Economic Development Report

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ESTIMATED ECONOMIC IMPACTS OF BLM LAND USE CHANGE ON LOCAL RECREATION AND TOURISM: THE LITTLE SNAKE RESOURCE AREA MANAGEMENT PLAN

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Approximately 30-40 thousand people visit Moffat County's BLM lands for recreational purposes, annually

Non-motorized recreation generates about $19 per visitor-day, while motorized recreation generates about $28 per day.

Recreational visits to BLM lands generate a predicted 10-14 jobs & $800,000-$1.4 million in local sales annually.

Relatively little change in visitation is expected across BLM land use alternatives.

Non-use values may be demonstrate greater variation across alternatives than do recreational use values.

Introduction

The Bureau of Land Management (BLM) is part of the US Department of the Interior responsible for the management and conservation of resources on 258 million surface acres, as well as 700 million acres of subsurface mineral estate. These public lands make up about 13 percent of the total land surface of the United States and more than 40 percent of all land managed by the Federal government. Colorado BLM and all BLM lands adhere to the principal of multiple-use management outlined by the Federal Land Policy and Management Act of 1976. This means that the BLM balances outdoor recreation and preservation of wildlife habitat, air and water, and other scenic and historical values with environmentally responsible commercial development of the land and its resources.[2]

The Little Snake Field Office (LSFO) includes approximately 4.2 million acres of land in Moffat, Routt, and Rio Blanco Counties. The Little Snake Resource Management Plan Planning Area (RMPPA) within that area administers approximately 1.3 million acres of public land surface and mineral estate and 1.1 million acres of federal mineral estate where the surface is privately owned or state-owned. Recreation site location and land ownership and/or management within LSFO boundaries are shown in Figure 1. Of the 6 counties that have acreage within the RMPPA boundary, the economic effects will arguably impact Moffat County the most, as the overwhelming majority of BLM surface and subsurface land that will be affected by the new LSFO Resource Management Plan (RMP) lie within it. Some 95% of surface land owned by the BLM that lies within the RMPPA is within Moffat County (Table 1). Therefore, the individual economic impact analysis of the natural resource based industries in the RMPPA under the different RMP alternatives will focus on the impacts found in Moffat County.

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[2] BLM. 2007. http://www.blm.gov/co/st/en/BLM_Information/about_blm.2.html

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The goal of this research series is to inform the public regarding the economic tradeoffs and impacts the proposed LSFO RMP alternatives will have on the natural resource based economic activities on BLM properties under management of the LSFO.

