



*Working to protect the Mississippi River
and its watershed in the Twin Cities area.*

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February 21, 2017

Mr. Matthew J. Miller
Hydro Licensing Compliance Consultant
Xcel Energy
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P.O. Box 8
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Dear Mr. Miller:

Thank you for the opportunity to review the St. Anthony Falls Aesthetic Flow Survey prepared for Xcel Energy by Barr Engineering in December 2016. We have reviewed the survey report and offer our detailed comments below about the survey methodology, the survey results and our recommendation for minimum flows going forward.

Friends of the Mississippi River (FMR) is a non-profit organization with a mission to engage community members and other stakeholders to protect, restore and enhance the Mississippi River and its watershed in the Twin Cities Region. We represent thousands of people in the metropolitan area who care deeply about the river, including a growing membership of over 2,200 people and more than 6,000 volunteers engaged in 2016. FMR was founded in 1993 to provide a voice for the river and newly formed National Park – The Mississippi National River and Recreation Area (MNRRA).

St. Anthony Falls is the centerpiece of the City of Minneapolis. The Mighty Mississippi River has only one natural waterfall, the sounds and sights of which have attracted visitors for generations. Native peoples were drawn to the spiritual power of the falls, early settlers to its magnificent and wild beauty. 19th Century pioneer settlers harnessed the power of the falls for milling lumber and flour, and their 20th Century counterparts used the falls for hydro-electric power generation. Even though the power of St. Anthony Falls gave birth to a prosperous city and region, the City of Minneapolis turned its back on the Mississippi River for most of this industrial period. As recently as the early 1990s, the downtown riverfront was characterized by heavy industry, polluted water, acres of railroad tracks, and a transient population.

As Minneapolis entered the 21st Century, the riverfront has undergone an enormous transformation. Decades of neglect and environmental damage inspired the community to convert a blighted area to a National Historic District, a National Park and a vibrant downtown neighborhood, with over two billion dollars invested to date. The significance of this riverfront renaissance cannot be overstated, because today's residents and park users

view the downtown riverfront in a radically differently way than they did just a decade ago. What has not changed is the fact that the falls is at the heart of what this place means to people. But today the river stands for more than just power and prosperity, Minneapolitans also expect the river to provide a mix of aesthetic beauty, cultural experiences and environmental health.

Maintaining an adequate aesthetic flow over the spillway at St. Anthony Falls has taken on an even greater importance than it had when the Aesthetic Flow Adequacy Plan was approved in 2004. We raise the significance of these recent physical and attitudinal changes to underscore the importance of our concerns about how the survey was conducted and why many of the questions asked did not yield the information necessary to determine what level of flow will be adequate in the future.

Overall we find the data collected and the survey report of limited value. While the survey does provide some information about park visitors' experiences and preferences, it does not do a sufficient job of representing the opinions of park users about aesthetic flow of the falls. Our comments follow the order of the report document, but in general our concerns fall into four areas:

- Distribution of days of week/times of day the survey was administered were inadequate and did not meet requirements of the FERC Order
- High number of survey respondents that were first-time visitors and/or unfamiliar with the falls was inconsistent with a representative sample of recreational park users
- Evaluation of photos and flows was insufficient for determining minimum aesthetic flow for St. Anthony Falls
- Overall quality of collection, analysis and reporting of the data was sloppy, potentially biased, and skewed by the aforementioned issues

Section 1.2 Survey Dates and Hours

One of our primary understandings was that the survey would be randomized to be administered at different times of day and days of the week. This expectation was included in the Aesthetic Flow Adequacy Plan and the December 15, 2005 FERC Order modifying and approving the plan pursuant to Article 403. According to that order, consulting agencies wanted the "days, times and seasons varied to capture the full spectrum of users."

When plans for conducting the survey were shared with consulting agencies in 2016, we were told the surveys would be equally distributed across all days of the week, including weekends, and three time slots: 8am-noon, noon-4pm and 4pm-8pm.

