
CITY OF DURANGO, COLORADO

Economic Impacts of Whitewater Recreation

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Final Report

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I. APPROACH

The whitewater recreation industry exists virtually everywhere accessible navigable whitewater exists, and data suggests that it tends to flourish where developed parks are easily accessible and/or commercial guiding services are available. The Lower Animas River is a whitewater resource that not only possesses all of the elements necessary to capture a significant component of the market share for this industry but also possesses tremendous potential to maintain or capture more of that market share now and into the future.

The following steps are used to estimate the total current and future economic impacts of whitewater recreation on the Lower Animas River in around the City of Durango:

1. Evaluate national, state, and local trends with regard to whitewater recreation.
2. Determine total commercial user days, visitor expenditures, and multiplier effects of those expenditures.
3. Calculate total non-commercial user days, visitor expenditures and multiplier effects.
4. Investigate total formalized event use of the River including competitions, classes, and private party equipment rentals, expenditures and multiplier effects.
5. Sum total economic impacts of whitewater recreation to the Durango area economy.
6. Estimate potential future benefits of whitewater recreation given existing trends, future water flows and park improvements.

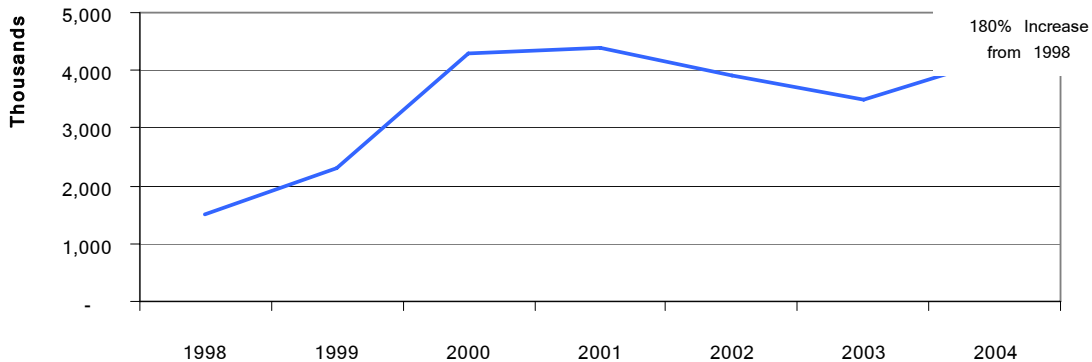
II. WHITEWATER USE TRENDS

This section undertakes an overview of National, State, and Local whitewater recreation use trends. At the national level, the Outdoor Industry Association is one of the leading trackers of outdoor sports participation and statistics. The *2005 Outdoor Recreation and Participation Study* provides an excellent general overview of whitewater participation trends.¹ At the State level the *Colorado Statewide Comprehensive Outdoor Recreation Plan (SCORP)* provides detailed information on recreation users and trends. Local trends are established through known commercial activity figures and detailed analysis and estimates of non-commercial (private party) users.

NATIONAL TRENDS

The Outdoor Industry Association is one of the leading national trackers of outdoor sports participation and statistics.

Figure 1. National Boating (Rafters & Kayaker) Participation Trends 1998-2004¹



It is clear from national participation standards that rafting and kayaking participation experienced tremendous growth between 1998 and 2002 with participation numbers near tripling.

NATIONAL BOATER DEMOGRAPHICS

Whitewater recreationists are predominately male with a slight majority between the ages of 16 and 34. 36% and 46% of kayakers and rafters respectively, are over the age of 35. The majority of kayakers and near majority of rafters are married with 35% of kayakers and 51% rafters having children.

¹ 2005 Outdoor Sports Participation Survey - Outdoor Industry Association - Note that the graph represents the Outdoor Industry Association's "enthusiast" category of boaters.

Figure 2. National Whitewater Recreationist Demographics

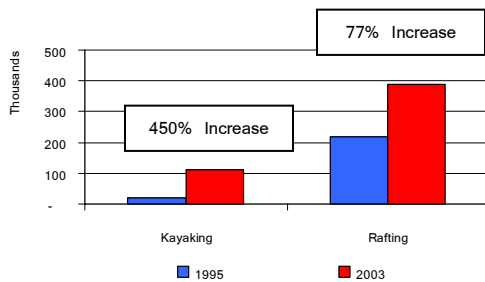
Demographics	Kayaking	Rafting
Male	71%	64%
Female	29%	36%
16-24	48%	43%
25-34	16%	11%
35-44	19%	22%
45+	17%	24%
Married	54%	44%
Unmarried	46%	56%
Have Children	35%	51%
Household Income		
<\$40,000	23%	26%
\$40,000-\$79,000	39%	36%
>\$80,000	38%	38%
% of Total Participants in West	27%	34%

Perhaps most importantly, well over 70% of kayakers and rafters have household incomes over \$40,000 and more than a third (38%) earn household incomes in excess of \$80,000 - making them capable and important consumers in virtually every marketplace.

COLORADO TRENDS

Periodically the State of Colorado undertakes a significant research and planning effort known as the Statewide Comprehensive Outdoor Recreation Plan, or SCORP. This planning document combines extensive survey and trend research to determine Colorado resident and visitor recreation preferences. Rafting and Kayaking trends are specifically enumerated in the most recent (2003) version of the surveying/planning SCORP.

Figure 3. Kayaking & Rafting State of Colorado Participant Increase 1995-2003²



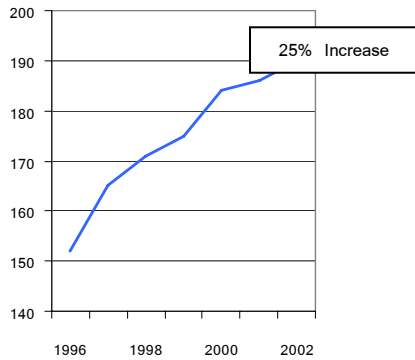
Kayaking has experienced a 450% balloon in participation in Colorado while rafting has increased a more modest but still significant 77% between 1995 and 2003.

Further evidence of expanding interest in whitewater recreation can be seen in the fairly dramatic increase of Commercial River Permits. Colorado commercial rafting permits grew by 48

² Source: SCORP - NSRE 2000-2003. Versions 1-14, N= 1,011, Interview dates: 7/99 to 3/03.

permits (from 152 to 190) in the six year period between 1995 and 2003. Given the high numbers of commercial operators (over 7 per every major River, on average) and existing water resources, it is not surprising that 61% of residents in the Southwest Planning region reported engaging in water based activities every year, or that securing water/water rights for recreation opportunities ranked as the 7th highest priority for local governments - ahead of open space, sports fields, skateboard parks, and general parkland.³

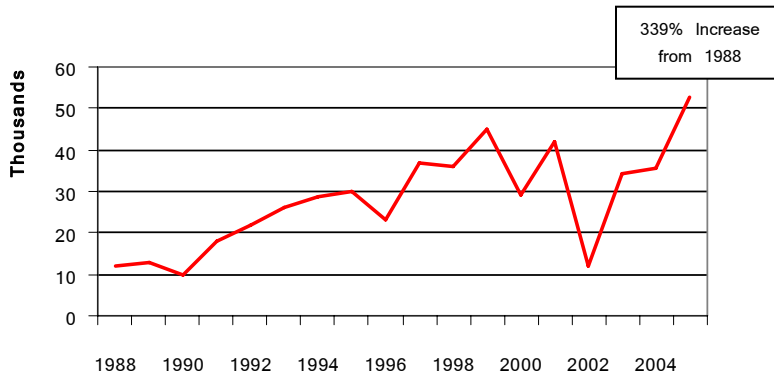
Figure 4. Commercial River Outfitter Licenses 1995-2003⁴



LOCAL TRENDS

Perhaps, most importantly, are the use trends and demographics at the local level - that is, within La Plata County generally and on the Lower Animas River specifically.