Figure 1 - LSFO-Recreation Site Locations

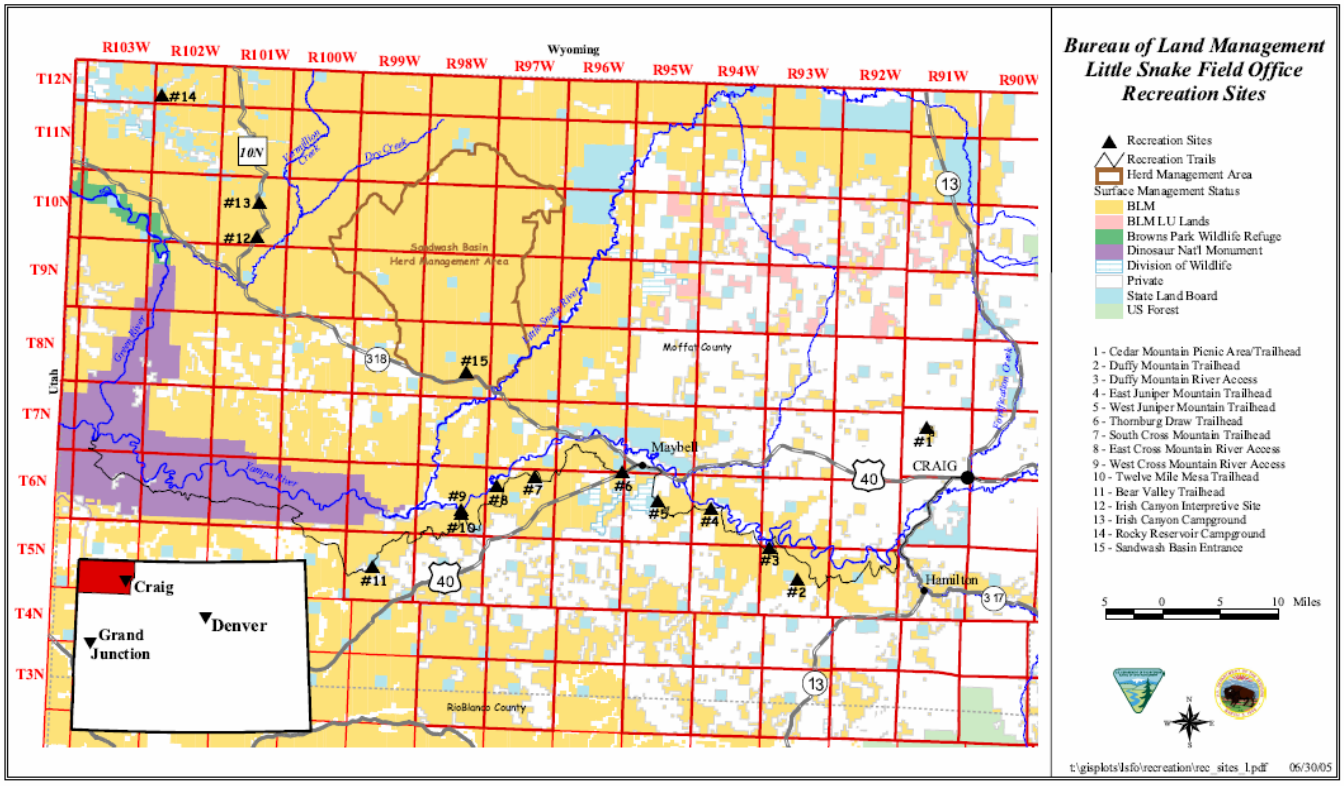

Table 1: LSFO-Managed Surface Ownership by County

County	Acres of County within RMPPA Boundary	Acres of Surface Ownership			
		BLM LSFO	Other Federal Agencies	State of Colorado	Private
Moffat	2,620,700	1,285,200	136,000	183,500	1,016,000
Routt	1,399,300	59,900	566,700	68,100	704,600
Rio Blanco	133,800	4,300	107,900	0	21,600
Garfield	36,300	0	36,100	0	200
Grand	30,000	0	29,800	100	100
Jackson	1,600	0	1,600	0	0
Total	4,221,700	1,349,400	878,100	251,700	1,742,500

Visitor Use Estimation within the Little Snake Recreation Area

As many as three sources of visitor information were used to estimate visitor use. The first estimate was developed from the visitor count data that utilized the number of vehicles observed at the site and the number of surveys handed out (one to each group). This number was then expanded to all weekends and holidays over a six month, late spring-summer-early, fall season using reciprocal of the number of days sampled to the number of weekend days and holidays in a six month season. This assumes visitor use on non-holiday weekdays is essentially zero (something our informal discussions with local users suggested was a conservative, but reasonable, assumption). We further expanded based on the hours sampled versus the hours the site was available for recreation. The resulting sample expansion factor was multiplied by the number of vehicles and surveys

handed out. To convert vehicles to visitor days, we used the returned surveys that provided site-specific estimates of annual number of trips, group size and average length of stay. These estimates are based on small sample sizes, and thus provide an approximate estimate of use. We suspect that use is not zero at many sites estimated as zero, but it is low enough during the July through October time period that our coarse sampling time period did not observe any visitors. Sites with low use levels would have to be sampled more intensively to obtain an accurate estimate of use, but whether the sampling costs would be justified with such low use estimates is an open question.

The second estimate for three sites administered by Colorado Division of State Parks was based on their data from fee envelopes collected at these sites. The third estimate is drawn from BLM's REIS visitor use estimates for 11 regional sites. These three estimates were compared to one another. We developed calibration factors using the State Park sites and the BLM estimates. These calibration factors were then applied to the visitor use estimates based on visitor counts at the sites where we did not have State Parks or BLM data. Finally, we developed a low, medium and high estimate of visitor use based on the calibration factors, BLM visitor estimates and State Parks. These use estimates were reviewed by BLM and the Northwest Colorado Stewardship (NWCOS) including people familiar with recreation use of the area. It was agreed that the medium use estimate would be adopted as the best estimate of baseline recreation use in the study area (Table 2). The split between motorized and non-motorized activities follows BLM staff estimates and is corroborated by our sampling data. In particular the visitor data collected indicated that nearly all motorized use (i.e., motorcycles and ATV's) occurred at Sand Wash. This area accounts for 20,700 visitor days, which is 72% of motorized visitor use in the Little Snake Recreation Area (LSRA).