The results included in Table 1-1 of the survey report do not appear to be randomized or equally distributed across the time frames, for several reasons:

- As the section 1.2 narrative points out "the majority of surveys were completed between noon and 4 p.m." This constitutes 78% of all the surveys—more than twice the number that should have been completed during that time frame. Additional survey

times should have been scheduled in the morning and evening, in order to ensure equal distribution across different times of the day.

- Of the 23 days that surveys were completed, only 3 were reported in Table 1-1 to be on weekend days, and none of them were completed on Sundays. Weekends are much busier than weekdays in general, including plenty of people to survey before noon and after 4 pm.
- There are considerable discrepancies between the raw data contained in Appendix A with the information reported in Table 1-1. According to our analysis, there is no raw data for 9 of the 23 dates provided (6/29, 7/9, 7/11, 7/22, 7, 26, 8/1, 8/9, 8/31, 9/7) but there is data for 10 additional dates not included in the table. The raw data for 6/18 was all collected between 12-4 but it is reported as 4-8 pm on Table 1-1. While it is possible these errors were due to a computer or scheduling issue, it is impossible to know which information is correct, calling the distribution of dates and times into question.
- A closer look at the raw data also reveals that time of day was further limited than what is shown in Table 1.1. With one exception, no one was interviewed earlier than 10am, and no one was interviewed after 5pm. This means interviews were distributed across 7 hours of the day, instead of 12.

Both the reporting of dates/times and the raw data raise serious concerns about the quality of the survey. In addition to failing to meet the requirements of the FERC order, limiting survey dates and times so severely is one of the main reasons that many survey respondents were first time visitors and/or not from the local region.

The reason why the agencies wanted a wide range of times of day and days of the week was to capture users who may limit their use to certain times of the day or days of the week because, for example, they work a typical 9 to 5 work schedule. This approach is standard for surveying regional park users— In a recent survey conducted by the Metropolitan Council, 45% of the sampling took place on weekends and 55% on weekdays.

By concentrating the interviews during a time frame where a segment of park users would be at work and likely not be using the park, the sample was skewed. Those who live closer to the park are logically in the position to be more frequent visitors. They also can visit the park before and after work and on weekends, the times that were not sampled or under sampled.

The St. Anthony Falls area has grown significantly since the decision was made to limit the survey administration to daylight hours from late spring to early fall. Many more people now live in this area, and they use the park trails with greater intensity in the early morning, late evening and during all four seasons. The survey results would be far more valuable if park users during these additional times and days had been included.

We recommend the survey be expanded and/or re-administered, so that at least 40% of all surveys are conducted on weekends, and 60% of all surveys are taken during the morning or evening.

Section 1.3 Survey Respondents; Demographics

We appreciate that the survey included a request for each respondent’s zip code. This question was added at the last minute at our request during the agency consultation meeting at Xcel’s office in late winter of 2016. Analyzing the zip codes of interviewees affirms our conclusion that the survey did not yield an accurate cross section of the community. As the report points out, 74% of survey respondents were first-time or infrequent visitors to the park, and only half of them were from the Twin Cities Region (253 out of 493). Repeat park users can provide a much more nuanced perspective on the aesthetic flow of the falls, how the flow changes over time, and how important the flow is to both the park experience and the economic vitality of the neighborhood.

A professional third party survey done in 2008 by the St Anthony Falls Heritage Board (SAFHB) surveyed visitors to the area during 4 time slots (including from 5pm to dusk) during two full weeks (including weekends).

The SAFHB survey broke out the residency of those interviewed into 3 categories through the use of zip codes.

Using the same zip code categories, there is a substantial difference in “locals” interviewed in this survey and those included in the SAFHB survey.

Composition	2008 Survey - SAFHB	2016 Survey - Xcel
Local	33.00%	12.58%
Other Metro	48.00%	38.74%
Outside Metro	20.00%	48.68%

This is an indication that the sample for this survey was not representative of the community and that non-locals were oversampled. These first time visitors had no other experience for comparison.

As the survey did not have a representative sample of local and frequent park users, the results of the survey are inadequate.

