in tables following the segment descriptions.

Segment 1: Leadville to Buena Vista - Ideally suited for technical private boating, this segment offers Class I through Class V rapids and vertical drops ranging from 26 to 66 feet per mile. Commercial boating occurs in the lower portion of this segment, along with many other activities, such as camping, fishing, picnicking, wildlife watching, recreational gold placering, and hiking. The Crystal Lakes, Hayden Meadows, Hayden Ranch, Arkansas River Ranch, Kobe, Granite, Granite Rock, Clear Creek, Stone Cabin, Pine Creek, Numbers, Arkansas River Placer, Rapid #4, The Wall, Rapid #5 1/2, Boulderfield, Rapid #6, Riverside, Railroad Bridge, Grassy Knoll, Elephant Rock, Tunnel View ,and the Buena Vista Boat Ramp access points receive extensive use. River access lease sites have also enhanced fishing opportunities along this segment of the river.

This segment of river is divided into sections in the current management plan. Commercial use figures are calculated using these sections (see Table 3-17).

Table 3-17. Segment 1 Commercial Use

River Section	* Commercial Use		% of Change
	2001	2016	
1a No comm. use	0	0	0%
1b	4,127	1788	-57%
1c	12,469	17,857	43%
1d	10,253	6,534	-36%

* Commercial Use = Clients + Staff

The following recreation and access sites are located within Segment 1:

Crystal Lakes Recreation Site: The USFS owns the site, and the AHRA manages it. This site provides fishing opportunities in various small ponds and public access to the Arkansas River. Interpretive information about the mountains and wildlife is also available at this site. CPW obtained a public fishing easement on the adjacent Colorado State Land Board (CSLB) river frontage. No use fee is currently required at this site.

Hayden Meadows Recreation Site: Lake County owns this site, and AHRA manages it. This site provides fishing access to the Arkansas River, and CPW stocks a small pond on the site. A parking lot, a restroom, a hiking, biking, horseback riding trail and information/interpretive signs are currently the only facilities offered at this time. No use fee currently is required at this site.

Hayden Ranch Recreation Site: The City of Aurora owns this site, and AHRA manages it. This site provides fishing access to the Arkansas River. Parking is available at the Hayden Meadows Recreation Site. No use fee currently is required at this site.

Arkansas River Ranch Recreation Site: This site is owned by CPW and managed by AHRA. This site provides boating and fishing access. A parking lot, restroom and a hiking, biking, horseback riding trail are the only facilities available at this time. No use fee is currently required at this site. Kobe Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides boating and fishing access. A parking area and interpretive signage are the only facilities at this site. No use fee is currently required at this site.

Granite Recreation Site: This site is owned by the Union Pacific Railroad (UPRR) and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Granite Rock Recreation Site: This site is a CPW fishing easement managed by CPW/AHRA. This site provides access for boating, fishing, climbing and dispersed camping. There is no use fee currently required at this site.

Clear Creek Recreation Sites (north and south): These sites are owned by the Pueblo Board of Water Works and managed by AHRA. These sites provide boating and fishing access. Parking and visitor information is available at these sites. No use fee is currently required at these sites.

Stone Cabin Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. No use fee is currently required at this site.

Pine Creek Recreation Site: This site is owned by the CSLB and managed by AHRA. This site provides river access. A portage trail is the only facility at this site. No use fee is currently required at this site.

Numbers Recreation Site: This site is located on FS lands and through an agreement is managed by AHRA. This site provides boating access, fishing access and access to a mining claim. A daily or annual pass is required at this site.

Arkansas River Placer Recreation Site: This site is owned by the CPW and managed by AHRA. This site provides boating and fishing access. A parking lot is the only facility available at this time. No use fee is currently required at this site.

Rapid #4 Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. A parking lot is the only facility at this site. No use fee is currently required at this site.

The Wall Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. No use fee is currently required at this site.

Rapid Five ½ Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing, dispersed camping and recreational gold placering. No use fee is currently required at this site.

Boulderfield Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. No use fee is currently required at this site.

Rapid #6 Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. No use fee is currently required at this site.

Riverside Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. The area is also popular for recreational gold placering. Parking and picnic tables are available. No use fee is currently required at this site.

Railroad Bridge Recreation Site: This site is managed by AHRA as a BLM lease site. Major day use and camping facilities exist, such as parking for cars and buses towing trailers; camp sites that have a picnic table, grill and tent pad; vault toilets; information signs; and a boat ramp. This site is primarily used by boaters and anglers. Gold placering occurs adjacent to the site along the river by members of the Gold Prospectors of America. A daily or annual pass is required at this site.

Grassy Knoll Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. No use fee is currently required at this site.

Elephant Rock Recreation Site: This site is owned by the FS and managed by AHRA. This site provides access for boating and fishing. Rock climbing occurs on some of the major rocks in the immediate area. Dispersed camping also occurs at this site. There are no facilities and no use fee is currently required at this site.

Tunnel View Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides access for boating, fishing and dispersed camping. No use fee is currently required at this site.

Segment 2: Buena Vista to Salida - The most heavily used portion of the river for commercial rafting trips, this segment offers Class III and IV rapids and a vertical drop of 30 feet per mile. Other activities include fishing, a considerable amount of historic private kayaking and rafting, and some overnight camping trips. The recreation sites along this segment that offer boating opportunities are Fisherman's Bridge, Ruby Mountain, Browns Canyon, Hecla Junction, and Stone Bridge, Big Bend, Slaughterhouse, Salida Open Boat Zone and the Salida Boat Ramp. The Collegiate Peaks Scenic Overlook provides visitors an overview of AHRA and interpretive messages of the valley. Many other activities occur at these sites as well, e.g., fishing, camping, hiking, picnicking, wildlife watching and recreational gold placering. River access lease sites have enhanced fishing opportunities along this segment of the river. This segment of river is divided into sections in the current management plan. Commercial use figures are calculated Table 3-18.

Table 3-18. Segment 2 Commercial Use

River Section	*Commercial Use		% of Change
	2001	2016	
2a	22,483	12,423	-45%

2b	147,380	115,354	-22%
2c	13,118	9,114	-31%
2d	3,674	7,814	113%

* Commercial Use = Clients + Staff

The following recreation and access sites are located within Segment 2:

Buena Vista Whitewater Park: An unlimited boating use area beginning 600 feet above the Midland Trail foot bridge and continues down river to the Ramsour Bridge, accessible via city property.

Buena Vista Boat Ramp: The Town of Buena Vista manages this AHRA recreation site. Facilities include softball and soccer fields, restrooms, picnic sites, a foot bridge, trails, and a boat ramp. No use fee is currently required at this site.

Collegiate Peaks Overlook Recreation Site: This site is managed by AHRA as a BLM lease site. The scenic overlook provides visitors outstanding views of the Collegiate Peaks and the Arkansas River valley. An interpretive shelter and restroom with solar lights exist. This site acts as an entrance portal and provides information about AHRA and the history of the valley. A daily or annual pass is required at this site.

Fisherman's Bridge Recreation Site: This site is managed by AHRA as a BLM lease site. Fisherman's Bridge is one of the busiest put-ins for commercial boating. A large parking area, parking barriers, vault toilets, information signs, a watchable wildlife kiosk, and two boat slides exist. A daily or annual pass is required at this site.

Ruby Mountain Recreation Site: This site is managed by AHRA as a BLM lease site. Day use and camping facilities such as parking, restrooms, picnic sites, grills, tent pads, a small amphitheater, information signs and a boat launch exist. Restrooms and fee stations have solar lights. This site is primarily used by private boaters, anglers and campers. The AHRA managers may allow commercial boaters to use this site as a put-in when flows fall below 700 cfs. This site also provides non-mechanized access into the Browns Canyon WSA. This campground was renovated is 2015. A daily or annual pass is required at this site.

Hecla Junction Recreation Site: This site is managed by AHRA as a BLM lease site. Day use and camping facilities such as parking, restrooms, picnic sites, grills, tent pads, information signs, and a boat launch exist. Restrooms and fee stations have solar lights. A USGS water gauge is located here. The site is primarily used by boaters, anglers and campers. A daily or annual pass is required at this site.

Stone Bridge Recreation Site: This site is managed by AHRA as a BLM lease site. Parking, restrooms, picnic tables, a boat launch, and information signs exist. The site is primarily used by boaters, although anglers also use the site. A daily or annual pass is required at this site.

Big Bend Recreation Site: The site is managed by AHRA and portions of this site are owned by both CPW and BLM; the BLM portion of this site as a BLM lease site. Parking, restrooms, picnic tables, a boat launch, and information signs exist. The site is primarily used by boaters, anglers, and bird watchers. This site is also managed as an OHV family riding area. A daily or annual pass is required at this site.

Slaughterhouse Recreation Site: This site is owned by Colorado Department of Transportation (CDOT) and is managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Salida Whitewater Park: An unlimited boating use area beginning at the low head dam upriver from Salida and continues down river to the end of Riverside Park, accessible from city property.

Salida Boat Ramp: The City of Salida manages this AHRA recreation site. A small parking lot, boat launch, and slalom course for kayakers exist. No use fee is currently required at this site.

Segment 3: Salida to Vallie Bridge - Fishing is the dominant use in this segment. However, boating and other special activities also occur in this segment, such as the annual FIBArk race. This segment lies adjacent to US Highway 50 and offers mostly quiet water. The vertical drop is 24 feet per mile. Many of the recreation sites along this segment offer boating opportunities, including the Salida Whitewater Park, Salida East, Wellsville, Point Barr, Rincon, and Vallie Bridge. In addition, most of these sites within this segment also offer picnicking,

fishing, camping, hiking, wildlife watching and recreational gold placering. River access lease sites have enhanced fishing opportunities along this segment of the river. This segment of river is currently not divided into subsections in the current management plan. Commercial use figures are calculated and shown in Table 3-19.

Table 3-19. Segment 3 Commercial Use

River Section	*Commercial Use		% of Change
	2001	2016	
3	4,283	7,565	77%

* Commercial Use = Clients + Staff

The following recreation and access sites are within Segment 3:

Salida East Recreation Site: This site is owned by the BLM and managed by AHRA as a BLM lease site. Day use and camping facilities such as parking, restrooms, grills, information signs, and a boat launch exist. Restrooms and fee stations have solar lights. This site is primarily used by boaters, anglers, and campers. A daily or annual pass is required at this site.

Wellsville Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Point Barr Recreation Site: This site is managed by AHRA as a BLM lease site. This site provides dispersed camping and recreational gold placering activities. No use fee is currently required at this site.

Rincon Recreation Site: This site is managed by AHRA as a BLM lease site. Day use and camping facilities such as parking, restrooms, picnic tables, grills, tent pads, information signs, and a boat ramp exist. A daily or annual pass is required at this site.

Segment 4: Vallie Bridge to Parkdale - A heavily used segment for commercial and private boating, this portion of the river lies adjacent to US Highway 50 and has rapids up to Class IV. The vertical drop is 30 feet per mile. The Vallie Bridge, Canyon Trading Post, Lone Pine, Texas Creek, Pinnacle Rock, Salt Lick, Five Points, Spikebuck, and Parkdale recreation sites provide extensive access to the river. These sites, along with various other smaller, less developed sites, including Loma Linda, Fern Leaf Gulch, Ford Crossing, Lazy J, Maytag, Cottonwood, Five ½ Points, Lower Floodplain, Bootlegger and Old Parkdale, provide for picnicking, fishing, camping, hiking, wildlife watching, and recreational gold placering. This segment of river is divided into subsections in the current management plan. Commercial use figures are calculated using the subsections in Table 3-20.

Table 3-20. Segment 4 Commercial Use

River Section	*Commercial Use		% of Change
	2001	2016	
4a	7,655	14,844	94%
4b	93,141	75,182	-19%

* Commercial Use = Clients + Staff

The following recreation and access sites are within Segment 4:

Vallie Bridge Recreation Site: This site is owned by CPW and managed by AHRA. This site offers parking, restrooms, picnic tables and information signs. Boating, fishing, camping, and picnicking are the primary activities. A daily or annual pass is required at this site.

Canyon Trading Post Recreation Site: This site is managed by AHRA as a BLM lease site. Parking, picnic tables, grills, a watchable wildlife kiosk, restrooms, information signs, and a boat ramp exist. This site is primarily used for boating, fishing, and picnicking. A daily or annual pass is required at this site.

Loma Linda Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Lone Pine Recreation Site: This site is managed by AHRA as a BLM lease site. Parking, picnic tables, grills, restrooms, information signs and a boat ramp exist. Boating, fishing and picnicking are the primary activities that occur. A daily or annual pass is required at this site.

Fern Leaf Gulch Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Ford Crossing Recreation Site: This site is owned by CPW and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Texas Creek Recreation Site: This site is owned by CPW and managed by AHRA. A small parking lot and information sign exist at this site. The site provides boating and fishing access as well as OHV access to the Texas Creek Travel Management Area. No use fee is currently required at this site.

Lazy J River Access Site: This site is owned by BLM and managed by AHRA. This site provides boating, fishing and dispersed camping access. No use fee is currently required at this site.