Table 2: Estimated Number of Visitor Days per Site

Sites	Alternative A: Current Use
1. Cedar Mountain Picnic Area/Trailhead	8,797
2. Duffy Mountain Trailhead	225
3. Duffy Mountain River Access	1,118
4. West Juniper Mountain Trailhead & River Access	338
5. East Juniper Mountain Trailhead	130
6. Thornburg Draw Trailhead	33
7. South Cross Mountain Trailhead	30
8. East Cross Mountain River Access	1,832
9-11. Mile Mesa Trail	49
12. Irish Canyon Interpretive Site	813
13. Irish Canyon Campground	1,820
14. Rocky Reservoir Campground	236
15. Sandwash Basin Entrance	20,700
Total Non-Hunting Recreation Use	**36,121**
Total Motorized Use	**28,897**
Total Non-Motorized Use	**7,224**

Three of our visitor intercept sites provided access to the Yampa River. Drawing upon Colorado Division of Parks estimates of visitor use, we estimate about 3,288 visitor days of use. About half of the visitor days involved fishing, and two-thirds involved rafting (some of the rafters were also fishing) (Table 3).

Revising the LSFO RMP

Each surface and subsurface area under the management of the BLM has a field office which implements and enforces an RMP specifically designed for the property encompassed within the field office territory. An RMP can require modest revisions or even a complete reconstitution due to changes in public use and shifting demands for recreation, agriculture and livestock grazing, oil and gas productivity, and other factors.

Table 3: Primary Recreation Activities at Each Site

Sites	Reported Recreation Activity
Cedar Mountain Picnic Area/Trailhead	Hiking, Picnicking
Duffy Mountain River Access	Rafting
East Juniper Mountain Trail & River Access	Rafting
West Juniper Mountain Trail & River Access	
West Cross Mountain River Access	Fishing, Hiking, Camping, Viewing
Twelve-Mile Mesa Trailhead	Hiking, Biking
Irish Canyon Interpretive Site	Rock art, picnic, wildlife viewing
Sandwash Basin Area	Motorcycles, ATV, Camping

The LSFO RMP was revised three times since its implementation in 1989. In 2001, the LSFO RMP began to consider the process of a complete review and revision due to the rise of management and travel concerns within the oil and gas industry, input from Moffat County and concerns of several environmental organizations. NWCOS and the BLM developed a collaborative strategy to revise the LSFO RMP in the spring of 2004. When the Little Snake RMP is completed, it will provide a comprehensive framework for managing the BLM-administered public lands and resources and allocating their uses in the RMPPA. One of the four alternatives detailed below will be chosen according to a defined political process, as outlined in Section 1.5 of the 2007 Draft EIS/RMP, and this economic analysis attempts to provide answers to the expected outcomes of that choice.[3]

LSFO RMP alternatives

Four alternatives (A, B, C, and D) are described and examined in this analysis, each representing varying levels of management actions for each resource and resource use based on achieving the goals and objectives of the given alternative. The National Environmental Policy Act (NEPA) requires a no action alternative, and thus, Alternative A provides a status quo basis to compare the impacts of the differing alternatives.

Alternative B would allow the greatest extent of resource use within the RMPPA, while maintaining the basic protection required to manage resources. Under this alternative, protection of resources would be the least restrictive within the limits defined by law, meaning current designated protections such as areas of critical environmental concern (ACEC) and special recreation management areas (SRMA) would be removed, no new wild and scenic river (WSR) corridors would be recommended for designation, and opportunities for "unmanaged" motorized recreational experiences would increase. With this alternative, unlike Alternative A, areas designated as no surface occupancy (NSO) would also be designated as no ground disturbance (NGD) for other uses.

Alternative C is denoted as the 'preferred alternative' throughout the Draft EIS/RMP (2007), and emphasizes comprehensive multiple resource management in the planning area, protecting sensitive resources while applying the most current information to allow the BLM to set priorities based on flexible and proactive public land management techniques. Commodity production would be balanced against wildlife and vegetation protection, where exceptions could be granted according to established adaptive criteria (see Appendix E, Draft EIS/RMP 2007).[4] Area protections for sensitive resources would be limited to areas where such designations are necessary, while special management prescriptions would be applied to areas without such designations. Existing SRMAs would remain in place, while additional SRMAs and backcountry areas would be identified to provide diverse recreational experiences. More limitations and closures for off-highway vehicle (OHV) areas would occur, while some existing would stay in place. Areas considered no surface occupancy (NSO) would also be designated as no ground disturbance (NGD), as in Alternative B. This alternative would be implemented using the adaptive management approach, as outlined in Appendix M of the Draft EIS/RMP (2007).[5]

