

Summary and Integrated Impact Assessment for Watertown Whitewater Recreation Opportunity



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Fall 2015



Resilient Communities Project

UNIVERSITY OF MINNESOTA
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This project was supported by the Resilient Communities Project (RCP), a program at the University of Minnesota that convenes the wide-ranging expertise of U of M faculty and students to address strategic local projects that advance community resilience and sustainability. RCP is a program of the Center for Urban and Regional Affairs (CURA) and the Institute on the Environment.



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Tourism Opportunity

There is currently discussion among city planners, environmental organizations, and civil engineers to redesign or even completely remove the dam on the Crow River near downtown Watertown to better facilitate fish movement and recreation (Wardoku, 2015). If this were to happen, it could increase tourism opportunities along the Crow River and in Watertown specifically.

Type of tourism

The tourism that would be increased along the South Fork of the Crow River by a redesign or removal of the dam would be nature-based in style (Dawson, 2001). Nature-based tourism is defined as, “tourism in which the main motivation of the tourists is the observation and appreciation of nature” (UNWTO, 2002). The activities that this impact analysis will focus on that could be increased by a change in the dam are canoeing, kayaking, and fishing, which represent both non-consumptive and consumptive uses of the resources. Additionally, the opportunity would present a managed approach by the public and private sectors in Watertown and Carver County, all of which aligns with Dawson’s (2001) definition of nature-based tourism (see Appendix A for a complete list of nature-based tourism characteristics).

However, the recreationists would also partake in rural tourism if they leave the river itself and venture into the town of Watertown. Rural tourism is characterized by some commercial development and infrastructure, adequate accessibility by roads, and moderate group interactions (Dawson, 2001). Thus, it is important to carefully consider the types of tourism involved and how they are delineated when discussing the impacts of this tourism potential.

Within the boundaries of the Midwest, the Wausau Whitewater Park is among the best artificial whitewater, offering a range of skill options from beginner to expert. This whitewater park was began in 1974 by a group of paddlers and has since transformed into one of the most highly regarded and challenging courses in the Midwest, offering training and competition for Olympic medalists and U.S. Canoe and Kayak Team members.

Characteristics of the tourist/visitor

In discussing a proposed tourism development, it is also necessary to understand the type of tourist or visitor that would partake in this opportunity. There are two general categories of participants: the visitor and the tourist. For this report, a tourist will be defined as a participant who spends at least one night along the water trail that passes through Watertown. A visitor, on the other hand, will be anyone who spends at least three hours on the Crow River and is not from Watertown.

Despite these subtle differences, both tourists and visitors that will be analyzed belong to the paddling community: specifically kayaking and canoeing. In 2004 (the latest year for which MN DNR data is available) Minnesota had 172,442 registered canoes and kayaks (MN DNR, 2005). Other studies indicate that nationally canoeing and kayaking participation increased 18.2% and 103.8% respectively between 1999 and 2009 (White, 2014). The Twin Cities region does have a whitewater club for kayakers and canoers to share tips called Rapids Riders, but no membership information is available at this time. Canoers and kayakers also shared similar motivations for participating in their chosen recreation. For both groups escaping life, enjoying nature, and being with friends and family were top priorities for their participation (MN DNR, 2005). Other motivations include harvesting fish while out and exercising (MN DNR, 2005).

The general population of canoers and kayakers in Minnesota is relatively homogenous. Owners of these crafts are mostly non-Hispanic white males. They tend to be about 50 years old, with more formal and advanced education than the general public. Additionally, they have a median of 30 years of experience paddling boats (MN DNR, 2005). It is important to note that this data refers to the owners of boats and disregards those who rent or borrow crafts, for which there is no data currently available. A report published by the Minnesota Department of Natural Resources (MDNR) reveals the mean age of novice paddlers was 37 (Huginin, 2015, p.4).

According to statistics composed by the Outdoor Industry Association and mentioned in a another study done on the Lower Animas River in the city of Durango, Colorado, whitewater recreationists nationally are mostly male between the ages of 16 and 34. Approximately 70

percent of these recreationists have incomes over \$40,000, thus making them capable being indulge in whitewater activities (Klotz 2006). Similarly, a study conducted at the Golden Whitewater Course for kayaking and canoeing in the City of Golden, Colorado found that whitewater recreation could potentially generate benefits value from \$1.36 million to \$2.03 million annually (Hagenstad et al. 13). Lastly, a study done on the Reno—Sparks area in Nevada shown that there is usually 1 to 2 organized whitewater events per year. These events would draw approximately 75 to 200 participants with about 60 to 75 percent being non-local residents. However, the organized events seems to draw more spectators, which can vary as low as 500 to 5,000, or up to 300,000 when combining organized whitewater events with river festival (S2O: Reinventing Whitewater).