Maytag Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating, fishing and dispersed camping access. No use fee is currently required at this site.

Cottonwood Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating, fishing and dispersed camping access. No use fee is currently required at this site.

Pinnacle Rock Recreation Site: This site is managed by AHRA as a BLM lease site. Parking, picnic tables, grills, restrooms, information signs and two boat ramps exist. The primary use of this site is for boating, with some picnicking and fishing use also occurring. A daily or annual pass is required at this site.

Salt Lick Recreation Site: This site is managed by AHRA as a BLM lease site. A parking area, portable restrooms, information signs and a boat ramp exist. The site is used primarily for boating. No use fee is currently required at this site.

Five Points Recreation Site: This site is owned by BLM and managed by AHRA. This site provides day use facilities as well as a developed campground. Paved parking and sidewalks, a watchable wildlife structure, an observation deck, picnic tables, grills, restrooms and information signs exist. The restrooms and fee stations have solar lighting. A daily or annual pass is required. A daily or annual pass, as well as camping fees, are required at this site.

Five ½ Points Recreation Site: This site is managed by AHRA as a BLM lease site. This site provides boating, fishing and dispersed camping access. No use fee is currently required at this site.

Lower Floodplain Recreation Site: This site is owned by BLM and managed by AHRA. This site provides a restroom and boating and fishing access. The area is popular as a lunch stop for boaters and is also frequently used by anglers. No use fee is currently required at this site.

Spikebuck Recreation Site: This site is managed by AHRA as a BLM lease site. This site provides boating and fishing access. Parking, restrooms, interpretive signs, information signs and a boat ramp exist. A daily or annual pass is required at this site.

Bootlegger Recreation Site: This site is owned by the BLM and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Old Parkdale Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating and fishing access. No use fee currently is required at this site.

Segment 5: Parkdale to Cañon City - Running through the Royal Gorge, this segment offers very technical whitewater, Class III, IV, and V rapids, with a vertical drop of 50 feet per mile. It is potentially quite hazardous at both low and high water flows. This segment provides commercial boating as well as private boating opportunities. Copper Gulch, Pink House, the Royal Gorge access sites, as well as the Cañon City Boat Ramp, are the recreation sites in this segment. Other recreation activities available at these sites include picnicking, fishing, hiking, wildlife watching and recreational gold placering. This segment of the river is not divided into subsections in the current management plan. Commercial use figures are calculated and shown in Table 3-21.

Table 3-21. Segment 5 Commercial Use

River Section	*Commercial Use		% of Change
	2001	2016	
5	63,631	53,566	-16%

* Commercial Use = Clients + Staff

The following recreation and access sites are within Segment 5:

Parkdale Recreation Site: This site is owned by CPW and managed by AHRA. This site provides boating and fishing access with parking, restrooms, picnic tables and information signs. A daily or annual pass is required at this site.

Copper Gulch Recreation Site: This site is owned by BLM and managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Pink House Recreation Site: This site is privately owned and managed by AHRA. This site is used currently for commercial and private boating access. A daily or annual pass is required at this site.

Cañon City Whitewater Park: An unlimited boating use area beginning at the Pink House Recreation Site downriver to the Cañon City, Raynolds Avenue. Accessible via city property.

Centennial Park Recreation Site: The City of Cañon City owns and manages this AHRA recreation site. This site provides parking, picnic tables, grills, restrooms, information signs, and boating/fishing access. No use fee is currently required at this site.

River Station Recreation Site: The City of Cañon City owns and manages this AHRA recreation site (AHRA manages the boat ramp/parking lot). This site provides parking, picnic tables, grills, restrooms, information signs, and boating/fishing access. No use fee is currently required at this site.

Segment 6: Cañon City to Lake Pueblo State Park - This segment differs from the previous five in that it is characterized as a plains river, dropping only 15 vertical feet per mile and offering Class I rapids. Ideally suited for canoeists and other boaters desiring a tranquil river trip, it offers fishing, wildlife watching, and picnicking opportunities. Access to the river in this segment is somewhat limited, with current access principally limited to the Cañon City Boat Ramp, several municipal parks including, Centennial Park, River Station, Raynolds, the Florence River Park and Swallows. Commercial use figures are calculated and shown in Table 3-22.

Table 3-22. Segment 6 Commercial Use

River Section	*Commercial Use		% of Change
	2001	2016	
6	386	1,026	166%

* Commercial Use = Clients + Staff

The following recreation and access sites are within Segment 6:

Raynolds Recreation Site: The City of Cañon City owns and manages this AHRA recreation site (AHRA manages the boat ramp/parking lot). This site is used for boating and fishing access. No use fee is currently required at this site.

McKenzie Bridge Recreation Site: The City of Cañon City manages this AHRA recreation site. This site provides access for boating and fishing. No use fee is currently required at this time.

Pathfinder: The Town of Florence owns and manages this AHRA recreation site. This site provides boating and fishing access. No use fee is currently required at this site.

Florence River Park: The Town of Florence owns and manages this AHRA recreation site. This site provides boating and fishing access. No use fee is currently required at this site.

Blue Heron Recreation Site: This site is owned by the BLM and is managed by AHRA. This site provides boating and fishing access. No use fee is currently required at this site.

Swallows Recreation Site: CPW manages this site as a State Wildlife Area (SWA) and is utilized by AHRA at a take-out site.. This site provides boating and fishing access. No use fee is currently required at this site.

River Visitor User Preferences

The Upper Arkansas River (Leadville, CO to Lake Pueblo State Park, Co) is the most intensively used river in the United States for commercial whitewater boating. Based on BLM/USFS/Colorado State Parks records, 2015 recreation use on the river was 814,577 user days, an increase of 5% over 2000 use levels. This report focused primarily on two of those activities: fishing and boating use. Of the 814,577 river user days total, 249,621 commercial and 22,867 private user days were reported for boating, and 82,720 shore and 5,337 boating user days were reported for angling. Approximately 90% of the total boating use is comprised of rafting, including both commercial and private trips. In 2015, each commercial raft carried an average of six persons. Approximately 10% of the total is comprised of kayaking use, with an average of one person per kayak. During the July 1 to August 15 period, there are an average of 3,327 people in vessels per day on the river. In regards to river angling days, about 54% is fly-fishing use, 41% is spin casting use, and about 5% is float fishing use. A 2012 study states that there are approximately 100,563 anglers fishing the river throughout the year between Leadville and Parkdale.

The recreation work group for the Arkansas River Water Assessment and its consultant, EDAW, Inc. analyzed user preferences for water levels using multiyear periods and various user survey methodologies. Users in both boating and angling recreation activities were asked to judge the acceptability of various flow levels for their respective activities. Table 3-23 shows the optimum flow preferences by each type of recreational user.

Table 3-23. Optimum Flow Ranges for Recreational Activities

Recreation Activity	Optimum Flow Range {cfs}	Median Optimum Flow {cfs}
Fly Fishing	400 - 500	450
Spin Fishing	700 - 1200	950
Float Fishing	900 - 1200	1050
Kayaking	1300 - 1500	1400
Rafting	1500 - 2000	1750
Source: EDAW Arkansas River Study, October 28, 1997		

Heart of the Rockies Historical Corridor Rail Trail
A proposal was made to abandon the Union Pacific Railroad corridor between Parkdale and Eagle County. Part of that abandonment would have been to "railbank" the entire corridor, allowing for retention of the corridor while not in railroad use. A study was initiated to review the potential for converting the rail line into a trail system. This study can be seen at the AHRA office in Salida. Currently, the rail line has not been abandoned but instead placed into a "reserve" category. This does not entail removal of the rails and allows for future railroad use. As such, the rail-to-trail proposal has been held in abeyance until the "reserve" process comes to a completion.

As of late 2017, progress has been made establishing a 64-mile-long route along the Upper Arkansas River from Salida to Leadville. A largely volunteer-driven project under the non-profit Greater Arkansas River Nature Association, the Stage and Rail Trail project plans to celebrate, preserve and, in some sections, use historic routes of the 1880s Cañon City to Leadville Stage Road and historic Colorado Midland RR. Substantial portions lie within or adjacent to the CML. A 2012 feasibility study was followed by a 2015 draft management plan; initial implementation grants through 2018 are underway (all funded by CPW's State Trails Program). Lake and Chaffee Counties, and Salida, Buena Vista, and Leadville have designated the conceptual route within their jurisdictions. In 2016 the governor's Colorado the Beautiful Program listed the Stage and Rail Trail project as one of "*Colorado's 16*" highest priority trails. The Colorado Mountain Club's Conservation Department has taken over as the lead in coordinator of the Stage and Rail Trail planning effort.

3.5.1.2 Environmental Effects

3.5.1.2.1 Proposed Action

As described above, visitors' outdoor recreation experiences and their ability to obtain the outcomes they desire are largely influenced by three components: the physical setting of an activity, the social setting including number of contacts with other visitors, and management controls found during an outing. Each of these components influences the quality, nature, and types of recreation activities and experiences that are available to the public. These components contribute to their perceived satisfaction and ultimately their abilities to attain their desired outcomes. Changes to these settings are used to describe the impacts to visitors by each alternative. Outdoor recreation provides desired outcomes to more than just the individual; communities and families can also see benefits.

Conflicts occur among different user groups, among users within the same group, and as a result of factors not related to the river users' activities at all. Conflict has been found to relate to activity style, focus of trip, expectations, attitudes toward and perceptions of the environment, level of tolerance for others, and different norms held by different users. Other conflicts include conflicts between river users and animals or managers and river users versus private landowners. Conflict in outdoor recreation settings can best be defined as "goal interference attributed to another's behavior." This forms the basis for describing conflicts of each alternative.

Direct and Indirect Impacts: The proposed action would introduce changes in the physical, social, and operational settings affecting visitors and the experiences that they have while recreating on the river. Physical changes outlined in the proposed action include an increase in the number of facilities provided to the visitors as a direct response to increases in visitation. For people who value these types of facilities, these additions can be seen as a welcome change and improve their overall experience. Colorado Mesa University compiled a report based on data collected in and adjacent to the planning area. A means-end analysis found a correlation between achieving mental serenity and developed campgrounds indicating that for these types of facilities, responsibilities are diminished and minds are put at ease. At the same time when respondents were asked about visitor services,

63% desired to “leave it as is.” (Casey, 2015). This indicates simply that recreationists have differing views of developed facilities and may be reflective of whether they were local or visiting from outside of the area.

Actions relating to acquiring parcels for open space would align with the desires of respondents outlined in the report who overwhelmingly sought the greater area for natural landscapes. It would be assumed that these types of actions would enhance this desired expectation.

Changes to the social setting of the planning area are anticipated for all of the action alternatives simply due to increased populations and interest in outdoor recreation activities. These changes are likely to be witnessed in both the amount of private boating as well as commercial boating. This increase in use is likely to lead to additional conflicts and diminished experiences. Examples include differences in activity style such as fishing versus rafting or a visitor expecting a low number of encounters with other groups while visiting Browns Canyon on a weekend in summer. The response to this conflict is different for each individual resulting in pattern changes (visit during week vs. weekends), complete displacement of an area, or resignation/acceptance. Segment 6 may likely see the largest change in the social setting due to an increase in the number of sites and improved access. Currently this segment sees very low use when compared to the rest of the river. With improved access including boat ramps, this use is anticipated to increase. This increase in use could displace some users who are used to not having any contacts with other visitors. At the same time other visitors will welcome the improved access and would be more open to contacts with others during their outings.

Colorado Parks and Wildlife is charged with regulating private and commercial activities on the river. While this is outside the scope of the BLM’s decision, this allocation has an effect on the social setting and is important to understand. While reviewing data, it was apparent that private boater capacities established under the previous plan, for most sections, was artificially high. The threshold was nowhere near being reached. These numbers were reduced to better reflect actual use. As a result, all of the action alternatives have some reduction in private boater capacities. Per Table 2-8 under the Proposed Alternative, there would be reductions to private boater capacities in Segments 1d and 1e. Segment 5 would have decreases during some season and increases in others with changes for both private and commercial uses. These changes in capacities would likely have a negligible effect on the overall social setting since the numbers were considered artificial to start, and the general public would not notice an increase or decrease.

The Proposed Action/Alternative 2also proposes changes to commercial boat capacities. Segment 2a is proposed to decrease from 450 boats to 360, while segment 5 would increase from 75 to 175. There is also a proposed change in commercial use seasons as well as launch times. Although these changes may cause the amount of use in one segment and/or section to shift to another on days when daily capacities are met or exceeded, these changes are unlikely to affect the overall social setting. Minor conflicts have been known to occur between private boaters and commercial trip owners; however, the changes identified in the proposed action are relatively minor and would not likely have impacts to the social setting for any given area or contribute positively or negatively to conflicts.