[3] For information on revising the LSFO RMP see Chapter 1 of the Draft EIS/RMP 2007: http://www.co.blm.gov/lsra/rmp/documents/04_LSDEIS_Chapter_1_SFS.pdf

[4] Appendix E of the Draft EIS/RMP: http://www.co.blm.gov/lsra/rmp/documents/AppE_LSDEIS_Exceptions_Mods_Waivers.pdf

[5] Appendix M of the Draft EIS/RMP: http://www.co.blm.gov/lsra/rmp/documents/AppM_LSDEIS_Adaptive_Management.pdf

Alternative D would allow the greatest extent of resource protection among the four resource management alternatives, while still allowing resource use. Commodity production would be constrained to protect natural resource values or to accelerate their improvement, although exceptions would be granted within the guidelines of the adaptive criteria (see Appendix E, Draft EIS/RMP 2007).[4] Wildlife habitat protections would increase with management objectives focused on restoring vegetation communities to ecologically desirable levels. Designation of ACECs and WSRs would be maximized, with tighter restrictions in the designated areas to protect sensitive resources. Current SRMAs would stay in place while new SRMAs and backcountry areas would be designated to increase access to diverse recreational experiences. Areas open to OHV use would be decreased, and as in Alternatives B and C, areas considered NSO for oil and gas would also be considered NGD for other uses.[6]

Recreation

Tourism and recreation are economically important uses of private and public lands in the region that makes a contribution to the local economy via purchases of gasoline, lodging, supplies, etc. To quantify the county economic effects of BLM land recreation to Moffat County, visitor use and visitor expenditures must be estimated. This information is then entered into the regional input-output model to calculate the ripple or multiplier effects of these visitor expenditures on a variety of sectors of the Moffat County economy.

Of course, recreation opportunities on BLM land also provide benefits to the visitors themselves and to residents who may enjoy recreating on the land. Some of these values are reflected in local expenditures and some are not. Those non-market values reflect benefits received by non-residents who travel to the BLM lands in Moffat County for recreation or, in the case of residents, are a monetary indicator of the contribution that BLM lands make to residents' quality of life from living in the area.

We present recreation use estimates for the current and future conditions under the status quo management alternative (Alternative A) using a combination of our own estimates, data collected in the summer and fall of 2006, in addition to estimates for recreation sites along the Yampa River administered by Colorado State Parks, and BLM's own recreation use estimates. BLM staff provided the estimated change in recreation use by alternative. Details on what recreational activities people undertake on BLM lands and where they are spending their money within the study area are provided here.

Key assumptions

We assume that the structure of the economy is reasonably similar ten years from the present, so that the input-output model provides a reasonable representation of the economy and of likely economic impacts. We also assume that the simulations of a "typical" year ten years in the future are a good way to see impacts of the alternative. The main assumption that is specific to this part of the analysis is that we are able to obtain a representative sample for recreational visitation that will allow us to extrapolate to the population.

Analysis of recreation by alternative

BLM recreation staff and Booz-Allen-Hamilton (BAH) personnel estimated how total and type of recreation use (motorized versus non-motorized) would change across the four alternatives based on management actions contained in each alternative. For example, Alternative D would restrict the area available for motorized recreation use (particularly in the Sand Wash area), and thus, overall motorized recreation use in the study area is expected to decrease by the amount indicated in Table 4. BLM recreation staff also provided estimates of how much recreation use would increase by alternative. In Alternatives A and B, visitor use is expected to increase by 10% over each decade. In Alternative C, recreation use was expected to increase by 12%. In Alternative D, there would be a decrease in motorized use due to the seasonal restrictions on such use in the Sandwash Basin to protect other multiple use resources, but non-motorized recreation is expected to increase by 4%.

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[6] For detailed descriptions of the four LSFO RMP alternatives see Chapter 2 of the Draft EIS/RMP: http://www.co.blm.gov/lsra/rmp/documents/05_LSDEIS_Chapter_2_SFS.pdf

Table 4: Estimated motorized, non-motorized & total recreation use, by alternative (Visitor Days)

	Decade One BLM Management Alternatives			
	A	B	C	D
Motorized	28,897	28,897	21,673	5,575
Non Motorized	7,224	7,224	14,448	22,300
Total	**36,121**	**36,121**	**36,121**	**27,875**
	Decade Two			
Motorized	31,787	31,787	24,273	5,699
Non Motorized	7,947	7,947	16,182	22,794
Total	**39,733**	**39,733**	**40,456**	**28,493**

The direct change in regional economic effects of recreation use by alternative was calculated by taking the estimated visitor use times the expenditures of motorized and non-motorized visitors derived from our survey (Table 5). In this region, those who take advantage of motorized recreation opportunities spend more than those who practice non-motorized recreational past times, especially in purchases of gasoline and food from grocery stores. Information from Table 5 was the input into the regional economic model to calculate the direct, indirect and induced effects on Moffat County. The non market values associated with recreation by alternative have been calculated using the travel cost method (TCM), and can be found under the research link at the Colorado State University - Department of Agricultural and Resource Economics webpage (http://dare.agsci.colostate.edu/csuagecon/research/pubs/Loomis%20Recreation%20Use,%20Benefits%20&%20TCM%20report.pdf).