Impacts of proposed tourism

There are many potential impacts that a future tourism opportunity could have in Watertown. For the purpose of this report, tourism will be studied using recreational canoers and kayakers along the Crow River and the possible social, economic, and environmental impacts (Table 1). However, there are other types of tourism and recreation that could have a variety of impacts that will not be covered in this report.

Table 1. Potential impacts of proposed tourism opportunity in Watertown, MN.

| Type of Impact | Potential Impacts |
|----------------|--|
| Social | <ul style="list-style-type: none"> • Community identity • Quality of life • Increasing land prices • Population growth |
| Economic | <ul style="list-style-type: none"> • Dam removal costs • Per person per day paddling spending habits • Whitewater park |
| Environmental | <ul style="list-style-type: none"> • Short term impacts of dam removal • Fish passage • Whitewater park |

Social Impacts

Social impacts are most often measured in terms of 'quality of life' and 'sense of place' of the locals (Johnson, 2002). It is important to incorporate the opinions of locals in the measurement of social impacts while also taking into account the opinions and needs of the visitors and tourists.

One social impact that should be considered is the attachment that locals may have to the reservoir created by the dam and the dam itself. An object like the dam, which has been around for many years, can have a deep personal impact on the locals. The embedded nature of the dam in community identity is a factor to consider, although it is difficult to measure. However, with time an input from the community this impact can be somewhat easily mitigated (Austin, 2012).

Among locals, some of the biggest concerns with an increase in traffic on a water trail include proper disposal of waste (both trash and human waste), trespassing, and a party environment on the river (Johnson, 2002). It was found that with a comprehensive management plan and a sense of understanding of the importance of tourism for the locals, these issues could be handled easily (Johnson, 2002).

Another social issue to consider when debating an increase in tourism is the increase of land prices along the water trail that could arise. Rising land prices and taxes on inherited land have caused difficulty for some landowners that require more land for their businesses. In one study, only 8.5% of locals reported that increasing land taxes were a negative impact of the nearby water trail (Johnson, 2002). On the other hand, some landowners consider parceling out their land and selling it a better, more profitable approach to dealing with increased land prices (Johnson, 2002).

Population growth could be another potential social impact of the change in recreation opportunity along the water trail in Watertown. In studies of water trails in the northeastern part of the United States, towns along the trail experienced population growth during the study period (Warren, 2015). Part of this 'immigration', as it is called, can be attributed to tourists that choose to retire or relocate to the region after visiting due to its amenities or recreation opportunities (Warren, 2015). However, an increase in population could bring with it a change

in the social structure of the community and the view of the management of local resources, especially if the newcomers are substantially different from the locals (Warren, 2015). Carver County, the county in which Watertown resides, estimates a 37% population growth between 2010 and 2040 (City of Watertown, n.d.). This rapid growth could substantially change the attitudes of the region.

Removing the dam and restoring the river can have significant social impacts on both tourists and the local residents. The European Centre for River Restoration (ECRR) states:

Restoring rivers helps to provide quality environments and puts people in closer contact with nature. In urban environments this is particularly relevant, as restoring rivers can provide people with much needed green space, to offer people a place away from stresses and strains often associated with cities – with a higher density of people, poor air quality due to vehicle emissions, poor housing and lack of green space (2015).

According to the Minnesota Department of Health, obesity is one of the most serious public health concerns of Minnesotans. As of 2014, the obesity rate in Minnesota is 27.6%. Related obesity chronic diseases cause about 50% of deaths in Minnesota. This is a 2.8 billion financial burden on our economy (MDH 2015). A publication provided by the Harvard Medical School showed that a 185 pound person can burn as many as 222 calories during 30 minutes of kayaking (2004). This would be a positive impact on the community as a whole. By engaging tourists and local residents of Watertown in this whitewater recreation, people will have an opportunity to improve their health.

