Exhibit C

Xcel Energy®
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March 30, 2017

Ms. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Subject: **Aesthetic Flow Adequacy Plan – Article 403**
St. Anthony Falls Hydro (FERC Project No. 2056)

Dear Secretary:

Northern States Power Company – Minnesota, d/b/a Xcel Energy, licensee for the St. Anthony Falls Hydro Project No. 2056 ("Project"), is filing for your review as Attachment A the initial Public Perception Survey Report ("Survey Report") regarding minimum flows at the Project's main spillway. The Public Perception Survey ("Survey") was conducted pursuant to license Article 403 (*Aesthetic Flow Adequacy Plan*) of the Project license, 106 FERC ¶ 62,185 (2004), and the Survey Report, including responses to stakeholder consultation, is required to be filed no later than March 30, 2017, pursuant to a letter order issued by the Commission on May 18, 2015, in the above-captioned docket.

Licensee submitted a draft Survey Report to the stakeholders via e-mail and hard copy on December 22, 2016. Comments were requested from the stakeholders by February 15, 2017. Attachment B includes a summary of stakeholder comments with licensee's responses following in bold italics. Stakeholder correspondence is included in Attachment C. Please note that licensee inadvertently consulted with the St. Anthony Falls Laboratory and City of Minneapolis. We have included their correspondence in Attachment C; however, we did not provide formal responses to their comments.

Licensee would like to emphasize the following critical factors regarding the Survey:

- The purpose of the Survey is to determine recreational users' opinions and perceptions of the adequacy of the aesthetic flows over the Project's main spillway. *See* Order Modifying and Approving Aesthetic Flow Adequacy Plan Pursuant to Article 403, 113 FERC ¶ 62,215 (Dec. 15, 2005).

- The license requires the collection of this information to assist the Commission in evaluating whether future recreation use warrants a 100 cfs minimum flow or greater for aesthetic purposes, and to develop a record for considering changes to the minimum flow should recreation trends warrant it. *See* license at ¶ 47.

- This requirement in the license was based on FERC staff's recommendation in the environmental assessment that licensee monitor and document flows over the spillway sufficient to result in flows ranging between 100 cfs and 2,000 cfs. *See*

license at ¶ 46. Therefore, flows greater than 2,000 cfs are beyond the scope of license Article 403.

- Any changes to the minimum flow requirement for aesthetic purposes that may be ordered by the Commission will have implications for the availability of water for the A-Mill Artist Lofts Project (FERC Project No. 14628) because that project is only authorized to utilize flows in excess of that required for the operation and maintenance of the Project, including flows necessary to maintain the aesthetic flow. *See Minneapolis Leased Housing Associates IV, L.P.*, 153 FERC ¶ 61,201(2015). Similarly, any license issued for Crown Mill Hydropower Corporation's proposed project (FERC Project No. 11175) will be subject to a similar requirement to not adversely affect the operation of the Project, including the need to maintain the aesthetic flow.

- The potential impact to generation and the flow exceedance data will not change regardless of who conducts the survey or the survey methodology.

Licensee reviewed the Survey Report along with the stakeholder comments. In addition, we conducted a Lost Generation Analysis (Analysis) to further assess the impacts of a higher minimum flow requirement. The Analysis is included as Attachment D. When considering the aforementioned, we feel that a new minimum flow requirement of 300 cfs provides a reasonable balance between generation and aesthetics for the following reasons:

- A minimum flow requirement greater than 300 cfs will have a substantial impact on the Project's annual generation as well as impact generation at the A-Mill Project and the Crown Mill Project (should development of Crown proceed).

- Figure 2.13 of the Survey Report shows that 53% of all respondents feel that 300 cfs is an "acceptable" flow. This figure does not change appreciably for higher flows up to 1,500 cfs (see table below). The results are also similar for the optimum category where there is little variation (6% - 9%) for flows between 100 cfs and 1,000 cfs. Thus, the number of additional respondents that would be satisfied with a minimum flow requirement greater than 300 cfs does not justify the incremental loss in generation. Again, the potential impacts to A-Mill and Crown must also be considered.

- After accounting for the hydraulic capacity of the Project (≈ 4,300 cfs), flows over the main spillway will exceed 2,000 cfs 55% of the time, 1,500 cfs 60% of the time, 1,000 cfs 66% of the time, 750 cfs 69% of the time, and 500 cfs 71%.

- 56% of all respondents felt that 2000 cfs was an optimum flow. The Lost Generation Analysis shows that this flow will be exceeded approximately 55% of the time after accounting for the hydraulic capacity of the powerhouse (4,300 cfs).

- 41% of all respondents felt that 100 cfs was unacceptable. This figure decreases to 9% for 300 cfs.

- The table below was created using information from the Analysis and summarizes the various minimum flows, flow exceedance, flow acceptability among all survey respondents and lost generation.

Minimum Flow (cfs)	% Exceedance After Hydraulic Capacity of SAF**	% of All Respondents Voting Acceptable	% of All Respondents Voting Optimum	Percent of Annual Generation Lost*
100	75	29	6	1%
300	73	53	4	4%
500	71	57	4	6%
750	69	57	9	10%
1000	66	55	8	14%
1500	60	48	26	23%
2000	55	27	56	32%

*58,000 MWH annual generation based on 2001 to 2015 data
** Does not include the hydraulic capacity of the A-Mill Project

Licensee made several key revisions to the report to accommodate many of the stakeholders' concerns. While we originally intended to use a professional survey company to conduct the survey and prepare the report, we elected to use Barr Engineering, a professional engineering firm with statistical analysis capabilities, to conduct this work. Licensee informed the stakeholders that Barr Engineering would be conducting the survey and preparing the report at the pre-survey meeting and no concerns or objections were raised. We also recognize that many of the issues raised by the stakeholders in their comments on the draft survey report may be resolved by having a professional survey firm conduct the survey and prepare the report.

While licensee considers the Survey and Survey Report to be more than sufficient for determining public opinion regarding aesthetic flows, we propose to re-administer the survey with a professional survey firm in 2026 in conjunction with the FERC Form 80 due in 2027. Per FERC's March 16, 2006 Order Granting Rehearing, licensee is required to conduct the Public Perception Survey in conjunction with every other FERC Form 80 or every 12 years. In the interim, we support increasing the minimum flow requirement to 300 cfs as evidenced by the survey results, flow exceedance data, and lost generation.

Should you have any questions, feel free to contact Matthew Miller of this office by telephone at (715) 737-1353 or by e-mail at matthew.j.miller@xcelenergy.com.

Sincerely,

for Robert W Olson

William Zawacki
Director, Hydro Plants

Attachments

c: John Anfinson (National Park Service)
Nanette Bischoff (U.S.A.C.E)
Charlotte Cohn (Minnesota Department of Natural Resources)
Liz Wielinski (Minneapolis Parks and Recreation Board)
Irene Jones (Friends of the Mississippi River)
Gary Monson (Crown Mill Hydropower Corporation)
Jeff Marr (SAFL)
D. Craig Taylor (City of Minneapolis)
Project Files

Attachment A

Public Perception Survey Report

St. Anthony Falls Aesthetic Flow Survey

Prepared for Xcel Energy

Revised March 2017

St. Anthony Falls Aesthetic Flow Survey

Prepared for Xcel Energy

Revised March 2017

4300 MarketPointe Drive, Suite 200
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St. Anthony Falls Aesthetic Flow Survey

Revised March 2017

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1.0 Project Background/Purpose

The St. Anthony Falls Hydro Project, owned and operated by Xcel Energy, operates under the jurisdiction of the Federal Energy Regulatory Commission (FERC) via a 30-year license issued in 2004. It is located on Hennepin Island along the east bank of the Mississippi River in Minneapolis, Minnesota, and near one of the nation's first commercial hydroelectric stations. The plant draws power from St. Anthony Falls, the Mississippi's only waterfall. It is one of 85 properties comprising the Saint Anthony Falls Historic District, included on the National Register of Historic Places.

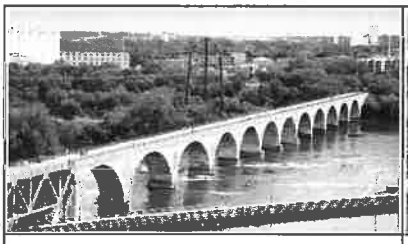
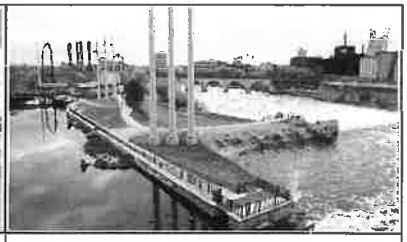
The history of the area and the beauty of the falls draw millions of visitors to this area each year. Attractions include the visitor center at the U.S. Army Corps of Engineers (USACE) Upper St. Anthony Falls Lock and Dam, Water Power Park, and the Stone Arch Bridge, which crosses the river below the falls. In 2005, FERC approved Xcel Energy's Aesthetic Flow Adequacy Plan as required by license article 403. The Plan, in part, directed Xcel Energy to survey visitors to these three sites regarding the aesthetic quality of various flows over the St. Anthony Falls main spillway—both the current minimum flow of 100 cfs and potential higher minimums. The questionnaire and survey methodology were developed by Xcel Energy in consultation with the National Park Service, U.S. Army Corps of Engineers, Minnesota Department of Natural Resources, Minneapolis Park and Recreation Board, Friends of the Mississippi River, and Crown Hydro.

Surveying began on May 19, 2016, and concluded on October 11, 2016. A total of 500 users were interviewed during this time regarding the frequency and timing of their visits to the St. Anthony Falls area. They were also asked to provide their opinions of:

- Spillway flow at the time of the interview.
- Spillway flow during previous visits.
- The adequacy of spillway flows from 100 to 2,000 cfs, as represented in photographs.

1.1 Survey Locations

Surveys were conducted at three locations within the St. Anthony Falls area: the Stone Arch Bridge, the USACE Visitor Center at the Upper St. Anthony Falls Lock and Dam, and Water Power Park. Photos of these sites and the number of surveys collected at each are shown below.

		
Stone Arch Bridge 177 surveys (35%)	**USACE Visitor Center at Upper St. Anthony Falls Lock and Dam** 163 surveys (33%)	**Water Power Park** 160 surveys (32%)

1.2 Survey Dates and Hours

Surveys were conducted from May 19, 2016, through October 11, 2016, during two timeframes: 8 a.m. to noon, and noon to 4 p.m. Three of these days were added to the original schedule (September 28, September 30, and October 11) due to inclement weather that periodically decreased area use and availability of respondents. The majority of surveying was completed between noon and 4 p.m., identified by interviewers as the most active period. Table 1-1 and Appendix A provide summaries of survey dates and times.

Table 1-1 Summary of Survey Dates and Hours

MAY		JUNE		JULY		AUGUST		SEPTEMBER		OCTOBER	
Date	Time	Date	Time	Date	Time	Date	Time	Date	Time	Date	Time
19	12–4	2	12–4	1	12-4	3	12–4	2	12–4	11	12–4
26	12–4	7	12–4	6	12–4	17	12-4	14	12–4		
		14	8–12	15	8–12	18	12–4	17	12–4		
		18	12-4	17	8-12	21	8-12	20	12–4		
		24	12–4	29	12–4	26	12-4	28	12–4		
						27	8-12	30	12-4		

1.3 Survey Respondents

1.3.1 Visitor Demographics

The St. Anthony Falls area is not a just a local attraction. Survey respondents included residents of 34 states and seven countries (Brazil, Canada, China, Denmark, England, Germany, and the Netherlands). Table 1-2 shows the total number of Minnesota respondents, respondents from other U.S. states, and international respondents. These numbers are based on zip codes provided during the survey. Figure 1-1 shows the number of visitors by state.

Table 1-2 Percentage of Minnesota, National, and International Visitors

Minnesota/Other U.S. States/ International Visitors	Number of Respondents	Percent of Respondents*
Minnesota	294	60%
Other U.S. states	180	36%
International	19	4%

* Note: Seven of the 500 persons interviewed refused to provide or gave inaccurate zip code information; percentages above reflect the total of 493 participants who provided residency information.

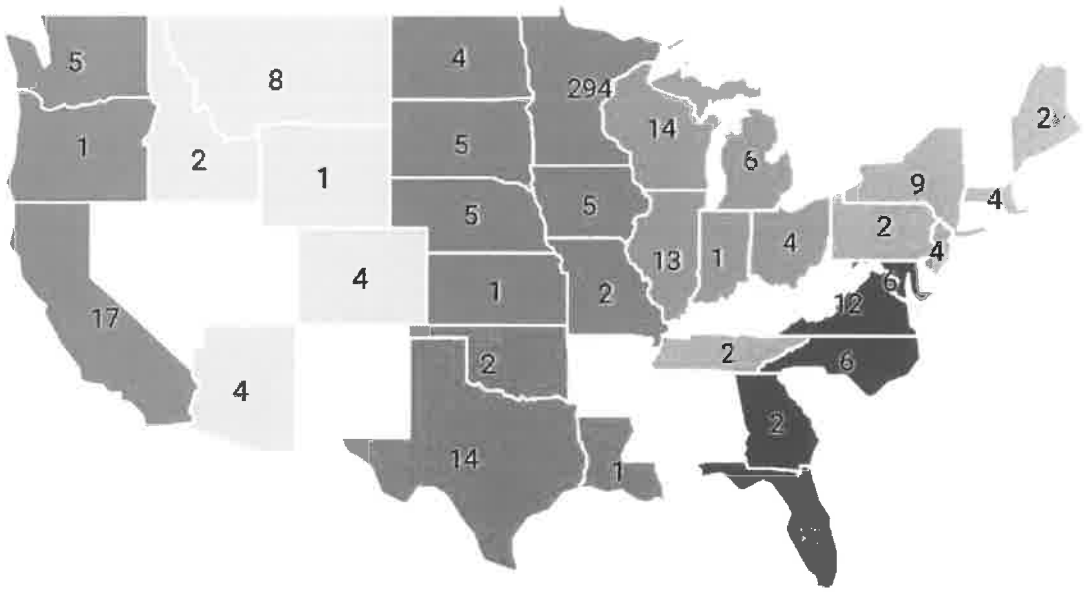


Figure 1-1 Number of Visitors by State

1.3.2 Minnesota Visitors

The 294 Minnesota visitors represented 29 of the state's 87 counties. The majority of those (86%) were from the seven-county metropolitan area (Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington counties). Visitors from Hennepin County, where St. Anthony Falls is located, totaled 166 (56%). Figure 1-2 shows the distribution of metro-area visitors.

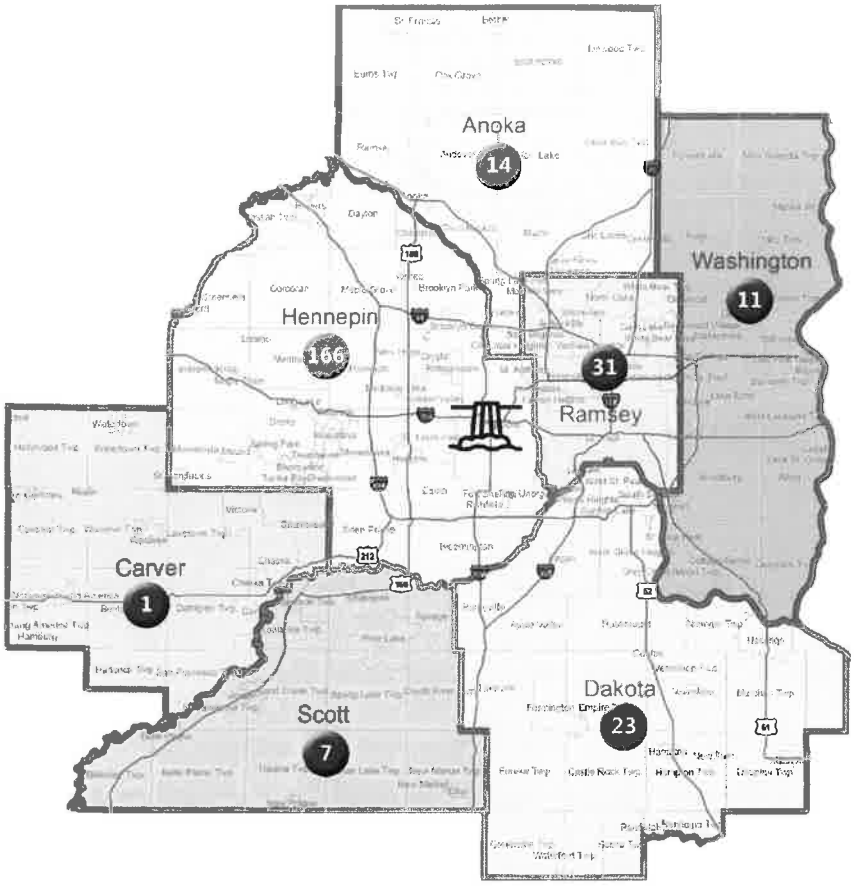


Figure 1-2 Distribution of Visitors from the 7-County Metro Area

1.4 Survey Questions

The survey included 11 questions. In general, respondents were asked to select an answer from among two to five options presented. Two questions allowed for more than one response: these were related to the seasons, days, and times that respondents visited the area. The last question, concerning when it would be appropriate to release water over the falls to improve its appearance, allowed for comments. Survey questions are shown in Table 1-3. Summaries of the responses are provided in Section 2.0 of this report.

1.5 Reporting

Results for Questions 2–9 are reported for all participants (500) and also include separate tabulation for those who have visited the St. Anthony Falls area on more than one occasion (232). The purpose of creating this subset is to identify whether there are significant differences in the opinions of first-time and repeat visitors.

Table 1-3 St. Anthony Falls Aesthetic Flow Survey Questions

Question	Response Options
Question 1—How often do you use or visit the Stone Arch Bridge/USACE Visitor Center/Water Power Park?	A) Frequently (one or more times per week)
	B) Occasionally (approximately once a month)
	C) Rarely (once or twice a year)
	D) First-time user
Question 2—How many years have you used this area?	A) Less than 1 year
	B) 1–5 years
	C) 6–10 years
	D) More than 10 years
Question 3—When do you visit the St. Anthony Falls riverfront area? (Circle all that apply)	A) Weekdays
	B) Weekends
	C) Mornings
	D) Mid-day
	E) Evenings
Question 4—What season(s) of the year do you visit this area? (Circle all that apply)	A) Spring
	B) Summer
	C) Fall
	D) Winter
Question 5—On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?	A) Always
	B) Usually
	C) Sometimes
	D) Never
Question 6—How often have you observed the waterfall when you thought there was too little water passing over it?	A) Frequently (one or more times per week)
	B) Occasionally (approximately once a month)
	C) Rarely (once or twice a year)
	D) First-time user
Question 7—Does the amount of water passing over the waterfall influence how often you visit the area?	A) Yes
	B) No

Question	Response Options
Question 8—Does the amount of water passing over the waterfall influence your enjoyment of the area?	A) Yes
	B) No
	C) Do not care or no opinion
Question 9—Please look at the photographs of the waterfall, numbered 1 through 7, shown to you by the interviewer. Please rate the photo as:	A) Unacceptable
	B) Marginal
	C) Acceptable
	D) Optimum
	E) Do not care or no opinion

Question	Response Options
Question 10—Based on what the waterfall looks like right now, how would you rate its appearance?	A) Unacceptable
	B) Marginal
	C) Acceptable
	D) Optimum
Question 11—When do you think water should be released over the waterfall to improve its appearance/beauty?	A) Daylight hours, year-round
	B) Daylight hours, non-winter months
	C) All hours, year-round
	D) All hours, non-winter months
	E) Other (specify)

1.6 Survey Methodology

Surveys were conducted by teams of two, a surveyor and a recorder, with the goal of obtaining approximately 20 responses during each survey period, roughly split among the three survey locations (see Section 1.2 for survey dates and hours). The surveyors approached visitors and asked if they had time to take a short survey regarding the waterfall. Potential respondents who refused the survey most frequently cited lack of time as the reason for refusal.

The surveyor read all questions to the respondent, verbatim, while the recorder documented their responses on paper. For question nine, the survey photo board (see Section 2.9 for description) was held by the surveyor to allow the respondent to view the seven photos of various low-flow conditions. The respondent was asked to rate the aesthetics of the waterfall in each photo as *unacceptable*, *marginal*, *acceptable*, *optimum*, or *do not care/no opinion*, while the recorder documented their responses on paper.

Respondents who inquired about the purpose of the survey were told that the surveyor and recorder were consultants conducting the survey on behalf of Xcel Energy, the spillway operator. The surveyor also explained that a new minimum flow over the waterfall may be required, and that public opinion on the aesthetics of the waterfall was being sought in determining an acceptable level of flow.

2.0 Results Summary

2.1 Question 1

How often do you use or visit this location?

The first question was designed to identify the frequency with which respondents visited the location where they were interviewed (the Stone Arch Bridge, the USACE Visitor Center at the Upper St. Anthony Falls Lock and Dam, or Water Power Park). Figure 2-1 shows overall responses. Table 2-1 shows results for the three individual survey locations. In all cases the majority of visitors were first-time users of the facilities. The Upper St. Anthony Falls Lock and Dam location attracted the highest percentage of first-time users (66%). The number of visitors who indicated they were "frequent users" averaged 15% across locations and ranged from 8–21% at individual locations. The Stone Arch Bridge had the greatest percentage of frequent users (21%).