The operational setting is similar for all of the action alternatives and is fairly consistent across the planning area. In areas of high visitor use, CPW patrols are more frequent and facilities are larger with more controls to accommodate this use. Where an alternative identifies upgrading sites this could include a fee changing the operational setting for that specific site. This may deter some visitors from using the site while other visitors may welcome the new facilities and accept the fee. All of the action alternatives outline a registration and reservation system to address potential negative changes in the social setting. If this were to be put into place, this would be a major shift in the operational setting and could potentially displace users, decrease visitor satisfaction, or conversely improve experiences for those seeking fewer contacts.

Protective/Mitigation Measures: Mitigation measures to reduce conflicts and reduce the evidence of use are incorporated into the proposed action. No further mitigation measures are recommended.

Cumulative Impacts: It is anticipated that recreation use will continue to grow in this region as a result of regional population growth and outdoor recreation trends. This growth will likely result in cumulative, yet subtle changes in all of the recreation settings and could include indirect effects outside of the CML. These shifts will impact visitors differently depending upon a number of personal factors. Increased development, both on private and public land, as well as increases in evidence of use will slowly shift the physical setting. This will occur at lesser levels in protected areas such as Browns Canyon or areas of primarily public land found in segment 4. The increase in use will also likely affect the social setting over time with more encounters per outing. Established capacities would help buffer this shift and keep the social settings to desired levels. As the 'pay-to-play' trend increases in recreation management and visitor use continues to climb, operational controls are likely to increase out of necessity.

3.5.1.2.2 Alternative 1

Direct and Indirect Impacts: Impacts from Alternative 1 would be similar to the proposed action. The degree of changes in the physical, social, and operational settings between alternatives is fairly minor and would likely not be noticeable by the general public. With fewer planned facilities than the proposed action, changes to settings would be less under this alternative. The differences in boating capacities, both private and commercial, between this alternative and the proposed action are minor and does not result in drastic differences in social settings.

Protective/Mitigation Measures: Same as the proposed action.

Cumulative Impacts: Same as the proposed action.

3.5.1.2.3 Alternative 2

Direct and Indirect Impacts: Impacts from Alternative 2 would be similar to the proposed action. The degree of changes in the physical, social, and operational settings between alternatives is fairly minor and would likely not be noticeable by the general public. Planned facilities are the same as the proposed action, so changes to settings would be the same under this alternative. The differences in boating capacities, both private and commercial, between this alternative and the proposed action are minor and does not result in drastic differences in social settings.

Protective/Mitigation Measures: Same as the proposed action.

Cumulative Impacts: Same as the proposed action.

3.5.1.2.4 No Action Alternative

Direct and Indirect Impacts: Impacts from the No Action Alternative would be similar to the proposed action simply due to regional population growth and trends in outdoor recreation. While fewer facilities would be developed, the changes to the physical setting would be less; however, this could potentially result in higher levels of evidence of use from dispersed recreation. Visitors seeking facilities, or in the case of Segment 6 seeking improved access, would likely disperse which could result in increased contacts in other areas where access and facilities are available. The differences in boating capacities, both private and commercial, between the no action alternative and other alternatives are again minor and would not likely result in drastic differences in social settings. While it is estimated that the private boater capacities established under the No Action alternative are artificially inflated, an increase in the number of contacts with other visitors would be anticipated and could result in an increase in conflicts.

Protective/Mitigation Measures: None.

3.5.2 Special Land Designations

3.5.2.1 Affected Environment:

Browns Canyon National Monument

On February 19, 2015 the President of the United States signed a proclamation establishing the Browns Canyon National Monument. According to the proclamation "the protection of the Browns Canyon area will preserve its prehistoric and historic legacy and maintain its diverse array of scientific resources, ensuring that the prehistoric, historic, and scientific values remain for the benefit of all Americans. The area also provides world class river rafting and outdoor recreation opportunities, including hunting, fishing, hiking, camping, mountain biking, and horseback riding." The Proclamation includes over 68 references to ecological, biological, geological, and cultural resources and objects of value.

While the boundaries of the National Monument encompass the project area, the proclamation directs that the Secretary of the Interior and the Secretary of Agriculture are to jointly prepare a management plan for the monument. The monument plan, which will be developed in cooperation with Colorado Parks & Wildlife, will further direct recreation management in the greater area outside of the river corridor.

Wilderness Study Areas

There are two Wilderness Study Areas (WSA) adjacent to the project area: the McIntyre Hills WSA and the Browns Canyon WSA.

The McIntyre Hills WSA is located in Fremont County approximately 12 miles west of Cañon City. The northern boundary of the WSA lies directly south of the Arkansas River and US Highway 50 in T. 18 S., R. 72 W., 6th P.M. This WSA contains 16,800 acres. Much of the northern boundary of the WSA parallels US Highway 50. The Copper Gulch road forms the southeastern border. The remainder of the boundary crosses a combination of BLM, state, and private lands. Drainages in the McIntyre Hills WSA generally follow a south to north direction with many side canyons. Vegetation consists primarily of pinon pine and juniper with some ponderosa pine and Douglas fir in the higher elevations and riparian species along the drainages. Recreation use is very minimal. The reason for the low number of visitors is the lack of easy access into the WSA due to private lands and the rugged topography. Recreation activities that occur in the WSA include hiking, hunting, and backpacking.

The Browns Canyon WSA is located in Chaffee County, approximately 6 miles south of Buena Vista and 7 miles northwest of Salida. The WSA is bounded on the southwest by the Union Pacific right-of-way (which parallels the Arkansas River for this stretch). Traveling north, the western boundary is the Arkansas River (for 2 miles). Just over a mile of private land forms the remainder of the western boundary at Ruby Mountain, which is the northwest corner of the WSA. The eastern boundary is formed by US Forest Service lands. The WSA contains 6,614 acres, all located east of the river in T.51N., R.8 and 9E., NMPM and T.15S., R.77 and 78W., 6th P.M.

Browns Canyon WSA ranges in elevation from about 7,400 feet along the river to about 9,000 feet near the eastern boundary. The area is very rugged and is dissected with drainages and gulches. The majority of the area's vegetation cover is pinon pine with some ponderosa pine and Douglas fir. Aspens, willows, and cottonwoods can be found in the drainages.

Although the Arkansas River is not inside the WSAs, it has an obvious relationship with them. For example, the naturalness of the WSAs enhances the recreation experiences of those using the river. In addition, the river contains an outstanding brown trout fishery adjacent to these WSAs. The Browns Canyon section is also the most popular stretch of the Arkansas River for whitewater boating. Approximately 150,000 commercial whitewater boating guests floated through the canyon in 2016. The first few miles of the canyon contain nine popular lunch sites that are used almost daily by boaters during June, July, and August. Boaters who stop for lunch along the river rarely venture more than a couple of hundred feet into the WSA. Resource monitoring of these popular lunch sites has been on-going since 1989.

The two main access points by non-boating recreationists are from the Ruby Mountain recreation site, located at the northwest boundary of the WSA, and via Forest Service lands on the eastern boundary. Approximately 1,000 recreationists currently visit the WSA annually, excluding those who lunch along the river. Recreation activities include horseback riding, rock climbing, hiking, backpacking, hunting, and rock hounding.

Both WSAs were studied under Section 603 of FLPMA and are included in the Cañon City District Wilderness Final Environmental Impact Statement published in December 1987. In 1993, the President presented his wilderness recommendations to Congress. The President's recommendation, along with the preferred alternative, recommends inclusion of the entire 6,614 acres of the Browns Canyon WSA into the National Wilderness Preservation System but does not recommend any portion of McIntyre Hills WSA.

Areas of Critical Environmental Concern

There are 35,343 acres of BLM lands within the Arkansas River corridor designated as ACECs through the BLM 1996 RMP. These two ACECs are: Browns Canyon (11,722 acres) and Arkansas Canyonlands (23,621 acres).

Some of the special values that each ACEC are to be managed for include the following:

The Browns Canyon ACEC is a scenic river canyon, a portion of which has been recommended to Congress for wilderness designation because of its unique natural character, primitive recreation and water related values. The bluffs within the canyon have been identified as having significant raptor and bighorn sheep values.

The Arkansas Canyonlands ACEC is known for its outstanding scenic, historic, and cultural values. The rare cliffs are very suitable for peregrine habitat. Bighorn sheep and the excellent fisheries of the Arkansas River are also important values of this area. A small portion of the ACEC (the High Mesa Grassland Research Natural Area) is a State Natural Area.

These areas have special values that need protection or enhancement and are described in more detail within the Royal Gorge Resource Management Plan. Per the 1996 RMP these BLM ACEC's have 11,948 acres closed to Off Highway Vehicle (OHV) use, 27,830 acres with OHV travel limited to designated roads and trails, and all areas will be maintained in public ownership. These areas will have 5,320 acres avoided for major right-of-ways to protect visual resource values and are recommended closed to mineral material disposal. In addition, 5,594 acres have No Surface Occupancy if leased for fluid minerals, and timber harvesting and wood gathering is only allowed in order to enhance the other protected resources. Finally, 4,036 acres are closed to livestock grazing and there is an additional 1,454 acres where grazing is to be adjusted.

Wild & Scenic Rivers/National Recreation Area

A complete and thorough Wild and Scenic River Analysis under the Wild and Scenic Rivers Act, as specified within section 4(d), for the Arkansas River was completed during the BLM's 1996 Royal Gorge Resource Management Plan (RMP) process. The Wild and Scenic River Study Report was completed in 1992, as a part of that RMP process, and is located within Appendix L of BLM's Draft RMP published in September of 1993. An updated eligibility report (2015) has been prepared in conjunction with the currently underway revision of the BLM's Resource Management Plan.

In both the 1992 and 2015 updated report, all segments of the Arkansas River upstream of the Royal Gorge Park were determined to be eligible (free-flowing with outstandingly remarkable values) and met the criteria under the "recreational" classification. The 2015 report found that the segment between Cañon City (Pink House) and the Royal Gorge Park was also eligible.

The 1992 report found Segments 1-4 to be suitable: worthy addition, land ownership, potential uses of the land, public interest, estimated cost, ability to manage, historical or existing rights, and other issues. Segments 5 and 6 were found to not be suitable due to lack of BLM administered lands. Though eligible and suitable, BLM chose not to recommend the Arkansas River for inclusion in the Wild and Scenic Rivers System in the 1996 plan. An updated suitability report has not yet been finalized but will be incorporated into the revised Eastern Colorado RMP.

3.5.2.2 Environmental Effects

3.5.2.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts:

Browns Canyon National Monument

As identified above, a separate management plan will be developed for the National Monument. No decisions in this plan will have direct or indirect impacts to this designated area.

Wilderness Study Areas

Mcintyre Hills Wilderness Study Area (WSA): No actions proposed in the river management plan will have negative impacts to the WSA. No short term, long term or cumulative impacts will occur.

Browns Canyon Wilderness Study Area: River rafting lunch and camping areas in the Browns Canyon WSA are producing impacts to the naturalness of the area. These sites have been monitored annually since 1996. While some sites have seen reductions in use and are no longer evident, other sites continue to see regular and continuous use. The size of the impact does not appear to be increasing or decreasing. However, the level of trash and fire rings has decreased over the years as awareness of river users has improved. All of the action alternatives identify the need to continue this monitoring with objectives of no fires rings, benches, and no new sites. It also calls for the need to designate dispersed sites and consider a reservation system if demand exceeds thresholds and impacts increase. This action should be sufficient to protect the WSA values within the project area.

Browns Canyon and McIntyre Hills WSAs will continue to be managed under BLM's WSA management policy and guidelines until Congress makes a decision on wilderness designation.

Areas of Critical Environmental Concern

Browns Canyon ACEC: Impacts associated with the ACEC are similar to those discussed under wilderness. Monitoring of the natural resources should continue to ensure those impacts associated with the lunch and camping areas in Browns Canyon are not increasing. No activities or actions proposed in Browns Canyon are expected to negatively affect the special values found in this ACEC.

Arkansas Canyonlands ACEC: Recreational use along the river, outside developed recreation sites, has the potential to impact riparian resources. Monitoring of these undeveloped access sites should occur to ensure the riparian zone is not adversely impacted. Closure of these sites should occur if monitoring determines an adverse impact.

All new development within the ACEC should take into consideration the special values of the ACEC. New development should only occur if the values of the ACEC can be protected or enhanced. With the above mitigation in place no activities or actions proposed in the river plan are expected to negatively affect the special values found in the ACEC. In addition, there is good potential that many of the decisions within this revised plan may enhance those unique natural resource values found along the river.

Wild and Scenic Rivers

Any development that may occur through this planning effort would likely conform to the "recreational classification." Future development would consider and take into account the outstanding and remarkable values

of the river. No other activities or actions proposed in this river plan are expected to negatively affect these values.

Protective/Mitigation Measures: None beyond those identified in the Alternatives.

Cumulative Impacts: None.

3.5.2.2.2 Alternative 1

Direct and Indirect Impacts: Same as the proposed action/alternative 2.

Protective/Mitigation Measures: None.

Cumulative Impacts: None.

3.5.2.2.3 No Action Alternative

Direct and Indirect Impacts: Same as the proposed action/alternative 2. The previous plan identifies similar management actions to address impacts within these areas.