Possible social impacts are not only limited to an increase in physical and mental wellbeing, cultural and environmental education; another social impact includes an appreciation of the environment and its aesthetics. Cultural and environmental awareness is another result of social impact. By being actively engaged in recreational activities, people are more likely to be exposed to other cultures and environmental awareness. Watertown is a predominantly white city. By creating a whitewater feature, it could potentially attract tourists from outside of Watertown. This could lead to the interaction of Watertown residents and other ethnicities. Additionally, by being out in the environment and seeing its scenery, as well as its history, one could potentially want to preserve and protect the aesthetics aspect of the environment.

Economic Impacts

The economic impacts of this particular tourism opportunity must also be considered in the development process. There are significant economic impacts that can occur at each stage of this tourism development beginning at the dam removal or alteration stage and continuing for years through the growth of tourism.

An economic impact comes from the change to the dam itself through either a removal or a renovation to create a fish passage. The state of Minnesota can appropriate funds for dam removal or renovation to the DNR, so there would be no direct cost to the tax payer (American Rivers, 2000). Property owners along the river may incur small costs due to changes in the streambank erosion, but those are difficult to measure and often minimal (American Rivers, 2000). Additionally, the removal or renovation of the dam to allow fish passage will save the state of Minnesota millions of dollars in fish stocking costs (MN DNR, 2010).

Other significant economic impacts occur after the dam is removed or renovated and the tourism opportunity has begun. Canoers and kayakers often create significant economic impacts in the communities through which they paddle while on the water trail. A 2007 study of a water trail in the northeastern part of the United States found that non-local paddlers, or those whose home is more than 25 miles from the waterway, spend an average of \$46 per person per day, with the majority of that in communities adjacent to the water way (Pollock et al, 2007). This particular study also indicated a high likelihood of water trail users to camp during multi-day trips. Other studies indicate a wider range of paddler spending habits (Table 2). Based on an interpretation of the demographics and other variables in each study, it can be suggested that spending habits along the South Fork of the Crow River might most closely resemble those at Rock Creek Lake, IA.

Data collected from a study done in 2011 of Kelly's Whitewater Park in Cascade, Idaho found that on average visitors spent \$43 dollars per day. This study found that 60% of the visitors to the park were within a 2 hours drive of the park, which is why this study can be used to correlate to the building of whitewater rapids in Watertown, MN. The creation of rapids here, although unique, will not be attracting people from far away and will be focusing mainly of attracting visitor from the Twin Cities Area. If we estimate an average of 100 visitors a day

from June to September we get a total of \$524,600 being spent by visitors. It is important to remember that not all of that money would stay in the local community, in order for it to have the most benefit to the community it need to be spent and local shops over big chains.

An older study examined five different rivers across the United States found that the average daily expenditures ranged from \$25 to \$157. The tourism impact of the Luce Line trail could be a tell tale of what kind of numbers could be expected for the creation of a water trail through the town of Watertown. In 2014 there were 528,300 visitors to the trail which has been on a constant rise from 324,400 in 2011. On average the yearly visitors has gone up by 50,000 visitors which is a staggering growth considering that the number of visitors to Minnehaha park is at a slightly higher yearly visitor number of 850,000 visitors. When taking into account the growth of the trail and the more rural setting, this number of visitors is very promising for recreational tourism in the Watertown area. The number of trail users does not mean the number of trail users will be the same, although it does give a picture. Recreational trail users in the region of Carver county are more likely to be the ones that participate in paddling sports such as kayaking and paddling. Economically the building of the water trail has the ability to bring even more visitors than the Luce Line trail along. A study on economic impacts of silent sports in comparable sized towns in northern WI showed that individual, non-resident visitors, with the purpose of participation in such sports, spent an average of \$225 per visit (lodging was removed from the total due to our focus on day-trip visitors)(Berard et al., 2014, p. 34).

A very similar project on the Chattahoochee River in Columbus, GA puts a dollar amount to the amount of visitors that were expected to use their newly renovated waterway for recreational reasons. They estimated a total of 60,000 to 100,000 more visitors to the area because of the whitewater feature that they added. This amounts to between \$4,202,584 and \$7,004,306 as a direct yearly impact. This number is a higher direct economic impact based on the fact that Columbus is a much larger city and urban area than Watertown. They made a note to the nearest whitewater feature to their town being 200 miles from their site. With limited areas for whitewater recreation around Minnesota with the closest being in Minnehaha park and Taylors falls, a feature in the Watertown area would be tapping a large population of

people on the west side of Minnetonka that may not want to travel to the eastern or central areas of Minneapolis for a more adventurous paddling experience

Table 2. Estimated per person per day spending habits of paddlers (Adapted from Otto, 2012).