Figure 5. Commercial User Days Animas River (lower) 1999-2005⁵



Although a sharp decline was experienced in the record setting drought of 2002, commercial River trips are making a rapid and intense comeback. It is particularly revealing to note that commercial operations on the Lower Animas have increased 339% to over 52,000 user days

³ Source: Colorado State Parks Market Assessment Study, 2002.

⁴ Source: Colorado State Parks 2002

⁵ source: Commercial River Use In Colorado - Colorado River Outfitters Association

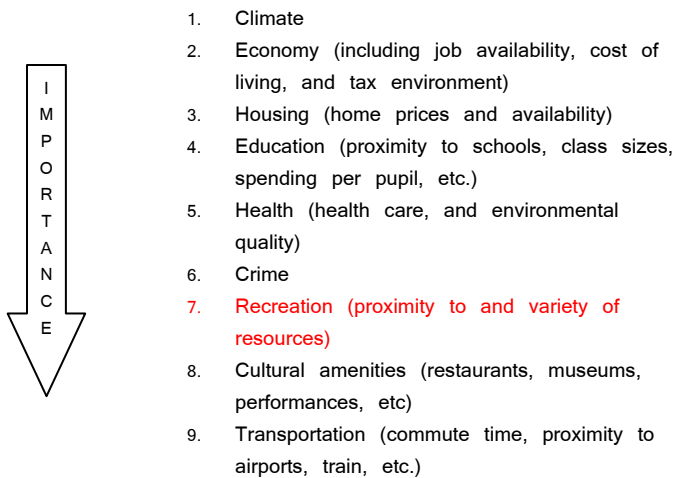
since 1988. The Lower Animas River is the second most highly used River by commercial operators in the State of Colorado.

In conclusion, evidence at the National, State, and local levels strongly suggest that whitewater recreation is an extremely strong and expanding industry.

MIGRATION CONSIDERATIONS

Finally, it is worth noting that migration is an important fundamental component of any economy as base economics requires that new money, industry, and population be brought into any local environment to fuel additional growth. Although Colorado specific data on migration preferences is unavailable for this report, national trends indicate that recreational amenities are of key importance - ranking above transportation concerns and other retail/public cultural amenities. Continued steady migration into Colorado generally, and resort area communities specifically, further suggests the importance of this component. Maintaining and developing key amenities such as whitewater parks are a critical component of sustaining a locally growing economy.

Figure 6. Top Considerations for Migration



SECTION CONCLUSIONS

- Nationally, whitewater recreation participation is again on a steep increase after more than doubling between 1996 and 2002.
- In Colorado, kayaking experienced a phenomenal 450% increase in participation over an eight year period and rafting experienced a similar, although more modest, 77% increase over the same time period.
- Commercial user days on the Lower Animas River have increased by 339% since 1988 - a five fold increase in 17 years.
- Recreational amenities are a “top ten” consideration for new migrants into local communities.

III. COMMERCIAL USE

As the *Commercial River Use in Colorado 2005* compiled and distributed by the Colorado River Outfitters Association describes, whitewater industry experienced “explosive growth between 1988 and 1998 with annual increases of up to 23% per year.” Although there was some decline in commercial rafting during the record setting drought of 2002, rafting statewide has increased by 14.1% from 2004-2005 and was up nearly 49% on the Lower Animas between 2004 and 2005.

Three components of the commercial rafting industry are of interest when quantifying economic impacts -commercial client user days and expenditures, commercial equipment rentals/classes, and total employment generated by the industry.

COMMERCIAL USER DAYS AND EXPENDITURES

The *2005 Commercial River Use in Colorado Summary* report closely tracks existing and historical commercial user days on every major River in Colorado. Moreover, the report estimates direct expenditures of those customers utilizing data common to recreation studies developed by federal and state land agencies. In addition, the report employs previous research conducted regarding direct expenditures by rafting clients and also establishes an appropriate economic multiplier for those direct expenditures. Multipliers are simply a means of quantifying the overall value of dollar expenditures as the flow into and through an economy - in the case of whitewater rafting and Colorado tourism in general, each dollar spent is expected to have an economic multiplying effect of 2.56 times yielding a total economic impact per user day. **Figure 8** demonstrates the total user days, direct expenditures, and the total gross economic impact per user days of those expenditures - which is well over \$14 million per year.

Figure 7. Commercial Whitewater Economic Impacts

	Commercial User Days	Direct Expenditures	Total Economic Impact
Lower Animas River	52,700	\$ 5,503,854	\$ 14,089,867

COMMERCIAL EQUIPMENT RENTALS AND CLASSES

Not accounted for among typical commercial user days are raft and kayak rentals or organized skill classes. Interviews with two key providers of these services in Durango allowed relatively accurate estimates of total user days and direct expenditures by these groups. **Figure 9** outlines the total user days and expenditures as well as the total economic impact per user day of these individuals. Because both rentals and classes cost more than a typical guided trip the direct expenditures per user day used in these calculations was conservatively estimated to be the same as a commercial user day. The economic impact multiplier is also the same as for commercial users.

Figure 8. Commercial Whitewater Rentals & Class Economic Impacts

	Total Estimated User Days	Direct Expenditures	Total Economic Impact
Raft/Kayak Rental	571	\$ 22,840	\$ 58,470
Skills Classes	1,789	\$ 186,839	\$ 478,307
TOTAL	2,360	\$ 209,679	\$ 536,777

Consequently total user days from these user groups was estimated at over 2300 per year with an attendant total economic impact of over \$530,000.

EMPLOYMENT

Commercial River rafting operations are currently largely seasonal - with the majority of business occurring between May and September. June, July, and August are the busiest months although training camps, equipment rentals, and skill classes occur into the shoulder seasons.

Due to the typically seasonal nature of employment this report calculates employees in terms of Part Time Employee Equivalents (PTE); functionally, this translates to one worker employed for one-half a year equivalent hours (1040 hours) at one half of the 2005 La Plata County earnings per job ($\sim \$30,000/2 = \$15,000$). Estimated total commercial whitewater associated sales were provided by the City of Durango Finance Department - an estimated total payroll was derived from the sales and cross-checked by personal interviews with rafting company owners. Total PTE was calculated from the payroll - please note that the PTE converts many quarter-time (and under) employees to a flat, part time equivalent for simplicity.