Protective/Mitigation Measures: None.

3.5.3 Range Management

3.5.3.1 Affected Environment:

Permitted livestock grazing occurs along both sides of the Arkansas River corridor on BLM lands within the CML between Leadville and Cañon City. Livestock grazing on BLM lands is regulated under the 1934 Taylor Grazing Act and is currently authorized under the 1996 Royal Gorge Resource Management Plan. Grazing use along the river corridor is divided into multiple allotments, and each allotment has an assigned season of use and specific use stipulations. The season of grazing use can vary by allotment, but most use along the river is scheduled as fall, winter, or early spring use. This is the most preferred period of time because livestock tend to spread out and utilize more of the uplands rather than concentrating along the banks of the Arkansas River. In addition, this time period receives the lowest recreation use of the year resulting in fewer user conflicts.

The Arkansas River is an important resource to permitted livestock for water consumption and is probably more important than the forage value the river corridor provides. Livestock access to the river varies and depends on the allotment location. Livestock on allotments located river left typically access the river using underpasses or large culverts below the railroad grade. Since rail operations have ceased, the railroad right-of-way fence is no longer maintained, and livestock generally cross over the rail bed to access the river at multiple locations. Allotments along river right are bound by Highway 50 between Salida and Parkdale. At these areas livestock may access the river through highway underpasses or bridges. In addition to water access, the river corridor may serve as a travel route within a single allotment or between multiple allotments depending on location.

Grazing allotments are identified by river segment and identifies allotments within and directly adjacent to the CML boundary where the Arkansas River serves as a critical source for water use (Table 3-24).

Table 3-24. Grazing Allotments Within or Directly Adjacent to the CML

River Segment	Allotment	River Side	Grazing Period
Segment #1	Americus #05896	River Left	03/01 – 04/15
Segment #2	Fisherman's Bridge #05906	River Left	03/01 – 02/28
	Sugarloaf Mountain #05751	River Left	10/01 – 03/31

River Segment	Allotment	River Side	Grazing Period
	Ruby Mountain #05701	River Left&Right	10/01 – 11/30
	Three Mile Creek #05787	River Right	10/01 – 03/31
	Hecla Junction East #05768	River Left	04/15 – 06/10
	Hecla Junction West #05773	River Right	10/01 – 03/31
	Browns Canyon #05813	River Left & Right	09/01 – 11/30
Segment #3	Bear Creek #15004	River Right	11/20 – 03/31
	Wellsville #05807	River Left	11/01 – 03/31
	Maverick Gulch #05091	River Left	12/01 – 01/31
	West Box Canyon #05179	River Right	05/16 – 10/15
	Badger Creek #05109	River Left	04/15 – 06/15
Segment #4	Table Mountain #15001	River Left	09/01 – 04/30
	Sand Gulch Common # 15007	River Right	11/10 – 03/15
	McCoy Gulch #15049	River Right	01/01 – 03/31
	Race Path #05238	River Right	10/01 – 02/28
	Big Hole #15002	River Left	10/01 – 03/31
	Texas Creek #03508	River Right	06/16 – 10/15
	Five Points Gulch #03507	River Right	06/16 – 10/15
	Little Hole Common #15003	River Left	08/15 – 10/31
	Copper Gulch Common #15036	River Right	07/01 – 10/15
	Parkdale #00004	River Left	06/01 – 08/31
Segment #5	Temple Canyon #05055	River Left	04/16 – 05/15

3.5.3.2 Environmental Effects

3.5.3.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: Potential conflicts with grazing management would probably be correlated with new site development and expansion of existing sites especially where livestock access to river water is compromised and/or distribution patterns along the river's edge are interrupted. Other impacts would be associated with this alternative is the direct loss of forage in response to site development and expansion. The analysis is general since it is difficult to specifically gauge the impacts without site specific information.

The Proposed Action alternative/Alternative 2 demonstrates the greatest expansion for recreational opportunities through higher existing facility expansion and development of new sites throughout the river segments. For the planning area, this alternative could result in 15 sites expanded or upgraded and 14 new sites planned for development. The potential for impacts to grazing management is the greatest under this alternative because new site development and expansion could interfere with grazing operations regardless of size. New sites have the

potential to interrupt access to water and disrupt normal livestock distribution patterns both directly through site development and indirectly through increased user conflicts. The effect could be considered moderate depending on the specific site placement. Impacts related to direct loss of livestock forage would be considered minor since new site development and expansion only account for 7.3 acres of forage loss throughout the entire CML.

Protective/Mitigation Measures: Prior to specific site development planning, work with the BLM range specialist and effected grazing permittee to identify potential conflict with grazing operations. Where grazing is present, it is encouraged to install interpretive language at kiosks or other central locations that makes permitted grazing use known as a legitimate use of public lands and promotes respect to the ranching operation and local culture.

Cumulative Impacts: Historically, ranching along the Arkansas River was one of the primary economic contributors to the valley and helped promote the expanses of green open space. Today, recreation and housing development have rapidly expanded throughout the valley displacing many of the large ranches. Many ranches have sold and evolved into housing developments resulting in loss of open space and available private pastureland. While ranching along the Arkansas River is still a viable culture and economy, ranch families are experiencing the pressures of growth and change. Ranchers are trying to evolve with the change and understand the popular demand, but keeping up with the pace has challenged both the ranchers and land managers. As growth and development continue to expand on both private and public lands, there will be further displacement and conflict leading to cumulative negative impacts. Many negative impacts may be mitigated through both public education and adaptive management in hopes of reducing those impacts. Permitted grazing on public lands is more important today to preserve the heritage and open space along the Arkansas River.

3.5.3.2.2 Alternative 1

Direct and Indirect Impacts: Potential conflicts with grazing management would probably be correlated with new site development and expansion of existing sites especially where livestock access to river water is compromised and/or distribution patterns along the river's edge are interrupted.. Other impacts associated with this alternative are the direct loss of forage in response to site development and expansion. Analysis is general since it is difficult to specifically gauge the impacts without site specific information.

Alternative 1 continues current management while moderately changing site development. A limited number of existing sites may be expanded or upgraded (changing their level of development) and a limited number of new sites may be developed. For the planning area, this alternative could result in 5 sites expanded or upgraded and 6 new sites planned for development. The associated impact to grazing management from this alternative is minor in comparison.

Protective/Mitigation Measures: Same as Proposed Action.

Cumulative Impacts: Same as Proposed Action.

3.5.3.2.3 No Action Alternative

Direct and Indirect Impacts: The No Action alternative continues current recreation and management practices described in the 2001 Plan. Development would be limited to maintenance of existing infrastructure and moderate upgrades. No new use areas would be developed and no additional public access areas would be provided. In comparison, the No Action alternative results in the least impact to grazing management throughout the planning area.

Protective/Mitigation Measures: None

3.5.4 Lands and Reality

3.5.4.1 Affected Environment:

None of the public lands in this recreation area are identified for disposal in the Royal Gorge Resource Management Plan (RMP); however, other properties in the general area are. There are numerous withdrawals and classifications of the public land under consideration. The Arkansas River canyon has long been utilized as a transportation and utility corridor. The public lands are encumbered by many rights-of-way. There are also periodic unauthorized uses on public lands within the project area which is the CML. Prevention and resolution actions are performed by the BLM.

Acquisition of property and easements along the river is identified as a goal and objective in the Royal Gorge RMP. APPENDIX D of the 1999 AHRA Management Plan lists parcels identified for acquisition for recreation. Site specific realty records showing key inventory data on public lands are available in the RGFO. The public land access situation for the Arkansas River is complicated by four major impediments: 1) private land, 2) the river, 3) topography and 4) railroad rights-of-way. For the purpose of this section and the access maps, "access" is defined as" public land which is physically and legally capable of being reached by the public.

The access situation for the river and to each individual parcel of public land under consideration and to some sub-portions of parcels is depicted on the realty & access maps. Foot access on public land is unlimited except by one's desire and ability. The river itself is considered to be a legal means of transportation by boat to public land. With this in mind, every acre of public land under consideration has some type of legal access. Although some parcels are accessed only by boat, and others must be reached by foot trails, the majority of parcels are easily and legally accessible by vehicle.

3.5.4.2 Environmental Effects

3.5.4.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: The acquisition of a relatively limited amount of additional lands from willing sellers within the AHRA would allow expansion of recreational activities and recreational facilities as necessary to meet public demand and protect resources. Additional lands would allow authorized uses to occur over a wider area which should reduce adverse impacts on sensitive or fragile resources such as cultural and paleontological sites as well as sensitive or rare plants, wetlands, and viewsheds. Having more public land area within the AHRA could serve to reduce user conflicts and provide for an improved visitor experience.

Improved and expanded recreational opportunities such as new campgrounds, toilets, boat ramps and take out points would attract more users and provide additional revenues though the CMA with CPW and allow new facilities and improvements to existing facilities, services, security, and maintenance programs. Limited additional development would cause minor changes to the nature and character of the public lands along the river corridor within the AHRA. Wildlife, vegetation, and T & E species might be displaced or lost without careful planning and/or mitigation.

In addition to the acquisition of additional lands, obtaining access easements over non-public lands could serve to provide more recreational opportunities and reduce visitor conflicts. Acquisition of conservation easements would provide an opportunity to protect sensitive resources, improve habitat, and to maintain the desired VRM classes.

Protective/Mitigation Measures: Ensure that all proposed developments and improvements meet current engineering and design standards including civil and architectural requirements. Coordinate closely with owners of adjoining property during the NEPA process to ensure the least conflict and disturbance. Avoid duplication of services, facilities as well as competition with providers of recreational services provided by private businesses.

Where possible require collocation of compatible ROWS and commercial activities to reduce adverse environmental impacts.

Cumulative Impacts: Carefully considered and designed realty actions, projects, and mitigation measures would reduce impacts to resources and will increase and enhance visitor experiences. These facilities and services would be developed in response to changes in demand from growing regional populations and as funds become available.

3.5.4.2.2 Alternative 1

Direct and Indirect Impacts: Similar to the Proposed Action but to a slightly lesser degree.

Protective/Mitigation Measures: Same as the Proposed Action.

Cumulative Impacts: Carefully considered and designed realty actions, projects, and mitigation measures would reduce impacts to resources and will increase and enhance visitor experiences.

These facilities and services would be in response to changes in demand from growing regional populations and as funds become available.

3.5.4.2.3 No Action Alternative

Direct and Indirect Impacts: The no action alternative would not provide for additional acquisition of lands, access opportunities, and the development of expanded services in the Arkansas River corridor and the AHRA. The current management practices would remain, and improvements and changes would be limited to those necessary to continue management, maintenance, and services at historic levels.

Protective/Mitigation Measures: None.

3.5.5 Lands with Wilderness Characteristics

3.5.5.1 Affected Environment:

BLM updated its inventory of lands with wilderness characteristics in 2013. The Railroad Gulch lands with wilderness characteristics unit (COF-020-005) located just south of the Browns Canyon Wilderness Study Area is the only unit found to possess wilderness characteristics. The unit is bounded on the west by the Union Pacific railroad, the north by the Browns Canyon WSA, the east by the US Forest Service boundary, and to the south by private land. The western edge of the unit is within the CML

The inventory report found that the area appeared primarily natural with the largest imprint of man being located in Railroad Gulch itself where a historic narrow-gauge railroad used to run. While evidence of the old rail line was still evident, the report found these traces of the past provided supplemental values. The report identified other imprints of man, such as a wagon trail in Long's gulch and old test pits relating to turn of the century mining exploration, but concluded that these did not affect the overall naturalness of the unit.

Due to the rugged topography, unique geology, and scenic qualities of the unit, the report also concluded that it offered opportunities for solitude and outstanding primitive and unconfined recreation opportunities.

3.5.5.2 Environmental Effects

3.5.5.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: No actions identified in this plan would have a direct impact on lands with wilderness characteristics. With the Railroad Gulch Unit being located on the opposite side of the river from Hecla Junction and limited public access, indirect impacts from visitor use is not anticipated from actions identified in this alternative.

Protective/Mitigation Measures: None.

Cumulative Impacts: None.

3.5.5.2.2 Alternative 1

Direct and Indirect Impacts: Same as proposed action/alternative 2

Protective/Mitigation Measures: None.

Cumulative Impacts: None.

3.5.5.2.3 No Action Alternative

Direct and Indirect Impacts: The no action alternative would not have any direct or indirect impacts to lands with wilderness characteristics.

Protective/Mitigation Measures: Same as proposed action/alternative 2

3.5.6 Travel and Transportation Management

3.5.6.1 Affected Environment:

The transportation system serving the Upper Arkansas Valley above Cañon City has remained largely untouched by the large changes in the nation's transportation facilities. For the most part, multi-lane interstate highways and modern air passenger terminals have not been constructed in the area. Rather, the region's transportation system has developed in a manner commensurate with the valley's low-intensity agricultural and recreational economy. This section focuses on two major segments of the transportation system: roadways and railroads.