Table 5: Visitor Expenditures per Visitor Day

	Per visitor expenditures ($)	
Expenditure Type	Non-Motorized	Motorized
Oil and Gas Production	4.60	12.36
Food Services	1.86	0.28
Food/Beverage Retailing	3.46	13.13
Retailing	3.29	1.29
Recreation	2.29	0.00
Government	3.01	0.42
Transport	0.71	0.00
Total	**19.21**	**27.58**

Recreation impact analysis results

Group trip expenditures at each site and the percentage spent in Moffat and Routt counties were calculated based on the data collected and the appropriate algorithm based upon complementary sources of information (Table 6). To facilitate the use of this data in IMPLAN, these expenditures are put on a per person basis using the size of the group sharing expenditures (from the survey) and then the expenditures are put on a per visitor day basis by adjusting for length of stay. The Craig and Steamboat area appear to capture a sizeable portion of total visitor spending, with about three-fourths of total visitor spending having been made in Routt and Moffat counties. This information may be used in the input output model to calculate income and employment related to recreation in the baseline or future without alternative in the chapter on estimated effects.

Table 6: Average group trip expenditures of visitors

Site	% Spent in Moffat & Routt	$ Spent in Moffat/Routt Counties	Total Trip Cost	Groups Size
Cedar Mtn	100%	$3.00	$3.00	1
Duffy/E Juniper	86%	$170.00	$198.33	2
East Cross	72%	$108.42	$150.00	1.3
Irish Canyon	77%	$58.67	$76.33	1.7
Sand Wash	73%	$114.47	$156.88	1.3

The recreation impact analysis results are based on the estimates from "Decade Two" in Table 4, which was used to represent activity partly through the twenty years of the Plan (Table 7). Motorized and non-motorized visitor spending creates direct sales to local businesses. These direct sales require that these businesses purchase inputs from other firms, which are both local and outside the area (leakages). Current recreation use (Alternative A) by motorized users results in about $614,735 in direct sales. When the multiplier effects are included the total sales are $814,720, leading to a multiplier of about 1.3 for recreation spending. Total sales resulting from non-motorized users are nearly $300,000, much less due to fewer non-motorized users currently and lower spending per visitor.

Table 7: Impact analysis results on total sales ($ per year)

	BLM Management Alternatives			
Visitors' Days Motorized	A	B	C	D
Direct	869,952	869,952	652,464	163,116
Indirect	124,327	124,327	93,245	23,311
Induced	177,623	177,623	133,217	33,304
Total	1,171,901	1,171,901	878,926	219,731
Visitors' Days Non Motorized				
Direct	153,683	153,683	307,367	441,840
Indirect	18,514	18,514	37,029	53,229
Induced	29,956	29,956	59,912	86,124
Total	202,154	202,154	404,308	581,193
Grand Total	**1,374,055**	**1,374,055**	**1,283,234**	**800,924**

Table 8 shows the employment effects associated with visitor spending associated with each alternative. Currently Alternative A and B, show that about 8 direct jobs and 11 total jobs are supported by spending from motorized recreationists. Non-motorized visitors support about 2 direct jobs and three total jobs currently. Thus there are a total of 14 jobs with these two alternatives. However, alternative D, which reduces the season of use and area in Sandwash for motorized recreation to protect other multiple use resources, reduces employment related to motorized recreation, but increases jobs associated with non-motorized recreation. The total jobs in Alternative D are 10, a drop from 14 jobs currently supported. Table 9 provides the estimates of local value added, which is the amount of money that takes the form of wages and business income in the county. This is currently over a half million dollars annually, and it increases with Alternative C to more than $600,000.