In addition to the direct employment generated by commercial whitewater, significant multiplied employment accrues from the total sales created by the industry - the typical means to calculate total employment fomented by an industry is through the Regional Input Output Modeling System - commonly known as RIMS and developed by the Bureau of Economic Analysis. In this report the RIMS employment multiplier is used to estimate the total employment associated with the whitewater rafting industry per million of direct local expenditures. In this case, the RIMS industry number 760206 for "Other Amusement and Recreation Services," was utilized to yield an employment multiplier of roughly 33 additional employees created for every million in total sales. Total direct and multiplied employment from the Durango Commercial Whitewater Recreation Industry is approximately 375 PTE. Although total sales and payrolls were suppressed from public release for proprietary reasons, totals have been tabulated and reveal total estimated direct employment factored by the RIMS multiplier to yield total associated industry employment.

Figure 9. Commercial Whitewater Employment Generation

Animas River Commercial Permitees	Estimated Total Sales \$	Estimated Total Payroll \$	Employment Multiplier (PTE) per million sales	Total Employment Associated with Industry (PTE)
Kanakuk Kamps	Suppressed	Suppressed	32.804	Suppressed
4 Corners River Sports	Suppressed	Suppressed	32.804	Suppressed
Outlaw Tours	Suppressed	Suppressed	32.804	Suppressed
Southwest Whitewater	Suppressed	Suppressed	32.804	Suppressed
Adaptive Sports	Suppressed	Suppressed	32.804	Suppressed
Peregrine River Outfitters	Suppressed	Suppressed	32.804	Suppressed
Mountain Waters	Suppressed	Suppressed	32.804	Suppressed
Mild to Wild	Suppressed	Suppressed	32.804	Suppressed
Durango RiverTrippers	Suppressed	Suppressed	32.804	Suppressed
Flexible Flyers	Suppressed	Suppressed	32.804	Suppressed
Equipment Rentals	Suppressed	Suppressed	32.804	Suppressed
Skill Classes	Suppressed	Suppressed	32.804	Suppressed
TOTALS	Suppressed	Suppressed		375

SECTION CONCLUSIONS

- Commercial boating operations on the Animas River have over 375 PTE individuals associated with the industry.
- Commercially guided whitewater rafting contributes well over \$14 million to the local economy.
- Commercial classes and equipment rentals represent an additional 2,360 user days with an attendant economic impact of over \$530,000.

IV. NON-COMMERCIAL USE

In addition to the considerable user days enumerated in the commercial use section, there are a number of non-commercial kayaker and rafting parties recreating on the Lower Animas. These private party users hail from the City of Durango, La Plata County, the region, State, and outside of the State. An important component of tabulating total economic impacts of the Lower Animas River asset and whitewater recreation requires estimating these users, their expenditures, and the attendant total economic impacts. In an effort to estimate total user days by user group, a wide variety of existing information regarding user trends and Colorado tourism were employed.

NON-COMMERCIAL KAYAKERS

The first step in estimating total Lower Animas non-commercial kayakers is to make reasonable estimates as to the total number of kayakers in the State. Fortunately, excellent current data and survey information exists quantifying total whitewater participation rates and user days.⁶ **Figure 10** demonstrates the total kayakers in the State of Colorado and is based on a geographic reach analysis estimating the total number of kayakers within driving distances of Durango. For example, there are approximately 153,950 potential kayakers living more than 200 miles from Durango, the number is high because this includes all of the metro areas on Colorado's Front Range.

Figure 10. Estimated Total Non-Commercial Kayakers - In State

Total Non-Commercial Kayak User Days Service Area Annual	2005
Up to 50 Miles	2,690
51 to 100 Miles	3,990
101 to 200 Miles	12,250
More than 200 Miles	153,950
Total	172,880

The second step is estimating total Lower Animas kayak user days. In this step, the numbers are refined to estimate actual Lower Animas visits/user days. These numbers were again developed using a GIS analysis and existing data regarding outdoor recreationists willingness to drive for recreation. For example, a certain percentages of kayakers are willing to drive up to 50 miles for recreation and their total estimated Lower Animas user days are reflected in the "up to 50 miles" line of **Figure 11**. **Appendix A** provides a comprehensive methodological explanation of the derivation of these estimates.

⁶ Sources include: Colorado's *State Wide Comprehensive Recreation Plan* (SCORP), Longwood's International Colorado Visitor Study (updated annually), American Sports Data *Participation Study*, and the Outdoor Industry Foundation *Outdoor Recreation Participation Study* (updated annually).

Figure 11. Estimated Total Non-Commercial Kayakers - Lower Animas User Days

Lower Animas Non-Commercial Kayak User Days Annual	2005
Up to 50 Miles	3,890
51 to 100 Miles	620
101 to 200 Miles	4,160
More than 200 Miles	6,800
Total	15,470

The total number of annual, non-commercial, kayak user days on the Lower Animas River is estimated at 15,470. Estimating their economic impacts to the community at large requires two steps as well. The first step entails determining the actual direct expenditures by kayakers as well as considering the multiplier effects of those expenditures.

Direct expenditures by kayakers typically include investments in gear and travel costs. In order to maintain consistently conservative estimates of non-commercial expenditures, the lowest documented number of individual non-commercial kayak user day expenditures is used. To these ends this report borrows expenditure estimates derived by Stratus Consulting's *Preliminary Evaluation of the Beneficial Value of Waters Diverted in the Clear Creek Whitewater Park in the City of Golden Year 2000*. The total per diem out of pocket expenditure of (adjusted for inflation) \$36.20 per user day is used in this report. Note that this estimate is approximately one-third of the per diem expenditures utilized in the commercial section. Although an imperfect application of the data, this number serves as a reasonable estimate for daily expenditures - and, is in fact, likely a conservative estimate as a majority of user days originate from out of the region and undoubtedly result in higher per diem expenditures than \$36.20 per day. The multiplier from the Commercial River Use in Colorado document is applied to yield total economic impacts.⁷

Figure 12. Estimated Total Non-Commercial Kayakers - Economic Impacts

	Estimated Total Annual User Days	Direct Daily Expenditures	Estimated Direct Expenditures	Total Economic Impact
In-State & Local Visiting Kayaking	15,470	\$ 36.20	\$ 1,433,636	\$ 2,713,833
Out of State Visiting Kayaking	1,319	\$ 36.20	\$ 122,232	\$ 231,382
TOTAL			\$ 1,555,868	\$ 2,945,214

NON-COMMERCIAL RAFTERS

Non-commercial rafting estimates were estimated and used in precisely the same way as the non-commercial kayaking estimates. First, total Colorado non-commercial rafters were estimated throughout the state based on distance from Durango. See **Figure 13**.

⁷ Note that total economic impacts were modified so that local boater expenditures were not included in the multiplied total economic impacts.

Second, the total rafter numbers are then further refined to Lower Animas non-commercial rafting user days/visits. Again, the local use numbers are based on recreationists willingness to drive for recreation - see **Appendix A** for a thorough explanation of these number derivations.

Figure 13. Estimated Total Non-Commercial Rafters - In State

Total Non-Commercial Rafters in Service Area	2005
Up to 50 Miles	900
51 to 100 Miles	1,330
101 to 200 Miles	4,080
More than 200 Miles	51,320
TOTAL	57,630

Figure 14 reveals the total number of user days generated by non-commercial rafters within certain distances from Durango. For example, 210 Lower Animas user days are generated by rafters living between 51 and 100 miles of Durango.

Figure 14. Estimated Total Non-Commercial Rafters - Lower Animas User Days

Durango Non-Commercial Rafter User Days	2005
Up to 50 Miles	1,300
51 to 100 Miles	210
101 to 200 Miles	1,390
More than 200 Miles	2,270
TOTAL	5,170

Finally, non-commercial rafting direct expenditures were computed using the same methodology as for non-commercial kayakers.