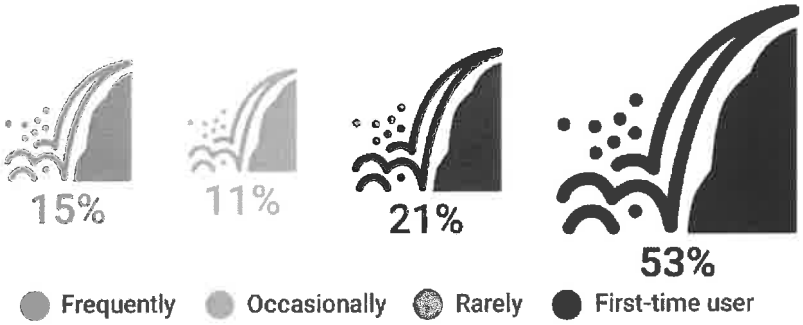


Figure 2-1 Frequency of Visits to St. Anthony Falls Interview Locations (Combined Results)

Table 2-1 Frequency of Visits to Individual Interview Locations

	Stone Arch Bridge		USACE Visitor Center at Lock and Dam		Water Power Park	
	Number of Responses	Response Percentage	Number of Responses	Response Percentage	Number of Responses	Response Percentage
Frequently	38	21%	13	8%	25	16%
Occasionally	20	11%	15	9%	18	11%
Rarely	33	19%	28	17%	42	26%
First-time user	86	49%	107	66%	75	47%
Total users	**177**		**163**		**160**	

2.2 Question 2

How many years have you used this area?

In Question 2, visitors were asked to identify the number of years they had used the St. Anthony Falls area (less than 1 year, 1–5 years, 6–10 years, or greater than 10 years). Over half of all visitors surveyed (58%) indicated they had used the area for a period of less than 1 year. This is consistent with responses to Question 1—where 53% stated they were first-time users. Figure 2-2 shows the total combined responses (500) from all three survey locations, and Table 2-2 shows responses for individual survey sites. Figure 2-3 and Table 2-3, on page 9, show this information for the subset of respondents that includes only repeat visitors (i.e., excludes those who identified themselves as first-time visitors).

While visitors to the USACE Visitor Center at the Upper St. Anthony Falls Lock and Dam were most likely to have used the area for less than one year (68%), the site also drew the highest percentage of visitors using the area for more than 10 years (20% overall and 59% of repeat visitors). Approximately equal numbers of repeat visitors (37% and 35%) stated they had used the area 1–5 years or more than 10 years (Figure 2-3).

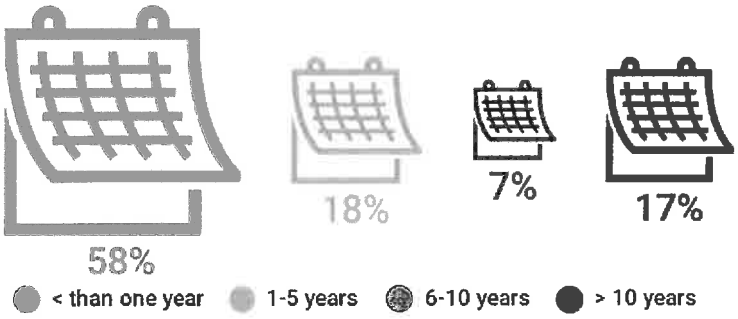


Figure 2-2 History of Area Use: All Respondents

Table 2-2 History of Area Use by Survey Location: All Respondents

	Stone Arch Bridge		USACE Visitor Center at Lock and Dam		Water Power Park	
	Number of Responses	Response Percentage	Number of Responses	Response Percentage	Number of Responses	Response Percentage
Less than one year	96	54%	112	68%	81	51%
1–5 years	42	24%	9	6%	38	24%
6–10 years	13	7%	9	6%	15	9%
More than 10 years	26	15%	33	20%	26	16%
Total users	**177**		**163**		**160**	

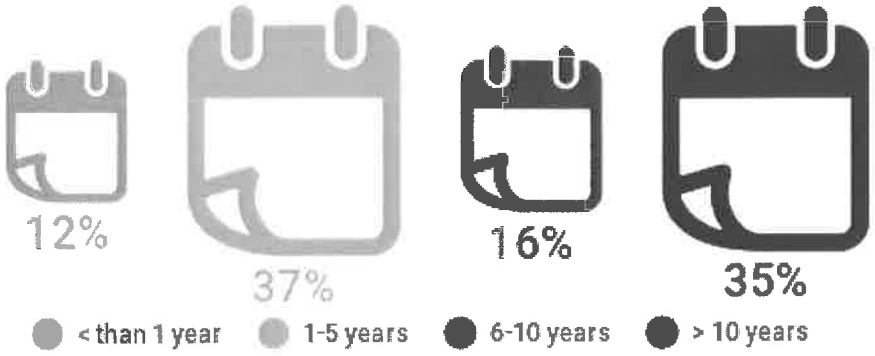


Figure 2-3 History of Area Use: Repeat Visitors

Table 2-3 History of Area Use by Survey Location: Repeat Visitors

	Stone Arch Bridge		USACE Visitor Center at Lock and Dam		Water Power Park	
	Number of Responses	Response Percentage	Number of Responses	Response Percentage	Number of Responses	Response Percentage
Less than one year	13	14%	5	9%	8	9%
1–5 years	40	44%	9	16%	38	45%
6–10 years	13	14%	9	16%	15	18%
More than 10 years	25	28%	33	59%	24	28%
Total users	**91**		**56**		**85**	

2.3 Question 3

When do you visit the St. Anthony Falls riverfront area?

Interview subjects were asked to indicate the days (weekdays and/or weekends) and times (mornings, mid-day, and/or evenings) they visited the St. Anthony Falls area. Figure 2-4 shows overall responses, with weekdays and mid-day commonly preferred. These responses may reflect the overall composition of the survey group (a large number of first-time users/out of state visitors, likely on vacation).

Figure 2-5, on page 12, shows responses for repeat visitors only. Eighty-one percent of these visitors are metro-area residents (58% living in Hennepin County). For this group, weekdays and weekends were equally popular. While repeat users also cited mid-day as a preferred time for area visits, 44% also referenced evenings (compared to 22% of the total group).

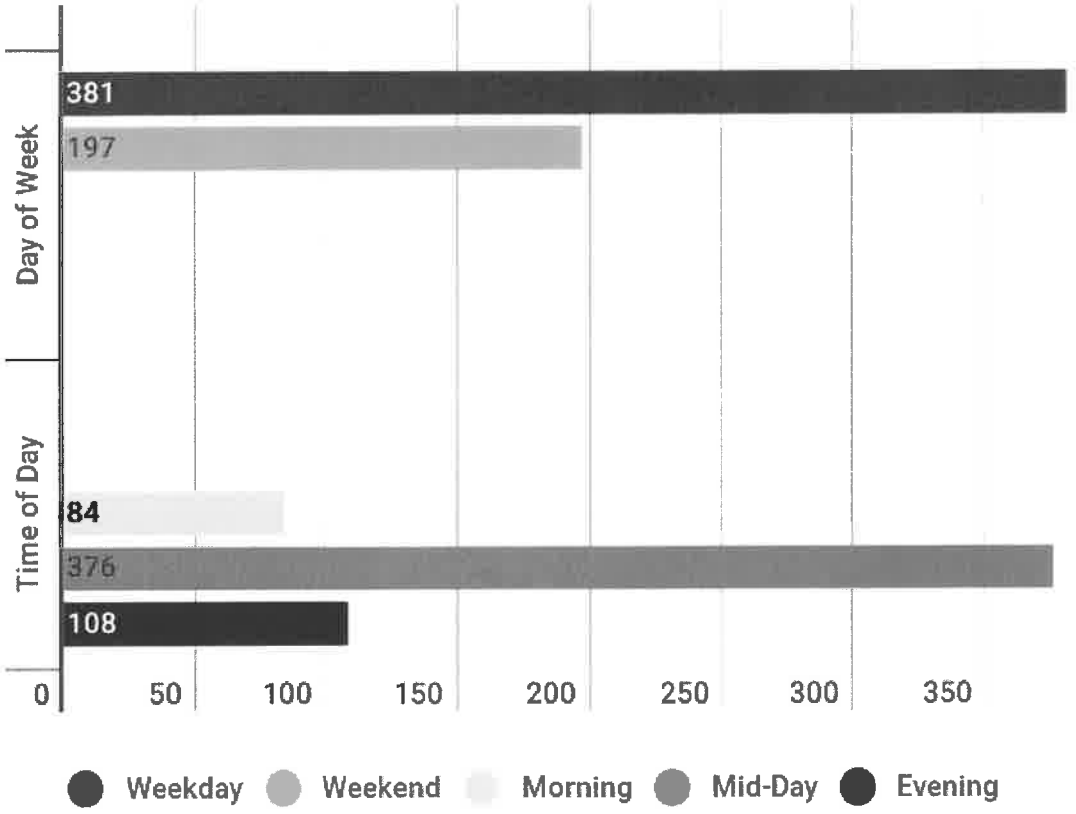


Figure 2-4 Preferred Days/Times of Area Use: All Respondents

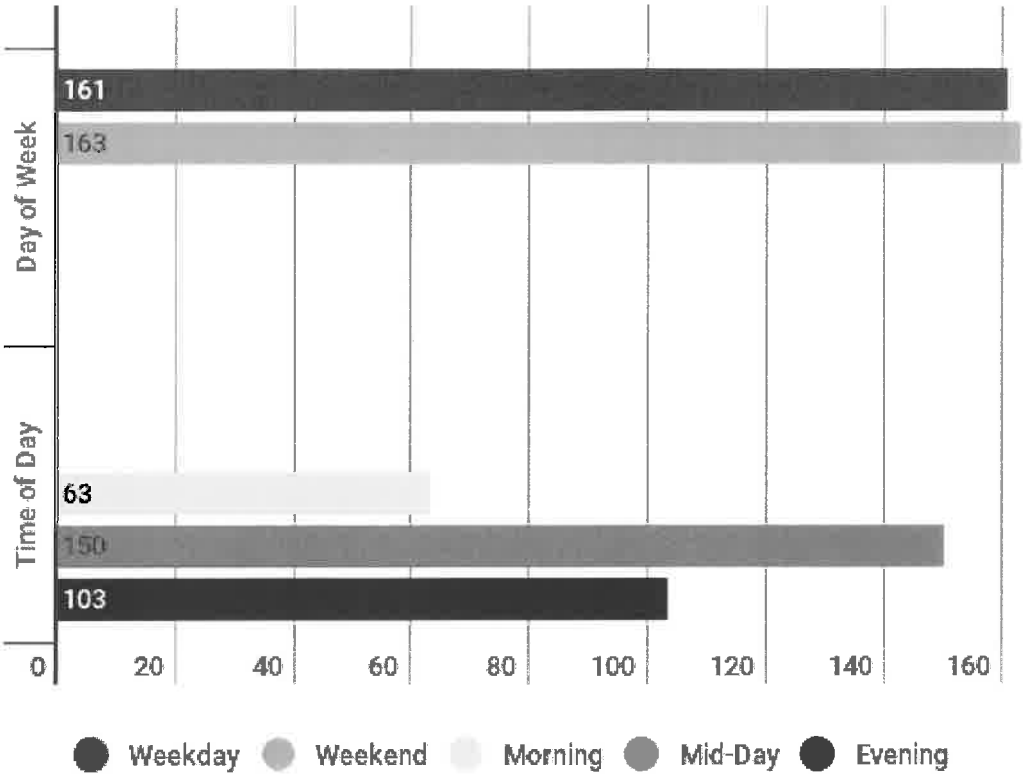


Figure 2-5 Preferred Days/Times of Area Use: Repeat Visitors

2.4 Question 4

What season(s) of the year do you visit this area?

In Question 4, interview subjects were asked to identify the time(s) of year they visited the St. Anthony Falls riverfront area. Figure 2-6 shows the total distribution of responses by season. Summer was mentioned by 463 of the 500 respondents (93%); 290 of these (58%) indicated that they only visit the area during the summer. Fall was the second-most popular season for area use, mentioned by 181 respondents (36%).

Figure 2-7 shows the distribution of responses for repeat visitors only. Again, 81% of the 232 repeat visitors are metro-area residents, which gives them convenient access to St. Anthony Falls year-round. This was evident in their seasonal use, which was more evenly distributed: 96% indicated that they visit the area during the summer, 68% during the fall, 62% in spring, and 28% in winter.

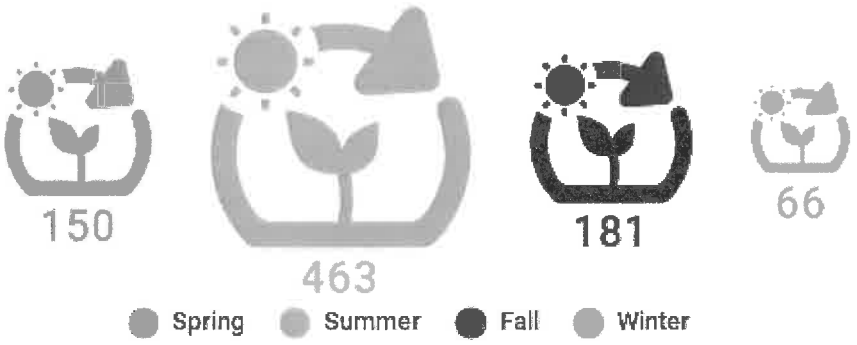


Figure 2-6 Preferred Seasons for Area Use: All Respondents

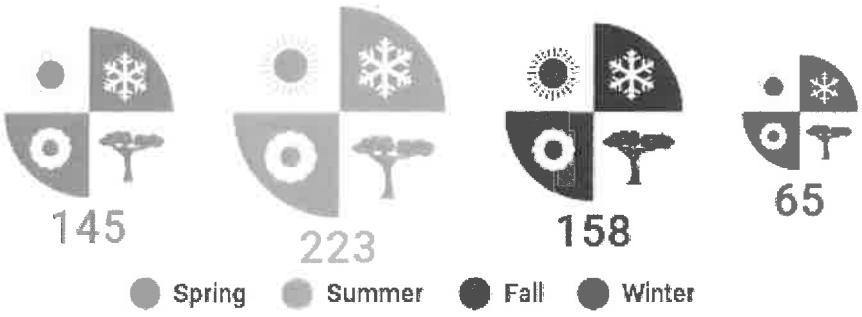


Figure 2-7 Preferred Seasons for Area Use: Repeat Visitors

2.5 Question 5

On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?

When asked how often they noticed the volume of water flowing over the St. Anthony Falls waterfall, a majority of those surveyed (80%) indicated that they *always* notice the water flow. Figure 2-8 shows the total distribution of responses. Figure 2-9 shows the distribution of responses for repeat visitors only; this group was somewhat less aware of water flow, with 61% stating that they *always* notice water volume.

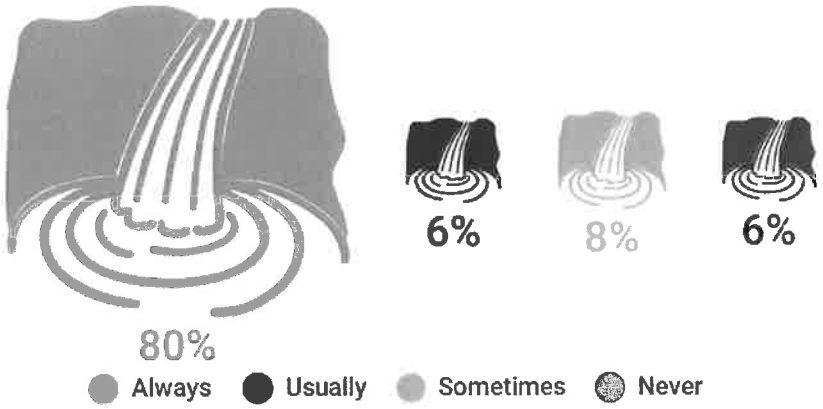


Figure 2-8 Awareness of Waterfall Flow: All Respondents

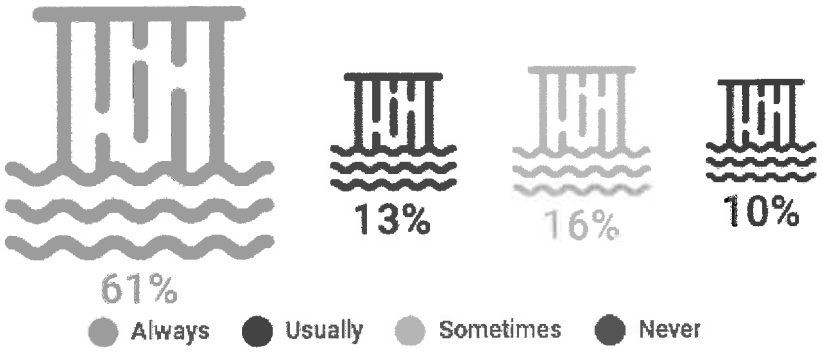


Figure 2-9 Awareness of Waterfall Flow: Repeat Visitors

2.6 Question 6

How often have you observed the waterfall when you thought there was too little water passing over it?

Visitors were asked how frequently they observed limited water passing over the falls. Response choices were *frequently* (one or more times per week), *occasionally* (approximately once a month), *rarely* (once or twice a year), or *first-time user*. As discussed in Section 2.5, the majority of all visitors interviewed (80%) indicated that they always notice the volume of water passing over the falls; however, very few (about 5%) stated that they frequently or occasionally thought there was too little water. Figure 2-10 shows the total distribution of responses. Figure 2-11 shows responses for repeat visitors only; 91% of this group stated that they *rarely* observe too little water passing over the falls.

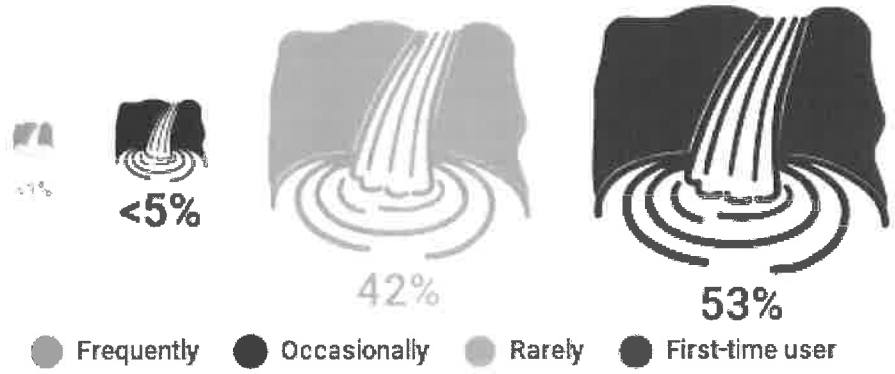


Figure 2-10 Frequency of Low-Flow Observations: All Respondents

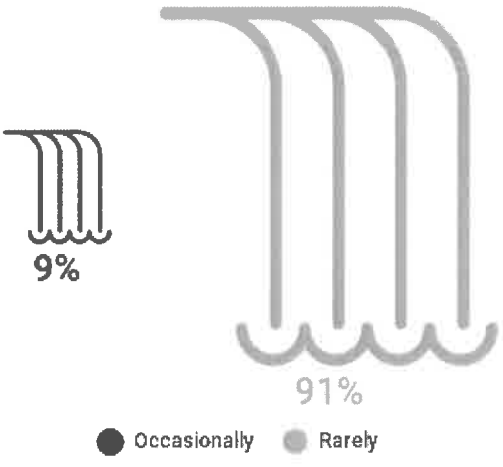


Figure 2-11 Frequency of Low-Flow Observations: Repeat Visitors

2.7 Question 7

Does the amount of water passing over the waterfall influence how often you visit the area?

An overwhelming number of those surveyed (87% of both total respondents and repeat visitors) stated that the volume of water passing over the falls did not influence the frequency of their visits to the area.

2.8 Question 8

Does the amount of water passing over the waterfall influence your enjoyment of the area?

While the amount of flow over the falls had very little influence on the frequency of visits to St. Anthony Falls, the majority of respondents (68%) indicated that it did influence their enjoyment of the area. This decreases to 54% when only repeat visitors are considered; another 43% of this group stated that low flow did not influence their enjoyment and 3% had no opinion.

2.9 Question 9

Please look at the photographs of the waterfall, numbered 1 through 7, shown to you by the interviewer. Please rate each photo as: a) unacceptable, b) marginal, c) acceptable, d) optimum, or e) do not care or no opinion

In this section of the survey, visitors were asked to assign ratings of *unacceptable, marginal, acceptable, optimum, or don't care/no opinion* to photos showing different levels of flow over the waterfall (100 to 2,000 cubic feet per second [cfs]). These photos, representing the view from each interview location, were 7 by 10 inches and displayed randomly on 20- by 30-inch poster board (i.e., not in order of flow rate). Figure 2-12 shows the board used at Water Power Park; note that labels shown in the figure are for reference; these were not provided to participants. A general summary of results is provided in Section 2.9.1. Tabulated survey responses related to specific photos/flow levels are outlined in Sections 2.9.2 through 2.9.7 including summaries of the total survey group (500) and the subset comprising those who have made repeat visits to the St. Anthony Falls area (232).