Description of Existing Roadways

Highway access to the Upper Arkansas River is provided by a system of two-lane high-speed rural roadways. Access to and from the north is provided by US Highway 24 and to and from the east by US Highways 24 and 285. During the summer and early fall months, access to Aspen and Glenwood Springs to the west is provided by State Highway 82. Highway access to the lower Arkansas River is also provided by a system of two-lane high-speed rural roadways. Access to and from the west is provided by US Highway 50, and access from the south is provided by US Highway 69. I-25 serves the major Front Range cities in Colorado and provides a connection to Highways 50, 285, and 69.

US Highway 24 serves as one of the three major highways in the upper Arkansas River corridor (Segments 1 and 2). At Johnson Village, US Highway 24 turns east and provides the primary link to Colorado Springs. At Johnson Village, US Highway 24 also intersects with US Highway 285, providing access to US Highway 50. As it passes through Buena Vista, US Highway 24 is a four-lane arterial, with a traffic signal at the intersection of US

Highway 24 and Main Street. Between Buena Vista and Leadville, US Highway 24 is a high-quality rural two-lane highway. Travel lane width is typically 12 feet, with 4 to 8 foot shoulders. Design speed is high, with the exception of several curves and one short grade approximately three miles to the south of Granite.

US Highway 285 provides access to the upper Arkansas River corridor from Denver. US Highways 24 and 285 descend from Trout Creek Pass to the west to Johnson Village. From Johnson Village, US Highway 285 turns south to Salida and the San Luis Valley. It provides access to river Segments 1 and 2. US Highway 285 is a high quality rural two-lane highway. It contains several passing lanes and numerous turn lanes. The travel lane is typically 12 feet, with 4 to 8 foot shoulders. This stretch of highway serves two of the most frequently used recreation sites on the entire river: Hecla Junction and Fisherman's Bridge.

US Highway 50 serves as the third major highway in the upper Arkansas River corridor. The highway runs primarily east and west and parallels the river from Parkdale to Salida. It provides access to Colorado Springs via Colorado State Highway 115, to Pueblo, points east on US Highway 50, and the Front Range via I-25. East of Cañon City, US Highway 50 is a four-lane highway. The section of US Highway 50 through the Arkansas River canyon is a gentle rise with short grades of 4 percent. Many sharp curves result in slow travel speeds and short sight distances from Parkdale to Salida. The travel lane is typically twelve feet wide, but in some areas the shoulders are only 2 feet in width. Numerous pullouts facilitate river recreation use but also present additional obstacles to smooth traffic flow. Overflow parking lots south of the highway necessitate pedestrians crossing the highway to access the river. There are numerous climb lanes located in the canyon. This highway segment is the weak link in the transportation system in terms of vehicle volume and speed.

There are nine county roads that serve as access routes to proposed or present recreation sites. Seven roads are located in Chaffee County, one in Fremont County, and one in Pueblo County. Maintenance is provided by the appropriate county.

Chaffee County Road 371 consists of 9.5 miles of maintained gravel road providing recreational access to Segments 1 and 2 east of the river and also north of Buena Vista from US Highway 24. This road averages 18 feet in width and has one recently constructed one-lane bridge (Otero Bridge) crossing the Arkansas River.

Chaffee County Road 301 (Fisherman's Bridge) consists of one mile of graveled road accessing the Fisherman's Bridge recreation site from US Highway 285. This segment also serves the Ruby Mountain recreation site via Chaffee County Road 300. Road 301 averages 24 feet wide and has one bridge (Fisherman's Bridge), rebuilt in 1992. Road 300 (Ruby Mountain Road) averages 20 feet in width and is 3.5 miles in length. It accesses the Ruby Mountain Recreation Site and Browns Canyon National Monument on the east side of the river. There are no structural developments on this road.

Chaffee County Road 194 (Hecla Junction Road) consists of 2.5 miles of graveled road accessing Browns Canyon via US Highway 285. This road averages 20 feet in width. This route has received almost annual improvements for the past ten years due to the recreational traffic.

Chaffee County Road 191 (Stone Bridge Road) consists of about 0.40 mile of maintained graveled road from US Highway 291 to Stone Bridge. The historic Stone Bridge was listed on NRHP in 2013 and is used by a single, private land owner.

Chaffee County Road 165 consists of 0.56 mile of 20 feet wide maintained graveled road. Access to this road is provided by US Highway 285 from the west.

Chaffee County Road 193 consists of 1.45 miles of 22 feet wide graveled road. It is a shortcut between US Highways 291 and 285 and follows the old US Highway 291 grade.

Fremont County Road 112 consists of 1.1 miles of graveled road accessing the Arkansas River near the Beaver Creek confluence. This road averages 20 feet in width. County maintenance responsibility ends four miles from the proposed Beaver Creek recreation site. Road construction and maintenance funds would be needed to render this site functional.

The Swallows Road located in Pueblo County consists of 3.5 miles of 24 feet wide graveled road. This road connects to a 0.5 mile long graveled road maintained by the Colorado Division of Wildlife that goes to the proposed Swallows recreation site.

Approximately 13 miles of primitive dirt roads on BLM managed lands exist within the planning area boundary outside of developed recreation sites. While some of these provide access to recreation sites, the majority provide access for dispersed recreation activities such as dispersed camping, fishing and hiking. The BLM Royal Gorge Resource Management Plan (1996) directed the agency to move towards limiting motorized vehicles to a designated route network through the development of travel management plans. The BLM/US Forest Service Four Mile Travel Management Plan (2002) designated 1 mile of routes within the CML boundary in the Buena Vista area while the BLM's Arkansas River Travel Management (2006) designated approximately 4.6 miles of routes between Cañon City and Salida within the CML boundary. Approximately 7.2 miles of existing routes located on BLM lands fall within the CML boundary and outside of areas where route designations have occurred.

Existing Roadway Capacity

Many factors influence a roadway's ability to accommodate traffic including grades, design speed, roadway width, percentage of trucks and other heavy vehicles, and the availability of shoulders. The following 1989 data, from the Colorado Department of Transportation (CDOT), is a list of maximum capacities for the major highway segments, in terms of vehicles per hour (vph), for one direction travel only: US Highway 24 from Twin Lakes to Buena Vista (Segment 1) 1,600 vph; US Highways 24 and 285 from Trout Creek Pass to Johnson Village (Segments 1 and 2) 1,450 vph; US Highway 285 from Johnson Village to Poncha Springs (Segment 3) 1,600 vph; and US Highway 50 from Salida to Parkdale (Segment 4) 1200 vph. Maximum roadway capacity is currently constrained by topography and traffic congestion rather than manmade features such as stop lights.

Highway Traffic Activity

Highway traffic activity is evaluated in terms of traffic volumes, vehicle classifications and accident frequency.

- Traffic Volumes: Average Daily Traffic (ADT) count programs are maintained both by CDOT for state roads and the Chaffee County Road Clerk for Chaffee County roads. Traffic counts are highest in the vicinity of Leadville, Buena Vista, Salida, the Royal Gorge and Cañon City. Data collected by CDOT for the various segments are shown in Table 3-25.

- The ADT volumes are averaged over the year and do not represent the markedly higher volumes present during the summer season. Traffic volume is expected to be greatest over the midday period with the maximum hourly volume occurring between 2 p.m. and 4:30 p.m. There is no estimate of the maximum hourly volume. The volume of traffic using the highway system is a reflection of recreational activities being carried out in the region. During the summer (mid-May to Labor Day) recreationists floating the Arkansas River and traveling through to western and southern destinations dominate the highway system. During October another smaller peak of traffic volume results from big game hunting. The ski industry also produces a peak of traffic volume during the period December through March. CDOT constructed highway acceleration and deceleration lanes for public safety purposes at Parkdale, Spikebuck, Five Points, Lone Pine, and Pinnacle Rock. These lanes have reduced the traffic congestion previously caused near these recreation sites. CDOT is also considering four additional projects for acceleration and deceleration improvements at Rincon, Stone Bridge, Hecla Junction and Fisherman's Bridge.
- Vehicle Classification: The class or type of vehicles utilizing a roadway influences capacity and operating conditions, particularly on two-lane rural highways. Vehicle classification counts within the system show an average of 12 percent trucks or buses with the remainder being passenger vehicles.
- Accident History: There are more hazardous driving conditions in the lower Arkansas River corridor, where there are more deer crossings, curves, blind spots, rocks-on-the-road and more congested traffic conditions.

Table 3-25. Average Daily Traffic

Location	Average Vehicles per day (year)
Texas Creek to Cotopaxi	**2,700 (2016)**
Howard to Salida	**5,400 (2016)**
US 285 at Hecla Junction	**7,000 (2016)**

Rail Service

Denver and Rio Grande Western Railroad (D&RG) provided rail service to the upper Arkansas River corridor between Pueblo and Dotsero (near Glenwood Springs). The D&RG then merged with the Southern Pacific. The Southern Pacific then merged with the Union Pacific. After the merger with the Union Pacific, the tracks were proposed for abandonment and rail banking. The request for rail abandonment has since been withdrawn. The rail line has been placed into a "Reserve" category. This does not entail removal of the rails and allows for future railroad use. As such, the Rails-to-Trails proposal has been held in abeyance until the "Reserve" process comes to a completion. In addition, train operations continue through the Royal Gorge via tracks purchased by the "Rock and Rail" and the "Royal Gorge Scenic Railway" from the Union Pacific. The "Royal Gorge Scenic Railway" operates a tourist train between Cañon City and Parkdale. The "Rock and Rail" trains in this stretch carry rock/gravel out to the UPRR mainline.

3.5.6.2 Environmental Effects

3.5.6.2.1 Proposed Action/Alternative 2

Direct and Indirect Impacts: The majority of the impact assessment described in the original EA (EA-CO-050-RG-89-1) is still appropriate. After twenty years of operation of the AHRA there is little doubt that the general traffic in the Upper Arkansas River Basin is increasing, and with this increase in traffic, comes an increase in pressure on the transportation systems. This increase in pressure or anticipated future increases are likely not attributable to actions outlined in this management plan but are simply a result of population growth in the region and trends in outdoor recreation.

The plan also identifies the need to designate 7.2 miles of BLM routes that are within the planning area but not within a travel management plan. By designating these routes, impacts to soils and vegetation will be reduced, and the public will have a better understanding of the routes that are available for their use. The designation of these routes will have negligible impacts on the overall travel management system and positive benefits to resources.

Protective/Mitigation Measures: Install vehicle control structures, such as fences or boulders, to manage the designated route network on BLM lands. Continue to monitor and adaptively manage the route designations within the planning area to ensure that new routes are not being created and resources are not being further impacted.

Cumulative Impacts: None.

3.5.6.2.2 Alternative 1

Direct and Indirect Impacts: Same as proposed action/alternative 2

Protective/Mitigation Measures: Same as proposed action/alternative 2

Cumulative Impacts: None

3.5.6.2.3 No Action Alternative

Direct and Indirect Impacts: Same as proposed action/alternative 2

Protective/Mitigation Measures: Same as proposed action/alternative 2

3.6 Cumulative Impacts Summary

Past actions within the planning area include grazing, OHV use, road development, mineral extraction, fuel reduction activities, and a wide variety of recreation uses. These uses still continue today and are anticipated to continue into the future. It is estimated that the population of Colorado will continue to grow, especially within the Front Range urban areas. It can be reasonably assumed that this will increase the volume of recreation use as well as the need for construction materials, roads, and energy related infrastructure. Grazing use is anticipated to continue as well as range improvements associated with this use such as fencing and water development. Fuel reduction activities and wildlife habitat improvement projects are also anticipated to continue into the future as well.

Below is a summary of anticipated cumulative impacts of the identified actions combined with past, present, and anticipated future actions broken out by resource.

Geologic and Mineral Resources: The mineral resources throughout Front Range are slowly being encumbered by various surface uses that may not be compatible with future mineral extraction efforts needed to meet the public and market demands.

Soils: Past actions, such as existing recreation activities along the AHRA corridor, grazing, OHV use, roads, and inadequate drainage, mining, wildfire and fuel reduction activities have affected soils resources and created soil compaction, erosion and sediment transport, vegetation removal, and increased runoff. Future recreational activities, maintenance work, grazing, and other past activities would continue to impact soil resources in the watersheds. The cumulative effects on soil resources due to the Proposed Action/Alternative 2 combined with adverse effects of past, present, and reasonably foreseeable actions on soils resources would be moderate and long-term. In contrast, Alternative 1 will have lesser cumulative effects compared to the Proposed Action/Alternative 2 and higher cumulative effects compared to the no action alternative. The overall cumulative effects on soils resources from the no action alternative, in combination with past, present, and reasonably foreseeable future actions would be long-term, minor, and adverse with a minor contribution from the no action alternative.