Figure 15. Estimated Total Non-Commercial Rafters - Economic Impacts

	Estimated Total Annual User Days	Direct Expenditures	Estimated Direct Expenditures	Total Economic Impact
In-State & Local Visiting Rafting	5,170	\$ 36.20	\$ 479,114	\$ 793,480
Out of State Visiting Rafting	350	\$ 36.20	\$ 32,435	\$ 53,717
TOTAL			\$ 511,549	\$ 847,198

SECTION CONCLUSIONS

- Total Lower-Animas non-commercial kayaking days estimated at 15,470 in-State with over 1,300 out-of-state user days.
- Total non-commercial kayaking estimated economic impact of nearly \$3 million.
- Total Lower-Animas non-commercial rafting days estimated at 5,170.
- Total non-commercial rafting estimated economic impact of over \$800,000.

V. LOWER ANIMAS EVENT USE

Organized whitewater events including training camps, competitions, and River festivals are significant activities that occur on the Lower Animas River providing numerous benefits to the community, sponsors, participants, local vendors, spectators, and the local economy in general. Although not all of these can be precisely quantified without extensive primary research, some reasonable and conservative estimates can be made about the event participants and expenditures as they are occurring now - further estimates may be forecast if additional flows are diverted into the park and more improvements are made (see Section VII for potential future benefits). Events that have been held at the park in the past, can be seen in **Figure 16**.

Figure 16. Animas River Events 1983-2005

Year	Events	Registered Participants	Spectator Estimates	
			Low	High
1983-2006	Animas River Days	175	500	1000
1990-1996	Champion International Slalom Series	120	750	4000
1989	Regional Team Trials Qualifier	50	750	4000
1989	International Wild Water races	38	750	4000
1990-2006	Training Camps	45-250 (annually)		
1992	Regional Olympic Qualifier	50	750	4000
1993	Open Canoe National Championships	92	750	4000
1995	US Rodeo Team Selection	120	750	4000
2002	Jr. Sr. Masters National Championships	98	750	4000
2001-2003	National & Jr. Team Selection Race	52	750	4000
2004	Senior National Team Trials	71	750	4000
2005	USA Whitewater Team Trials	100	750	4000

Animas River Days is perhaps the most enduring local event that focuses and involves both Durango locals and participants from throughout the state and nation - it includes a parade, community BBQ, recreational racing, Jr. Olympic qualifying events, a whitewater rodeo, and often other forms of competitive trial racing. This event takes place on an annual basis and garners routine support and participation numbers.

Figure 17 demonstrates the total expenditures generated by organized River events both through the participants themselves and spectators who come specifically to observe these national and international caliber competitions. Both participant and spectator daily expenditures are estimated to be the same as commercial rafting clients.

Figure 17. Estimated Economic Benefits of Animas River Events - Existing⁸

	User Day Range ⁹		Direct Expenditure Range ¹⁰		Total Economic Impact Range ¹¹	
	Low	High	Low	High	Low	High
Participants	426	885	\$ 88,608	\$ 276,120	\$ 226,836	\$ 706,867
Estimated Total Spectators ¹²	1250	4000				
Visiting Spectators ¹³	250	1200	\$ 40,250	\$ 289,800	\$ 103,040	\$ 741,888
Training Camps	45	250	\$ 9,360	\$ 60,375	\$ 23,962	\$ 154,560
Total					\$ 353,838	\$ 1,603,315

In addition to organized competitions and River festivals, the lower Animas hosts a number of training camps for elite whitewater athletes. Again, average annual participants in these camps have been conservatively estimated and their direct expenditures are modeled on per diem expenditures as concluded in the *2005 Commercial River Use in Colorado*.

SECTION CONCLUSIONS

- The Animas River hosts at least two major events per year focused solely on whitewater recreation. These events have a proven history of drawing significant numbers of participants and spectators.
- The total beneficial value of participants at organized events likely ranges between \$226,836 and \$700,000+.
- The total beneficial value of spectators at organized events likely ranges between \$103,040 and \$700,000+.
- Training camps for elite whitewater athletes likely results in a total economic benefit of \$23,962 to \$150,000+.
- Total economic benefit of organized events and training camps likely ranges from \$353,838 to over \$1.6 million.

⁸ All estimates annual totals

⁹ The high and low estimates assume the presence of Animas River Days with 120 participants and one additional event. With the low estimate adding the lowest participation rate of any (non animas River days event) in the 22 year event history. The high participant range adds the highest participation rate (120) to animas River days. The low estimate assumes 2 day event (doubling user days) the high estimate assumes 3 day event (trebling user days).

¹⁰ Direct expenditures are based on Colorado River Association daily expenditures (@ \$104 per diem) as fees apply to the events and the majority of competition participants are visitors. Visiting expenditures are not treated as commercial customers, rather direct expenditures are based on Longwood's International 2000 Visitor Study with per diem expenditures @ \$80.50.

¹¹ Total economic impact is based on direct expenditures and the 2005 Colorado River Association 2.56 economic multiplier.

¹² Spectator estimates based on periodic police estimates supplied (but undocumented) by John Brennan at significant events. Spectators, generally, are not included in the economic impact analysis - only the estimated number of visiting spectators - see following footnote

¹³ Visiting spectators were conservatively estimated at 20% of total spectators for low range and 30% of total spectators at high range.

VI. TOTAL BENEFITS

The total existing economic impacts and benefits of whitewater recreation are summed in this section. They include the total impacts of commercial and non-commercial boating as well as event, festival, and training camp uses.

Figure 18. Summed Economic Impacts and Benefits of Whitewater Recreation

Category of Impact	
Commercially Guided Rafting	\$ 14,089,867
Commercial Equipment Rentals & Classes	\$ 536,777
Non-Commercial Kayaking & Rafting	\$ 3,792,412
Event Use & Training Camps ¹⁴	\$ 978,577
Total Economic Impacts of Whitewater Recreation	\$ 19,397,633
<hr/>	
Total Part Time Employment (PTE) Associated with Whitewater Recreation ¹⁵	536

Finally, the total Part time employment (PTE) associated with whitewater recreation - as factored by the RIMS multiplier and total millions of estimated direct expenditures are presented in **Figure 18**.

SECTION CONCLUSIONS

- Total economic impact of whitewater recreation on the Lower Animas River estimated at \$19,397,633 annually.
- Total employment associated with whitewater recreation on the Lower Animas River estimated at 536 PTE (or, approximately 268 FTE).

¹⁴ Represents median value in the "low-high" range estimates.

¹⁵ This number reflects the total estimated employment generated by industry induced direct expenditures factored by the RIIMS multiplier

VII. FUTURE USE AND ECONOMIC BENEFIT PROJECTIONS¹⁶

The future economic benefits of whitewater recreation on the Lower Animas are inextricably linked to maintaining the existing value and further improvement of the asset. Acceptance of the RICD application and attendant whitewater park improvements will functionally lengthen the season of the park to 365 days a year - a significant increase over the current typical summer season. The season increases are largely gained ensuring minimum flows and whitewater park improvements that channel flows in such a way as to create interesting features even during low flow months. Moreover, improvements to the park will inevitably add to the prestige and reputation of the park as an attraction increasing commercial/non-commercial user days and the likelihood that additional regional, state, and national events will be held at the site.