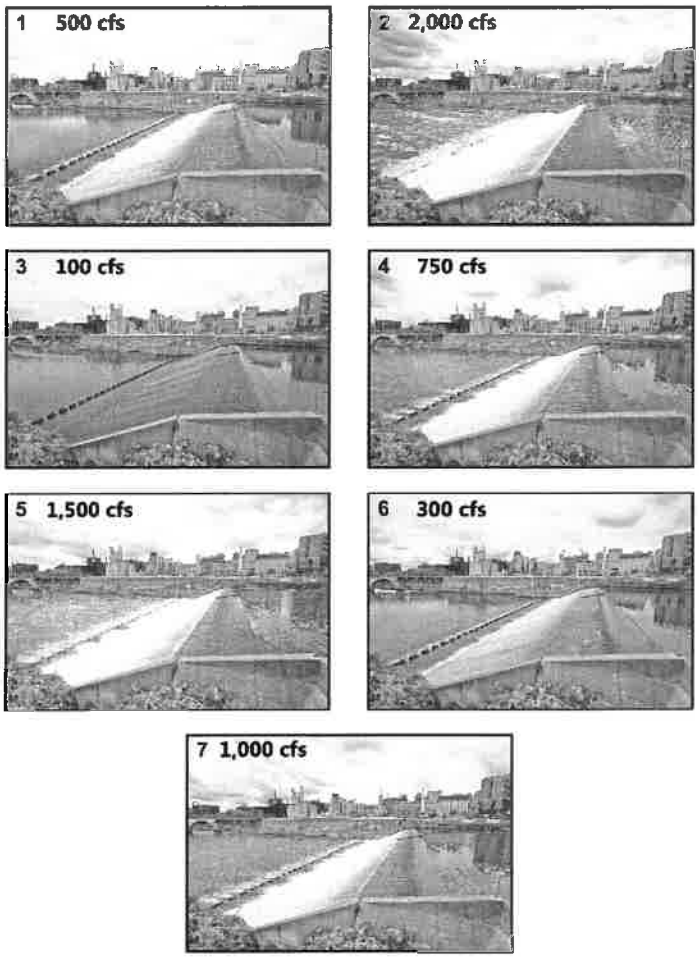


Figure 2-12 Representation of Poster Board Used at Water Power Park

2.9.1 General Summary of Photo Ratings

- A number of participants ranging from 9–25% chose the response *do not care/no opinion* when asked to rate the photos. Photos 2 and 3—which represented the flow extremes of 100 and 2,000 cfs—drew the lowest number of *no-opinion* responses.
- Respondents preferred higher levels of flow (2,000 and 1,500 cfs). The majority of respondents (56%) considered 2,000 cfs (Photo 2) to be an *optimum* flow rate; 26% also rated the 1,500 cfs flow (Photo 5) as *optimum*. Other flow levels were rated as *optimum* by 4–9% of all respondents.
- The rating most frequently assigned to Photo 3, which represented a flow of 100 cfs, was *unacceptable* (41% of respondents); however, 29% considered it to be *acceptable* and 6% considered it to be *optimum*.
- The rating selected most frequently for five of the seven photos was *acceptable*. These photos represented flow levels of 300, 500, 750, 1,000, and 1,500 cfs—suggesting that visitors have a fairly high "tolerance" for a wide range of flows.
- While 41% of respondents found the flow of 100 cfs to be *unacceptable*, the percentage of *unacceptable* ratings assigned to other flow levels was low and did not vary significantly. The 300 cfs flow was rated *unacceptable* by 9% of visitors surveyed; the five flow levels between 500 and 2,000 cfs were rated *unacceptable* by 2–5% of respondents.

Figure 2-13 shows the distribution of all ratings (*unacceptable, marginal, acceptable, optimum, no opinion*), by percentage, for each level of flow represented in the photographs. Figure 2-14 shows the same distribution of ratings from the subset of 232 repeat visitors.

A comparison of weekend responses to the entire data set is summarized in Section 2.9.9.

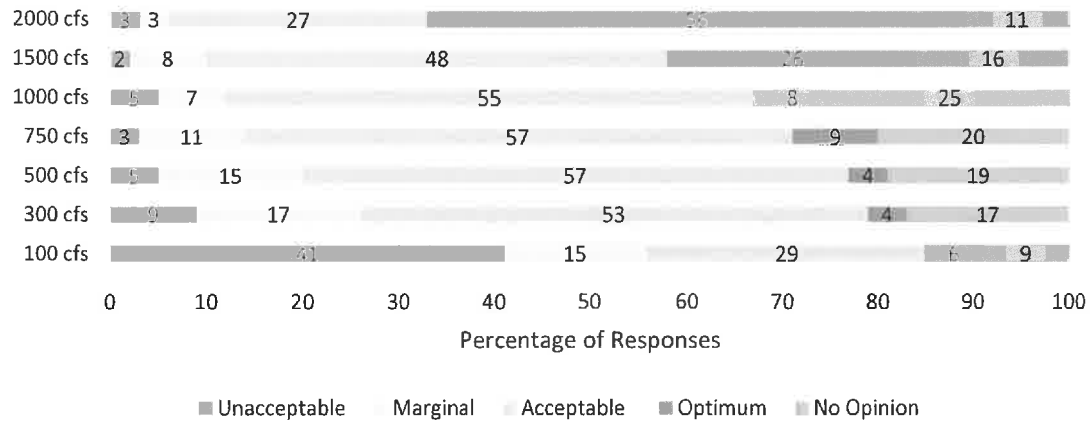


Figure 2-13 Distribution of Ratings for Range of Flow Levels (100–2,000 cfs): All Respondents

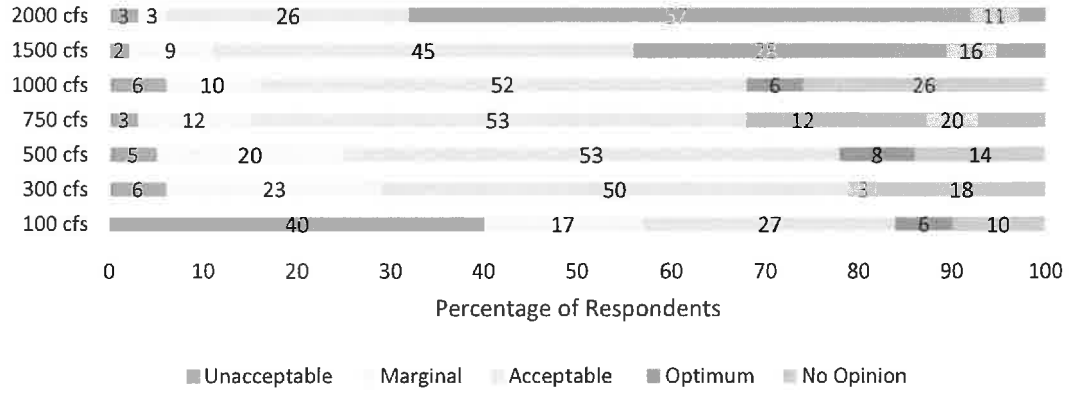


Figure 2-14 Distribution of Ratings for Range of Flow Levels (100–2,000 cfs): Repeat Visitors

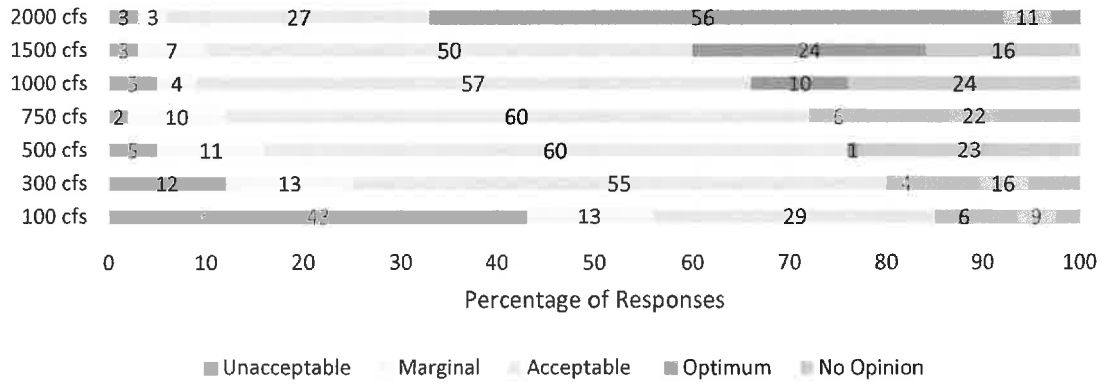


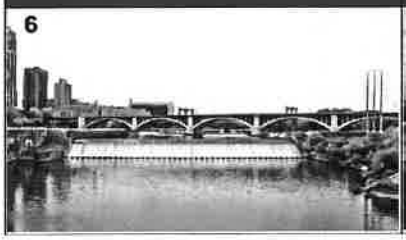
Figure 2-15 Distribution of Ratings for Range of Flow Levels (100–2,000 cfs): First-Time Visitors

2.9.2 100 cfs (Photo 3)

Stone Arch Bridge	USACE Visitor Center at Lock and Dam	Water Power Park
		

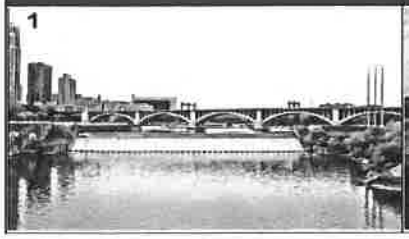
Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	**207**	**41%**	75	15%	142	29%	31	6%	45	9%
First-time visitors	114	43%	35	13%	79	29%	17	6%	23	9%
Repeat visitors	93	40%	40	17%	63	27%	14	6%	22	10%

2.9.3 300 cfs (Photo 6)

Stone Arch Bridge	USACE Visitor Center at Lock and Dam	Water Power Park
		

Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	46	9%	87	17%	**264**	**53%**	18	4%	85	17%
First-time visitors	31	12%	34	13%	148	55%	11	4%	44	16%
Repeat visitors	15	6%	53	23%	116	50%	7	3%	41	18%

2.9.4 500 cfs (Photo 1)

Stone Arch Bridge	USACE Visitor Center at Lock and Dam	Water Power Park
		

Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	26	5%	77	15%	**284**	**57%**	21	4%	92	19%
First-time visitors	13	5%	30	11%	162	60%	2	1%	61	23%
Repeat visitors	13	5%	47	20%	122	53%	19	8%	31	14%

2.9.5 750 cfs (Photo 4)

Stone Arch Bridge	USACE Visitor Center at Lock and Dam	Water Power Park
		

Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	13	3%	54	11%	**284**	**57%**	44	9%	105	20%
First-time visitors	6	2%	25	10%	161	60%	17	6%	59	22%
Repeat visitors	7	3%	29	12%	123	53%	27	12%	46	20%

2.9.6 1,000 cfs (Photo 7)

USACE Visitor Center at Lock and Dam	Water Power Park
	

Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	18	5%	22	7%	**177**	**55%**	26	8%	80	25%
First-time visitors	10	5%	8	4%	103	57%	18	10%	43	24%
Repeat visitors	8	6%	14	10%	74	52%	8	6%	37	26%

Photo 7 showed a flow of 1,000 cfs. Survey results from only two of the three locations—the USACE Visitor Center and Water Power Park—are included.

An error was discovered on the poster board used at the Stone Arch Bridge. On that board only, the photo representing a flow of 100 cfs was inadvertently placed in the position of Photo 7 (1,000 cfs). There were two identical 100 cfs photos on the board. The error was discovered when tabulating results, therefore, the responses to the additional 100 cfs photo were removed from the reported data.

The total number of responses for the 1,000 cfs photo is 323, roughly split between the USACE Visitor Center, and Water Power Park. All other photos received 500 responses.

2.9.7 1,500 cfs (Photo 5)

Stone Arch Bridge	USACE Visitor Center at Lock and Dam	Water Power Park
		

Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	11	2%	39	8%	**241**	**48%**	128	26%	81	16%
First-time visitors	7	3%	18	7%	136	50%	64	24%	43	16%
Repeat visitors	4	2%	21	9%	105	45%	64	28%	38	16%

2.9.8 2,000 cfs (Photo 2)

Stone Arch Bridge	USACE Visitor Center at Lock and Dam	Water Power Park
		

Flow Ratings										
	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
Group	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.	# Resp.	Pct.
All respondents	13	3%	17	3%	133	27%	**282**	**56%**	55	11%
First-time visitors	7	3%	9	3%	73	27%	150	56%	29	11%
Repeat visitors	6	3%	8	3%	60	26%	132	57%	26	11%

2.9.9 Comparison of Flow Ratings: Weekend Visitors vs. Total Surveyed

Table 2-4 Aesthetic Flow Ratings: Weekend Visitors (N=70*)

	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
	Resp.	**%**	**Resp.**	**%**	**Resp.**	**%**	**Resp.**	**%**	**Resp.**	**%**
100 CFS	**30**	**43%**	7	10%	20	29%	2	3%	11	16%
300 CFS	9	13%	4	6%	**36**	**51%**	1	1%	20	29%
500 CFS	7	10%	9	13%	**36**	**51%**	2	3%	16	23%
750 CFS	5	7%	6	9%	**38**	**54%**	4	6%	17	24%
1,000 CFS*	6	10%	2	3%	**30**	**51%**	3	5%	18	31%
1,500 CFS	4	6%	4	6%	**35**	**50%**	11	16%	16	23%
2,000 CFS	4	6%	3	4%	19	27%	**32**	**46%**	12	17%

Data for 1,000 CFS does not include visitors to the Stone Arch Bridge location; total number of responses for this flow level equals 59.

Table 2-5 Aesthetic Flow Ratings: All Visitors Surveyed (N=500*)

	Unacceptable		Marginal		Acceptable		Optimum		No Opinion	
	Resp.	**%**	**Resp.**	**%**	**Resp.**	**%**	**Resp.**	**%**	**Resp.**	**%**
100 CFS	**207**	**41%**	75	15%	142	29%	31	6%	45	9%
300 CFS	46	9%	87	17%	**264**	**53%**	18	4%	85	17%
500 CFS	26	5%	77	15%	**284**	**57%**	21	4%	92	19%
750 CFS	13	3%	54	11%	**284**	**57%**	44	9%	105	20%
1,000 CFS*	18	5%	22	7%	**177**	**55%**	26	8%	80	25%
1,500 CFS	11	2%	39	8%	**241**	**48%**	128	26%	81	16%
2,000 CFS	13	3%	17	3%	133	27%	**282**	**56%**	55	11%

Data for 1,000 CFS does not include visitors to the Stone Arch Bridge location; total number of responses for this flow level equals 323.

2.10 Question 10

Based on what the waterfall looks like right now, how would you rate its appearance?

At the time of the survey, the flow of water over the falls ranged from 2,200 to 25,000 cfs, see Figure 2-16. Respondents were asked to rate the appearance of the waterfall as they saw it that day, applying the same descriptors used for the photos in Question 9: *unacceptable, marginal, acceptable, and optimum*. Figure 2-17 summarizes the total responses, showing 67% of all participants rating the waterfall at the time of the survey as *optimum*. Table 2-4 summarizes the response by individual survey location and shows fairly similar results across the three survey sites.

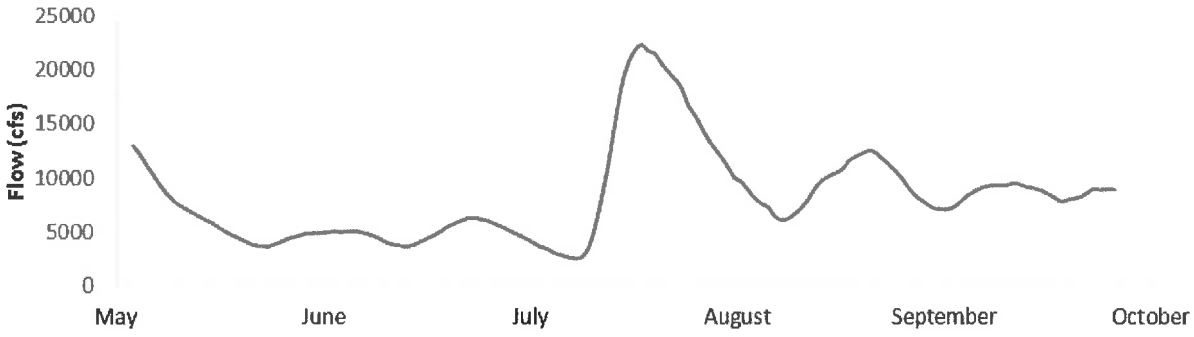


Figure 2-16 Waterfall Flow during Survey Period

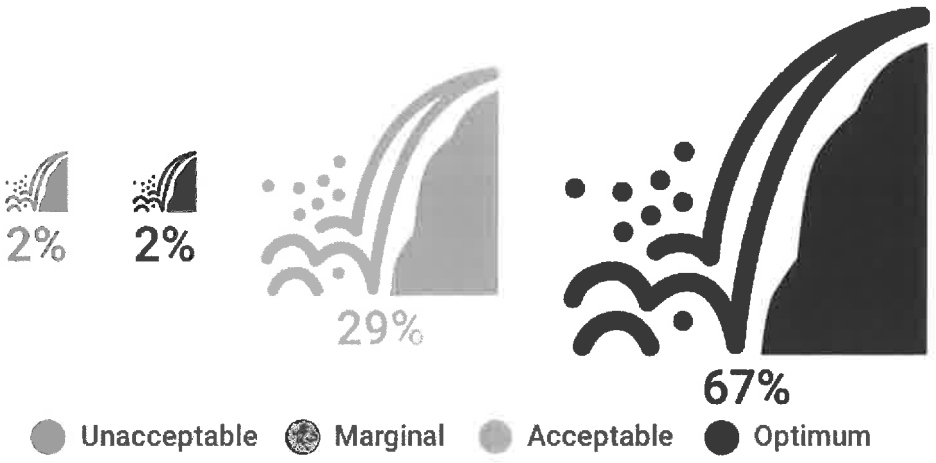


Figure 2-17 Waterfall Appearance Rating on Day of Survey

Table 2-6 Waterfall Appearance Rating by Survey Location

	Stone Arch Bridge		USACE Visitor Center at Lock and Dam		Water Power Park	
	Number of Responses	**Response Percentage**	**Number of Responses**	**Response Percentage**	**Number of Responses**	**Response Percentage**
Unacceptable	1	0.5%	4	2%	4	3%
Marginal	7	4%	3	2%	2	1%
Acceptable	61	34.5%	37	23%	46	29%
Optimum	108	61%	119	73%	108	67%
Total users	**177**		**163**		**160**	

2.11 Question 11

When do you think water should be released over the waterfall to improve its appearance/beauty?

At the conclusion of the survey, visitors were asked when they thought it would be appropriate to release water over St. Anthony Falls to improve its aesthetics. Four combinations of seasons and hours were offered as responses (daylight hours, year-round; daylight hours, non-winter months; all hours, year-round; all hours, non-winter months). Participants were also allowed to select their own timeframe or provide other comments. Figure 2-18 shows the overall distribution of responses. Those who selected from among the specific options offered were most likely to indicate that water should be released during daylight hours in non-winter months (36%). However, a significant number of those interviewed (about 30%) chose either to identify a different timeframe or make general comments. These responses are provided in Table 2-5. The most common sentiment was that decisions about releasing water should be based on the environment. A number of visitors also expressed the opinion that water should never be released for aesthetics (20 respondents).

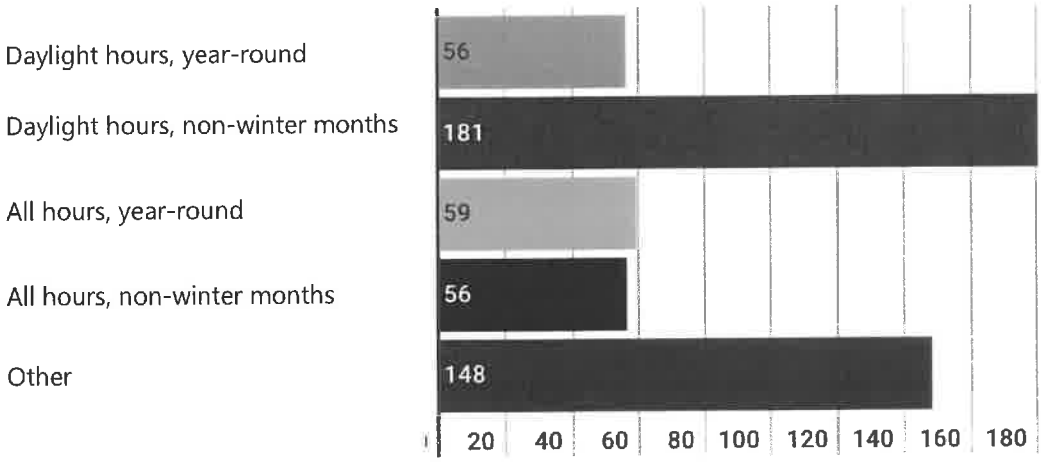


Figure 2-18 Appropriate Timing of Water Release to Improve the Aesthetics of St. Anthony Falls

Table 2-7 Question 11: "Other" Responses

General Comments	Number of Responses
Whatever is best for the environment/ecosystem	26
Don't care/no opinion	24
Water should not be released for aesthetics	20
Flow should never be controlled	17
Priority should be given to hydropower	10
When necessary	6
Remove the dam	4
Do not care as long as the waterfall is not dry	4
Not sure	4
Whatever is environmentally friendly and optimizes power generation	2
"Majority of people"	2
Depends on adequacy of water supply	1
Depends on rainfall	1
Depends on a lot of factors	1
Depends on the damage/benefits of releases	1
Should depend on downstream conditions	1
Only when there is enough/excess water	1
Likes less water	1
If flow affects business, set flow to promote economic impact	1
Silly	1
Schedule-Based Comments	**Number of Responses**
10–3 p.m., spring and summer	4
All hours, winter months	3
5 a.m.–10 p.m., spring, summer, and fall	1
Daylight hours during weekends	1
Evening hours during summer	1
Daylight hours during low headwater	1
During high-traffic times; should not affect power generation	1
Varies, based on days of the week	1

3.0 Conclusions

Following is a summary of conclusions drawn from the responses of 500 visitors to questions about their use of St. Anthony Falls sites and the influence of the waterfall on area use and aesthetics.

1. **The St. Anthony Falls area draws visitors from a wide geographic area.** Of the 493 respondents who provided valid zip code information, 36% were from states other than Minnesota and 4% were international visitors representing seven countries.