| Year of study | Author | Site | Spending per person per day |
|---------------|----------------------------|--------------------------|-----------------------------|
| 1989 | National Park Service | North East United States | \$24.95 |
| 1992 | US Army Corps of Engineers | Upper Mississippi | \$25.99 |
| 2002 | Johnson | Lake Superior, MN | \$34.50 |
| | | Kickapoo, WI | \$87.94 |
| 2007 | Pollock | North East United States | \$46.00 |
| 2002 | Herriges et al | Rock Creek Lake, IA | \$26.23 |

Although there are no current studies that measure the number of paddlers along the South Fork of the Crow River, there are some other numbers available in regards to Minnesota paddlers that may be applicable. In 2004, the MN DNR recorded more than 170,000 licensed (MN DNR, 2005). Of those surveyed by the DNR, nearly 35% indicated a desire to use a state water trail, and roughly 12% had paddled on a state water trail in the last year (MN DNR, 2005). The latest available study that did measure the amount of paddlers on the Crow River was conducted in 1982 and did not separate out the North Fork from the South Fork. An update into this study and a more focused location would be necessary to truly understand the economic impact that these paddlers could have in Watertown.

If the proposed development includes the development of a whitewater park instead of returning the river to a more natural habitat, then the economic impact could be much greater. Whitewater parks generally contain free flowing water in a near-natural channel with some also having a sort of mechanism to create waves. Many also have a side channel that allows safe passage for floaters. Whitewater parks have significant economic impacts on the communities in which they are built (Table 3). Although there is a wide range of economic impacts, the South Fork of the Crow River would like be most similar to the Cuyahoga River due to its demographics and proximity to a large metro region. Additionally, since they are built and

managed by a company instead of the municipality, there would be no cost to the taxpayer to build this park.

Table 3. Range of economic impacts of whitewater parks (Adapted from S2O, 2015).

| River | Location | User Days | Additional Spending to Community | Total Impact |
|-----------------|----------------------------|---------------|----------------------------------|---------------------|
| Clear Creek | Golden, CO | 12,000-14,000 | \$910,000-\$1.1million | \$1.3-2 million |
| Blue River | Breckenridge, CO | 1,200-2,300 | \$220,000-\$460,000 | \$0.4-\$1.1million |
| Gore Creek | Vail, CO | 1,000-2,300 | \$3.5-4million | \$4 million |
| Sacandaga River | Saratoga/Warren County, NY | 17,600-25,400 | \$1.8-2.8 million | \$2.3-\$3.7 million |
| Cuyahoga River | Kent, Ohio | 10,000-40,000 | \$200,000-\$800,000 | \$0.5-\$1.7 million |
| Yampa River | Steamboat, CO | 75,700 | \$4.9 million | \$7.2 million |

Environmental Impacts

Another category of impacts to consider when discussing the removal or renovation of the dam along the South Fork of the Crow River and the potential tourism opportunity this could create is the environmental impacts. These potential impacts begin in the removal or renovation of the dam and continue throughout the development of the tourism opportunity. The construction dam along the South Fork of the Crow River has already significantly impacted the flow of the river. However, removal of the dam, or at least a renovation to allow greater water and fish movement, could affect the entire state of the river.

Dam removal or renovation itself can have impacts on the water quality and environmental health of the river system. Increased turbidity and sediment buildup is often seen downstream from dam removal sites (American Rivers, 2014). Additionally, some of the sediment buildup that is released can contain harmful chemicals and toxins. Many studies indicate that using proper removal technique can help mitigate these issues (American Rivers, 2014).

A significant environmental impact that could occur after completion of this project is simply the benefits that it has for fish. The dam creates an obstacle that can inhibit fish movement which is especially important during times of spawning. Dam removal has been

shown to allow for the return of spawning fish just months after the completion of the project (American Rivers, 2014). At present, interest in fishing in the region is low, so any change in the amount of fish or prevalence of certain species will most likely increase this. By removing the dam in Watertown and restoring it back to its original state, positive impacts will happen to the river. Similar to Watertown, a project in Ohio called the FLOW 5th Avenue Dam Project Site found the removal of a dam to “contribute to a healthier river environment” (FLOW). The river recovered back to a more natural, free flowing condition, which in turn contributed to a better, improved habitat for aquatic species. The surrounding river environment also changed in correlation to the flow of the water. More shoreline wildlife species and migrating birds started utilizing the site (FLOW). The removal of the dam in Watertown could possibly experience the same positive effects, since as of now, fish in Crow River are displaced.