Recreation Engineering and Planning has prepared a report entitled *Report on the Design, Functionality, and Physical Characteristics of the Durango Boating Park as it Relates to the RICD Application*. This report outlines a number of improvements and recommended minimum flow regimes for the various user groups discussed in this economic analysis. Relevant quotes concerning the RICD application and improvements from the Recreation Engineering and Planning Report follow:

- “There are many advantages to developing this site [Smelter] including historical use, significant physical characteristics, and the significant amount of investment that has already been made into the site. Improvements could be made at this site that augment the current improvements, prevent further erosion, and create a signature play feature that would establish the park’s reputation as a freestyle destination. These improvements could also be designed to enhance the shoulder season/winter season paddling experience to provide for local development and training.”
- “The subsurface conditions at the site indicate that the River bottom has the ideal conditions for boating park development.”
- “Enhancements at Smelter are intended to provide a destination park and play facility while preserving and enhancing the existing slalom facility. Enhancements will also be tailored to improve the site characteristics for rafting, instruction, and navigation.”
- “The intention of this flow regime is to provide for the City’s intended purposes at the specific structures. The regimes were structured such that from January until mid-March sufficient flow is available for winter freestyle, slalom and recreational paddling. At these flows there will be sufficient depth in the main channel and definition in the features and eddies to allow for fitness training, skill development, and low end recreational boating.”
- “...these flows, in comparison to alternative local and regional alternatives, maintain Durango’s reputation as an attraction. This is to say, in comparison to alternative destinations, the Animas at the boating park will be a superior

¹⁶ All projected dollar valuations in this section are in 2005 dollars.

attraction. These flows will be a marked increase from the off-season flow in terms of flow rate, power, and definition, but will be largely limited to a single channel and single current profile.”

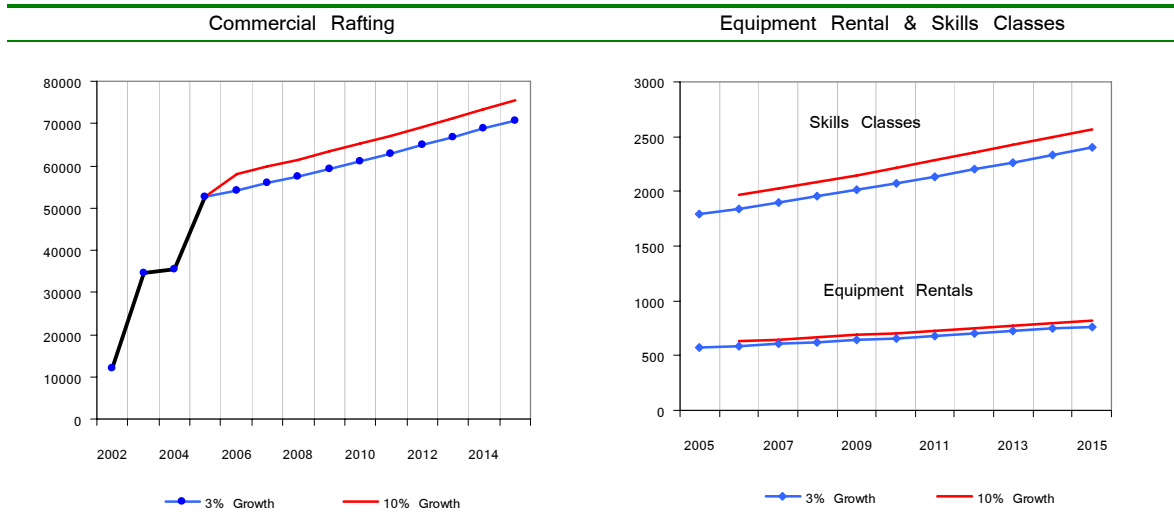
- “These flows will provide for powerful and dynamic boating at the boating park for boaters of many abilities. These flows are also an ideal attraction for instructional and regional to national level events.”
- “This flow will provide an attraction for major international freestyle and slalom events that will have a dramatic impact on tourism to Durango as well as Durango’s reputation as a whitewater destination.”
- “These features will not only be an attraction for large events, but will also attract a gamut of boaters of varying ability who will travel to the Durango Boating Park to seek out these ideal hydraulics for recreational paddling. Additionally, it is at these flows that rafters and rafting companies will experience peak excitement and peak attractive and marketing potential due to the exciting features that are visually exciting and dynamic.”
- “The length of the boating park is longer than 1000 feet and the boating park has already demonstrated that it has the necessary physical characteristics to host an international level competition.”
- “The claimed flows represent the minimum amounts necessary for the applicant’s intended purposes...”

Given existing uses and considerable future potential of whitewater recreation on the Animas River, conservative estimates were made regarding future use in the year 2015 in all of the categories of impact considered within this economic analysis.

COMMERCIAL PROJECTIONS

2015 Commercial use is based on simple low and high linear projections of the lowest and median non-negative growth years between 1988 and 2005. The low growth projections are based on an annual 3% rate of growth and the high projections are based on 10% annual growth rate. Equipment rentals and skills class projections are based on the same 3% and 10% annual growth rates as well.

Figure 19. Projected Commercial User Days Lower Animas River to 2015¹⁷



2015 economic impacts of commercial operations are based on the projected user days and rest on the same user day expenditures and multipliers as used in the previous commercial use section detailing total user days and impacts. All expenditures are presented in a range of low to high with low representing the 3% growth projection and high representing 10% growth.

Figure 20. 2015 Estimated Economic Impacts of Commercial Whitewater Recreation

	2015 User Days Low	2016 User Days High	Direct Expenditures Low	Direct Expenditures High	Total Economic Impact Low	Total Economic Impact High
Commercial Rafting	70,824	75,638	\$ 7,396,720	\$ 7,899,409	\$ 18,935,603	\$ 20,222,489
Raft/Kayak Rental	767	820	\$ 80,143	\$ 85,589	\$ 205,166	\$ 219,109
Skills Classes	2,404	2,568	\$ 251,095	\$ 268,160	\$ 642,804	\$ 686,490
TOTAL					\$ 19,783,573	\$ 21,128,088

The 2015 estimated economic impact of commercial whitewater recreation is estimated between \$19 and \$21 million. All estimates are in 2005 dollars.

NON-COMMERCIAL PROJECTIONS

Non commercial projections are based on the same methodology as in the non-commercial user day estimates. See **Appendix A** for a thorough description of these estimates.

¹⁷ Low (3%) projections are based on the lowest non-negative growth year between 1988 and 2005. High (10%) growth projections are based on the median rate of growth or decline of all years 1988-2005.