Table 8: Impact analysis results on employment

	BLM Management Alternatives			
Visitors' Days Motorized	A	B	C	D
Direct	7	7	6	1
Indirect	1	1	1	0
Induced	2	2	2	0
Total	11	11	8	2
Visitors' Days Non Motorized				
Direct	2	2	4	6
Indirect	0	0	0	1
Induced	0	0	1	1
Total	3	3	5	8
Grand Total	**14**	**14**	**13**	**10**

Table 9: Impact analysis results on total value added (Dollars)

	BLM Management Alternatives			
Visitors' Days Motorized	A	B	C	D
Direct	474,232	474,232	355,674	88,919
Indirect	62,949	62,949	47,212	11,803
Induced	112,376	112,376	84,282	21,071
Total	649,557	649,557	487,168	121,792
Visitors' Days Non Motorized				
Direct	71,840	71,840	143,679	206,539
Indirect	10,495	10,495	20,990	30,174
Induced	18,952	18,952	37,905	54,488
Total	101,287	101,287	202,574	291,200
Grand Total	**750,844**	**750,844**	**689,742**	**412,992**

Tables 10 and 11 present the taxes generated from motorized and non-motorized recreation. Currently Alternative A and B, show that about $155,500 in taxes are generated from motorized recreation and $65,000 from non-motorized recreation, for a total of more than $220,000 in taxes from recreation. As with employment, the mix of taxes paid by motorized and non-motorized visitors changes by alternative, but remains relatively stable above $200,000 for all alternatives. In Alternative D the taxes derived from non-motorized sources are over $165,000, far greater than those from the motorized recreation sources driving tax revenues in the other alternatives. Overall, most taxes go to the federal government. However, because of the types of purchases made in this simulation, there is a greater tax gain to local and county entities relative to the state. This will vary quite a bit in the other simulations.

Table 10: Motorized recreation impact effects on taxes (Dollars)

	BLM Management Alternatives			
Federal	A	B	C	D
Employee taxes	24,447	24,447	18,335	4,584
Corporate taxes	5,143	5,143	3,857	964
Household/sales	71,174	71,174	53,380	13,345
Indirect Business taxes	9,856	9,856	7,392	1,848
Subtotal federal taxes	110,621	110,621	82,966	20,741
State				
Employee taxes	986	986	739	185
Corporate taxes	2,205	2,205	1,654	413
Household/sales	5,403	5,403	4,052	1,013
Indirect Business taxes	9,322	9,322	6,992	1,748
Subtotal state taxes	17,916	17,916	13,437	3,359
Local (City and County)				
Indirect Business taxes	25,726	25,726	19,294	4,824
Household/sales	608	608	456	114
Subtotal local taxes	26,334	26,334	19,750	4,938
Subtotal state/local	44,249	44,249	33,187	8,297
Fed, State and Local Total	**154,870**	**154,870**	**116,153**	**29,038**

Table 11: Non-motorized recreation impact effects on taxes (Dollars)

	BLM Management Alternatives			
Federal	A	B	C	D
Employee taxes	8,005	8,005	16,009	23,013
Corporate taxes	2,607	2,607	5,213	7,494
Household/Sales taxes	26,598	26,598	53,197	76,471
Indirect Business taxes	5,392	5,392	10,785	15,503
Federal subtotal	42,602	42,602	85,204	122,481
State				
Employee taxes	323	323	645	928
Corporate taxes	919	919	1,837	2,641
Household/Sales taxes	2,018	2,018	4,036	5,802
Indirect Business taxes	5,100	5,100	10,201	14,664
Sub-total state taxes	8,360	8,360	16,720	24,035
Local (City and County)				
Indirect Business taxes	14,075	14,075	28,150	40,465
Household/Sales taxes	227	227	454	653
Sub-total city & county	14,302	14,302	28,604	41,118
Sub-total State/Local	22,662	22,662	45,324	65,153
Fed, State and Local Total	65,264	65,264	130,528	187,634

The final tables, Table 12 and 13, show in detail how various sectors in the economy are affected by the economic activities related to recreation. They first show the direct effects, which, in this case, are the value added created by the expenditures of visitors as they engage in motorized and non-motorized recreation. These purchases lead to a series of indirect effects, which are given in the third columns of the tables. The sectors benefiting the most, indirectly, through purchases by the oil and gas drilling industry are government (somewhat mysteriously), the oil drilling industry itself, construction, power, coal, manufacturing, and finance, insurance and real estate (FIRE). These industries receive more than $2.0 million in value added as a result of the activity of the drilling industry. There are a large number of other sectors that benefit from purchases by drilling operations as well. An examination of the induced effects, which arise from purchases by laborers who have been hired as a result of the direct and indirect impacts, shows a quite different pattern of effects but one that is consistent with the contribution to the economy made by consumers purchasing goods and services with their received labor income. The largest industries affected are housing services, health and retailing, the very sectors that account for large purchases by workers. The other induced effects are across a wide variety of sectors in ways that are consistent with the range of purchases that families and consumers make.