Water (Surface and Groundwater, Floodplains): The watersheds within the analysis area have been altered by past and present uses. Past measurable detrimental impacts to water quality, floodplain, and hydrologic functioning are associated with historic mining, timber harvesting, camping and campground maintenance, roads and road maintenance, OHV use, livestock grazing, fire, fuels reduction projects, and water supply infrastructure (wells, diversions, etc.), which are still exist on the watershed at present. Roads are probably the largest contributor of sediment to ephemeral/intermittent streams on BLM administered lands. The Proposed Action/Alternative 2 alternative is expected to have moderate cumulative effect when added to the other stressors in the watersheds. In contrast, Alternative 1 will have lesser cumulative effects compared to the Proposed Action/Alternative 2 and higher cumulative effects compared to the no action alternative. The overall cumulative effects on to water quality, floodplain, and hydrologic functioning from the no action alternative in combination with past, present, and reasonably foreseeable future actions would be long-term, minor, and adverse with a minor contribution from the no action alternative.

Invasive Plants: The project area is already modified by a highway, roads, a railroad, housing, recreation developments, historic mining, recreation use, and other human activities. These impacts have contributed to the establishment of invasive species in the area. With strict adherence to the mitigation measures, there should be little to no cumulative impacts resulting from invasive species under this alternative.

Threatened, Endangered and Sensitive Species: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

Vegetation: Historically, the Arkansas River corridor was limited to railroad/highway operations and occasional access by fisherman and boaters. Today human demands have shifted to increased public recreation on and along the river. The increased demand for whitewater rafting, fishing, and camping has made the river more desirable to the public today than ever before. The future demand is expected to increase resulting in more use along the river and possibly further development to meet this demand. Overtime, river recreation demand will overflow further onto the public uplands where more development would be required promoting further impacts to the vegetation resource. In contrast, increased and uncontrolled use that is not managed through intensive development poses impacts to vegetation resources also.

Wetlands and Riparian Zones: Needs on non-federal lands coupled with Colorado population growth and AHRA visitation increases has more impacts to river-wide riparian resources on purchased private lands than federal lands if lands are acquired as described in Table 2-7. New sites would have disturbance impacts; however, the goals have some acquisitions targeted for open space that potentially are much less influencing than a permeant development of some form. Management of existing public lands and future lands acquired under AHRA are-wide recreation and multiple use. Adaptive management goals and principals to protect against increasing dispersed use impacts would help offset potential new sites that may be acquired then hardened with facilities.

Wildlife Aquatic: Needs on non-federal lands coupled with Colorado population growth and AHRA visitation increases would have more impacts to river-wide riparian resources on purchased private lands than federal lands if lands are acquired as described in Table 2-7. New sites would have disturbance impacts, yet the goals have some acquisitions targeted for open space that potentially is much less influencing than a permeant development of some from. Management of existing public lands and future lands acquired under AHRA are-wide recreation and multiple use.

Wildlife Terrestrial: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

For most terrestrial species, all action alternatives are expected to result in minor to moderate short-term effects. Bighorn sheep are a possible exception to this conclusion. Sheep herds in the project area have reached stable populations. However, due to disease, lamb survival rates are below desired levels in several herd components within the Arkansas River Canyon. This trend, when combined with the impacts of most project alternatives, may result in measurable cumulative effects on bighorn sheep resulting in an increase in mortality and a decrease in population levels within the Arkansas River Canyon. A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

Migratory Birds: The Arkansas River is a modified system. Major highways and railroads run along the entire course through the analysis area. Recreational demands are high and continue to increase. The past and present mismanagement (e.g., excessive grazing, mining, and irrigation) of some watersheds that drain into the river system degrade the quality of surrounding wildlife habitats and habitats associated with the river. Existing recreation sites will continue to concentrate human use along the river system and cause the permanent loss of wildlife habitat. However, the alternative is increased dispersed use, which may reduce pressures locally, but greatly increase the impact footprint.

A number of new recreation sites are being considered as a result of the proposed action. Construction of these sites will result in additional concentrations of human use and the permanent loss of wildlife habitat. Additional analysis will be needed prior to the approval and development of these sites to properly assess the impacts to plant and animal species.

Cultural Resources and Native American Resource Concerns: Over time, as facility and recreation development continue in the APE, these activities may result in increased loss of cultural resources that would contribute to future research questions and improved methodology. Improving access to the Arkansas River combined with anticipated regional growth is likely to result in an increase in public use, and therefore, greater exposure to cultural resources. A positive result of increased public exposure to cultural resources is that it provides opportunities for public outreach and education. However, increased use may cause a reduction in archaeological site integrity through surface disturbance and the other possible direct effects discussed above. Historic settings for architectural, linear, and other resources could be diminished before they are identified or fully evaluated for their historic significance.

Visual Resources: Human habitation of the Arkansas River Valley has led to large changes to the natural environment and the visual resources. As populations continue to grow, this trend is anticipated into the future, including on public lands as the need for supporting infrastructure only increases. These types of impacts would not be anticipated in places such as wilderness study areas that are protected from development, while in other areas impacts to visual resources would be expected. Recreation development as identified in this management plan will contribute to these changes in visual resources but at negligible levels when compared to other changes anticipated in the future.

Socioeconomic: Although boating and fishing use levels within the AHRA have remained relatively constant over the past five years, future boat use under this alternative will continue to be largely dependent on factors independent of AHRA management of recreation resources, such as weather, precipitation, river flows and stages, health of the fishery, gas prices, and personal tastes and preferences for outdoor recreation experiences. It is anticipated that recreation use will continue to grow in this region as a result of regional population growth and long-term trends in outdoor recreation use. This growth would be independent of management decisions made in this RAMP and would likely result in cumulative, yet subtle changes in recreation settings within the AHRA. If the Colorado population continues to grow over the life of the plan then additional commercial and private use of the river within AHRA will likely occur in the future under this alternative. As a result, recreation related spending within the project area will likely increase. Although it is uncertain what type of effect increases in recreation related spending associated with river use within the AHRA will have on the overarching health or structure of the local economy, this economic activity will continue to support local businesses and residents who directly and indirectly earn livings from the economic activity stimulated by boating and fishing use of the AHRA. Future population growth and increased river use may affect the rural character of the river valley over time. While some residents may appreciate the additional economic activity these river users would stimulate, increased noise, traffic, and congestion on and off the river could change the character of local communities and detract from the quality of life of some residents.

Recreation: It is anticipated that recreation use will continue to grow in this region as a result of regional population growth and outdoor recreation trends. This growth will likely result in cumulative, yet subtle changes in all of the recreation settings. These shifts will impact visitors differently depending upon a number of personal factors. Increased development, both on private and public land, as well as increases in evidence of use will slowly shift the physical setting. This will occur at lesser levels in protected areas such as Browns Canyon or areas of primarily public land found in Segment 4. The increase in use will also likely affect the social setting over time with more encounters per outing. Established capacities would help buffer this shift and keep the social setting to desired levels. As the ‘pay-to-play’ trend increases in recreation management and visitor use continues to climb, operational controls are likely to increase out of necessity.

Special Land Designations: None.

Range Management: Historically, ranching along the Arkansas River was one of the primary economic contributors to the valley and helped promote the expanses of green open space. Today, recreation and housing development have rapidly expanded throughout the valley, displacing many of the large ranches. Many ranches have sold and evolved into housing developments resulting in loss of open space and available private pastureland. While ranching along the Arkansas River is still a viable culture and economy, ranch families are experiencing the pressures of growth and change. Ranchers are trying to evolve with the change and demand, but keeping up with the pace has challenged both the ranchers and land managers. As growth and development continue to expand on both private and public lands, there will be further displacement and conflict leading to cumulative negative impacts. Many negative impacts may be mitigated through both public education and adaptive management in hopes of reducing those impacts. Permitted grazing on public lands is more important today to preserve the heritage and open space along the Arkansas River.

Lands and Realty: Carefully considered and designed realty actions, projects, and mitigation measures would reduce impacts to resources and will increase and enhance visitor experiences. More and better access, facilities, and services should increase visitor numbers and increase visitor enjoyment of AHRA recreational opportunities and facilities.

Lands with Wilderness Characteristics: None.

Travel and Transportation Management: None.

4.0 List of Contributors

This chapter lists the individuals who participated in the preparation of this Management Plan, along with their areas of expertise.

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6.0 Glossary

Activity Plan - A more detailed and specific plan for management of a single resource program to achieve specific objectives undertaken only when needed to implement the more general Resource Management Plan (RMP) decisions. Activity planning is now accomplished with Integrated Activity Plans (IAP), or Coordinated Resource Management Plans (CRM P).

Allotment - An area of land designated and managed for the grazing of livestock by one or more livestock operators. It generally consists of public lands but may include parcels of private or state-owned lands. The number of livestock an d period of use are stipulated for each allotment.

Allotment Management Plan - A written plan for livestock grazing management, including supportive measures if required, designed to attain specific multiple-use management, sustained yield, economic, and other goals in a grazing allotment.

Best Management Practices - Best Management Practices (BMPs) are methods, measures, or practices to prevent or reduce water pollution, including, but not limited to, structural and nonstructural controls and operation and maintenance procedures. Usually BMPs are applied as a system of practices rather than a single practice. BMPs are selected on the basis of site-specific conditions that reflect natural background conditions and political, social, economic, and technical feasibility.

Biodiversity or Diversity - The variety of plants and animals that occupy a landscape.

Climax - The natural plant community that occurs at the end of the plant successional path, in the absence of disturbances or physical site deterioration.

Desired Plant Community - A plant community that meets the goals established for a landscape.

Ecosystem - Living organisms and non-living substances, interacting to produce and exchange material between the living and non-living parts.

Endemic Species - A species or subspecies native to a particular location with narrow limits of habitat variability.

Goal - A general description of a de sired future condition (e.g., improve watershed conditions, achieve a desired plant community).

Grazing Permit - A document authorizing use of public lands within an established grazing district.

Habitat Management Plans - A type of activity plan relating to wildlife habitat.

Heritage Resources - Any prehistoric, historic, landscape, site, building, structure, or object, normally greater than 50 years of age and includes artifacts, records, and material remains associated therewith.

Interested Public - An individual, group, or organization that has submitted a written request to the authorized officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific allotments or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

Landscape - A defined area that forms a management unit or basis of analysis.

Land Treatments - Controlled burning, mechanical, biological, or chemical manipulation of the land.

Local Cooperator - An individual who directly influences the management of public lands, and who's cooperation is needed to alter existing conditions. BLM permit holders are local cooperators.

Objective - A measurable description of a desired future condition that specifies, what is to be accomplished, location, and time frame.

Plant and Animal Communities - Those plant and animals which occur on public land; the definition excludes people, livestock, and crops.

Potential - The ecological condition of an area that is possible due to physical, biological, social, and economic factors.

Assessment - An analysis of a tract of land that provides general information on the status of the land. This assessment does not provide in-depth issue analysis.

Public Lands - Those tracts of land owned by the people of the United States that are administered by the Bureau of Land Management.

Riparian - An area of land directly influenced by permanent water. It has visible vegetation or physical characteristics reflective of permanent water influence. Lakeshores and streambanks are typical riparian areas. Excluded are such sites as ephemeral streams or washes that do not have vegetation dependent on free water in the soil.

Trend - The direction of change in health of the land, observed over time.

Activity Plan -A detailed, site specific plan for management of one or more resource programs. An activity plan provides additional specificity needed to implement RMP decisions. Activity plans are completed only if necessary. When multiple programs are addressed, activity plans may be called Integrated Activity Plans or Coordinated RMPs.

Guidelines, Recreation - Recreation management tools, methods, and techniques designed to provide activities, experiences, and benefits for the recreating public while maintaining or achieving healthy public lands as defined by the standards. The recreation guidelines contained in this document are directed toward maintaining or achieving public land health.

Landscape - A defined land area that forms a management unit or basis of analysis.

Mechanized Vehicle - Any non-motorized vehicle capable of, or designed for, travel on or immediately over land. An example of a mechanized vehicle is a mountain bike.

Motorized Vehicle - Synonymous with off-road vehicle. Examples of this type of vehicle include all-terrain vehicles (ATV), Sport Utility Vehicles (SUV), motorboats, and snowmobiles.

Non-Motorized Use: - Recreational human and animal foot traffic. Examples include horses, llamas and other domestic animals.

Off-Highway Vehicle - This term is synonymous with the term off-road vehicle (or ORV). Whereas off-road vehicle is used in the regulations and includes any motorized vehicle, the term off-highway vehicle (or OHV) is a more contemporary term.

Off-Road Vehicle - Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain, excluding: (1) any non- amphibious registered motorboat: (2) any military, fire,

emergency, or law enforcement vehicle while being used for emergency purposes; (3) any vehicle whose use is expressly authorized by the authorized officer, or otherwise officially approved; (4) vehicles in official use; and (5) any combat or combat support vehicle when used in times of national defense emergencies.

Off-Road Vehicle Designations:

a. Open area means an area where all types of vehicle use is permitted at all times, anywhere in the area subject to the operating regulations and vehicle standards set forth in subpart 8341 and 8342 of this title.

b. Limited area means an area restricted at certain times, in certain areas, and/or to certain vehicular use. These restrictions may be of any type, but can generally be accommodated within the following type of categories: Numbers of vehicles; types of vehicles; time of season of vehicles use; permitted or licensed use only; use on existing roads and trails; use on designated roads and trails; and other restrictions.

c. Closed area means an area where off-road vehicle use is prohibited. Use of off- road vehicles in closed areas may be allowed for certain reasons; however, such use shall be made only with the approval of the authorized officer.