Figure 21. 2015 Estimated Economic Impacts of Non-Commercial Whitewater Recreation

	Estimated 2015 Total Annual User Days Low	Estimated 2015 Total Annual User Days High	Direct Expenditures	Estimated 2015 Total Economic Impact Low	Estimated 2015 Total Economic Impact High
In-State Local & Visiting Kayaking	19,410	25,100	\$ 36.20	\$ 1,798,764	\$ 2,326,067
Out of State Visiting Kayaking	1,320	1,520	\$ 36.20	\$ 122,327	\$ 140,861
Kayaking TOTAL				\$ 1,921,091	\$ 2,466,929
In-State Local & Visiting Rafting	6,470	12,340	\$ 36.20	\$ 599,588	\$ 1,143,572
Out of State Visiting Rafting	350	400	\$ 36.20	\$ 32,435	\$ 37,069
Rafting TOTAL				\$ 632,023	\$ 1,180,641
Grand TOTALS				\$ 2,553,114	\$ 3,647,570

EVENT PROJECTIONS

Acceptance of the RICD application and subsequent whitewater park improvements will likely result in significant increases in the number and quality of events. Not only will the RICD and improvements effectively increase the number and quality of potential commercial and non-commercial user days but event organizers anticipate a dramatic increase in event scheduling. One event coordinator suggested that one organized event per month is an expected outcome. **Figure 22** outlines a number of national level events that could be held in an improved Lower Animas Whitewater Park.

Figure 22 Possible Future National/International Events

Team Trials Qualifier	Slalom World Cup #3
Team Trials Qualifier & Junior Olympic Qualifier	Junior Slalom World Championships
USA Slalom Team Trials	Age Group Nationals
Junior Team Trials	Junior Olympics
Slalom World Cup	Whitewater Slalom World Championships
Slalom World Cup Nationals, Charlotte	ACA Open Canoe Nationals

In the interest of maintaining conservative estimates, this report assumes that the number of total events will simply double from the existing condition of two per year to four per year; the future participation and economic benefits accruing from this increase are estimated in **Figure 23**. Note that the total estimated economic impacts of two additional events represents a doubling of the total event economic impacts outlined in Section V of this analysis.

Figure 23 Total Economic Benefits of Events 2015

	Estimated 2015 Total Event Economic Impact Low	Estimated 2015 Total Event Economic Impact High
Lower Animas River - 4 Major Events Annually	\$ 707,662	\$ 3,206,630

2015 TOTAL ESTIMATED ECONOMIC IMPACTS OF WHITEWATER RECREATION

The total 2015 low/high range economic benefits of whitewater recreation are displayed in **Figure 24**. Steady increases in commercial client growth, events, and attraction of non-commercial rafters and kayakers from across the state and nation should yield significant economic benefits.

Figure 24. 2015 Estimated Total Economic Impacts of Whitewater Recreation

Category of Impact	2015 Estimates	
	Low	High
Commercially Guided Rafting	\$ 18,935,603	\$ 20,222,489
Commercial Equipment Rentals & Classes	\$ 847,970	\$ 905,599
Non Commercial Boating	\$ 2,553,114	\$ 3,647,570
Event Use & Training Camps	\$ 707,676	\$ 3,206,630
Total Economic Impacts of Whitewater Recreation	\$ 23,044,363	\$ 27,982,288
Total Employment Associated with Whitewater Recreation (PTE)	591	717

MARKET SHARE

Another way of considering future or potential economic impacts of whitewater recreation is to view the Lower Animas whitewater resource as a product that garners a certain share of the consumers in a competitive market. A number of excellent and improved whitewater assets exist in Colorado and throughout the nation that the Lower Animas River is in direct competition with. Achieving minimum flow levels and improving the park may only act to sustain the existing market share and future growth may be difficult to attain as other communities improve their resources. However, given the demonstrated significant economic impact of existing use outlined in the first five sections of this analysis - simply maintaining existing market share is an important goal. Furthermore, the alternative is unenviable, as loss of market share to other state and national River amenities due to inadequate flows and outdated recreation features will result in a considerable (\$23 million +) decrease of economic inputs and employment in the Durango area.

SECTION CONCLUSIONS

- Water diversion and whitewater park improvements will dramatically increase the existing boating season to 365 days.
- 2015 commercial boating, skills classes, and equipment rentals could yield between \$19.7 and \$21.1 million annually in positive economic benefits to the Durango Region.
- 2015 non-commercial boating could yield between \$2.5 and \$3.6 million annually in positive economic benefits to the Durango Region.

- 2015 events could yield between \$707,676 and \$3.2 million annually in positive economic benefits to the Durango Region.
- Total employment associated with whitewater recreation on the Lower Animas River in 2015 is estimated between 591 and 717 PTE (Part Time Equivalent).
- Because many other communities are enhancing and expanding whitewater parks in direct competition with Durango, the Lower Animas Whitewater Park will require significant improvements and assured flows to maintain or expand its portion of the existing market share into the future.

APPENDIX A: NON-COMMERCIAL USER DAY METHODOLOGY

This section describes the methodology and data sources used to estimate the user days generated by the Lower Animas River as a whitewater destination among Colorado residents.

RECREATION DEMAND SPATIAL MODELING

Establishing Market Area Participation

RPI's recreation demand spatial model begins by building a participation database from the existing body of recreation participation data for Colorado and the U.S. provided by the USFS National Survey on Recreation and Environment (see <http://parks.state.co.us/scorp/reports.asp>), the Colorado State Parks 2003 SCORP, and trade group studies including the Outdoor Industry Foundation 2005 Outdoor Recreation Participation Study and the Super Study of Sports Participation (American Sports Data Inc.). These survey based studies provide national and Colorado specific sports participation information (both total participants and a % participation rate) on a variety of outdoor activities including rafting and whitewater kayaking. These studies also contain information regarding the frequency of use (e.g. times per year doing activity), which is instrumental in establishing user days.

Defining Market Reaches

The key methodological step in employing State scale participation rates to estimate user days at a particular destination is to establish a Colorado geographic market reach for the recreation destination (Durango Whitewater Park). Since Durango is largely a drive-to destination for state resident pleasure trips, the primary factor in determining the market reach is the *travel distance tolerance* of Coloradoans seeking recreation destinations.

Determining Travel Tolerance

Information regarding Colorado residents' willingness to drive to outdoor recreation destinations is sparse, as it is regarding recreationists in the US as a whole. There is no information available that specifically discusses whitewater recreation travel tolerance, so this analysis had to rely on analogue activities. The best information on travel tolerance in the State is about resort skier behavior, and this information is confidential.

The closest analogue for establishing travel tolerance for a whitewater destination comes from the survey results of the 2003 Colorado State Parks SCORP recreation survey efforts. As part of the data gathering for the 2003 SCORP, researchers surveyed a sample of over 4000 State Parks visitors for information related to how far they drove to get there. While Colorado State Parks are not a perfect analogue for whitewater destinations, they do represent tangible recreation destinations offering diverse developed recreation opportunities for activities ranging from rafting (Arkansas Headwaters) to speed boating (Navajo State Park) to backcountry skiing (Steamboat Lake). The travel tolerance of State Park visitors offers a generalized travel

tolerance for Colorado recreationists which can be applied as an analogue to whitewater recreation destinations.

Table A1. Colorado Recreationists Destination Travel Tolerance (One-Way)

Up to 50 Miles	48%
51 to 100 Miles	16%
101 to 200 Miles	17%
More than 200 Miles	19%

Source: Colorado State Parks SCORP Survey Data

Around half of Colorado recreationists are willing to travel 50 miles to a recreation destination, while about 1/6th travel will travel both 50 to 100 and 100 to 200 miles, while about 1/5th are willing to go more than 200 miles for a recreational destination. These figures represent the percentage of kayakers and rafters in the four market reaches that would be willing to travel to Durango for a whitewater recreation destination.