Economic dimensions not reflected in the quantitative analysis

Many of the economically important attributes of BLM lands in the LSRA are not traded in markets, and some do not have measurable on-site expenditures associated with them. Due to absence of expenditures, or prices, they are not included in regional economic impact analysis. However, economists have long recognized that absence of market price does not mean absence of value to society. For a resource to have an economic value, it must meet only two conditions: provide some individuals with enjoyment or satisfaction, and be scarce. These criteria are met for a variety of attributes of the LSRA, such as clean water, wild horses, wilderness, non-game wildlife, etc. These are often referred to as public goods, contributing to regional human well being. Air pollution, water pollution, noise pollution, and visual pollution are public bads, detracting from the general welfare.

Due to the time and expense in conducting original studies to measure house price gains or losses associated with public goods and public “bads”, as well as the existence values of Wilderness and Wild/Scenic Rivers, we briefly summarize the existing literature on these values.

Table 12: Sector level direct, indirect and induced impacts on total value added for motorized recreation, BLM Alternative C, by expenditure categories (Dollars)

	Impact			
Categories	Direct	Indirect	Induced	Total
Services	1	8,614	2,941	11,556
FIRE	0	4,616	3,781	8,398
Power	1,540	3,944	2,123	7,607
Government	66,322	2,805	2,094	71,220
Wholesale Trade	0	2,375	2,946	5,322
Communication	0	1,527	1,281	2,808
Transport	7,646	1,439	671	9,756
Retailing	55,411	1,408	9,295	66,114
Other Services	0	1,031	3,500	4,531
Food Services	14,142	451	2,109	16,703
Oil and Gas Production	5,333	336	237	5,906
Hotels	0	320	720	1,040
Recreation	5,977	272	19	6,268
Food/Beverage Retailing	59,072	230	1,776	61,078
Health	0	41	11,274	11,315
Housing Services	0	0	10,566	10,566
Others	74	2,074	1,525	3,673
Total	215,519	31,486	56,857	303,862

Table 13: Sector level direct, indirect and induced impacts on total value added for non-motorized recreation, BLM Alternative C, by expenditure categories (Dollars)

	Impact			
Categories	Direct	Indirect	Induced	Total
Oil and Gas Production	52,510	1,075	234	53,820
Coal	-	1,008	623	1,631
Oil and Gas Drilling	551	1,242	7	1,801
Power	15,163	3,726	2,098	20,987
Water	0	52	55	107
Heavy Construction	-	493	114	606
Manufacturing	7	399	600	1,006
Wholesale Trade	-	2,769	2,912	5,681
Transport	-	2,280	663	2,943
Retailing	15,615	1,175	9,186	25,976
Food/Beverage Retailing	149,515	192	1,755	151,462
Communication	-	1,133	1,266	2,400
FIRE	-	3,462	3,737	7,199
Services	7	8,902	2,906	11,816
Health	-	3	11,142	11,145
Recreation	-	14	18	33
Other Services	-	835	3,459	4,294
Hotels	-	300	711	1,011
Food Services	1,409	356	2,084	3,849
Government	2,354	2,028	2,069	6,452
Housing Services	-	-	10,442	10,442
Others	-	32	108	140
Total	237,133	31,476	56,192	324,801

The economic values of these non-marketed resources can be reflected in implicit markets, such as house prices near positive amenities such as wilderness (Phillips, 1999). The benefits of proximity to wilderness or clean water and the opportunity to see wildlife or wild horses while driving to work or to a recreation site are non-consumptive use values that provide enjoyment to people. However, seeing wildlife or wild horses requires little or no expenditure, so the difference between value (positive) and price (approaching zero) could be substantial. This results in a very large consumer surplus or net economic value attributable to the landscape. Alternatively, coal bed methane wells, air pollution or water pollution can reduce use values whether through property prices (BBC Research & Consulting, 2001) or by diminishing the quality of a recreation experience.

Public goods also provide an off-site or passive use value to the millions of Coloradoans who may not frequently visit the LSRA but derive benefits from knowing Wilderness and Wild/Scenic Rivers exists and are protected in Colorado (Walsh, Loomis and Gillman, 1984; Sanders, Walsh and Loomis, 1990). Protecting a typical acre of Wilderness has a value of more than $150 an acre (Loomis, 2000: 10). In 2005 dollars, a household would pay upwards of $12 per year to protect additional acreage of Wilderness in Colorado (Walsh, Loomis and Gillman, 1984).