Protect - To take actions to guard against injury or loss.

Standards for Public Land Health - A description of conditions needed to sustain public land health; the standards relate to all uses of the public lands in Colorado.

Recreation Support Services - Resource, facility, and visitor management actions taken to provide activities, experiences, and benefits for the recreating public.

Resource Management Plan (RMP) - A BLM multiple use planning document, prepared in accordance with Section 202 of the Federal Land Policy and Management Act, that

a. establishes resource conditions goals and objectives to be attained;

b. allocates resources and identifies allowable uses;

c. identifies land areas for limited, restrictive, or exclusive uses; and

d. provides guidance for implementation of the decisions made in the plan.

Transportation Management Plans - An activity plan that focuses on all aspects of transportation in a land area. Transportation planning can also be accomplished within Integrated Activity Plans, or Coordinated RMPs where multiple resource programs are planned for concurrently.

Visitor Use Infrastructure - Amenities such as roads, parking areas, and facilities, to protect the resource and support the recreation user in his/her pursuit of activities, experiences, and benefits.

Appendix A
RECREATION MANAGEMENT GUIDELINES

Appendix A. Final Recreation Management Guidelines for Colorado

RECREATION MANAGEMENT GUIDELINES TO MEET PUBLIC LAND HEALTH STANDARDS ON BUREAU OF LAND MANAGEMENT LANDS IN COLORADO

Introduction

Colorado's population has grown significantly in the past ten years - the state's growth rate is among the highest in the nation. As the state becomes more crowded, an increasing number of people seek out undeveloped land to recreate. In addition, Colorado remains a popular destination for tourists, especially those seeking experiences in a backcountry or wildland setting. As a result, public lands administered by the Bureau of Land Management (BLM) are absorbing increasing recreational use. In many areas, the increased use has resulted in user conflicts and damage to vegetation, soils, wildlife habitat, and other natural resources.

In February 1997, Standards for Public Land Health in Colorado (Standards) were approved by the Secretary of Interior and adopted as decisions in all of BLM's land use plans, commonly referred to as Resource Management Plans (RMP).

The Standards describe natural resource conditions that are needed to sustain public land health. The Standards encompass upland soils; riparian systems; plant and animal communities; special, threatened, and endangered species; and water quality. The Standards relate to all uses of the public lands. The full text of the Standards is found in Appendix B.

Based on the increased awareness and understanding of the social and environmental impacts of outdoor recreation, the following establishes recreation management guidelines to help achieve and maintain healthy public lands as defined by the Standards. The guidelines are tools, methods, and techniques that can used by managers to maintain or meet the standards.

It is the intent of these guidelines to encourage and permit a variety of recreational opportunities and enjoyable experiences that are managed to avoid conflicts and serve diverse recreational interests, while at the same time minimizing and preventing adverse impacts to land health, ecosystems, and cultural or natural resources, including historic and archaeological sites, soils, water, air, vegetation, scenery, wildlife habitats, riparian areas, endangered or threatened species, and wilderness areas. Recreational uses are a highly regarded social value of our society which impacts our public lands, and accordingly BLM in Colorado will plan, manage, and pursue funding sources so that various services, areas, and activities are environmentally sustainable for present and future populations.

Recreation Management Guidelines

A. Standards 1 & 2: Upland Soils and Riparian Systems

1. Manage recreational activities to maintain sufficient vegetation on upland areas to protect the soil from wind and water erosion and to buffer temperature extremes.
2. Minimize disturbances and manage recreation use in riparian areas to protect vegetation, fragile soils, springs, and wetlands.

3. Plan and locate routes, trails, and developments away from riparian and wetland areas, and highly erosive soils.
4. Reduce stream crossings to the minimal number dictated by the topography. Reduce sedimentation and compaction associated with stream crossings.
5. Manage watercraft types and uses as appropriate to protect riparian systems and water quality from adverse impacts.

B. Standard 3: Healthy Plant and Animal Communities

1. Manage recreational use on public lands to promote the survival and health of native plants and animals.
2. Protect against the establishment or spread of noxious weeds.
3. Protect wildlife habitat by preserving connectivity and avoiding fragmentation.
4. Minimize wildlife disturbances and artificial attractions such as feeding wild animals or improper disposal of garbage.
5. Protect plant and animal communities by limiting recreational use by type, season, intensity, distribution, or duration.

C. Standard 4: Special Status and Threatened and Endangered Species

1. Protect habitat for federal and state Threatened and Endangered Species and other special status species.

D. Standard 5: Water Quality

1. Manage recreational uses in coordination with other uses on public lands to achieve or exceed applicable water quality standards.
2. Control water quality impacts resulting from recreational use, such as human waste, trash, and other elements.

E. Public Values and Education

1. Use information and interpretative services as major tools to protect public land health and significant natural, cultural, and recreational resources. As appropriate, improve public knowledge by locating kiosks, interpretive signs, and visitor information facilities at visitor contact points. Provide guidebooks and pamphlets for users.
2. Increase efforts to educate public lands visitors about an ethic of responsible use, through programs such as Tread Lightly, Leave No Trace, Project Archeology, the International Mountain Bike Association's "Rules of the Trail," and the Public Lands Watch program.
3. Communicate to the members of the public their individual rights and responsibilities in the use and preservation of public lands, including the recognition of the rights and responsibilities of others because public lands are our legacy for the future.
4. Initiate and maintain collaborative partnerships among government agencies, local governments, business communities, volunteers, user groups, stakeholders, educational institutions, individuals, and the private sector to achieve recreation management objectives and implement these guidelines.
5. Encourage the development of a concise educational program to be implemented at the initial point of contact with the public, to promote public land values, knowledge of rights and responsibilities, environmental awareness, communication between the BLM and the public, and changing management practices and policies.
6. In order to mitigate adverse impacts to the public lands, work with the private sector to integrate a responsible recreational use message with the goods or services they provide.

F. Recreation Management

1. Protect natural resources with a priority on management methods that effectively maintain healthy public lands. Utilize the least restrictive but appropriate limitations on public lands activities and users. Recognize that in some cases various levels of regulations and limits on users are necessary.
2. In the development of recreation plans, use the best current and sound recreation science practices to enhance public land health.
3. Develop and maintain updated inventory and monitoring information concerning both the resource and the recreational uses.
4. Use on-the-ground presence as a tool to protect public lands.
5. In order to prevent adverse impacts to the public land health, establish appropriate levels and types of recreational use. Utilize public participation in the development of these levels and types. Where long-term adverse impacts are created or anticipated by recreational uses, limit or control activities through specialized management tools including, but not limited to, designated campsites, permits, area closures, and limitations on stays and number of users.
6. Locate permanent facilities away from riparian areas, cultural sites, or other locations subject to adverse impacts, and relocate existing facilities away from areas that have been adversely impacted.
    a. - If it is determined that a facility must be located in these areas, it must be properly mitigated. For example, if it is determined that a path must cross a wetland area, appropriate mitigation such as a wooden boardwalk may be constructed to avoid water quality problems and other wetland disturbance.
7. Manage recreational uses to protect cultural, historical, and archeological resource sites, and areas where there are unique wilderness or environmental values. Where appropriate, set aside some areas for certain scientific, environmental, and archaeological activities, and limit or prohibit other recreational uses in these areas.
8. Allow and manage dispersed recreation activities so that the nature and the frequency of such activities does not create adverse impacts to public land health.
9. Set aside areas, limited in number and size, for certain high impact recreational uses, such as off-road vehicles, motorcycles, and target practice to be relatively unrestricted. Establishment of such areas must be consistent with the Standards and other RMP decisions.
10. Manage activities associated with hunting and fishing to protect the resource from adverse impacts to public land health.
11. Often a land area is utilized by many users; implement feasible management methods to maintain the essential enjoyment elements of the various user groups.
12. Encourage public land recreational activities near population centers and highway corridors by placement of appropriate visitor use infrastructure. Provide restrooms and other facilities adequate for anticipated uses at designated campgrounds, trail heads, and other areas where there is a concentration of recreational users.
13. Build collaborative partnerships with local communities and the private sector to provide recreational support services on private land near public land access points where possible.

G. Routes, Trails, and Travel management

1. Work expeditiously toward the goal of a statewide inventory of routes and trails.
2. Place a high priority on developing local travel management plans with public participation. Travel management plans should consider all forms of travel in the affected area (i.e., motorized, mechanized, and non-motorized). The plans should address travel management prescriptions (such as open, closed, and limited off- road vehicle designations), and identify appropriate actions to meet or maintain public land health standards and meet the needs of the visitor.
3. Until local travel management plans are prepared and implemented, BLM will take prompt action using existing authorities to prevent the proliferation of roads and trails that have caused or will lead to conditions whereby the Standards are not met. Existing authorities include, but are not limited to,

restrictions under the specific rules section for off-road vehicle use[2], amending land use plan decisions pertaining to off-road vehicles[3], and closure and restriction orders for other uses[4].

4. When developing travel management plans and/or implementing travel management decisions, managers should consider the following:

a. Where adverse impacts, user conflicts, damage to ecosystems, injury to the environment, or other conditions are anticipated or are occurring that would impair the health of the public lands and diminish recreational opportunities, restrict recreational travel to designated routes or take other appropriate action such as seasonal closures.

b. Cross-country travel (i.e., off of roads and trails) should only be permitted in areas that meet the designation criteria for "open" areas[4], and the Standards.

c. Where conflicts among recreational users can be minimized, combine multiple uses on one route instead of establishing parallel or alternative routes.

d. Where and when appropriate, plan, develop, and designate in cooperation with user groups new routes and trails, as well as selected areas for open travel, that enhance and expand recreational opportunities and encourage responsible use with little or no adverse impacts.

e. Relocate, abandon, or close routes and trails seasonally or temporarily that adversely impact riparian and wetland areas, wildlife, highly erosive soils, cultural sites, and sensitive ecological systems, and abandon routes that are duplicated or unneeded. Where routes, trails, or other facilities have been abandoned, provide for restoration and revegetation of the site.

5. Where adverse impacts or safety considerations warrant, limit or prohibit public access when authorizing specific routes to oil and gas locations, mines, timber sales, or other areas or sites under permit or lease.

6. Provide clear maps, signs, guidelines, descriptions, and other information for users of routes, trails, and other facilities or areas, including mileages and estimated hours of travel by type, limitations caused by travel surfaces and conditions, and availability of loop trails. Provide clear information to the public when closures, seasonal use, and other regulations or limits are placed on public lands.

Recreation Management Implementation Issues

In addition to the implementation objectives included in the Standards, the following critical issues should be considered for successful implementation of the Recreation Guidelines:

1. The guidelines contained in this document are designed to provide direction, yet allow flexibility for local implementation of RMP decisions. Typically, decisions made in RMPs provide resource goals and objectives, allocate resources, identify land areas for limited, restrictive or exclusive use, and provide guidance for implementation. During the implementation process, additional planning may be needed to better define goals, make objectives more specific, and identify or add specific detail to implementing actions. Frequently, multiple guidelines may be used to maintain or achieve the land health standards. All implementing actions will be completed in consultation, cooperation, and coordination with local

[2] 43CFR834 1.2 ("Special rules" section - Off-Road Vehicles) and 43CFR8 342 ("Designation criteria" section - Off-Road Vehicles)

[3] 43CFR 161 0.5-5 ("Amendment" section - Resource Management Planning) ; 43CFR8342 ("Designation of Areas and Trails" - Off-Road Vehicles)

[4] 43CFR8 364 ("Closures an d Restrictions" - Visitor Services)

communities and the interested public.

2. Declining federal budgets challenge the ability of the BLM to provide services adequate to meet growing recreational demands, create difficult management concerns, and place the health of public lands at risk. Addressing current and future needs will require increased agency budgets as well as collaboration, partnerships, and shared responsibility among public land agencies and the various constituencies using public lands.

3. Increasing recreational uses of public lands create increased needs for funding, manpower, and other resources to simultaneously protect the environmental and ecological values of public lands consistent with multiple use and sustained yield principles. Management practices specifically tailored to recreational impacts are necessary to improve and expand recreational facilities and protect effective planning, maintenance, enforcement, monitoring, and programming of public recreational opportunities. Possible supplementary funding resources to meet these goals should be considered, including non-federal resources such as state, county, and local governments, non-profit entities, and private interests.

4. Important to implementing multiple use recreation management and environmental management objectives are: an achievable scientific approach to the inventory and analysis of biological and ecological data; gathering of accurate data on recreational needs, benefits, demands, carrying capacities, and trends; and developing consensus on difficult issues relating to economically sustainable programs, use controls, other limitations and resolution of user conflicts.