Mapping Market Reaches

The market reaches were approximated using GIS Data available from the US Bureau of Census TIGER files. Using 2005 Population estimates available from the US Census Bureau (County and Block Group), RPI was able to establish the 2005 population in each market reach (see table A2. Population by Market Reach). Using Colorado Demography Section forecasts conducted by the Center for Business and Economic Forecasting, RPI also established the projected 2015 Population of the Market Reaches.

Table A2. Population by Market Reach

	2005	2015
Within 50 Miles	81,465	106,030
50 to 100 Miles	39,358	51,220
100 to 200 Miles	250,414	312,230
More than 200 Miles	4,293,940	5,270,860

These population estimates and projections form the basis for estimating the number of kayakers and rafters in each region in 2005 and in 2015.

KAYAKING

Having established the market reaches and the travel tolerance within each reach, participation rates can be applied to the population totals and forecasted totals to estimate the number of kayakers in each reach (see table A3. Kayakers by Market Reach).

Table A3. Kayakers by Market Reach

		High	Low
	2005	2015	2015
Up to 50 Miles	2690	4530	3500
51 to 100 Miles	3990	6710	5190
101 to 200 Miles	12250	20040	15490
More than 200 Miles	153950	245000	189430
Total	172880	276280	213610

The 2005 estimates were established by multiplying the population of each market reach by the NSRE kayaker participation rate: 3.3%. 2015 'Low' estimates are based on no change in the kayaker participation rate. 2015 'High' estimates are based on the linearly projected 2015 participation rate of 4.3%.

Establishing kayaker user days in each reach was a matter of multiplying the average annual user days (3 days per year per kayaker according to, 2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation and the Super Study of Sports Participation by American Sports Data Inc.) by the number of kayakers in each reach.

Table A4. Kayaker User Days by Market Reach

	2005	2015 (high)	2015 (low)
Within 50 Miles	8065	13576	10497
51 to 100 Miles	3896	6558	5071
101 to 200 Miles	24791	39978	30911
More than 200 Miles	425100	674887	521815

Finally, the Colorado Recreationists Destination Travel Tolerance by market reach was applied to the population to yield the Durango Whitewater Park destination user days for Colorado resident kayakers (Table A5. Durango Whitewater Park User Days: In-State Kayakers). This includes all local and regional kayakers in the State of Colorado.

Table A5. Durango Whitewater Park User Days: In-State Kayakers

Durango Private Use Kayaker User Days			
	2005	2015 High	2015 Low
Up to 50 Miles	3890	6540	5060
51 to 100 Miles	620	1050	810
101 to 200 Miles	4160	6710	5190
More than 200 Miles	6800	10800	8350
Total	15470	25100	19410

For kayakers more than 200 miles away, the travel tolerance adjustments were replaced with the 2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation survey results showing the % of recreationists who take "whitewater kayaking adventure vacations" (1.6%).

RAFTING

Having established the market reaches and the travel tolerance within each reach, participation rates can be applied to the population totals and forecasted totals to estimate the number of private rafters in each reach (see table A6. Private Rafters by Market Reach).

Table A6. Private Rafters by Market Reach

		High	Low
	2005	2015	2015
Up to 50 Miles	896	1166	2227
51 to 100 Miles	1329	1730	3302
101 to 200 Miles	4084	5164	9859
More than 200 Miles	51317	63144	120547
Total	896	1166	2227

The 2005 estimates were established by multiplying the population of each market reach by the 2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation "enthusiast" rafting participation rate: 1.1%. 2015 'Low' estimates are based on no change in the rafter participation rate. 2015 'High' estimates are based on the linearly projected 2015 participation rate of 2.1%.

Establishing rafter user days in each reach was a matter of multiplying the average annual user days (3 days per year per rafter according to, 2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation and the Super Study of Sports Participation by American Sports Data Inc.) by the number of rafters in each reach.

Table A7. Rafter User Days by Market Reach

	2005	2015 (high)	2015 (low)
Within 50 Miles	2688	3499	6680
51 to 100 Miles	1299	1690	3227
100 to 200 Miles	8264	10304	19670
More than 200 Miles	141700	173938	332064

Finally, the Colorado Recreationists Destination Travel Tolerance by market reach was applied to the population to yield the Durango Whitewater Park destination user days for Colorado resident private rafters (Table A8. Durango Whitewater Park User Days: In-State Private Rafters). This includes all local and regional rafters in the State of Colorado.

Table A8. Durango Whitewater Park User Days: In-State Private Rafters

Durango Private Use Rafter User Days			
	2005	2015 High	2015 Low
Up to 50 Miles	1300	1690	3220
51 to 100 Miles	210	270	510
101 to 200 Miles	1390	1730	3300
More than 200 Miles	2270	2780	5310
Total	5170	6470	12340

For rafters more than 200 miles away, the travel tolerance estimates were replaced with the 2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation estimates for % of recreationists who take "rafting adventure vacations" (1.7%).

PRIVATE OUT OF STATE TOURIST USER DAYS

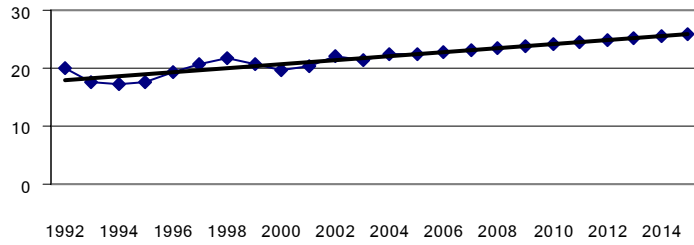
This section describes the methodology and data sources used to estimate the user days generated by the Animas River as a whitewater destination among Colorado tourists from outside the State.

Table A9. Non-Commercial Kayaking Formulations

Non-Commercial Kayaking	Quantity	Symbol	Expression or Source
Colorado Market Share of U.S. Discretionary Travel	0.021	a	Colorado Tourism Study: Longwood International
2004 Colorado Visitors	22300000	b	Colorado Tourism Study: Longwood International
Outdoor Trips 2004	2210000	c	Colorado Tourism Study: Longwood International
Colorado Outdoor Trips 2005	2320500	d	Colorado Tourism Study: Longwood International
% Taking Rafting Outdoor Adventure Trip	1.6%	e	2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation
Colorado Tourist Kayaker Visits	35360	f	= e * d
Durango Area Share of State Tourism Total	2.5%	g	Colorado Demography Section (see figure x - Durango Area Share of State Tourism Total)
Durango Out of State Tourist Kayaker Visits	879	h	= f * g
Durango Out of State Tourist Kayaker User Days 2005	1319	i	= h * 1.5
2015 Out of State Kayakers (high)	1518	j	= i * 115%(see figure x - Tourism Growth Factor)
2015 Out of State Kayakers (low)	1319	k	= i
Out of State <i>Private</i> Kayakers (high)	0.021		http://parks.state.co.us/home/kids/publications/Feb_Min_2004.pdf
Out of State <i>Private</i> Kayakers (low)	22300000		http://parks.state.co.us/home/kids/publications/Feb_Min_2004.pdf

Estimating out of state kayaker user days occurring or projected to occur at the Durango Whitewater Park begin with statewide tourism estimates available from the Colorado Office of Tourism and Economic Development using annual tourism studies conducted by Longwood's International. Knowing that over about 2.3 million tourist come to Colorado for outdoor trips and that 1.6% of recreationists take 'kayaking' vacations, this means that nearly 40,000 rafting oriented visits occur each year.