2. **Minnesota visitors are primarily from the seven-county metropolitan area**; 86% of those providing valid zip codes were from Hennepin, Ramsey, Carver, Scott, Dakota, Washington, or Anoka counties. The majority of visitors from the metro area (56%) are from Hennepin County, where St. Anthony Falls is located.

3. **The St. Anthony Falls area draws a significant number of first-time users** (53% in this survey). It is possible that this number is artificially high, given that vacationing visitors with fewer time constraints may have been more inclined to participate in the survey. The USACE Visitor Center at the Upper St. Anthony Falls Lock and Dam, part of the National Park System, had both the highest percentage of first-time visitors (65%) and visitors using the area 10 or more years. Only 15% of those surveyed classified themselves as frequent users of the area.

4. **A significant number of visitors have used St. Anthony Falls facilities for less than one year** (58% in this survey). This correlates with the high number of first-time users.

5. **Weekday afternoons were most frequently specified as the preferred time for visits to the St. Anthony Falls riverfront area**. Forty-five percent of all respondents indicated they visited the area at mid-day during the week. However, it should be noted that surveying was conducted between noon and 4 p.m. on 18 of the 23 survey days and during the work week on 20 of 23 days. It could be that the preferences observed are, in part, a reflection of the days and times surveys were conducted. When only repeat visitors were considered, weekdays and weekends were equally preferred and evenings referenced more frequently.

6. **Overall, summer was by far the most popular season for visits to the St. Anthony Falls area** (selected by 93% of respondents); 58% indicated that summer was the only time they use the area. Seasonal use was more equally distributed among repeat visitors: 96% indicated that they visit the area during the summer, 68% during the fall, 62% in spring, and 28% in winter. This is likely due to the fact that 81% of this subgroup lives in the seven-county metropolitan area, giving them more convenient year-round access.

7. **Visitors to the St. Anthony Falls site are aware of how much water flows over the falls**; 80% indicated that they *always* notice water flow.

8. **A very small percentage of visitors (approximately 5%) indicated that they frequently or occasionally observed too little water passing over the falls.** However, more than half of those surveyed (53%) were first-time users, unable to reference previous periods of low flow. Considering only repeat visitors, 91% indicated that they *rarely* observed substandard flow; the remaining 9% indicated that they *occasionally* observed unacceptably low flow.

9. **An overwhelming majority of users (87%) stated that the level of flow over St. Anthony Falls does not influence how often they visit the area. This percentage was the same for both the total survey group and the subset of repeat visitors. While the amount of water passing over the falls may not influence the frequency of visits, it does influence user enjoyment of the area:** 68% of the total survey group and 54% of repeat visitors stated that their enjoyment of St. Anthony Falls was affected by the level of water flow.

10. **Users considered higher levels of flow to be *optimum*.** Presented with seven photographs representing water flow levels between 100 and 2,000 cfs, the 2,000 cfs flow was rated *optimum* by 56% of respondents and the 1,500 cfs flow was rated *optimum* by 26%. *Optimum* ratings for all other flow levels ranged from 4–9%.

11. **A significant number of users (41%) viewed a flow of 100 cfs as *unacceptable*.** After 100 cfs, the flow most frequently rated *unacceptable* was 300 cfs (9%).

12. **Flow conditions of 300, 500, 750, 1,000, and 1,500 cfs were most frequently rated as *acceptable*.** This was true for both first-time and repeat visitors and seems to suggest a fairly wide "tolerance" for a range of flows.

13. **Visitors were very satisfied with flow conditions at the time of the survey.** Asked to rate real-time flow conditions, 67% chose *optimum* and another 29% chose *acceptable*. Recorded flows at the time of the survey ranged from 2,200 to 25,000 cfs.

14. **Of the visitors who thought water should be released over the waterfall to enhance the aesthetics of the area, 36% selected daylight hours in non-winter months as most appropriate for a release.** However, visitors expressed the opinion that the environment should be the primary concern and that water should never be released for aesthetic purposes.

For comprehensive survey responses, please refer to Appendix B.

Appendix A

Calendar Summary of Survey Dates and Times

May

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

June

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

July

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24 / 31	25	26	27	28	29	30

August

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

September

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

October

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23 / 30	24 / 31	25	26	27	28	29

KEY **8 a.m.–12 noon** **12 noon–4 p.m.**

Appendix B

Survey Responses

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewee Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit the area? (Circle all that apply.)	Question 5 - On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	If E (Other) write response here:
														Photograph 1 (500 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (100 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1500 cfs)	Photograph 6 (300 cfs)	Photograph 7 (1000 cfs)			
1	Park	5/19/16	11:50 AM	PFB/CRH	55413	C	D	C	A,B,C,D	A	C	B	B	E	D	D	E	E	E	E	D	C	
2	Park	5/19/16	11:50 AM	PFB/CRH	55077	C	A	A,B,C,D,E	A,B	A	C	B	B	B	D	D	B	B	B	B	D	C	
3	Park	5/19/16	11:55 AM	PFB/CRH	48415	D	A	A	A	A	D	A	A	C	D	B	C	C	C	C	D	B	
4	Park	5/19/16	12:15 PM	PFB/CRH	55056	A	A	A,D	A,E	B	C	B	A	C	D	C	C	C	C	C	C	B	
5	Park	5/19/16	12:25 PM	PFB/CRH	55401	D	A	A	A,B	A	D	A	A	E	E	E	D	E	E	E	C	E	Varies based on the day of the week
6	Park	5/19/16	12:45 PM	PFB/CRH	55401	C	B	B	B	A	C	A	A	C	D	A	C	C	B	C	D	D	
7	Park	5/19/16	12:45 PM	PFB/CRH	14803	D	A	A	B	A	D	B	A	C	D	A	C	C	B	C	D	C	
8	Park	5/19/16	12:45 PM	PFB/CRH	77055	D	A	A	B	A	D	B	A	C	D	A	C	C	B	C	D	C	
9	Park	5/19/16	1:00 PM	PFB/CRH	98092	D	A	A	B	A	D	B	A	C	C	A	C	C	D	C	D	C	
10	Park	5/19/16	1:05 PM	PFB/CRH	55410	B	C	A,B,C,E	A,B,C	A	C	B	B	C	C	C	C	C	C	C	D	B	
11	Park	5/19/16	1:05 PM	PFB/CRH	55369	C	B	A,B,C,E	B	A	C	B	A	C	D	A	C	C	C	C	D	B	
12	Bridge	5/19/16	1:50 PM	PFB/CRH	28731	D	A	B	B	A	D	B	A	C	C	A	C	D	C	A	C	B	
13	Bridge	5/19/16	2:05 PM	PFB/CRH	53369	C	B	B	C	D	C	B	B	C	C	A	D	C	C	A	A	D	
14	Bridge	5/19/16	2:10 PM	PFB/CRH	55935	B	D	A,C	B,C	A	C	B	A	E	D	B	E	E	E	B	C	B	
15	Bridge	5/19/16	2:15 PM	PFB/CRH	24557	D	A	A	B	A	D	B	A	C	D	A	C	C	C	A	D	B	
16	Bridge	5/19/16	2:15 PM	PFB/CRH	24551	D	A	A	B	A	D	B	A	C	D	C	C	D	C	C	D	B	
17	Bridge	5/19/16	2:15 PM	PFB/CRH	24551	D	A	A	B	A	D	B	A	C	D	C	C	D	C	C	B	B	
18	Bridge	5/19/16	2:15 PM	PFB/CRH	55060	C	C	A	A,B,C,D	C	C	A	A	A	D	B	A	D	A	A	D	C	
19	Bridge	5/19/16	2:25 PM	PFB/CRH	54891	C	B	A	B	A	C	B	A	A	D	A	B	C	A	A	C	D	
20	Bridge	5/19/16	2:25 PM	PFB/CRH	54891	C	B	A	B	A	C	B	A	A	D	A	B	C	B	A	C	D	
21	Bridge	5/19/16	2:45 PM	PFB/CRH	55124	D	A	D	B	A	D	A	A	D	A	A	A	A	A	D	D	C	
22	Bridge	5/19/16	2:45 PM	PFB/CRH	K7L3N6 (Canada)	C	C	A,B,C,D,E	A,B	A	C	B	A	B	D	A	C	D	B	A	D	A	
23	Bridge	5/19/16	2:55 PM	PFB/CRH	55372	B	A	A,E	A,C	B	C	B	A	B	D	A	B	B	B	A	C	B	
24	Bridge	5/19/16	2:55 PM	PFB/CRH	55372	D	A	A	B	A	C	B	A	B	D	A	B	D	A	A	B	B	
25	Bridge	5/19/16	2:55 PM	PFB/CRH	56071	D	A	A	B	A	C	B	A	B	D	A	B	D	A	A	B	B	
26	Park	5/26/16	12:20 PM	PFB/WWK2	55410	A	D	A	A,B,C,D	C	B	B	A	C	D	B	C	D	C	C	D	E	No additional releases
27	Park	5/26/16	12:30 PM	PFB/WWK2	55024	C	A	A,D	A,B,C	A	C	B	B	E	D	E	E	E	E	E	D	B	
28	Park	5/26/16	12:30 PM	PFB/WWK2	55447	C	A	A,D	A,B,C	A	C	B	B	C	D	C	C	C	C	C	D	E	No additional releases
29	Park	5/26/16	12:30 PM	PFB/WWK2	55423	C	C	A,D	B	C	C	B	A	C	D	A	C	C	B	C	D	B	
30	Park	5/26/16	12:40 PM	PFB/WWK2	55423	C	C	A,D	B	C	C	B	A	B	D	A	C	C	B	C	D	B	
31	Park	5/26/16	12:55 PM	PFB/WWK2	62864	D	A	A	B	D	D	B	B	C	C	C	C	C	C	C	C	E	Doesn't matter
32	Park	5/26/16	12:55 PM	PFB/WWK2	62864	D	A	A	B	D	D	B	B	C	C	C	C	C	C	C	C	E	Doesn't matter
33	Park	5/26/16	1:15 PM	PFB/WWK2	55077	A	B	A,B,D	A,B,C	C	C	B	A	C	C	C	C	C	C	C	D	D	
34	Park	5/26/16	1:15 PM	PFB/WWK2	55414	B	D	A,B,C,D	A,B,C	C	C	B	A	C	D	C	C	C	C	C	D	D	
35	Park	5/26/16	1:25 PM	PFB/WWK2	55369	B	B	A,D	A,B,C,D	C	C	B	A	C	C	B	D	C	C	C	C	C	
36	Park	5/26/16	1:25 PM	PFB/WWK2	55369	B	B	A,D	A,B,C,D	C	C	B	A	C	C	C	C	C	C	C	C	C	
37	Park	5/26/16	1:30 PM	PFB/WWK2	55423	C	B	B,E	A,B,C	A	C	A	A	B	D	A	C	C	B	C	D	E	Never, power generation is more important
38	Park	5/26/16	1:45 PM	PFB/WWK2	55902	D	A	A,D	B	A	D	B	A	D	C	C	C	C	C	C	D	E	No extra releases
39	Park	5/26/16	1:45 PM	PFB/WWK2	55104	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	D	D	E	No extra releases
40	Bridge	5/26/16	2:20 PM	PFB/WWK2	1007	D	A	A,D	B	A	D	A	A	C	D	B	C	C	C	B	D	B	
41	Bridge	5/26/16	2:30 PM	PFB/WWK2	55331	A	B	A,B,C,D,E	A,B,C,D	B	C	B	C	C	B	B	C	C	C	D	B	D	
42	Bridge	5/26/16	2:40 PM	PFB/WWK2	55129	D	A	A,D	B	A	D	B	A	C	D	A	C	D	A	A	D	B	
43	Bridge	5/26/16	2:40 PM	PFB/WWK2	90604	D	A	A,D	B	A	D	B	A	C	D	A	C	D	A	A	D	B	
44	Bridge	5/26/16	3:00 PM	PFB/WWK2	55414	A	B	A,B,C,E	A,B,C	D	C	B	B	C	D	E	E	D	E	E	D	C	
45	Bridge	5/26/16	3:00 PM	PFB/WWK2	55414	A	B	A,B,C,D,E	A,B,C	D	C	B	B	E	D	E	E	D	E	E	D	E	No preference
46	Bridge	5/26/16	3:05 PM	PFB/WWK2	55901	A	C	A,B,C,D,E	A,B,C,D	C	C	B	B	E	E	A	E	D	E	A	C	E	During high traffic times/should not if it affects power generation
47	Bridge	5/26/16	3:20 PM	PFB/WWK2	55409	B	B	B,D,E	B,C	A	C	B	A	C	D	A	C	C	C	C	D	D	
48	Bridge	5/26/16	3:20 PM	PFB/WWK2	02215	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	C	D	D	
49	Bridge	5/26/16	3:20 PM	PFB/WWK2	50014	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	C	D	D	
50	Bridge	5/26/16	3:30 PM	PFB/WWK2	55414	A	B	A,B,E	B	B	B	B	B	C	C	B	C	D	C	C	D	B	
51	Park	6/2/16	1:00pm	CRH/WWK2	H2M1V4 (Canada)	D	A	A	B	A	D	A	A	A	D	A	B	C	A	C	D	A	
52	Park	6/2/16	1:00 PM	CRH/WWK2	H2M1V4 (Canada)	D	A	A	B	A	D	A	A	A	D	A	B	C	A	C	D	A	
53	Park	6/2/16	1:15 PM	CRH/WWK2	60625	D	A	A	B	A	D	A	A	A	D	D	A	A	A	A	D	A	
54	Park	6/2/16	1:50 PM	CRH/WWK2	54751	A	B	A	B	C	C	B	A	C	C	C	C	C	C	A	D	B	
55	Park	6/2/16	1:50 PM	CRH/WWK2	54755	D	A	B	B	A	D	B	A	C	D	D	C	A	C	C	D	C	
56	Lock	6/2/16	2:20 PM	CRH/WWK2	55427	A	A	A,B,C,D,E	A,B,C,D	A	C	B	B	C	C	C	C	C	C	C	D	E	Never
57	Lock	6/2/16	2:30 PM	CRH/WWK2	55438	A	A	A,B,C,D,E	A,B,C	A	C	B	B	C	C	C	C	C	C	C	C	E	Never
58	Lock	6/2/16	2:40 PM	CRH/WWK2	77520	D	A	A,D	B	A	D	B	A	D	C	C	C	C	D	C	C	B	
59	Lock	6/2/16	2:40 PM	CRH/WWK2	77520	D	A	A,D	B	A	D	B	A	D	C	C	C	C	D	C	C	B	
60	Lock	6/2/16	2:46 PM	CRH/WWK2	60542	D	A	A,D	B	A	D	A	C	C	D	A	C	D	A	C	D	A	
61	Lock	6/2/16	2:46 PM	CRH/WWK2	55414	D	A	A,D	B	A	D	A	C	C	D	A	C	D	A	C	D	A	
62	Bridge	6/2/16	3:35 PM	CRH/WWK2	55423	A	C	B	B	B	C	B	C	D	C	A	C	C	C	C	C	B	
63	Bridge	6/2/16	3:40 PM	CRH/WWK2	55413	A	A	A	B,D	B	C	B	A	C	C	C	C	C	C	C	D	E	
64	Bridge	6/2/16	3:50 PM	CRH/WWK2	55407	B	C	B,E	A,B,C,D	A	C	B	B	C	D	B	D	D	C	B	C	E	Whatever is better for the ecosystem
65	Bridge	6/2/16	4:00 PM	CRH/WWK2	55075	C	D	A	B,C	A	C	B	A	B	D	A	B	D	B	A	D	A	
66	Bridge	6/2/16	3:50 PM	CRH/WWK2	98122	C	D	A,B,C,D,E	A,B,C,D	A	C	B	B	A	A	A	D	D	C	B	D	E	Whatever is better for the environment
67	Bridge	6/2/16	4:00 PM	CRH/WWK2	55075	C	D	B	B,C	A	C	B	A	B	D	A	B	D	B	A	C	A	
68	Bridge	6/2/16	4:15 PM	CRH/WWK2	55414	D	A	A,D	B,C	B	C	B	A	C	D	A	C	C	B	A	D	B	
69	Bridge	6/2/16	4:15 PM	CRH/WWK2	48813	B	A	A,D	B,C	B	C	B	A	C	D	A	C	C	B	A	D	B	
70	Bridge	6/2/16	4:24 PM	CRH/WWK2	48169	D	A	A,D	B	A	D	A	A	C	D	C	B	D	C	C	D	B	
71	Bridge	6/2/16	4:30 PM	CRH/WWK2	92120	D	A	A,D	B	A	D	A	B	C	C	C	C	C	C	C	C	E	Never
72	Bridge	6/2/16	4:30 PM	CRH/WWK2	92120	D	A	A,D	B	A	D	A	A	C	C	C	C	C	C	C	C	A	