5. The involvement by the BLM of the public, other governmental entities, and various recreational constituencies is necessary throughout the planning, use, and evaluation cycle to establish appropriate management priorities. This involvement should encourage a high degree of public interaction, foster collaboration, educate and inform the public regarding important land use issues, and contribute to the successful implementation of the Standards for Public Land Health and Recreation Management Guidelines.

6. Not all RMP decisions require subsequent planning such as activity plans or transportation management plans. If the actions needed to implement RMP decisions are well defined, then only appropriate environmental assessment documentation may be needed. If, however, the decisions and information in RMPs do not contain enough detail, additional planning may be needed to better define goals, make objectives more specific, and identify or add specific detail to implementing actions.

7. During the implementation process, it may be determined that existing RMP decisions are no longer valid or do not adequately meet the needs of the resource or the public. Therefore, it may be necessary to initiate a plan amendment to address the affected decisions in the RMP.[5]

8. It is not possible for each acre to achieve every standard. It is important to assess and consider the overall health of a landscape when applying the recreation guidelines. For example, when determining how to manage vehicle parking in a landscape, it may be determined to concentrate vehicles in a small confined area, rather than having uncontrolled parking throughout the landscape. In this example, this approach would result in improved resource conditions overall although the site specific impacts at the small parking area would be high (e.g., vegetation disturbance).

The guidelines contained in this document are designed as “tools” to assist managers implement recreation management decisions and actions. At this stage, the environmental effects of implementing

the guidelines are too broad, speculative, or conjectural to lend themselves to meaningful environmental analysis under the National Environmental Policy Act (NEPA).

Furthermore, most implementing actions will be subject to further NEPA analysis. Therefore, adoption of the guidelines are categorically excluded from NEPA analysis [6].

ATTACHMENT 1

STANDARDS

FOR PUBLIC LAND HEALTH

IN COLORADO

November 1996

Note: The following is the full text of the Standards as it appears in each Resource Management Plan in Colorado.

PREAMBLE

Humans use and derive benefits from public lands administered by BLM in Colorado in many ways: to earn a livelihood, to recreate, for education, for science, and to enjoy and appreciate open spaces and irreplaceable cultural heritage resources. Healthy public lands and the uses of those lands contribute to the health and economic well-being of Colorado communities. In turn, healthy human communities create healthy public lands by conserving, protecting, and properly utilizing public land resources and by effectively resolving conservation issues. Healthy public lands and healthy human communities are interrelated; therefore, social, economic, and environmental considerations must be properly balanced.

The interdependent relationship between human communities and their public land brings together people of diverse backgrounds and interests. Open, honest, and sincere interactions, in a spirit of trust and respect, are essential to achieving and maintaining healthy public lands. While all individuals have a voice in public land management goals, the responsibility to maintain healthy public lands ultimately falls with the users of those lands.

To help determine what constitutes healthy public lands, Standards for Public Land Health, by which the health of the land is measured, need to be established. This document defines such standards for BLM lands in Colorado.

Interpretation
Standards and guidelines can be an effective communication tool, providing a common understanding of expected resource conditions and acceptable management practices. Although the standards are the measure s by which health of the land will be assessed, the results of these assessments are not well-suited for direct reporting of accomplishments. Any reporting of progress associated with application of these standards will need to consider and address the following factors:
- Standards and guidelines for each state will be different.
- To be meaningful, public land health assessment must be determined based up on all standards and not solely upon each individual standard.
- It will be many years before a full assessment of public land health is completed. Initially, statistics concerning public land health may be skewed due to the priority setting process which directs management attention to lands where problems exist.

Standards describe conditions needed to sustain public land health, and relate to all uses of the Public lands. The standards are written in a two-part format. The standard is first described in a statement. Then indicators which relate to the standard are identified. The indicators help define the standard and describe features which are observable on the land. Additional indicators may also be applicable to some sites, and some indicators may not apply to every specific site.

While a site should match the indicators it is not necessary for each site to perfectly match all the indicators to comply with the standard. The appropriate use of resources will be determined by the authorized officer on a case by case basis, in consultation, coordination and cooperation with local cooperators and the interested public and in accordance with law and regulation.

Standards are observed on a landscape scale. It is not possible for each acre to achieve every standard. F or example, a mosaic of vegetation type s and age classes may produce the diversity associated with a healthy landscape; however, some individual vegetation communities within the mosaic may lack diversity.
Standards always relate to the potential of the landscape. Climate, landform, geologic, and biologic characteristics are factors that affect potential. Each landscape has a specific ability to provide values important to humans such as timber, livestock for age, water, wild life, and minerals. Therefore, the potential of a site can also be altered through a wide variety of human socio-economic factors. When this occurs, a new potential exists. The authorized officer, through the consultation process, will evaluate the site based on its new potential. Comparative analysis of nearby landscapes, (that appear to have similar climate, geology, landform, biologic and socio-economic characteristics), is considered the most reliable means to identify the potential landscape.

It is common for landscapes with nearly identical potential to differ, in their appearance, and in the values they provide. Variability results from both natural plant succession patterns, and human uses. While the climax plant community is significant as an indicator of potential, the climax community does not automatically provide the comparative basis for evaluating the standard. In many circumstances local goals will identify a different plant community which provides the most optimum values. When this occurs, the plant community identified in the local goal replaces the climax community as the foundation for evaluating the standard.

Often, existing information will be sufficient to determine public land health. It is not always necessary to collect measurable baseline data for each standard on each site to determine public land health. However, baseline data is important to establish so that changes can be observed and measured. The BLM's authorized officer will determine the amount and type of data each situation requires in consultation, coordination and cooperation with local cooperators and the interested public. In areas where the standards are not being achieved, current uses and management actions will be reviewed and modified if necessary to assure significant progress toward achieving a healthy ecosystem.

Standards for Public Land Health

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 stream flow 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 com munities standard apply.
- There are stable and increasing populations of endemic and protected species in suitable habitat.
- Suitable habitat is available for recovery of end emic 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 antidegradation 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 100 2-8).

Flexibility

The standards are designed to maintain or achieve healthy public lands while allowing for the development of local goals and objectives. For example, on sites of similar potential a desired plant community designed to provide deer winter range would differ from one designed for cattle summer range, yet both could achieve the standards. Local goals and specific objectives consistent with standards will be developed by BLM in consultation, cooperation and coordination with local cooperators and the interested public.

Implementation

Recognizing that social and economic factors must be considered in achieving healthy public lands, the authorized officer will coordinate, consult and cooperate with the local cooperators and interested publics during all phases of implementing standards and guidelines, whether it be for an allotment, group of allotments, or watershed. BLM will strive to make use of collaborative approaches involving the various interested publics within an affected allotment, group of allotments, or watershed. The Resource Advisory Council (R AC) may be requested by any p arty to assist in reaching agreement in resolving disputes. As greater understanding of eco systems, including socio-economic factors, becomes available, it will be applied to our management of public lands.

The section below describes the general process for applying the Colorado standards and guidelines in the field. If mutual agreement on a course of action is reached at any point during this process, such agreement may eliminate the need for some of the process steps described.

It is unreasonable to assume that standards and guidelines will be applied to all public lands immediately upon adoption. Therefore, it is imperative that a logical system for prioritizing work be adopted. Following are some criteria that the authorized officer uses to prioritize areas such as allotments, watersheds, or other landscapes:

- Are there situations where legal requirements must be met?
- Is there information to indicate resources at risk, or that the severity of resource damage demands immediate attention? (monitoring results, allotment categorization, professional judgment, results of ESI or other inventory data, etc.)
- Is use conflict present?
- Is there public concern or interest for possible resources at risk?
- What is scheduled for completion according to the RMP implementation schedule?
- Where can efficiencies with limited resources be realized?
- Where are the best opportunities to effect positive change toward public land health?
- Are there permits or other resource use authorizations that need to be acted upon (e.g. grazing, right-of-ways, timber sales, etc.)?

The following steps describe a typical sequence for assessing public land health and trend on established priority areas. The authorized officer will:

1. Using public scoping, identify issues and values in detail; identify existing management objectives from source s such as the Resource Management Plan (RMP), and activity plans.

2. Assess public land health and if possible determine the trend relating to public land health.

3. Determine the relationship between existing land uses and the assessed health of the land.

4. If needed, establish measurable objectives or redefine/modify existing management objectives that will result in desired conditions. (Note: If significant changes to RMP decisions are needed, an amendment to the R MP will be needed.)

5. Identify which land use actions will achieve the desired objectives and resource conditions.

NOTE: This document addresses the livestock grazing guidelines; guidelines that relate to other land uses will be consulted or developed as necessary to deal with the appropriate objectives.
6. Identify specific management practices, in conformance with the guidelines, and attach as terms and conditions on grazing permits, or as stipulations on specific projects or actions.
7. Establish an evaluation schedule to determine if the standard is being achieved or if significant progress is being made.
- If the evaluation indicates that objectives are being achieved or there is movement towards the objective, continue with management practices.
- If the evaluation indicates no movement or movement away from the objectives, reassess the objectives and management actions. Determine the objectives and management actions necessary to assure significant progress toward achieving the standards. Amend plans and permits as necessary.

The authorized officer will take immediate administrative action to implement appropriate guidelines up on a determination that the following three circumstances all apply:
1. Public land health is unacceptable;
2. Existing management is not likely to produce significant progress towards public land health; and
3. The consultation process has failed to yield a negotiated resolution.

If needed, future modifications to the Standards and Guidelines may be made. Typically, a proposal for modification is presented to the local Designated Field Official (DFO). The DFO then forwards the proposal for modification to other DFOs throughout the state for consideration in consultation with the

RACs. (A copy of the proposal for modification is also submitted to the State Director). The DFOs considering advice from the RACs then submit to the State Director recommendations regarding the proposal for modification. The State Director decides if the proposal for modification has merit. If so, a determination is made whether the modification is a maintenance change to the Resource Management Plans or requires a plan amendment. Maintenance changes require no action except to make a notation in the RMPs (43 C FR 161 0.5-4). Actions requiring a RMP amendment will require NEPA analysis and conformance with 43 CFR 1610.5.

Appendix B

COLORADO PARKS AND WILDLIFE CITIZEN TASK FORCE

Appendix B: Colorado Parks and Wildlife Citizen Task Force

The Appointment Process:

- Candidates for the CTF may self-nominate or utilize recognized organizations or user groups to recommend nominees.
- Candidates for the CTF should be able to demonstrate interest and experience with the issues of their constituency throughout the river corridor.
- CTF members must be capable of representing their respective interests while working as productive members in a team setting.
- The following organizations are identified and selected as examples to utilize to establish a clearing house of nominees for CPW to consider. They are to serve as central and existent organizations for individuals and/or members of other similar interest organizations to select nominees.

  Anglers – Trout Unlimited

  Commercial Permittees – Arkansas River Outfitter Association / Similar Entities

  Private Boaters – Colorado Whitewater Association / Similar Entities

  Environmental – Colorado Environmental Coalition /Similar Entities

  Water Users – Colorado Water Congress / Similar Entities

  River Front Property Owner – Individual Nomination

  County/Municipal Government – Governmental Organization

  Outdoor Recreation – Outdoor Recreation Clubs / Bicycle Organizations / Horseback Organizations / Hiking Organizations / Recreational Gold Panning Groups / Similar Entities
- Annually review at a CTF meeting the groups selected above for applicability.
- The CPW AHRA State Park Manager will make recommendations to the CPW Southeast Region Manager for the final appointments to the CTF from referred nominees.
- Appointments to the CTF will be for a term of two {2} years.
- CTF members and alternates may be re-nominated for additional terms and shall serve staggered terms.

Ad-Hoc Membership and Function:

- Ad-hoc members will be encouraged to discuss respective agency issues with the CPW AHRA Park Manager and attend CTF meetings to provide input and discussion on the issues that concern their mission, agency or organization;
- The main function of ad-hoc members is to provide a link between their agency or group and the AHRA;
- The City governments and the Chambers of Commerce for Leadville, Buena Vista, Salida and Canon City will be added to the mailing list and also receive all documents for their review.

Other Considerations/Directions:

- The CTF will hold meetings/conference calls approximately 5 times per year except when specific needs of the AHRA require special meetings;

- The CTF will be polled as to their opinions, and their reasons for same, regarding all recommendations of substance relating to the AHRA, with the outcome of this to become a part of the public record;
- The CTF will elect a chairperson and a vice-chairperson on an annual basis;
- The Chairperson and vice-Chairperson along with the CPW AHRA State Park Manager will develop the meeting agendas;
- The Chairperson and vice-Chairperson along with the CPW AHRA State Park Manager will develop and disseminate adequate public notices and press releases;
- The agendas for all CTF meetings will include a specific time for receiving public input;
- The Chairperson or their designated representative will conduct all meetings;
- CTF members are expected to attend all meetings except when extenuating circumstances prohibit such;
- The CTF will determine if a vacancy exists when a CTF member has missed two {2} or more meetings in a calendar year;
- All CTF members will receive a CPW Volunteer Park Pass each year they actively serve as a CTF member and spend a minimum of 48 hours of time on CTF related issues within a consecutive twelve-month period.