The survey methods and/or time frames need to be modified to ensure there are enough local and/or repeat users to be statistically relevant. We recommend that the survey be re-administered and/or expanded to include another season of interviews.

2.0 Results Summary; Sections 2.1-2.8

Many of the survey questions were designed for park users that have some familiarity with St. Anthony Falls, and have experienced the falls at different levels of flow. Yet only a small percentage of those surveyed had enough experience to answer all the questions in a meaningful way. As discussed above, the days and times the survey was administered

contributed to a non-representative sample of park users. These issues skewed the answers to many of the survey questions.

Question 2: “How many years have you used this area” demonstrates how many of the survey respondents (85%) were first-time or infrequent visitors.

Questions 3 & 4 regarding the times, days and seasons that survey respondents visit the St. Anthony Falls area are skewed by the low percentage of frequent or repeat users of the park. It is logical that the times and seasons chosen are consistent with the time and season the survey was taken, but these results do not provide a complete picture of a regional park that is used at all times of day and during all four seasons.

Questions 5 & 8 regarding how often survey respondents notice how much water is flowing over the falls (80%) and if the amount of flow influences their enjoyment of the area (68%) reinforce the importance of the falls to the park experience. It’s worth noting these percentages would likely hold up regardless of the time of day or night.

Question 6: “How often have you observed the waterfall when you thought there was too little water passing over it?” is clearly intended for repeat park users. The results of this question—that 95% of respondents have never observed the waterfall at low flow—is not surprising when so few of the survey respondents were using the park in previous years when the river levels were lower.

Question 7: “Does the amount of water passing over the waterfall influence how often you visit the area?” This question is difficult for most park users to answer, as they are unlikely to know how to check this information beforehand. It is impossible for first-time users to answer it. The results of this question should not be used to presume that park users are indifferent to the level of the falls.

Section 2.9-2.11 Evaluating photos/flows

Evaluation of the photos at different flows shows a clear preference among survey respondents for higher flows, but due to limitations discussed previously (not enough local residents, repeat park users, etc.) the data regarding what level of flow is acceptable to the community is inadequate. As described below, the way the photos were presented and evaluated also led to survey results that were inconclusive.

During the 2005 agency consultation regarding the Aesthetic Flow Adequacy Plan the following was reported in the December 15, 2015 FERC Order, p. 3.

“The MDNR and MPBR recommended that the licensee add 3,000, 5,000, and 10,000 cfs to the range of flows to be photographed. The licensee rejected this recommendation because article 403 specifically requires a range of flows between 100 and 2,000 cfs. In addition, the purpose of the article requirement is to identify minimum flows that might be appropriate in the future and that the higher flows recommended by the agencies are not reasonable nor are they appropriate for a minimum spillway cover flow.”

Since the stated purpose here explains that higher flows are not appropriate for minimum spillway coverage, it was therefore not appropriate to include “optimum” as a category when evaluating the photos in **Question 9**. All of the flows presented are minimums, and it is misleading to suggest that any level of minimum flow is optimal. If the survey is to accurately measure which level park users consider to be optimum, much higher flows, such as those suggested by the agencies, would need to be included. If the flows are to be restricted to levels from 100 cfs to 2,000 cfs, the survey should only ask if each level is acceptable or unacceptable as a minimum flow.

Section 2.9.1 General Summary of Photo Ratings

The summary of photo ratings is weak and may indicate some bias on the part of the report author. The reported findings emphasize:

- High number of respondents who don’t care
- Only the highest flows were ranked optimum by most respondents
- Even though a high percentage of respondents identified 100 cfs as unacceptable, many respondents still thought it was acceptable
- Visitors have a high tolerance for a wide range of flows with many ratings of acceptable for flows from 300 cfs to 1,500 cfs

These findings (and the conclusions at the end of the report) wrongly support the idea that there is broad tolerance for low flow conditions, including the current minimum of 100 cfs.