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewee Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit this area? (Circle all that apply.)	Question 5 - On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	WTE (Other) write response here:
														Photograph 1 (500 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (100 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1800 cfs)	Photograph 6 (500 cfs)	Photograph 7 (1000 cfs)			
73	Bridge	6/2/16	4:30 PM	CRH/WWK2	92102	D	A	A,D	B	A	D	A	B	C	C	C	C	C	C	C	C	E	None
74	Bridge	6/2/16	4:52 PM	CRH/WWK2	55405	A	D	A,B,C,D	A,B,C	A	C	B	A	C	D	C	C	C	C	C	C	E	Never
75	Bridge	6/2/16	4:52 PM	CRH/WWK2	55403	D	A	A,D	B	D	D	A	A	C	D	C	C	C	C	C	C	B	
76	Park	6/7/16	12:30 PM	WWK2/PFB	56359	D	A	A,D	B	A	D	B	A	C	C	D	C	C	C	C	C	C	
77	Park	6/7/16	12:35 PM	WWK2/PFB	55108	D	A	B,D	B	A	D	B	A	B	A	B	B	B	B	B	D	A	
78	Park	6/7/16	12:48 PM	WWK2/PFB	55105	C	C	A,D	A,B,C	B	C	B	B	C	C	C	C	C	C	C	C	E	Never
79	Park	6/7/16	12:48 PM	WWK2/PFB	55416	A	B	A,D	A,B,C	B	C	B	B	C	C	C	C	C	C	C	D	E	Never, more power
80	Park	6/7/16	1:10 PM	WWK2/PFB	55413	A	B	A,B,C,D,E	A,B,C,D	A	B	A	A	C	D	B	C	D	C	C	D	B	
81	Park	6/7/16	1:10 PM	WWK2/PFB	55710	C	B	B	A,B,C,D	A	C	B	A	C	D	B	C	D	C	C	D	B	
82	Park	6/7/16	1:10 PM	WWK2/PFB	55110	C	B	B	A,B,C,D	A	C	B	A	C	D	B	C	D	C	C	D	B	
83	Lock	6/7/16	1:40 PM	WWK2/PFB	68005	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	E	D	E	Should not happen
84	Lock	6/7/16	1:40 PM	WWK2/PFB	80537	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	E	D	E	Should not happen
85	Lock	6/7/16	1:47 PM	WWK2/PFB	55113	C	D	A,C,D,E	B	C	C	B	B	E	D	A	E	E	E	E	C	E	Don't care
86	Lock	6/7/16	1:55 PM	WWK2/PFB	68046	C	D	A,D	B	D	C	B	A	B	D	A	B	B	B	B	C	C	
87	Lock	6/7/16	2:15 PM	WWK2/PFB	Frankfurt, Germany	D	A	B,D	B	A	D	B	A	C	C	A	C	C	C	D	C	C	
88	Lock	6/7/16	2:20 PM	WWK2/PFB	55345	C	D	A,D	B,D	D	C	B	B	B	E	E	E	E	E	E	D	E	
89	Lock	6/7/16	2:20 PM	WWK2/PFB	55471	D	A	B,D	B	A	D	B	A	B	E	E	E	E	E	E	D	E	Don't know
90	Lock	6/7/16	2:25 PM	WWK2/PFB	55471	D	A	A	B	A	D	B	A	C	D	C	C	C	C	C	D	E	Shouldn't be messin' with it
91	Lock	6/7/16	2:25 PM	WWK2/PFB	55471	D	A	A	B	A	D	B	A	C	D	C	C	C	C	C	D	E	Shouldn't be messin' with it
92	Lock	6/7/16	2:30 PM	WWK2/PFB	33761	D	A	A,D	B	A	D	B	A	C	C	A	C	D	C	D	C	C	
93	Bridge	6/7/16	3:03 PM	WWK2/PFB	55104	B	D	A,B,E	A,B,C,D	A	C	B	B	C	C	C	C	C	C	C	D	C	
94	Bridge	6/7/16	3:10 PM	WWK2/PFB	55910	D	A	A,D	B	A	D	B	A	C	C	D	C	C	C	D	D	A	
95	Bridge	6/7/16	3:10 PM	WWK2/PFB	55910	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	E	You should make as much electricity as you can
96	Bridge	6/7/16	3:15 PM	WWK2/PFB	33604	D	A	A,D	B	A	D	A	A	C	C	C	C	C	C	C	D	B	
97	Bridge	6/7/16	3:15 PM	WWK2/PFB	33604	D	A	A,D	B	A	D	A	A	C	C	C	C	C	C	C	D	C	
98	Bridge	6/7/16	3:20 PM	WWK2/PFB	55415	B	C	A,B,D,E	A,B,C,D	A	C	B	B	C	C	A	C	C	C	A	C	D	
99	Bridge	6/7/16	3:33 PM	WWK2/PFB	55304	D	A	A,D	B	A	D	A	A	C	D	A	C	C	C	A	C	B	
100	Bridge	6/7/16	3:33 PM	WWK2/PFB	55304	D	A	A,D	B	A	D	A	C	C	D	C	C	C	C	C	C	E	The priority should be given to power
101	Bridge	6/14/16	9:45 AM	PFB/SMM3	55415	A	D	A,B,C,D,E	A,B,C	C	C	B	B	A	D	A	D	C	C	A	C	D	
102	Bridge	6/14/16	10:00 AM	PFB/SMM3	55414	A	B	A,B,C	A	C	B	A	C	A	C	C	C	C	C	A	D	B	
103	Bridge	6/14/16	10:00 AM	PFB/SMM3	55414	A	B	A,B,C	A,B,C	A	C	B	B	E	E	E	E	E	E	E	C	E	No additional releases, only for water quality, or environmental concerns, aesthetics not important
104	Bridge	6/14/16	10:00 AM	PFB/SMM3	24073	D	A	A,C	B	A	D	B	B	D	C	A	C	C	A	A	C	B	
105	Bridge	6/14/16	10:40 AM	PFB/SMM3	98144	D	A	A,C	B	A	D	B	A	C	C	C	C	C	C	C	C	E	Do releases only when environmentally optimal
106	Bridge	6/14/16	10:20 AM	PFB/SMM3	97404	D	A	A,C	B	A	D	B	C	E	E	A	E	E	E	A	C	E	Depends on adequacy of water supply
107	Bridge	6/14/16	10:25 AM	PFB/SMM3	33145	D	A	A,C	B	A	D	B	A	C	D	A	E	C	C	C	D	B	
108	Bridge	6/14/16	10:25 AM	PFB/SMM3	33131	D	A	A,C	B	A	D	B	A	C	D	A	C	C	C	C	D	D	
109	Bridge	6/14/16	10:40 AM	PFB/SMM3	55401	B	C	A,B,C,D,E	A,B	D	C	B	A	B	C	A	C	D	C	A	D	D	
110	Bridge	6/14/16	10:40 AM	PFB/SMM3	55720	D	A	A,C	B	D	D	B	A	C	C	A	C	D	C	A	D	B	
111	Lock	6/18/16	12:45 PM	PFB	55040	C	B	B,C	B	D	C	B	A	C	D	B	C	C	B	C	D	B	
112	Lock	6/18/16	12:50 PM	PFB	55408	A	B	A	A,B,C	A	C	B	B	C	B	C	C	D	C	C	B	E	Doesn't' care
113	Lock	6/18/16	12:50 PM	PFB	55030	C	B	A	C	A	C	B	B	E	B	E	D	E	E	E	D	B	
114	Lock	6/18/16	12:50 PM	PFB	54403	D	A	B,D	B	A	D	B	A	C	D	C	C	C	C	C	D	A	
115	Lock	6/18/16	12:55 PM	PFB	37902	D	A	B,D	B	A	D	B	A	A	C	C	C	D	C	C	D	A	
116	Lock	6/18/16	12:55 PM	PFB	37902	D	A	B,D	B	A	D	B	A	C	C	D	A	C	C	C	D	A	
117	Lock	6/18/16	1:05 PM	PFB	43050	D	A	B,D	B	A	D	B	A	C	D	A	C	C	A	C	D	B	
118	Lock	6/18/16	1:05 PM	PFB	43050	D	A	B,D	B	A	D	B	A	C	D	A	C	C	C	C	D	B	
119	Lock	6/18/16	1:20 PM	PFB	55343	B	D	A,D	A,C	B	C	B	A	C	D	A	C	C	C	C	C	B	
120	Lock	6/18/16	2:00 PM	PFB	55123	B	D	A,B,D	A,B,C	D	C	B	B	C	D	C	C	C	C	C	D	E	Depends on damage/benefit of releases
121	Lock	6/18/16	2:00 PM	PFB	55123	B	D	B,C,D	A,B,C	D	C	B	B	E	D	E	E	E	E	E	D	E	Don't care
122	Lock	6/18/16	2:05 PM	PFB	27514	D	A	B,D	B	A	D	B	A	E	E	E	E	E	E	E	C	E	Don't care
123	Lock	6/18/16	2:15 PM	PFB	55116	B	C	B,E	A,B,C	A	C	B	B	C	D	A	C	C	C	C	C	E	Should not be manipulated for aesthetics
124	Lock	6/18/16	2:15 PM	PFB	55113	B	C	B,E	A,B,C	A	C	B	B	C	D	C	C	D	C	C	D	E	Should not be manipulated for aesthetics
125	Lock	6/18/16	2:50 PM	PFB	56031	D	A	B,D	B	A	D	B	A	B	D	A	B	B	B	B	D	B	
126	Lock	6/18/16	3:15 PM	PFB	75063	D	A	B,D	B	A	D	B	A	D	C	C	C	C	C	C	C	E	Doesn't matter
127	Bridge	6/24/16	2:40 PM	WWK2/PFB	55407	A	D	A,B,D,E	A,B,C,D	C	C	B	A	C	D	B	C	C	C	B	C	E	Based on environment
128	Bridge	6/24/16	2:44 PM	WWK2/PFB	60637	D	A	A,E	B	A	D	A	B	C	C	C	C	C	C	C	D	E	Based on environment
129	Bridge	6/24/16	2:50 PM	WWK2/PFB	55414	A	B	E	A,B,C	C	C	A	A	B	D	A	D	D	B	A	C	D	
130	Bridge	6/24/16	2:50 PM	WWK2/PFB	55414	A	B	E	A,B,C	C	C	A	B	B	D	A	D	D	B	A	C	D	
131	Bridge	6/24/16	2:56 PM	WWK2/PFB	55416	A	B	A,E	B	D	C	B	B	B	D	A	B	B	B	B	D	D	
132	Bridge	6/24/16	2:56 PM	WWK2/PFB	55417	C	B	A,E	B	D	C	B	B	B	D	A	B	B	B	B	D	D	
133	Lock	6/24/16	1:00 PM	WWK2/PFB	55434	A	D	A,B	A,B,C	A	C	B	C	A	A	A	A	A	A	A	C	E	5 AM - 10 PM, spring, summer, fall
134	Lock	6/24/16	1:00 PM	WWK2/PFB	53704	D	A	A,D	B	A	D	A	B	C	D	C	C	C	C	C	C	B	
135	Lock	6/24/16	1:50 PM	WWK2/PFB	58103	D	A	A,D	B	A	D	A	A	B	D	A	C	C	C	C	D	A	
136	Lock	6/24/16	1:50 PM	WWK2/PFB	58103	D	A	A,D	B	A	D	B	A	B	D	A	B	D	A	D	C	A	
137	Lock	6/24/16	1:50 PM	WWK2/PFB	55304	A	A	A,B,C,D	B	A	C	B	B	B	C	B	B	B	B	B	D	C	
138	Lock	6/24/16	2:20 PM	WWK2/PFB	55304	A	A	B	B	A	C	A	A	C	C	B	C	C	B	D	D	D	
139	Lock	6/24/16	2:20 PM	WWK2/PFB	17601	D	A	A,D	B	A	D	A	A	C	D	B	C	D	C	C	D	D	
140	Lock	6/24/16	2:20 PM	WWK2/PFB	17601	D	A	A,D	B	A	D	A	A	B	D	C	C	D	B	C	D	D	
141	Park	6/24/16	11:30 AM	WWK2/PFB	55105	C	B	B	B	A	C	B	A	C	C	A	C	C	C	C	D	B	
142	Park	6/24/16	11:30 AM	WWK2/PFB	78701	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	C	D	B	
143	Park	6/24/16	11:30 AM	WWK2/PFB	55410	B	D	A,D	A,B,C	A	C	A	A	B	D	A	B	B	B	B	D	B	
144	Park	6/24/16	11:45 AM	WWK2/PFB	55112	B	B	A,E	B,C	A	C	B	B	B	D	A	B	B	B	B	D	A	

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewer Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit the area? (Circle all that apply.)	Question 5 - On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the Interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	If E (Other) write response here:
														Photograph 1 (500 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (100 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1200 cfs)	Photograph 6 (250 cfs)	Photograph 7 (1000 cfs)			
145	Park	6/24/16	11:45 AM	WWK2/PFB	55449	D	A	A,D	B	A	D	B	B	E	D	A	C	C	A	E	D	A	
146	Park	6/24/16	11:55 AM	WWK2/PFB	73104	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	C	D	E	When necessary
147	Park	6/24/16	11:55 AM	WWK2/PFB	73069	D	A	A,D	B	A	D	B	A	C	D	C	C	C	C	C	C	C	
148	Park	6/24/16	12:00 PM	WWK2/PFB	55117	D	A	A,D	B	A	D	B	A	A	A	A	B	B	B	B	C	A	
149	Park	6/24/16	12:00 PM	WWK2/PFB	54021	D	A	A,D	B	A	D	B	A	B	B	D	B	B	B	B	C	B	
150	Park	6/24/16	12:25 PM	WWK2/PFB	55406	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	C	D	B	
151	Park	6/24/16	12:25 PM	WWK2/PFB	55408	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	C	D	B	
152	Park	6/24/16	12:25 PM	WWK2/PFB	63501	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	C	D	B	
153	Park	7/1/16	11:15 AM	WWK2/PFB	55401	A	B	A,C	A,B	A	B	B	B	E	D	A	B	D	E	B	C	B	
154	Park	7/1/16	11:20 AM	WWK2/PFB	55128	C	A	A,B,D,E	B	A	C	B	A	E	D	A	E	E	B	D	D	D	
155	Park	7/1/16	11:20 AM	WWK2/PFB	68061	D	A	A,D	B	A	D	A	A	E	E	A	E	E	B	D	D	D	
156	Park	7/1/16	11:25 AM	WWK2/PFB	94568	D	A	A,D	B	A	D	A	A	D	D	A	C	C	C	C	D	C	
157	Park	7/1/16	11:25 AM	WWK2/PFB	94568	D	A	A,D	B	A	D	A	A	D	C	A	C	C	C	C	D	C	
158	Park	7/1/16	11:50 AM	WWK2/PFB	55415	C	B	B	A,B	A	C	B	B	C	D	C	C	C	B	C	D	E	10-3 summer
159	Park	7/1/16	11:50 AM	WWK2/PFB	55415	C	B	B	A,B	A	C	B	B	C	D	C	C	C	B	C	D	E	10-3 summer
160	Park	7/1/16	11:50 AM	WWK2/PFB	Brazil	D	A	A,D	B	A	D	A	A	C	D	B	C	C	B	C	D	E	10-3 spring, summer
161	Park	7/1/16	11:56 AM	WWK2/PFB	Brazil	D	A	A,D	B	A	D	A	A	C	D	B	C	C	B	C	D	E	10-3 spring, summer
162	Park	7/1/16	11:57 AM	WWK2/PFB	10002	C	D	A,E	A,B,C,D	A	C	B	A	C	C	C	C	D	C	C	D	B	
163	Park	7/1/16	11:57 AM	WWK2/PFB	10002	C	B	A,B,E	A,B,C,D	D	C	B	A	C	C	C	C	D	C	C	D	B	
164	Lock	7/1/16	1:25 PM	WWK2/PFB	55442	C	D	B,C	A,B,C	A	C	B	B	C	C	C	C	C	C	C	D	E	Whatever is environmentally friendly and optimize power generation
165	Lock	7/1/16	1:25 PM	WWK2/PFB	55408	C	A	B,C	A,B,C	A	C	B	B	C	C	C	C	C	C	C	D	E	Whatever is environmentally friendly and optimize power generation
166	Lock	7/1/16	1:33 PM	WWK2/PFB	11963	D	A	A,D	B	A	D	B	B	C	D	A	C	D	C	C	D	E	As needed
167	Lock	7/1/16	1:33 PM	WWK2/PFB	55421	C	B	A	A,B,C	A	C	B	B	E	E	A	E	D	E	E	C	B	
168	Lock	7/1/16	1:43 PM	WWK2/PFB	27613	D	A	A,D	B	A	D	A	C	C	C	C	D	C	C	C	C	E	No opinion
169	Lock	7/1/16	1:48 PM	WWK2/PFB	28031	D	A	A	B	A	D	A	A	B	C	A	C	D	B	D	C	B	
170	Lock	7/1/16	1:48 PM	WWK2/PFB	28031	D	A	A,D	B	A	D	A	A	B	C	A	D	B	C	D	C	B	
171	Bridge	7/1/16	2:10 PM	WWK2/PFB	55038	D	B	A,D,E	A,B,C	C	C	B	B	C	B	B	C	D	D	B	C	B	Majority of people
172	Bridge	7/1/16	2:10 PM	WWK2/PFB	68133	D	A	A,D	B	A	D	A	B	C	D	B	B	B	B	B	C	E	Majority of people
173	Bridge	7/1/16	2:10 PM	WWK2/PFB	68133	D	A	A,D	B	A	D	A	B	C	D	B	B	B	B	B	C	E	Majority of people
174	Bridge	7/1/16	2:10 PM	WWK2/PFB	55038	C	B	A,D,E	A,B,C	C	C	B	B	C	D	B	D	D	D	B	C	B	
175	Bridge	7/1/16	2:20 PM	WWK2/PFB	55407	C	B	A,B,E	A,B,C,D	C	C	B	B	C	C	C	D	C	C	B	D	D	
176	Bridge	7/1/16	2:20 PM	WWK2/PFB	95070	C	B	A,B,E	A,B,C,D	A	C	B	B	C	D	C	C	C	C	B	C	D	
177	Bridge	7/1/16	2:25 PM	WWK2/PFB	55429	C	D	B	A,B,C	D	C	B	A	C	C	C	C	B	D	C	C	E	Whatever is best for the power company
178	Bridge	7/1/16	2:25 PM	WWK2/PFB	46208	D	A	A,D	B	A	D	A	A	B	B	A	B	D	B	A	C	E	Whatever is best for the environment
179	Lock	7/6/16	2:30 PM	CRH/WWK2	55101	A	D	A,B,C	A,B,C	A	C	B	B	C	D	C	C	C	C	C	D	E	Daylight, during low headwater
180	Lock	7/6/16	2:42 PM	CRH/WWK2	85048	D	A	A,D	B	A	D	B	B	C	D	C	C	C	C	C	D	C	
181	Lock	7/6/16	2:54 PM	CRH/WWK2	55421	C	B	A,B,D	B	C	C	B	A	C	D	C	C	C	C	C	D	B	
182	Lock	7/6/16	2:55 PM	CRH/WWK2	59106	C	B	A,B,D	B	C	C	B	A	C	D	C	C	C	C	C	D	B	
183	Lock	7/6/16	2:55 PM	CRH/WWK2	59106	C	B	A,B,C	B	C	C	B	A	C	C	C	D	C	C	C	D	B	
184	Lock	7/6/16	2:55 PM	CRH/WWK2	59106	D	A	A,D	B	A	D	B	B	C	D	C	C	C	C	C	D	B	
185	Lock	7/6/16	2:55 PM	CRH/WWK2	59106	D	A	A,D	B	A	D	B	B	C	D	C	C	C	C	C	D	B	
186	Lock	7/6/16	2:55 PM	CRH/WWK2	85048	D	A	A,D	B	A	D	B	B	C	D	C	C	C	C	C	D	B	
187	Park	7/6/16	1:15 PM	CRH/WWK2	78681	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	E	Don't care as long as it's not dry
188	Park	7/6/16	1:15 PM	CRH/WWK2	76248	D	A	A,D	B	A	D	B	A	C	C	A	C	C	C	C	D	E	Don't care as long as it's not dry
189	Park	7/6/16	1:15 PM	CRH/WWK2	78681	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	C	D	E	Don't care as long as it's not dry
190	Park	7/6/16	1:15 PM	CRH/WWK2	76248	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	D	D	E	Don't care as long as it's not dry
191	Park	7/6/16	1:25 PM	CRH/WWK2	55414	C	C	A,B,D,E	A,B,C,D	B	B	B	C	A	D	A	A	D	A	B	D	C	
192	Park	7/6/16	1:25 PM	CRH/WWK2	56303	B	B	A,B,D,E	A,B,C,D	B	C	B	C	C	D	A	C	C	A	C	D	C	
193	Park	7/6/16	1:30 PM	CRH/WWK2	55413	A	C	A,C,D	A,B,C	A	C	B	A	C	D	C	C	D	C	C	D	D	
194	Park	7/6/16	1:50 PM	CRH/WWK2	55413	B	D	D,E	A,B,C,D	A	C	B	A	C	D	B	C	C	C	C	C	E	All hour, winter months
195	Park	7/6/16	1:50 PM	CRH/WWK2	55419	C	D	A,B,D,E	A,B,C,D	A	C	A	A	C	D	B	C	C	C	C	C	E	All hour, winter months
196	Park	7/6/16	2:00 PM	CRH/WWK2	55330	A	D	A,D	A,B,C	A	C	B	B	C	C	C	C	C	C	C	C	C	
197	Bridge	7/6/16	3:15 PM	CRH/WWK2	10003	C	D	A,D,E	B	D	C	B	A	C	D	A	C	D	C	A	D	B	
198	Bridge	7/6/16	3:15 PM	CRH/WWK2	10003	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	A	D	B	
199	Bridge	7/6/16	3:20 PM	CRH/WWK2	90804	D	A	A,D	B	A	D	B	A	C	D	C	C	C	D	C	B	B	
200	Bridge	7/6/16	3:20 PM	CRH/WWK2	90804	D	A	A,D	B	A	D	B	A	D	C	D	C	C	C	C	B	B	
201	Bridge	7/6/16	3:30 PM	CRH/WWK2	54428	B	D	A,C,D	A,B,C	A	C	B	B	C	D	B	C	D	C	B	C	B	
202	Bridge	7/6/16	3:50 PM	CRH/WWK2	55404	A	B	A,B,C,D,E	A,B,C,D	A	C	B	B	C	D	A	C	C	C	A	C	B	
203	Bridge	7/6/16	4:00 PM	CRH/WWK2	56472	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	C	B	
204	Bridge	7/6/16	4:00 PM	CRH/WWK2	56472	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	C	C	
205	Bridge	7/15/16	2:34 PM	PFB/SMM3	55414	A	D	A,C	A,B,C	A	C	B	A	C	D	A	C	D	C	A	C	C	
206	Bridge	7/15/16	2:34 PM	PFB/SMM3	50630	D	A	A,D	B	A	D	B	A	E	E	A	E	D	E	A	C	C	
207	Bridge	7/15/16	2:34 PM	PFB/SMM3	50630	D	D	A,D	B	A	D	B	A	E	E	A	E	D	E	A	C	C	
208	Bridge	7/15/16	2:39 PM	PFB/SMM3	55414	A	D	A,E	A,B,C,D	A	C	B	B	C	D	A	C	C	C	A	D	B	
209	Bridge	7/15/16	2:39 PM	PFB/SMM3	55414	A	D	A,E	A,B,C,D	A	C	B	A	C	C	A	C	D	C	C	D	B	
210	Bridge	7/15/16	2:50 PM	PFB/SMM3	55033	D	A	A,D	B	A	D	B	A	A	D	A	E	C	C	A	D	E	Does not matter, whatever is needed for operations
211	Bridge	7/15/16	2:50 PM	PFB/SMM3	55033	D	A	A,D	B	A	D	B	A	E	D	A	E	C	C	A	D	E	Does not matter, whatever is needed for operations
212	Bridge	7/15/16	3:01 PM	PFB/SMM3	61107	D	A	A,D	B	A	D	B	A	B	D	A	B	D	A	A	D	E	Should depend on downstream conditions
213	Bridge	7/15/16	3:12 PM	PFB/SMM3	98055	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	A	D	E	Whatever is needed
214	Lock	7/15/16	12:44 PM	PFB/SMM3	94121	D	A	A,D	B	A	D	B	C	E	E	B	E	E	E	E	C	B	
215	Lock	7/15/16	12:57 PM	PFB/SMM3	28791	D	A	A,D	B	A	D	B	A	C	C	D	C	C	C	C	C	A	
216	Lock	7/15/16	1:00 PM	PFB/SMM3	55124	B	D	D,E	B	A	C	B	A	E	E	A	E	E	E	E	D	D	