However, the removal of a dam will also allow for increased recreation in the form of canoeing and kayaking to occur along this portion of the South Fork of the Crow River. According to the Canoe England Membership Organization, improper use of the river can cause negative impacts. Some impacts are: bankside vegetation loss via trampling, noise pollution, trash, erosion of banks, compaction of soil, and inappropriate behavior of visitors causing disturbances to wildlife (Canoe England). The largest environmental impacts that are seen with an increase in recreational paddling tourism are improper disposal of human waste and garbage (Johnson, 2002). There are no concrete numbers for the increase in waste, but it can be mitigated with a good management plan and partnerships with local organizations. A study “Managing for Sustainable commercial Whitewater Rafting in Northern New South Wales, Australia” found that the level of watercraft use did not have a significant effect on water quality, however they still determined there was a need to implement an on-going monitoring program so they could continue to assess the effect on water quality, specifically they were concerned about the effects of sunscreen and bug repellent on the water. The negative effects that they did find were on the banks of the river itself, the main concern was different access points to the river that had lost vegetation and were subject to erosion due to rafts being dragged across them.

If the tourism opportunity proceeds to the point of developing a whitewater park on the South Fork of the Crow River, then other environmental impacts could occur or continue. Many of the measured environmental impacts of whitewater parks are similar to those of low-head dams: sedimentation, streambank erosion, and obstacles for organisms (Morgan, 2012). Thus, the environmental impacts of a whitewater park are not significantly different than the dam that is already in place.

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Appendix A

Table 4. Characteristics of nature-based tourism (Adapted from Dawson, 2001).

| Definition components | Nature-based tourism |
|--|---|
| Management goals | Conservation and resource management |
| Primary resource use | Natural resources, natural history, and the present and historic cultures of the area |
| Primary tourist motivation | Visit an undeveloped natural area for appreciation and to directly experience the environmental conditions or indirectly as a background for a consumptive or non-consumptive recreational experience |
| Recreational activities | Non-consumptive appreciation and study of, and consumptive use of, wildlife and natural resources |
| Economic contribution of tourism to area | Directly and indirectly contributes to the visited area which support to the conservation of the site and the health of the local economy |
| Visitor appreciation | The visit should strengthen the tourist's appreciation and dedication to conservation issues at the visited area and in general |
| Management of the public/private area | Implies a managed approach by the public and private sectors which commits to establishing and maintaining the area, marketing it appropriately, enforcing regulations and using the economic benefits to fund the area's land management |
| Accessibility factors (difficulty, access type, means of conveyance) | Difficult or controlled access by trails, water routes and secondary roads |
| Visual characteristics factors (acceptability of visitor impacts) | Primarily a natural-appearing environment and landscape but some human impacts are evident |
| Visitor environmental impact factors | Minimal user impacts are localized to recreation activity areas and facilities (e.g. boat launch sites, campgrounds) but with low numbers of users |

Appendix B

Table 5. GSTC criteria fulfilled by Watertown's 2030 Comprehensive Plan

| Criteria Number | Name |
|-----------------|--------------------------------------|
| A7 | Planning Regulations |
| A8 | Access for all |
| A9 | Property acquisitions |
| B3 | Public participation |
| B4 | Local community opinion |
| B5 | Local access |
| B8 | Support for community |
| C4 | Cultural heritage protection |
| C5 | Site interpretation |
| D1 | Environmental risks |
| D2 | Protection of sensitive environments |
| D3 | Wildlife protection |
| D6 | Water management |
| D9 | Wastewater |
| D12 | Low-impact transportation |

Appendix C

Table 6. GSTC criteria of importance for Watertown to focus on.

| Criteria Number | Name |
|-----------------|---|
| A1 | Sustainable destination strategy |
| A2 | Destination management organization |
| A3 | Monitoring |
| A4 | Tourism seasonality management |
| A5 | Climate change adaptation |
| A10 | Sustainability standards |
| A14 | Promotion |
| B1 | Economic monitoring |
| B2 | Local career opportunities |
| B6 | Tourism awareness and education |
| B7 | Preventing exploitation |
| B9 | Supporting local entrepreneurs and fair trade |
| C1 | Attraction protection |
| C2 | Visitor management |
| C3 | Visitor behavior |
| D4 | Greenhouse gas emissions |
| D5 | Energy Conservation |
| D10 | Solid waste reduction |
| D11 | Light and noise pollution |