A better analysis would note that while survey respondents had clear opinions for the highest and lowest flows, many of those interviewed were not able to distinguish enough difference between the intermediate flows to provide useful input. With four ranking choices and seven different photos, respondents were being asked to choose from 28 not-very-distinct possibilities. As a result, the rankings don’t necessarily follow a logical pattern or provide particularly useful information. The respondents who indicated that they “don’t care” might have simply wanted to avoid going through the ranking process to save time.

Based on the raw data, which includes the survey respondents who viewed the photo board that erroneously included two 100 cfs photos, more than 25% of those interviewees assigned different rankings to the two identical photos. This calls all of the results into question. It is probable that viewing the photos all together on one board, instead of viewing each one individually, led to a lot of misperception of the various flows.

Question 10: “Based on what the waterfall looks like right now, how would you rate its appearance?” This question also adds a dimension of confusion to the results. Since the flow during the survey never dipped below 2,200 cfs, it is odd that 33% of respondents chose something other than optimum. It is problematic that the actual flow was not recorded for each survey conducted. This was a requirement of the survey that did not happen and without it the results of this question have limited utility.

In the 2005 FERC Order, it was determined that Question 10 was “a fair question to ask

without informing the visitor of the total number of cfs flowing over the spillway at that time. However, when the results are tabulated and sent to the agencies and the Commission, that information should be provided in the report.”

Question 11: “When do you think water should be released over the waterfall to improve its appearance/beauty” This question does not provide useful information unless it can be correlated with how frequently the survey respondent visits the park. Asking it as a multiple choice question, instead of a “check all that apply” question may have skewed the results as the choices are not that intuitive. The high level of responses in the “other” category also points to respondents looking for an easy way to answer the question.

The comments tallied in Table 2-4 indicate that this question might have been asked in a biased way. Questions that addressed tradeoffs between aesthetics and hydropower were eliminated by the FERC Order, and those topics should not have been raised by the surveyors.

Quality of survey methodology and reliability of results

One of the key requirements of the 2005 FERC Order was that a professional third party survey company will be used to do the survey to prevent bias and to retain objectivity. Based on the data collected and report conclusions, we do not believe this requirement was met. Barr Engineering is a reputable company whose work we respect, however, in this situation Barr might have too close of a business relationship with Xcel to avoid the impression of conflict of interest or bias. A company or organization without other business with Xcel and that specializes in executing unbiased surveys would have been a better choice for conducting a survey that could lead to financial consequences for Xcel.

The execution of this survey had a number of problems including an error on one of the photo boards for a third of survey respondents, discrepancies between the raw data and the reported summaries regarding dates and times surveys were conducted, the omission of noting actual flow at the time of each survey, and verbiage throughout the report that suggests bias, such as over-use of the word “surprising” when describing results, failure to correlate any of the results with frequency of park use, and random comments from survey respondents about hydropower.

There was also very little information provided in the report about survey methodology and protocols—something a professional survey company would provide. None of the materials on survey design, protocol/manuals or scripts were included in the report, nor was any information provided about the number of persons intercepted, number of disconnects and reason for disconnects or number of surveys discarded, if any. This information is important to ascertain if the survey was conducted in a professional and unbiased manner.

To summarize, we have numerous concerns about the way the survey was conducted, analyzed and reported on. We strongly recommend that Xcel work with a professional

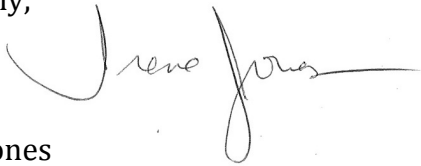
survey company agreeable to all consulting agencies to redesign and re-administer the survey based on the concerns identified in this and other agency comment letters.

In the meantime, we request that an interim minimum aesthetic flow level be established at 1000 cfs or greater until a survey is completed that satisfies the requirements of the 2005 FERC order and the consulting partners.

St. Anthony Falls is an iconic symbol of the City of Minneapolis, and its aesthetic contributions to the area are highly significant to the area's future.

Thank you for your careful consideration of our comments. Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Irene Jones". The signature is written in a cursive style with a long horizontal line extending to the right.

Irene Jones
River Corridor Program Director