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewee Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit the area? (Circle all that apply.)	Question 5 - On your visit to the area, approximately how much water is flowing over the St. Anthony Falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	If E (Other) write response here:
														Photograph 1 (320 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (140 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1500 cfs)	Photograph 6 (300 cfs)	Photograph 7 (1000 cfs)			
217	Lock	7/15/16	1:32 PM	PFB/SMM3	55442	C	D	A,D	A,B,C,D	A	C	B	A	C	C	C	C	C	C	C	D	E	What is best for the environment
218	Lock	7/15/16	1:32 PM	PFB/SMM3	48334	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	E	What is best for the environment
219	Lock	7/15/16	1:47 PM	PFB/SMM3	22209	D	A	A,D	B	A	D	B	A	E	E	D	E	E	E	E	C	C	
220	Lock	7/15/16	1:47 PM	PFB/SMM3	22209	D	A	A,D	B	A	D	B	A	E	E	D	E	E	E	E	C	C	
221	Lock	7/15/16	2:09 PM	PFB/SMM3	55420	A	D	A	A,B,C,D	A	B	B	B	C	C	A	C	C	C	C	C	E	Appearance is not important
222	Lock	7/15/16	3:01 PM	PFB/SMM3	30269	D	A	A,D	B	A	D	B	A	B	D	A	C	D	A	A	D	C	
223	Lock	7/15/16	3:12 PM	PFB/SMM3	98126	D	A	A,D	B	A	D	B	A	C	D	A	C	D	C	A	D	E	Whatever is needed
224	Park	7/15/16	3:31 PM	PFB/SMM3	55413	A	C	B	B	C	B	B	B	C	C	C	D	C	C	C	C	E	Whatever produces the most electricity
225	Park	7/15/16	3:39 PM	PFB/SMM3	55411	A	D	A,D,E	A,B,C,D	C	B	B	B	E	E	E	E	E	E	E	C	E	Whatever produces the most power
226	Park	7/15/16	3:43 PM	PFB/SMM3	55411	A	D	A,D	D	B	B	B	A	C	A	D	A	A	C	A	A	C	
227	Park	7/15/16	3:50 PM	PFB/SMM3	55311	C	C	B	B	A	C	B	B	C	D	A	C	C	C	C	C	B	
228	Park	7/15/16	3:50 PM	PFB/SMM3	55429	C	C	B	B	A	C	B	B	C	D	A	C	C	C	C	C	B	
229	Park	7/15/16	3:56 PM	PFB/SMM3	55401	A	B	A,B,C,D	B,C	A	C	A	A	C	D	A	C	C	A	C	D	A	
230	Park	7/15/16	3:56 PM	PFB/SMM3	55401	A	B	A,B,C,D	B,C	A	C	A	A	B	D	A	B	B	B	B	D	A	
231	Park	7/15/16	3:56 PM	PFB/SMM3	95008	D	A	A,D	B	A	D	B	A	A	D	A	B	B	A	B	D	A	
232	Lock	7/17/16	10:12 AM	SMM3	55435	B	C	A,D	A,B,C	A	C	B	A	E	D	A	E	E	E	B	D	E	Whatever is best for the environment
233	Lock	7/17/16	10:26 AM	SMM3	94122	D	A	B,C	B	A	D	B	A	C	E	A	D	C	C	C	D	A	
234	Lock	7/17/16	10:26 AM	SMM3	60137	D	A	B,C	B	A	D	B	A	B	B	D	C	B	C	A	D	A	
235	Lock	7/17/16	10:26 AM	SMM3	60137	D	A	B,C	B	A	D	B	A	C	D	A	C	C	C	A	D	A	
236	Lock	7/17/16	10:33 AM	SMM3	55301	D	A	B,C	B	A	D	B	A	E	D	A	E	E	E	E	D	A	
237	Lock	7/17/16	10:33 AM	SMM3	55301	D	A	B,C	B	A	D	B	A	A	E	A	D	B	E	E	D	A	
238	Lock	7/17/16	10:53 AM	SMM3	55336	D	A	B,D	B	A	D	B	A	C	C	C	D	C	C	C	C	B	
239	Lock	7/17/16	11:00 AM	SMM3	58102	D	A	B,D	B	A	D	B	A	E	C	E	E	E	A	E	D	E	Consider what is best for downstream environmental conditions
240	Lock	7/17/16	11:00 AM	SMM3	58102	D	A	B,D	B	A	D	B	A	B	E	A	E	D	E	E	D	E	Consider what is best for downstream environmental conditions
241	Lock	7/17/16	11:32 AM	SMM3	55369	B	C	B,D	A,B	A	C	B	A	B	D	A	B	C	A	C	D	B	
242	Lock	7/17/16	11:32 AM	SMM3	55369	B	C	B,D	A,B	A	C	B	A	B	D	A	B	C	A	C	D	B	
243	Lock	7/17/16	11:39 AM	SMM3	55350	D	A	B,D	B	A	D	B	A	E	D	A	E	E	E	E	D	C	
244	Lock	7/17/16	11:39 AM	SMM3	55350	D	A	B,D	B	A	D	B	A	E	E	E	E	E	E	E	D	C	
245	Lock	7/17/16	11:47 AM	SMM3	55112	C	D	B,C	B	A	B	B	B	B	D	A	C	C	E	E	D	E	Whatever is best for hydropower generated
246	Lock	7/17/16	12:13 PM	SMM3	30307	D	A	B,D	B	A	D	B	A	E	D	E	E	E	E	E	D	B	
247	Park	7/29/16	11:54 AM	WWK2/SMM3	55125	C	C	B	B	C	C	B	A	E	E	E	E	E	E	E	D	B	
248	Park	7/29/16	12:16 PM	WWK2/SMM3	55401	B	B	A,B,E	A,B,C	A	C	B	A	A	E	D	A	E	A	E	D	B	
249	Park	7/29/16	12:16 PM	WWK2/SMM3	55414	B	B	A,B,D	B	A	C	B	A	B	B	B	D	B	A	B	D	B	
250	Park	7/29/16	12:26 PM	WWK2/SMM3	1583	D	D	A,B,C,D,E	B	D	C	B	A	E	E	E	E	E	E	E	C	F	Do not care
251	Park	7/29/16	12:26 PM	WWK2/SMM3	CT2168T (UK)	C	A	A,D	B	D	D	B	A	E	E	E	E	E	E	E	C	E	Do not care
252	Park	7/29/16	12:35 PM	WWK2/SMM3	55105	C	A	B,D	A,B,C,D	A	C	B	B	C	E	E	E	E	C	E	D	E	Do not care
253	Park	7/29/16	12:43 PM	WWK2/SMM3	55116	C	D	A,B,C,D,E	B	A	C	B	A	B	B	B	B	B	B	B	D	B	
254	Park	7/29/16	12:43 PM	WWK2/SMM3	55376	D	A	A,D	B	D	D	B	C	E	E	B	E	E	E	E	D	B	
255	Lock	7/29/16	2:19 PM	WWK2/SMM3	7020	D	A	A,D	B	A	D	B	A	C	D	A	B	B	C	B	D	D	
256	Lock	7/29/16	2:19 PM	WWK2/SMM3	Hong Kong	D	A	A,D	B	A	D	B	A	A	B	D	B	B	D	D	D	D	
257	Lock	7/29/16	2:25 PM	WWK2/SMM3	55413	D	A	B,D	B	A	D	B	B	C	D	C	C	D	C	C	D	E	Do not care
258	Lock	7/29/16	2:25 PM	WWK2/SMM3	55413	D	A	B,D	B	A	D	B	A	C	C	C	C	C	C	C	D	E	
259	Lock	7/29/16	2:29 PM	WWK2/SMM3	55102	D	A	A,D	B	A	D	B	A	C	D	A	B	C	B	C	D	E	Let the water flow as it needs
260	Lock	7/29/16	2:29 PM	WWK2/SMM3	55415	D	A	A,D	B	A	D	B	B	C	D	A	B	C	B	C	D	E	Let the water flow as it needs
261	Lock	7/29/16	2:37 PM	WWK2/SMM3	55410	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	E	C	B	
262	Lock	7/29/16	2:37 PM	WWK2/SMM3	53719	D	A	A,D	B	A	D	B	A	E	D	E	E	E	E	E	D	B	
263	Lock	7/29/16	2:51 PM	WWK2/SMM3	55432	D	A	A,D	B	A	D	B	A	C	D	C	C	C	B	C	D	B	
264	Lock	7/29/16	2:51 PM	WWK2/SMM3	55342	D	A	A,D	B	A	D	B	A	C	D	C	C	C	C	C	D	D	
265	Bridge	7/29/16	3:06 PM	WWK2/SMM3	55406	D	A	A,D	B	A	D	B	A	E	D	A	E	E	A	A	C	B	
266	Bridge	7/29/16	3:06 PM	WWK2/SMM3	11746	D	A	A,D	B	A	D	B	A	E	D	A	E	E	A	A	C	B	
267	Bridge	7/29/16	3:06 PM	WWK2/SMM3	55406	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	A	C	B	
268	Bridge	7/29/16	3:06 PM	WWK2/SMM3	55406	D	A	A,D	B	A	D	B	A	D	E	E	E	E	A	A	C	B	
269	Bridge	7/29/16	3:16 PM	WWK2/SMM3	55107	C	D	A,D	A,B	A	C	A	A	B	D	A	B	B	B	A	D	B	
270	Bridge	7/29/16	3:24 PM	WWK2/SMM3	55447	B	B	B,D,E	B,C	C	C	B	B	A	D	C	C	D	C	A	C	B	
271	Park	8/3/16	1:00 PM	WWK2/PFB	53403	D	A	A,D	B	A	D	B	A	C	D	B	C	C	B	C	C	B	
272	Park	8/3/16	1:00 PM	WWK2/PFB	55403	D	A	A,D	B	A	D	B	A	C	D	C	B	C	C	C	C	B	
273	Park	8/3/16	1:08 PM	WWK2/PFB	55408	B	D	A,E	A,B	C	C	B	A	B	D	A	E	D	E	E	C	D	
274	Park	8/3/16	1:08 PM	WWK2/PFB	55412	B	D	A,E	A,B,C,D	C	C	B	A	B	E	A	B	E	A	D	C	D	
275	Park	8/3/16	1:14 PM	WWK2/PFB	55403	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	C	
276	Park	8/3/16	1:22 PM	WWK2/PFB	55432	C	D	A,B,C,D,E	B	A	C	A	A	D	B	A	D	B	C	C	D	B	
277	Lock	8/3/16	2:15 PM	WWK2/PFB	55414	A	B	A,B,E	A,B,C,D	B	C	B	A	E	D	E	E	D	E	E	D	A	
278	Lock	8/3/16	2:15 PM	WWK2/PFB	55414	A	C	A,B,D,E	A,B,C,D	B	C	A	A	C	C	B	C	C	B	C	D	A	
279	Lock	8/3/16	2:20 PM	WWK2/PFB	70435	D	A	A,D	B	A	D	B	A	C	C	A	C	C	C	C	C	A	
280	Bridge	8/17/16	3:19 PM	SMM3/RLP	55044	C	A	A,D	B	A	C	A	A	E	D	A	E	E	C	A	D	C	
281	Bridge	8/17/16	3:19 PM	SMM3/RLP	55024	C	A	B,D	B	D	C	A	A	E	D	A	D	E	D	A	D	C	
282	Bridge	8/17/16	3:19 PM	SMM3/RLP	55024	C	A	B,D	B,D	D	C	A	A	E	E	A	E	E	E	E	D	C	
283	Bridge	8/17/16	3:19 PM	SMM3/RLP	55024	D	A	A,D	B	A	D	B	A	E	D	A	E	D	E	E	D	C	
284	Bridge	8/17/16	3:31 PM	SMM3/RLP	55414	A	A	A,B,D,E	B	A	B	B	A	B	C	D	C	C	C	B	C	C	
285	Bridge	8/17/16	3:40 PM	SMM3/RLP	55443	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	A	C	D	
286	Bridge	8/17/16	3:40 PM	SMM3/RLP	55444	D	A	A,D	B	A	D	B	A	A	E	E	A	E	E	D	C	D	
287	Bridge	8/17/16	3:46 PM	SMM3/RLP	55313	C	C	A,D	A,B,C,D	A	B	B	B	B	C	A	C	D	B	A	D	B	
288	Bridge	8/17/16	3:46 PM	SMM3/RLP	55313	C	C	A,D	A,B,C,D	B	B	B	B	E	D	B	E	E	B	E	D	B	

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewer Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit this area? (Circle all that apply.)	Question 5 - On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	If E (Other) write response here:
														Photograph 1 (500 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (100 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1500 cfs)	Photograph 6 (300 cfs)	Photograph 7 (1000 cfs)			
289	Bridge	8/17/16	3:46 PM	SMM3/RLP	55313	C	C	A,D	B	B	B	B	B	B	C	C	D	B	C	A	C	B	
290	Park	8/17/16	12:09 PM	SMM3	55404	D	A	A,D	B	A	D	B	A	C	A	C	C	B	C	D	C	E	There shouldn't be additional water for appearance purposes.
291	Park	8/17/16	12:19 PM	SMM3	55447	C	D	B,D,E	B	B	B	B	B	E	E	D	E	E	E	E	C	D	
292	Park	8/17/16	12:19 PM	SMM3	55431	D	A	B,D	B	A	D	B	A	C	D	C	C	C	C	C	D	D	
293	Park	8/17/16	12:24 PM	SMM3	20853	D	A	A,D	B	A	D	B	B	E	E	E	E	A	C	E	C	A	
294	Park	8/17/16	12:24 PM	SMM3	20853	D	A	A,D	B	A	D	B	B	E	D	E	E	E	E	E	D	A	
295	Park	8/17/16	12:42 PM	SMM3	55414	A	B	A,B,D,E	A,B,C,D	C	C	B	B	E	E	E	E	E	E	E	C	E	
296	Park	8/17/16	12:42 PM	SMM3	9145	D	A	B,D	B	A	D	B	A	C	C	A	C	D	C	C	D	E	
297	Park	8/17/16	12:55 PM	SMM3	22301	D	A	A,D	B	A	D	B	A	D	D	A	D	D	D	D	D	B	
298	Park	8/17/16	1:00 PM	SMM3	2605	D	A	A,D	B	A	D	B	A	B	C	C	B	A	C	A	D	D	
299	Lock	8/17/16	2:33 PM	SMM3/RLP	68105	D	A	A,D	B	A	D	B	C	C	C	C	C	C	D	C	C	B	
300	Lock	8/17/16	2:40PM	SMM3/RLP	55038	D	A	A,D	B	A	D	B	A	E	D	E	E	C	E	E	D	A	
301	Lock	8/17/16	2:40 PM	SMM3/RLP	55038	D	A	A,D	B	A	D	B	A	E	E	E	E	E	E	E	D	E	As much as can be used for the power through the powerhosue
302	Lock	8/17/16	2:52 PM	SMM3/RLP	55102	C	C	A,D	B	C	C	B	B	C	C	C	C	C	C	C	C	E	Whatever is best for the environment
303	Lock	8/17/16	2:52 PM	SMM3/RLP	55102	C	C	B,D	B	C	C	B	B	C	C	C	C	C	C	C	C	E	Whatever is best for the environment
304	Lock	8/17/16	2:52 PM	SMM3/RLP	21229	D	A	B,D	B	A	D	B	B	C	C	C	C	C	C	C	C	E	Whatever is best for the environment
305	Park	8/18/16	12:20 PM	PFB/SMM3	55405	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	C	D	E	Doesn't matter
306	Park	8/18/16	12:20 PM	PFB/SMM3	55408	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	C	D	E	Doesn't matter
307	Park	8/18/16	12:45 PM	PFB/SMM3	93105	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	C	E	Whatever management practives are better for ecology consideration
308	Park	8/18/16	1:00 PM	PFB/SMM3	55417	A	D	A,B,E	A,B,C	A	C	B	B	E	E	E	E	E	E	E	D	B	
309	Park	8/18/16	3:50 PM	PFB/SMM3	55403	A	B	A,B,D,E	A,B,C,D	A	C	B	A	B	D	B	E	D	E	E	D	D	
310	Park	8/18/16	4:00 PM	PFB/SMM3	55306	D	A	A,D	B	A	D	B	A	B	D	E	E	E	A	E	D	B	
311	Park	8/18/16	4:00 PM	PFB/SMM3	56065	D	A	A,D	B	A	D	B	A	B	D	A	E	D	A	E	D	B	
312	Park	8/18/16	4:00 PM	PFB/SMM3	55306	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	E	D	B	
313	Lock	8/18/16	1:45 PM	PFB/SMM3	80123	D	A	A,D	B	A	D	B	A	C	D	A	C	C	A	B	D	B	
314	Lock	8/18/16	1:45 PM	PFB/SMM3	80123	D	A	A,D	B	A	D	B	A	C	D	B	C	C	B	C	D	B	
315	Lock	8/18/16	1:45 PM	PFB/SMM3	78015	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	C	D	A	
316	Lock	8/18/16	1:45 PM	PFB/SMM3	78029	D	A	A,D	B	A	D	B	A	C	D	C	C	C	A	C	D	A	
317	Lock	8/18/16	2:35 PM	PFB/SMM3	22002	D	A	A,D	B	A	D	B	B	E	E	E	E	E	E	E	C	C	
318	Lock	8/18/16	2:35 PM	PFB/SMM3	22002	D	A	A,D	B	A	D	B	B	C	D	D	C	C	C	C	D	B	
319	Lock	8/18/16	2:45 PM	PFB/SMM3	95608	D	A	A,D	B	A	D	B	A	B	D	B	C	C	B	C	C	E	Depends on a lot of factors
320	Lock	8/18/16	2:50 PM	PFB/SMM3	55040	D	A	A,D	B	A	D	B	A	C	D	C	C	B	C	C	D	C	
321	Lock	8/18/16	2:55 PM	PFB/SMM3	55040	C	D	B,E	B	A	C	B	B	C	D	A	C	C	A	B	C	E	Depends on rainfall
322	Lock	8/18/16	2:55 PM	PFB/SMM3	55043	D	A	A,D	B	A	D	B	A	B	D	A	D	B	A	C	C	A	
323	Park	8/18/16	3:00 PM	PFB/SMM3	55425	D	A	A,D	B	A	D	B	A	B	B	B	B	B	B	B	C	D	
324	Park	8/18/16	3:05 PM	PFB/SMM3	55024	B	D	A,B,D	A,B,C,D	A	C	B	A	E	D	A	E	E	B	A	C	D	
325	Park	8/18/16	3:05 PM	PFB/SMM3	55024	B	D	A,B,D	A,B,C,D	A	B	A	A	E	E	A	E	D	E	A	C	D	
326	Park	8/18/16	3:15 PM	PFB/SMM3	34761	D	A	A,D	B	A	D	B	A	C	B	E	D	E	E	A	C	C	
327	Park	8/18/16	3:15 PM	PFB/SMM3	32835	D	A	A,D	B	A	D	B	A	A	D	A	E	D	B	A	D	C	
328	Park	8/18/16	3:15 PM	PFB/SMM3	32801	D	A	A,D	B	A	D	B	A	E	A	B	D	D	D	B	C	C	
329	Park	8/18/16	3:15 PM	PFB/SMM3	55414	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	B	
330	Park	8/18/16	3:25 PM	PFB/SMM3	55414	D	A	A,D	B	A	D	B	A	C	D	C	C	C	C	D	D	D	
331	Lock	8/21/16	10:53 AM	SMM3	55304	B	B	A,C	A,B,C,D	A	C	A	A	E	E	E	E	E	E	E	D	A	
332	Lock	8/21/16	10:53 AM	SMM3	55304	B	D	A,C	A,B,C,D	A	C	B	A	E	E	E	E	E	E	E	D	A	
333	Lock	8/21/16	10:53 AM	SMM3	57106	D	A	B,C	B	A	D	B	A	C	D	C	C	C	C	C	D	A	
334	Lock	8/21/16	10:53 AM	SMM3	57313	D	A	B,C	B	A	D	B	A	E	E	E	E	E	E	E	D	A	
335	Lock	8/21/16	10:58 AM	SMM3	53146	D	A	B,C	B	A	D	B	A	C	C	C	C	C	C	C	D	E	Do not control the flow
336	Lock	8/21/16	11:07 AM	SMM3	17900000 (Brazil)	D	A	B,C	B	A	D	B	A	C	D	A	C	C	C	C	D	C	
337	Lock	8/21/16	11:07 AM	SMM3	17900000 (Brazil)	D	A	B,C	B	A	D	B	A	C	C	A	C	C	C	D	B	D	
338	Lock	8/21/16	11:36 AM	SMM3	55418	C	D	B,C	A,B,C,D	A	C	A	A	C	C	B	C	C	C	C	D	B	
339	Lock	8/21/16	11:36 AM	SMM3	57108	D	A	B,C	B	A	D	B	B	E	E	E	E	E	E	E	D	B	
340	Lock	8/21/16	11:46 AM	SMM3	04107	D	A	B,C,D	B	A	D	B	A	C	D	B	C	C	C	C	D	E	Whatever is best for the environment
341	Lock	8/21/16	11:46 AM	SMM3	04107	D	A	B,C,D	B	A	D	B	A	C	D	B	C	C	C	C	D	E	Whatever is best for the environment
342	Lock	8/21/16	11:52 AM	SMM3	32040	D	A	B,D	B	A	D	B	A	B	D	B	E	D	E	E	D	B	
343	Lock	8/21/16	12:04 PM	SMM3	55306	D	A	B,D	B	A	D	B	A	C	C	C	C	C	D	C	D	B	
344	Lock	8/21/16	12:04 PM	SMM3	55306	D	A	B,D	B	A	D	B	A	C	D	A	C	C	C	C	D	B	
345	Lock	8/21/16	12:28 PM	SMM3	57201	D	A	B,D	B	A	D	B	A	D	C	A	C	C	A	C	D	A	
346	Lock	8/21/16	12:28 PM	SMM3	55129	C	D	B,C,D,E	A,B,C	A	C	A	A	C	C	C	C	C	C	D	B	A	
347	Lock	8/21/16	12:28 PM	SMM3	57006	D	A	B,D	B	A	D	B	A	C	C	C	C	C	C	D	D	A	
348	Park	8/26/16	12:30 PM	PFB/WWI2	55414	A	B	A,B,C,D,E	B	B	C	B	B	E	B	D	E	E	D	E	C	E	Only when required. Not based on aesthetics
349	Park	8/26/16	12:30 PM	PFB/WWI2	55414	A	B	A,B,C,D,E	A,C	B	C	B	B	E	B	D	E	E	D	E	C	C	
350	Park	8/26/16	12:30 PM	PFB/WWI2	55305	B	D	A,B,C,D,E	B,C	B	C	B	B	E	E	D	E	D	E	E	C	C	
351	Park	8/26/16	12:40 PM	PFB/WWI2	55407	A	A	A,B,C,D,E	B	A	C	B	B	E	D	E	E	E	E	E	D	B	
352	Park	8/26/16	12:45 PM	PFB/WWI2	55318	C	D	B,D	B	A	C	B	A	B	D	A	B	B	B	A	D	E	Only if good for environment/river
353	Park	8/26/16	1:00 PM	PFB/WWI2	55408	C	D	A,D	A,B,C	A	C	B	B	C	C	C	C	C	C	D	D	E	Don't adjust based on aesthetics
354	Park	8/26/16	1:00 PM	PFB/WWI2	55408	C	D	A,B,D	A,B,C	A	C	B	B	E	E	E	E	E	E	E	D	E	Don't adjust based on aesthetics
355	Park	8/26/16	1:00 PM	PFB/WWI2	55408	C	C	A,B,D	B	A	C	B	B	D	D	D	D	D	D	D	D	E	Don't adjust based on aesthetics
356	Park	8/26/16	1:00 PM	PFB/WWI2	11238	C	C	B,D	B	A	C	B	B	D	D	D	D	D	D	D	D	E	Don't adjust based on aesthetics
357	Lock	8/26/16	1:40 PM	PFB/WWI2	07624	D	A	A,D	B	A	D	B	C	C	D	C	C	D	C	C	D	B	
358	Lock	8/26/16	1:40 PM	PFB/WWI2	07624	D	A	A,D	B	A	D	B	C	C	C	C	D	C	D	C	C	D	B	
359	Lock	8/26/16	1:40 PM	PFB/WWI2	07624	D	A	A,D	B	A	D	B	C	C	D	C	C	D	C	C	D	D	B	
360	Lock	8/26/16	1:45 PM	PFB/WWI2	23662	D	A	A,D	B	A	D	B	C	C	C	B	C	C	C	D	C	B	