Summary of Findings

Recreation in the LSRA has perceptible ‘quality of life’ and financial contributions to the Moffat and Routt County economies. Non-market, unobservable values associated with quality of life are created by the public goods provided within the LSRA, and must be considered in addition to the quantified financial impacts of each management alternative. Conservation oriented management plans, such as Alternative D, are expected to sustain or increase the quantity and quality of public goods, therefore sustaining or increasing unobservable natural

resource benefits in the LSRA. Less restrictive alternatives which increase the allowance of motorized recreation, such as Alternative B, are expected to decrease the quantity and quality of public goods, therefore decreasing less readily observable natural resource benefits in the LSRA. Non-consumptive recreation activities such as hiking, wildlife viewing, and fishing are expected to sustain the quantity and quality of public goods, as well as the less observable natural resource benefits associated with them.

Financial contributions presented in this document originate from visitor's pockets, in which user typology and their associated spending profiles are dependent upon the chosen BLM LSFO management plan. Use estimates suggest that over 36,000 visitor days are spent each year in the area, varying across types of use and spending per visit. Motorized recreators are estimated to spend about $27 per visitor day, and make up 80% of visitors to the area under the current management plan (Alternative A). Non-motorized visitors spend around $19 per visit, and make up the remaining 20% of visitors. The analysis shows that percent and number of user type varies under each management alternative, therefore affecting the outcome of total sales, value added and taxes received from recreation per management option.

Table 7 provides estimates of total sales under each alternative that motorized and non-motorized users spend on their visits. Close consideration of Table 7 can provide a sense of the underlying objectives of each resource management alternative. For example, an alternative with increased restrictions (Alternatives C and D) for motorized use naturally decreases the numbers of motorized users, consequently lowering visits and income from these parties, while simultaneously, increasing the number of non-motorized users - preserving non-market values and increasing the number of non-consumptive user spending and visits.

Under Alternatives A and B, an overall increase in use (see Table 4) during the second decade of implementation is projected from the analysis, the majority of which is found in motorized recreation. These alternatives, namely the status-quo and pro-business alternatives, respectively, show that around 85% of total sales from recreation in the LSRA come from motorized recreation, signifying the resource consumptive, less restrictive objectives of these alternatives. Accordingly, the more consumptive alternatives also have the highest total sales per year and employment created, at about $1.374 million per year and 14 jobs, respectively. These alternatives also have the highest total value added (Table 9), 86% of which comes from motorized recreation visits. Moreover, tax dollars received amongst the alternatives is highest in the motorized category and lowest in the non-motorized category for Alternatives A and B.

Alternative C puts emphasis on comprehensive multiple resource management, balancing the protection of sensitive resources while applying the most up to date information for resource production. SRMAs and backcountry areas are expected to increase under this alternative, while some closures to OHV areas are expected. These policy objectives are indicative in the analysis output under comparison with competing management alternatives. Non-motorized use estimates after two decades (Table 4) more than double under this alternative, while motorized use is expected to decrease by over 20%, boosting total use estimates higher than all other alternatives. Total sales and employment estimates for Alternative C are competitive with A and B, bringing in over $1.28 million and 13 jobs, respectively. Total value added and tax income estimates for Alternative C, as well as in all table categories, are found between production oriented (Alternative B) and resource conservation oriented (Alternative D) management options. Statistics from the analysis of resource allocation and use show this alternative to strongly compete with the higher use options, gaining competitiveness via increased non-motorized, lower impact use.

Alternative D is the resource management plan dedicated to resource protection and conservation, focused on the preservation of non-market resource values mentioned above. For this reason, non-motorized use is expected to increase by nearly threefold after two decades, while motorized user counts are expected to become six times smaller Table 4). When statistics are separated by user type, Alternative D consistently holds the highest incomes for non-motorized users under all statistics reported in this analysis, while concurrently holding the consistently lowest incomes from motorized use (Tables 7-11).

Financial impacts vary from recreation restrictions and allowances incorporated into each of the four LSFO resource management alternatives. As mentioned above and shown in Table 4, the total amount of recreation is expected to increase by 10-12% under alternatives A, B, and C, while an overall decrease in total visits is expected under alternative D from increased restrictions in motorized areas. Aggregate direct, indirect, and induced estimated financial contributions range from roughly $800,000 under alternative D, to nearly $1.4 million under alternative A and B. In this case, the increased unobservable values created by the conservation oriented alternative D must be taken into consideration. Ultimately, use values for future generations are most preserved under alternatives with more resource protection. Decisions on which alternative to pursue must be based on the decided upon path and vision of the BLM and associated stakeholders.