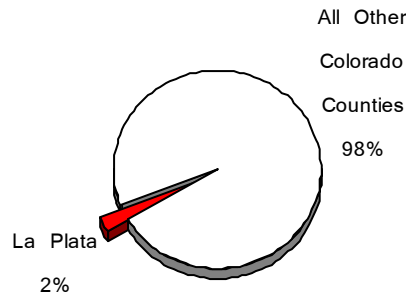
Figure A1. 2015 Projection of Tourist Pleasure Visits to Colorado



Source: 2004 Longwood's International Colorado Tourism Study, State Office of Tourism and Economic Development

However La Plata County will not attract all of those visits. In order to estimate the amount of State tourism that will likely occur in La Plata County, RPI consulted the State Demography Sections basic income for tourism for all counties (La Plata County collects about 2.5% of all of the new dollars collected from tourists in Colorado each year). So, assuming that visitation is proportionate to revenues, RPI applied this adjustment to the total kayaker visits to find that there are about 1000 out of state kayakers that visit the Durango Whitewater Park each year for a total of about 1400 user days.

Figure A2. La Plata County Share of Statewide Tourism



Source: Colorado Demography Section Base Economic Analysis for Colorado Counties

Low estimates for 2015 assume no growth in State Tourism, while high estimates employ a linear projection of overnight pleasure trips to Colorado as measured by Longwood's International since 1994 to obtain a growth factor of 15% between 2005 and 2015.

Table A10. Non-Commercial Rafting Formulations

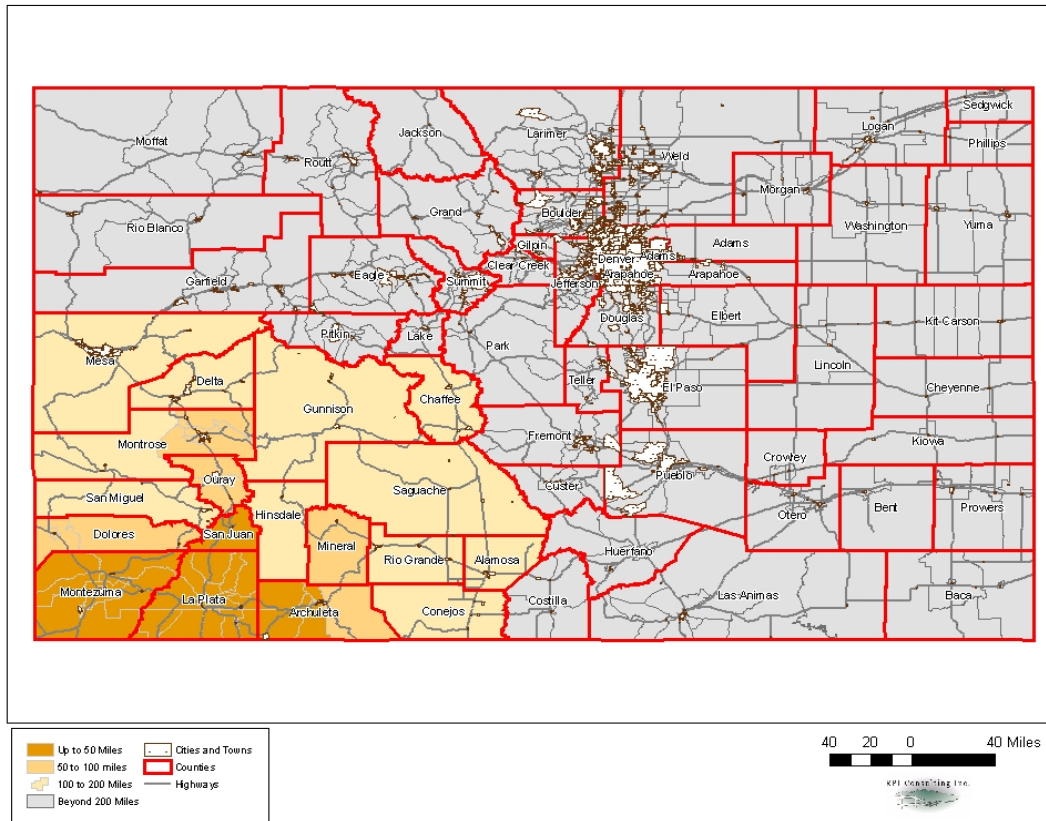
Non-Commercial Rafting	Quantity	Symbol	Expression or Source
Colorado Market Share of U.S. Discretionary Travel	0.021	a	Colorado Tourism Study: Longwood International
2004 Colorado Visitors	22300000	b	Colorado Tourism Study: Longwood International
Outdoor Trips 2004	2210000	c	Colorado Tourism Study: Longwood International
Colorado Outdoor Trips 2005	2320500	d	Colorado Tourism Study: Longwood International
% Taking Rafting Outdoor Adventure Trip	1.7%	e	2005 Outdoor Recreation Participation Study by Outdoor Industry Foundation
Colorado Tourist Rafter Visits	37570	f	= e * d
Durango Area Share of State Tourism Total	2.5%	g	Colorado Demography Section (see figure x - Durango Area Share of State Tourism Total)
Durango Out of State Tourist Rafter Visits	934	h	= f * g
Durango Out of State Tourist Rafter User Days 2005	1401	i	= h * 1.5
2015 Out of State Rafter (high)	1612	j	= i * 115%(see figure x - Tourism Growth Factor)
2015 Out of State Rafter (low)	1401	k	= i
Out of State <i>Private</i> Rafter (high)	403		http://parks.state.co.us/home/kids/publications/Feb_Min_2004.pdf
Out of State <i>Private</i> Rafter (low)	350		http://parks.state.co.us/home/kids/publications/Feb_Min_2004.pdf

Estimating out of state rafting user days occurring or projected to occur at the Durango Whitewater Park begin with statewide tourism estimates available from the Colorado Office of Tourism and Economic Development in annual tourism studies conducted by Longwood's International. Knowing that over about 2.3 million tourists come to Colorado for outdoor trips and that 1.7% of recreationists take rafting vacations, this means that nearly 40,000 rafting oriented visits occur each year.

However La Plata County will not attract all of those visits. In order to estimate the amount of State tourism that will likely occur in La Plata County, RPI consulted the State Demography Sections basic income for tourism for all counties. La Plata County collects about 2.5% of all of the new dollars collected from tourists in Colorado each year. So, assuming that visitation is proportionate to revenues, RPI applied this adjustment to the total rafter visits to find that there are about 1000 out of state rafters that visit the Durango Whitewater Park each year for a total of about 1400 user days.

In order to avoid double counting commercial and private rafting, RPI employed the estimate that 1 out of 4 rafters is a private rafter (<http://parks.state.co.us/home/kids/publications>). Low estimates for 2015 assume no growth in State Tourism, while high estimates employ a linear projection of overnight pleasure trips to Colorado as measured by Longwood's International since 1994 to obtain a growth factor of 15% between 2005 and 2015.

Figure A3. Durango Whitewater Park Market Reaches



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