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewer Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit this area? (Circle all that apply.)	Question 5 - On your visit to the area, how often do you observe how much water is flowing over the St. Anthony falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	If E (Other) write response here:
														Photograph 1 (250 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (100 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1500 cfs)	Photograph 6 (500 cfs)	Photograph 7 (1000 cfs)			
361	Lock	8/26/16	1:45 PM	PFB/WWK2	23662	D	A	A,D	B	A	D	B	C	C	C	B	C	C	C	D	C	B	
362	Lock	8/26/16	2:00 PM	PFB/WWK2	23692	D	A	A,D	B	A	D	B	A	C	D	C	C	C	C	C	D	B	
363	Lock	8/26/16	2:20 PM	PFB/WWK2	94045	D	A	A	B	A	D	B	A	E	D	B	E	E	B	E	D	E	Only when there is enough water (excess). Never based on aesthetics.
364	Lock	8/26/16	2:20 PM	PFB/WWK2	94045	D	A	A,D	B	A	D	B	A	C	D	B	C	C	B	C	D	E	Only when there is enough/excess water
365	Lock	8/26/16	2:20 PM	PFB/WWK2	55127	C	D	B,D	B	A	C	B	A	C	D	B	C	C	C	C	D	E	Never, if based on aesthetics
366	Lock	8/26/16	2:20 PM	PFB/WWK2	55127	C	D	B,D	B	A	C	B	A	C	C	B	C	C	C	C	D	E	never, if based on aesthetics
367	Lock	8/26/16	2:30 PM	PFB/WWK2	21737	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	C	E	What's best for the environment
368	Lock	8/26/16	2:40 PM	PFB/WWK2	21737	D	A	A,D	B	A	D	B	A	C	D	A	C	C	B	C	D	B	
369	Lock	8/26/16	2:30 PM	PFB/WWK2	55420	B	D	A,B,C,D,E	A,B,C,D	B	C	A	A	B	D	A	B	B	B	B	D	A	
370	Lock	8/26/16	2:30 PM	PFB/WWK2	55420	B	D	A,B,C,D,E	A,B,C,D	B	C	A	A	E	D	A	E	E	B	E	D	A	
371	Bridge	8/26/16	3:00 PM	PFB/WWK2	50501	D	A	A,D	B	A	D	B	A	C	C	A	C	D	C	A	D	D	
372	Bridge	8/26/16	3:00 PM	PFB/WWK2	50501	D	A	A,D	B	A	D	B	A	C	C	A	C	D	C	A	D	D	
373	Bridge	8/26/16	3:10 PM	PFB/WWK2	55409	A	B	A,B,C,D,E	A,B,C,D	D	C	B	B	C	C	C	C	C	C	C	B	E	What's best for environment should decide
374	Lock	8/27/16	10:45 AM	PFB	54966	D	A	B,D	B	A	D	B	A	C	C	C	C	C	C	C	D	E	Not sure
375	Lock	8/27/16	10:45 AM	PFB	54966	D	A	B,D	B	A	D	B	A	C	C	C	C	C	C	C	D	E	Not sure
376	Lock	8/27/16	11:30 AM	PFB	did not provide	C	D	A,B,D	A,B,C	A	C	B	A	A	A	A	A	A	A	A	A	E	Blow up the dam
377	Lock	8/27/16	11:30 AM	PFB	did not provide	C	D	A,B,D	A,B,C	A	C	B	A	A	A	A	A	A	A	A	A	E	Not enough power generation. Should go with solar and remove the dam.
378	Lock	8/27/16	11:30 AM	PFB	did not provide	D	A	B,D	B	A	D	B	A	A	A	A	A	A	A	A	A	E	Remove the dam like in Washington
379	Lock	8/27/16	11:30 AM	PFB	did not provide	D	A	B,D	B	A	D	B	A	A	A	A	A	A	A	A	A	E	Remove the dam
380	Lock	8/27/16	12:00 PM	PFB	55410	C	D	A,B,D	A,B,C	A	C	B	A	C	D	C	C	C	C	C	D	E	Doesn't matter
381	Lock	8/27/16	12:00 PM	PFB	55423	B	D	B,D	A,B,C	A	C	B	A	C	C	C	C	C	C	C	D	E	Doesn't matter
382	Lock	8/27/16	12:00 PM	PFB	55417	A	D	B,D	A,B,C,D	A	C	B	A	C	D	C	C	C	C	C	D	E	Doesn't matter
383	Lock	8/27/16	12:30 PM	PFB	55411	A	D	B,D,E	A,B,C,D	A	C	B	B	E	E	E	E	E	E	E	D	E	Should not be controlled based on aesthetics
384	Lock	8/27/16	12:30 PM	PFB	55411	A	D	B,D,E	A,B,C,D	A	C	A	B	E	E	A	E	E	E	E	D	E	Should not be controlled based on aesthetics
385	Bridge	9/2/16	3:14 PM	WWK2/SMM3	55416	B	B	A,D	A,B,C	A	C	B	B	C	C	C	C	D	C	A	D	B	
386	Bridge	9/2/16	3:14 PM	WWK2/SMM3	55416	B	B	A,D	A,B,C	A	C	B	B	C	C	C	C	D	C	A	C	B	
387	Bridge	9/2/16	3:22 PM	WWK2/SMM3	55105	C	A	B,D,E	A,B,C	A	C	B	A	C	C	B	C	C	C	C	D	E	No opinion
388	Park	9/2/16	12:27 PM	WWK2/SMM3	2509CZ (Netherlands)	D	A	A,D	B	A	D	B	A	E	D	A	E	E	E	E	D	A	
389	Park	9/2/16	12:35 PM	WWK2/SMM3	60202	D	A	A,D	B	A	D	B	A	C	C	A	C	D	C	C	C	E	No opinion
390	Park	9/2/16	12:47 PM	WWK2/SMM3	55426	C	B	B,E	B	A	C	B	A	C	D	C	C	C	C	C	D	B	
391	Park	9/2/16	12:47 PM	WWK2/SMM3	55426	C	B	B,E	B	A	C	B	A	C	C	C	C	C	C	C	D	B	
392	Park	9/2/16	12:53 PM	WWK2/SMM3	56352	C	C	A,B,C,D,E	B	B	C	B	B	D	C	C	C	C	C	C	D	D	
393	Park	9/2/16	12:53 PM	WWK2/SMM3	56352	C	C	A,B,C,D,E	B	B	C	B	B	D	C	C	C	C	C	C	D	D	
394	Park	9/2/16	1:00 PM	WWK2/SMM3	83704	D	A	A,B,D	B	A	D	B	A	C	D	C	C	C	C	C	D	B	
395	Park	9/2/16	1:00 PM	WWK2/SMM3	83704	D	A	A,D	B	A	D	B	A	C	D	C	C	C	B	C	D	B	
396	Park	9/2/16	1:00 PM	WWK2/SMM3	55417	C	B	A,B,C,D	B,C	B	C	B	A	C	D	B	C	C	B	C	D	B	
397	Park	9/2/16	1:00 PM	WWK2/SMM3	55417	C	B	A,B,C,D	B,C	B	C	B	A	C	D	C	C	C	B	C	D	B	
398	Lock	9/2/16	1:29 PM	WWK2/SMM3	55413	B	C	A,C	A,B	A	C	B	A	C	C	C	C	C	C	C	D	B	
399	Lock	9/2/16	1:40 PM	WWK2/SMM3	77003	D	A	A,D	B	A	D	B	A	C	C	C	D	C	C	C	D	B	
400	Lock	9/2/16	1:40 PM	WWK2/SMM3	77003	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	B	
401	Lock	9/2/16	1:50 PM	WWK2/SMM3	55379	C	D	A,E	B	C	C	B	A	B	D	A	B	B	B	B	D	D	
402	Lock	9/2/16	1:50 PM	WWK2/SMM3	55379	C	D	A,E	B	C	C	B	A	C	D	C	C	C	C	C	D	D	
403	Lock	9/2/16	2:17 PM	WWK2/SMM3	55408	C	D	B,C,D,E	A,B,C,D	A	C	B	A	B	C	A	C	C	B	D	D	B	
404	Lock	9/2/16	2:39 PM	WWK2/SMM3	49509	D	A	A,D	B	A	D	B	A	C	D	C	D	C	C	D	D	C	
405	Lock	9/2/16	2:39 PM	WWK2/SMM3	59054	D	A	A,D	B	A	D	B	A	C	D	C	C	C	C	C	D	E	No opinion
406	Lock	9/2/16	2:50 PM	WWK2/SMM3	56128	D	A	A,D	B	A	D	B	A	C	C	A	C	D	C	C	D	B	
407	Lock	9/2/16	2:50 PM	WWK2/SMM3	56128	D	A	A,D	B	A	D	B	A	C	C	C	C	C	C	C	D	B	
408	Lock	9/2/16	2:55 PM	WWK2/SMM3	55403	C	D	A,B,C,D,E	A,B,C,D	A	C	A	A	C	D	C	C	C	C	C	D	B	
409	Lock	9/2/16	2:55 PM	WWK2/SMM3	55403	C	D	A,B,C,D,E	A,B,C,D	A	C	A	A	C	D	C	C	C	C	C	D	B	
410	Park	9/14/16	12:45 PM	PFB/WWK2	55409	D	A	A,D	B	A	D	B	B	E	D	A	E	C	E	E	D	A	
411	Park	9/14/16	12:45 PM	PFB/WWK2	55401	D	A	A,D	B	A	D	B	B	E	D	A	E	C	E	E	D	A	
412	Park	9/14/16	1:15 PM	PFB/WWK2	55412	A	C	A,D	A,B,C	A	C	B	B	E	E	E	E	E	E	E	C	C	
413	Park	9/14/16	1:30 PM	PFB/WWK2	55405	B	B	A,D	A,B	A	C	B	B	E	D	A	B	B	A	E	D	B	
414	Park	9/14/16	1:30 PM	PFB/WWK2	55414	D	A	A,D	B	A	D	B	B	E	D	A	B	B	E	E	D	B	
415	Park	9/14/16	1:40 PM	PFB/WWK2	55101	D	A	A,D	B	A	D	B	A	E	D	A	E	D	E	E	D	B	
416	Park	9/14/16	1:55 PM	PFB/WWK2	55415	A	B	A,D	B,C	A	C	B	A	C	D	B	C	D	C	D	C	B	
417	Park	9/14/16	1:55 PM	PFB/WWK2	83014	C	B	A,D	A,B,C	A	C	B	B	C	C	B	C	D	C	C	C	B	
418	Park	9/14/16	2:15 PM	PFB/WWK2	55901	B	B	B,C,D,E	B,C	A	C	B	B	C	D	B	C	C	C	C	D	E	Releasing water for aesthetics is foolish
419	Park	9/14/16	2:15 PM	PFB/WWK2	55901	B	B	B,C,D,E	B,C	A	C	B	B	E	D	E	E	E	E	E	D	E	Releasing water for aesthetics is foolish
420	Bridge	9/17/16	2:40 PM	PFB/WWK2	43412	D	A	A,D	B	A	D	B	A	C	D	C	C	D	C	A	D	B	
421	Bridge	9/17/16	2:40 PM	PFB/WWK2	43412	D	A	A,D	B	A	D	B	A	C	D	C	C	D	C	C	D	A	
422	Bridge	9/17/16	2:50 PM	PFB/WWK2	55410	B	D	A,D,E	B	A	C	B	A	B	C	A	B	B	B	A	D	B	
423	Bridge	9/17/16	3:05 PM	PFB/WWK2	55405	A	B	A,B	A,B,C,D	A	C	B	B	C	C	A	C	D	C	A	D	E	Silly
424	Bridge	9/17/16	3:05 PM	PFB/WWK2	55415	A	A	A	A,B,C,D	A	C	B	B	C	C	A	C	D	C	A	D	D	
425	Bridge	9/17/16	3:05 PM	PFB/WWK2	55408	A	C	A,B	A,B,C	A	B	B	B	C	C	C	C	C	C	C	C	E	Don't care
426	Bridge	9/17/16	3:15 PM	PFB/WWK2	55414	A	B	B,D,E	A,C	D	C	B	A	E	D	A	E	D	E	A	D	B	
427	Bridge	9/17/16	3:15pm	PFB/WWK2	56537	A	B	A,B,D,E	A,C	D	C	B	A	B	D	A	B	D	B	A	D	B	
428	Bridge	9/17/16	3:20 PM	PFB/WWK2	60452	D	A	A,E	B	A	D	B	A	C	D	B	C	C	C	C	D	E	Esthetics not important
429	Bridge	9/17/16	3:20 PM	PFB/WWK2	60452	A	A	E	B	C	B	B	A	C	D	B	C	C	C	C	D	E	Not as important as water life
430	Bridge	9/17/16	3:30 PM	PFB/WWK2	55401	A	D	A,B,D	A,B,C,D	A	B	B	A	A	E	A	B	E	E	A	D	B	
431	Park	9/20/16	1:10 PM	PFB	55401	A	D	A,B,D	A,B,C,D	A	C	B	B	C	D	A	B	C	C	C	D	C	
432	Park	9/20/16	1:30 PM	PFB	55020	D	A	A,D	B	A	D	B	A	E	B	D	E	E	E	E	C	C	

APPENDIX B

Respondent #	Location	Date	Time	Interviewer(s)	Interviewer Zip Code	Question 1 - How often do you use or visit the area you are presently being interviewed?	Question 2 - How many years have you used this area?	Question 3 - When do you visit the St. Anthony Falls riverfront area? (Circle all that apply.)	Question 4 - What season(s) of the year do you visit this area? (Circle all that apply.)	Question 5 - On your visit to the area, how often do you notice how much water is flowing over the St. Anthony Falls waterfall?	Question 6 - How often have you observed the waterfall when you thought there was too little water passing over it?	Question 7 - Does the amount of water passing over the waterfall influence how often you visit the area?	Question 8 - Does the amount of water passing over the waterfall influence your enjoyment of the area?	Question 9 - Please look at the photographs of the waterfall, numbered 1 through 8, shown to you by the interviewer. Please rate each photo as either: A) Unacceptable B) Marginal C) Acceptable D) Optimum E) Don't Care							Question 10 - Based on what the waterfall looks like right now, how would you rate its appearance?	Question 11 - When do you think water should be released over the waterfall to improve its appearance/beauty?	If E (Other) write response here:
														Photograph 1 (500 cfs)	Photograph 2 (2000 cfs)	Photograph 3 (100 cfs)	Photograph 4 (750 cfs)	Photograph 5 (1500 cfs)	Photograph 6 (300 cfs)	Photograph 7 (1000 cfs)			
433	Park	9/20/16	1:45 PM	PFB	55303	D	A	A,D	B	A	D	B	A	B	E	A	E	E	B	E	B	E	Not sure
434	Park	9/20/16	1:45 PM	PFB	55303	D	A	A,D	B	A	D	B	B	B	E	E	E	E	B	E	C	C	
435	Park	9/20/16	1:50 PM	PFB	55118	C	B	A,D	A,B,C	A	C	B	A	B	E	A	E	D	B	E	D	B	
436	Park	9/20/16	1:50 PM	PFB	65656	C	B	A,D	A,B,C	A	C	B	A	B	E	A	E	D	B	E	D	B	
437	Park	9/20/16	2:20 PM	PFB	Not Given	D	A	A,D	B	A	D	B	A	E	D	A	E	B	A	E	C	E	consider economical and environmental aspects before aesthetics
438	Park	9/20/16	2:20 PM	PFB	T6V1E1 (Canada)	D	A	A,D	B	A	D	B	B	C	D	B	C	C	C	C	D	C	
439	Park	9/20/16	2:40 PM	PFB	T6V1E1 (Canada)	D	A	A,D	B	A	D	B	B	C	D	B	C	C	C	C	D	C	
440	Bridge	9/28/16	1:13 PM	CRH/SMM3	78748	D	A	A,D	C	A	D	B	B	C	C	C	D	C	C	C	C	B	
441	Bridge	9/28/16	1:20 PM	CRH/SMM3	55408	C	B	B,D	B	A	B	A	A	C	D	A	C	D	C	A	D	D	
442	Bridge	9/28/16	1:24 PM	CRH/SMM3	ME59RX (UK)	D	A	A,D	C	A	D	B	A	C	D	A	C	D	C	A	D	B	
443	Bridge	9/28/16	1:24 PM	CRH/SMM3	ME59RX (UK)	D	A	A,D	C	A	D	B	A	C	D	A	C	D	C	A	D	B	
444	Bridge	9/28/16	1:30 PM	CRH/SMM3	55401	A	B	A,B,D	A,B,C,D	A	C	B	B	B	D	A	B	D	B	A	D	B	
445	Bridge	9/28/16	1:40 PM	CRH/SMM3	G2G7RU	D	A	A,D	C	A	D	B	B	C	D	C	C	C	C	C	E	E	Amount of flow shouldn't depend on aesthetics
446	Bridge	9/28/16	1:40 PM	CRH/SMM3	G2G7RU	D	A	A,D	C	A	D	B	C	E	E	E	E	E	E	E	C	E	Amount of flow shouldn't be dictated by aesthetics
447	Bridge	9/28/16	1:52 PM	CRH/SMM3	55406	C	D	A,E	A,B,C	A	C	B	B	C	D	A	C	C	C	A	D	E	If flow affects business, set flow to promote economic impact
448	Bridge	9/28/16	1:52 PM	CRH/SMM3	55410	B	B	A,D	A,B,C	A	C	B	B	C	D	A	C	C	C	A	D	B	
449	Bridge	9/28/16	2:00 PM	CRH/SMM3	32792	D	A	A,D	B	A	D	B	A	C	D	A	C	C	C	A	D	B	
450	Bridge	9/28/16	2:05 PM	CRH/SMM3	W918Q	D	A	A,D	C	A	D	B	A	C	C	C	C	C	C	C	D	A	
451	Bridge	9/28/16	2:05 PM	CRH/SMM3	W0128	D	A	A,D	C	A	D	B	A	C	C	C	C	C	C	C	D	E	We should ask the "fishes"
452	Bridge	9/28/16	2:10 PM	CRH/SMM3	55423	D	A	D	C	A	D	B	A	B	D	A	C	D	B	A	C	B	
453	Bridge	9/28/16	2:10 PM	CRH/SMM3	55423	D	A	A,D	C	A	D	B	A	B	D	A	E	E	B	E	C	B	
454	Bridge	9/28/16	2:25 PM	CRH/SMM3	60169	D	A	A,D	C	A	D	B	A	B	D	A	C	D	B	A	D	B	
455	Bridge	9/28/16	2:25 PM	CRH/SMM3	60169	D	A	A,D	C	A	D	B	A	B	D	A	B	D	A	A	D	B	
456	Bridge	9/28/16	2:30 PM	CRH/SMM3	55414	A	A	A,C,D,E	A,B,C	C	B	B	B	C	D	D	C	D	C	D	D	E	Concered mainly about environment
457	Bridge	9/28/16	2:30 PM	CRH/SMM3	55432	A	A	A,C,D,E	A,B,C	A	C	B	B	C	D	D	C	D	C	D	D	E	Just cares about environment
458	Bridge	9/28/16	2:35 PM	CRH/SMM3	55401	A	D	A,B,C,D,E	A,B,C,D	A	C	B	A	C	D	B	C	D	C	B	D	C	
459	Bridge	9/28/16	2:45 PM	CRH/SMM3	54840	A	A	A,D	A,B,C	A	C	B	B	B	D	B	B	B	B	B	D	E	Daylight hours - weekends
460	Bridge	9/28/16	2:46 PM	CRH/SMM3	55406	D	B	A,B,D	A,B,C,D	A	B	B	A	C	D	B	C	C	C	B	D	B	
461	Bridge	9/28/16	3:05 PM	CRH/SMM3	55413	B	C	B,D	A,B,C	A	C	A	B	B	D	B	D	D	B	B	D	B	
462	Bridge	9/28/16	3:05 PM	CRH/SMM3	55106	D	A	A,D	C	A	D	B	B	B	D	B	D	D	B	B	D	B	
463	Bridge	9/28/16	3:05 PM	CRH/SMM3	55330	D	A	A,D	C	A	D	B	B	E	E	E	E	E	E	E	D	E	All hours, winter
464	Bridge	9/30/16	1:30 PM	PFB/SMM3	55421	B	C	B,E	B,C	A	C	B	A	C	D	C	D	D	C	C	D	A	
465	Bridge	9/30/16	1:30 PM	PFB/SMM3	55421	B	B	B,E	B,C	A	C	B	A	C	D	C	D	D	C	C	D	A	
466	Bridge	9/30/16	1:30 PM	PFB/SMM3	55421	B	D	B,E	A,B,C,D	A	C	B	A	C	D	B	D	D	C	B	D	B	
467	Bridge	9/30/16	1:40 PM	PFB/SMM3	94010	D	A	A,D	C	A	D	B	B	E	E	E	E	E	E	E	C	B	
468	Bridge	9/30/16	1:45 PM	PFB/SMM3	55369	A	B	A,D	B,C	D	C	B	A	C	D	B	C	C	C	B	D	B	
469	Bridge	9/30/16	1:45 PM	PFB/SMM3	22217	D	A	A,D	C	A	D	B	B	C	C	B	D	D	C	C	D	B	
470	Bridge	9/30/16	1:50 PM	PFB/SMM3	55054	D	A	A,D	C	A	D	B	B	D	C	C	C	C	C	B	D	E	Evening hours during summer
471	Bridge	9/30/16	1:50 PM	PFB/SMM3	55054	D	A	A,D	C	A	D	B	A	C	D	A	B	C	C	A	D	D	
472	Bridge	9/30/16	1:55 PM	PFB/SMM3	55415	C	B	A,B,D	A,B,C	D	C	B	A	B	D	A	C	D	B	A	D	C	
473	Bridge	9/30/16	2:05 PM	PFB/SMM3	55446	C	B	B,D	B,C	A	C	B	A	C	D	A	C	D	C	B	C	B	
474	Bridge	9/30/16	2:05 PM	PFB/SMM3	55446	C	B	B,D	B,C	A	C	B	B	C	D	A	C	C	B	C	C	B	
475	Bridge	9/30/16	2:05 PM	PFB/SMM3	55426	C	B	B,D	B,C	A	C	B	B	D	C	C	C	C	B	A	C	B	
476	Bridge	9/30/16	2:05 PM	PFB/SMM3	55426	C	B	B,D	B,C	A	C	B	B	C	C	C	C	C	C	A	C	B	
477	Bridge	9/30/16	2:30 PM	PFB/SMM3	86004	D	A	A,D	C	A	D	B	A	C	D	B	C	C	C	A	D	D	
478	Bridge	9/30/16	2:30 PM	PFB/SMM3	86004	D	A	A,D	C	A	D	B	A	C	D	A	C	C	C	A	D	D	
479	Bridge	9/30/16	2:35 PM	PFB/SMM3	49240	D	A	A,D	C	A	D	B	A	C	D	B	D	C	C	A	D	B	
480	Bridge	9/30/16	2:40 PM	PFB/SMM3	55118	C	B	B,E	B,C	C	C	B	A	B	D	A	C	C	B	A	C	E	More hydropower is better
481	Bridge	9/30/16	2:40 PM	PFB/SMM3	55123	C	B	B,E	B,C	C	C	B	B	B	D	A	D	D	B	A	D	E	More hydropower is better
482	Bridge	9/30/16	2:40 PM	PFB/SMM3	55105	C	B	E	B,C	C	C	B	A	C	C	C	D	C	C	C	D	E	More hydropower is better
483	Bridge	9/30/16	2:50 PM	PFB/SMM3	55414	A	B	A,B,C,D,E	A,B,C,D	D	C	B	A	C	D	C	C	C	C	B	D	A	
484	Bridge	9/30/16	2:50 PM	PFB/SMM3	55410	D	A	A,D	B,C	A	D	B	A	C	C	B	E	C	C	B	D	A	
485	Park	9/30/16	12:40 PM	PFB/SMM3	55401	A	B	A,C,D,E	A,B,C,D	D	C	B	B	E	A	D	E	E	E	E	A	E	
486	Park	9/30/16	12:40 PM	PFB/SMM3	80105	D	A	A	C	A	D	B	B	E	E	D	E	E	D	E	A	E	Like less water
487	Park	9/30/16	12:45 PM	PFB/SMM3	10523	D	A	A,D	C	A	D	B	A	D	B	C	C	C	C	C	C	D	
488	Park	9/30/16	1:05 PM	PFB/SMM3	55414	A	D	B,E	A,B,C	A	C	B	B	E	D	E	E	D	E	E	D	E	Should not be determined by aesthetics, should be best for ecosystem
489	Park	9/30/16	1:05 PM	PFB/SMM3	55125	D	D	A,B,E	A,B,C	A	A	B	A	E	D	D	E	D	E	E	D	E	Should not be determined by aesthetics, should be best for ecosystem
490	Bridge	10/11/16	12:44 PM	WWK2/SMM3	55305	A	D	A,D	A,B,C	A	C	B	A	C	D	B	C	D	E	A	D	B	
491	Bridge	10/11/16	12:44 PM	WWK2/SMM3	55129	D	A	A,D	C	A	D	B	A	C	D	B	C	D	C	A	D	B	
492	Bridge	10/11/16	12:44 PM	WWK2/SMM3	Germany	D	A	A,D	C	A	D	B	A	C	D	B	C	D	C	A	D	B	
493	Bridge	10/11/16	12:53 PM	WWK2/PFB	55401	A	D	A,B,C,D,E	A,B,C	A	C	B	A	C	D	B	D	C	C	A	D	B	
494	Bridge	10/11/16	12:53 PM	WWK2/PFB	55401	A	D	B,C,D,E	A,B,C	A	C	B	A	C	D	B	D	C	C	C	D	B	
495	Bridge	10/11/16	12:55 PM	WWK2/PFB	55406	B	D	A,B,C,D	A,B,C	B	C	A	A	B	D	A	C	C	B	A	D	B	
496	Bridge	10/11/16	12:55 PM	WWK2/PFB	55406	B	D	A,B,C,D,E	A,B,C	B	C	A	A	B	D	A	C	C	B	A	D	B	
497	Bridge	10/11/16	1:11 PM	WWK2/PFB	34786	D	A	A,D	C	A	D	B	A	C	D	A	D	D	C	A	D	A	
498	Bridge	10/11/16	1:11 PM	WWK2/PFB	55419	D	A	A,D	C	A	D	B	A	C	C	B	C	C	C	B	D	A	
499	Bridge	10/11/16	1:21 PM	WWK2/PFB	55405	C	B	A,B,D,E	A,B,C	C	C	B	A	B	D	A	D	D	B	A	D	B	
500	Bridge	10/11/16	1:21 PM	WWK2/PFB	33024	D	A	A,D	C	A	D	B	A	C	C	A	E	D	B	A	D	D	
501																							
502																							
503																							
504																							

Attachment B

Stakeholder Comments and Licensee's Responses

Army Corps of Engineers

- No surveys were taken on Sundays. Surveys were conducted on 2 Mondays, 6 Tuesdays, 5 Wednesdays, 5 Thursdays, 2 Fridays and 3 Saturdays. That could skew the results of question 3.

  Surveys were conducted on Sunday, August 21, however, the initial report submitted to the stakeholders failed to include this day in the table of dates and hours (Table 1-1) and survey calendar (Appendix A). The table and calendar have since been revised to include this survey date.

- I suggest displaying what the river flow was on the days that the surveys were taken (although the report notes that it was 2,000-25,000 cfs). It is unfortunate that the actual flow in the river was not as low as in some of the photographs, so you could correlate the responses to your 10th question to the responses given to the photographs.

  Licensee has included a graph (Figure 2-16) in the report depicting the approximate flow at the main spillway throughout the survey period. Licensee notes that pursuant to Article 403 of the license, photographs of a range of flows between 100 cfs and 2,000 cfs over the spillway were required to be taken, based on FERC staff's recommendation in the environmental assessment that licensee monitor and document flows over the spillway sufficient to result in flows ranging between 100 cfs and 2,000 cfs over the spillway. See License at ¶ 46. Because the flows over the spillway for all days in which interviews were conducted was greater than 2,000 cfs, flow information correlated to the survey date would not have provided additional information relevant to the Commission's determination whether to increase the minimum aesthetic flow to more than 100 cfs.

Minnesota Department of Natural Resources (MDNR)

- Section 1.2 has the survey dates and hours. Over the six month period, no surveys were taken on Sundays; surveys were taken on two Fridays, and three Saturdays (not consecutive days to the Fridays); and most of the surveys were taken during the middle of the week not during weekends. Surveys during evening hours only occurred once in each of the months of June, July, and August. No surveys were taken on the highly populated holiday weekends associated with July 4 and Labor Day. When the Stone Arch Bridge Festival occurred, the survey was only done one of the days of the weekend and in the afternoon. Surveys were done at the time of the Minneapolis Aquatennial Festival only on Friday afternoon. These survey dates could affect the responses and results for a number of questions including in particular Question #3.

  As mentioned above, the report has been revised to include Sunday, August 21 in Table 1-1 and the survey calendar. Surveys were conducted primarily during the day to coincide with peak use. Furthermore, it is unlikely that users of the park during non-interviewed times would have provided drastically different opinions than those who were interviewed. As for the festivals, licensee believes it was just as important to survey individuals who visited the area on its own merits (to view the waterfall and surrounding attractions) rather than to attend a festival.

- Section 1.3 describing the demographics of the visitors surveyed is valuable showing the extent of national and international visitors on the days surveyed (Pages 2 to 3).

Licensee concurs. Respondents interviewed during the different time periods represented a diverse base of opinion.

- Although the questions to be asked have been evaluated in the past, some of questions asking specific information about their viewing experiences seem not effective particularly when asking the question of "first time" users. This could be affecting the responses and results. These questions also suggest more frequent use than the one time or first time use. For example, if someone has been there just one time or this is the first time, asking about number of years using the area; times of day of use; seasons of use; frequency of noticing flowing water over the falls; and observations about water flow is different and the results are different than when posed to more frequent users. The results should differentiate between responses from "first time" users as opposed to those with more frequent use. This may affect the responses to Questions #2, 3, 4, 5, 6, and 7.

  Licensee has amended the report to include responses for repeat visitors only.

- Section 2.4 has the discussion regarding Question #4 which is confusing as is the summary of the results. The discussion indicates 58% only visit in the summer but this is based on and includes the 53% of the visitors surveyed as being "first time" visitors. They only visit in the summer but this was their first visit. The results should have included "first time user" as a response option to enable reviewers to be able to see the users who have been there more than once and information about when they use the area. A modified question for "first time" users could have been "what season would you come back?" With "first time" users, if they have only used the facility once, how would someone know if the responses were the situation for other periods of time.

  Licensee has amended the report to include responses for repeat visitors only. Among repeat visitors, summer remains the most popular season to visit the area. Note: Licensee has tracked seasonal (April – October) visitor attendance at Water Power Park since 2007 and June, July and August are the most popular months to visit the Park and surrounding area.

- Section 2.5 and Question #5 is difficult to correlate for "first time" users. The survey and the discussion should have included an option for the "first time" user. A question about how often the amount of water flowing is observed is difficult to ascertain when the majority of the responses are among "first time" users. A "first time" user would likely observe the flowing water once. Regarding the discussion, that 80% of respondents always notice the amount of water flowing over the dam, lends credibility to the fact that the amount of flow is important to visitors to this area.

  The responses of all respondents were compared to repeat visitors only in regards to how often they notice how much water is flowing over the St. Anthony Falls waterfall. The percentage that answered "always" decreased from 80% to 61% (see Figures 2-8 and 2-9).

- Section 2.6 and Question #6 (how often have you observed the waterfall when you thought there was too little water passing over it) should provide additional information to substantiate the conclusion in the report that "very few stated that they frequently or

occasionally thought there was too little water." In addition regarding this question, since 53% of the respondents were first-time users and the surveys were performed when there was between 2,200 cubic feet per second (cfs) and 25,000 cfs, the results of this question do not provide statistically relevant information.

The responses of all respondents were compared to repeat visitors only in regards to how often they thought too little water was passing over the waterfall. The percentage that answered "rarely" increased from 42% to 91% (see Figures 2-10 and 2-11).

- Section 2.8 and Question #8 addresses the extent to which the amount of water passing over the falls influences the enjoyment of the area. The use of the phrase in the discussion "impeding their enjoyment" is subjective as the question was about influencing the enjoyment of the area.

  The sentence has been revised to read "...influence their enjoyment."

- Section 2.9 addresses the General Summary of Photo Ratings (Page 18). I know from our discussions there may have been some issues with the photos. Regarding the 2,000 cfs photo, this appears to be the same photo as shown for the USACE Visitor Center and for Water Power Park. The correct photo(s) should be used in the report. The discussion throughout this section and in the photos (Pages 14 to 19) uses non-objective terms or phrases which in some cases do not correlate with the information from the surveys. Objective descriptions and evaluations should be used. These include: (1) Nine to 25% who chose the response do-not care/no opinion is not a "fairly significant number of participants" (Section 2.9.1); (2)"only 5% considered" and "only 3% found" 500 cfs and 750 cfs unacceptable (Section 2.9.4 and Section 2.9.5); (3) "surprising 21%" of respondents and "only 12% found it" unacceptable (Section 2.9.6); and (4) "only 10% found" the flow unacceptable (Section 2.9.7).

  Section 2.9.1 has been revised to use objective descriptions and evaluations. The photo of 2,000 cfs for Water Power Park under Section 2.9.8 has been corrected.

- Regarding Section 2.10 about Question #10 (based on what the waterfall looks like right now, how would you rate its appearance), at the time of the survey, the flow of water over the falls ranged from 2,200 cfs to 25,000 cfs. 67% rated the appearance as "optimum." However, Section 2.9 and the discussion of Question #9 indicates that 56% of respondents rated the highest option (2,000 cfs) as "optimum." It is unclear and not explained why 2,000 cfs was the highest cfs flow choice provided to respondents when the flow throughout the time of the survey was higher than 2,000 cfs and ranged to 25,000 cfs (and this question was based on actual flow not on the flow depicted in the photographs). It appears that if a higher option were given the participants, there is the potential that more respondents would have rated that option optimum.

  River flows during the survey were beyond the control of licensee. As described above, surveying for flows higher than 2,000 cfs is outside the scope of license Article 403. FERC reaffirmed this fact in its December 15, 2005 Order Modifying and Approving Aesthetic Flow Adequacy Plan. Furthermore, licensee's Lost Generation Analysis indicates that a

minimum flow in excess of 500 cfs would significantly impact the economic viability of the St. Anthony Falls Hydroelectric Project.

- Regarding Section 2.11 and Question #11 (asking about when respondents think water should be released over the waterfall to improve its appearance/beauty), most visitors would likely not know that altering flows can have an adverse effect on aquatic life, so it's a surprise and beneficial that "the most common sentiment was that decisions about releasing water should be based on the environment." This is also coming from survey respondents where for 53% this is the first time visiting the area.

  The majority of respondents indicated that water should be released over the waterfall during daylight hours of non-winter months. This is consistent with the existing minimum flow requirement in license article 402.

- Section 3.0 Report Conclusion #9 (Page 23). The conclusion states that "an overwhelming majority of users (87%) stated that the level of flow over St. Anthony Falls does not influence how often they visit the area. While the amount of water passing over the falls may not influence the frequency of visits, it does influence user enjoyment of the area." Sixty-eight percent of those questioned stated that their enjoyment of St. Anthony Falls was affected by the level of water flow." This is one of the only times in the report that the percentage was spelled out, instead of in number format. It is not a surprise that 87% of people stated that the level of flow does not influence how often they visit the area. In general, people do not know how to check the flow before planning a trip to the falls, but they clearly have an expectation that there will be optimum flow when they arrive. The 68% statistic here is considerably more important. In addition, based on the entire survey results in this report, 53% of all respondents were first-time visitors adding to the likelihood they may have not checked the flow before planning a trip to the area.

  MDNR has not provided any information to support its statement that the public "expects an optimum flow when they arrive". The fact that 68% of all respondents stated that their enjoyment of St. Anthony Falls was affected by the level of water flow does not imply that they expect an optimal flow; nor does MDNR identify the cfs of such an optimal flow. When reviewing the responses from repeat visitors only, regarding enjoyment of the waterfall, this figure drops to 54%.

- Throughout the report, there seems to be a strong focus on responses from first-time visitors to the area (i.e., based on Question #1 the largest percentage of respondents). We suggest there should be additional concentration on the responses from frequent visitors or more frequent visitors who may have increased knowledge over one-time visitors about actual flows at St. Anthony Falls and the likely visual effects.

  Licensee has amended the report to include responses for repeat visitors only.

- Regarding a number of the responses, information about how only the "frequent users" responded to many of the questions (i.e., Questions 2, 3, 4, 5, 6, 7, and 8) would be beneficial to the reviewer and reader.

  Licensee has amended the report to include responses for repeat visitors only.

Minneapolis Park & Recreation Board (MPRB)

- The Aesthetic Flow Survey Report fails to indicate clearly the methodology used in the conduct of the survey or the qualifications of those individuals tasked with infield survey work or the analysis of collected results. Because those factors are not indicated in the report, it is impossible to determine whether the collection of data, its interpretation, or the conclusions of the report are statistically valid. Article 403 requires the use of "a professional survey firm or group to conduct the interviews," however it is not clear that Barr Engineering Company is such a professional survey firm.

  The report has been revised to include a description of the survey methodology. Licensee conducted a pre-survey meeting with stakeholders on April 7, 2016 and explained the survey methodology and reviewed the approved questionnaire. Barr Engineering is not a formal survey firm, however, licensee believes their qualifications as a professional engineering firm are more than sufficient to conduct a statistically valid survey.

- Days when the survey was conducted may not fairly reflect visitorship to the Central Mississippi Riverfront Regional Park. To wit, the Aesthetic Flow Survey Report suggests that no surveys were conducted on Sundays during the survey period. In fact, the survey dates seem to skew toward mid-week, with 16 of 23 survey dates occurring on Tuesdays, Wednesdays, and Thursdays, with those weekdays being nearly 70 percent of dates when surveys were conducted. There are no conclusions presented to reflect a correlation between preferences for flow scenarios and days of the week when surveys were conducted.

  As mentioned above, surveys were conducted on Sunday, August 21, however, the initial report failed to include this date in the table of dates and hours and the calendar. Both the table and calendar have since been revised to include this survey date. The survey was not skewed toward weekdays, the days were randomly selected. An analysis of the survey results conducted by licensee's consultant provided no evidence that the day of the week influenced a particular response.

- Times when the surveys were conducted appear to be largely those hours between noon and 4 pm, which may skew results toward more infrequent visitors to the Falls area. In fact, information included in the report indicates that of the 23 dates when surveys were conducted, 78 percent were conducted between noon and 4 pm. There are no conclusions presented to reflect a correlation between preferences for flow scenarios and times when surveys were conducted.

  In regards to skewing the results toward infrequent users, licensee has amended the report to also include the responses of repeat visitors only. Licensee sees no value in providing a correlation between flow preferences and time of day.

- There is no correlated data or analysis to suggest preferences for flow scenarios between those visitors characterized as frequent or infrequent visitors. More frequent visitors to the Falls area may be more aware of changes in flow, especially when considering more dramatic high flow regimes. Correlated data could reveal valuable insights and information, but no such data is presented in the survey report.

When evaluating preference for flow between repeat visitors (Fig. 2-14) and first-time visitors (Fig. 2-15), there is no clear evidence of a connection between flow preference and how often an individual visited the area.

- Survey data appears to have been collected in locations where respondents would have a clear view of the Falls, which suggests that a correlation between a response and the flow condition might exist and be revealing as a part of the conclusions presented in the report. While flows are noted in the report being as much as 25,000 cfs on some survey dates, there is no correlation between actual flows and collected survey data. Without this correlation, there could be a tendency for responses to reflect actual flow conditions as opposed to those demonstrated by the images of the flow scenarios.

  The survey locations, specifically selected to have a clear view of the waterfall, were approved by all stakeholders, including the MPRB. Licensee has included a graph (Figure 2-16) in the report depicting the approximate flow at the main spillway throughout the survey period. The value of developing a correlation between actual flow conditions and the results of the survey is unclear as licensee has no control over natural river flows.

- The St. Anthony Falls Aesthetic Flow Survey report noted that images presented to survey respondents for a 1,000 cfs scenario were incorrectly displayed. This error was recognized only when survey results were being tabulated. Further, the report notes that the error was discovered "when tabulated results showed a surprising 21% of respondents considered this flow rate to be unacceptable." Regardless of the error, the use of the term "surprising" would seem to indicate a bias in the interpretation of the survey. Further, instead of dismissing that flow scenario based on incorrectly collected data, the report indicates the survey results were recalculated, raising questions of inconsistencies in all calculations. Further still, Article 403 requires the survey to be conducted with "at least 500 users during the late-spring through early-fall seasons," with those users looking at photographs representing various flow levels. If one set of data were inappropriately used in the survey, the requirements of Article 403 would appear to remain unsatisfied. It is unclear in the report if the recalculation reduced the number of respondents to less than the 500 users required by Article 403.

  Licensee acknowledges that one of the photographs at one of the sites was incorrectly displayed. Licensee notes that photographs of flows that showed flows slightly higher and slightly lower than 1,000 cfs are virtually identical to the photograph showing flows of 1,000 cfs. As indicated in the transmittal letter, licensee proposes to reconduct the survey and to prepare a new report in 2026 in anticipation of the FERC Form 80 due in 2027.

- The report repeats images for a 2,000 cfs scenario in Section 2.9.8,. essentially showing images of that scenario from the viewpoint of the USACE Visitor Center at Lock and Dam twice, and not showing the image from the viewpoint of Water Power Park. While this may be an error in the presentation of the report, it reflects poorly on quality review processes that might extend to other aspects of the survey.

  The photo of 2,000 cfs for Water Power Park under Section 2.9.8 has been corrected.

National Park Service (NPS)

- The Section 1.0: Change "thousands of visitors" to "millions of visitors". In 2015, the Central Mississippi Riverfront Regional Park (Central Riverfront) had over 2.1 million visits.

  Licensee has amended the report to include "millions of visitors".

- Section 1.0: The background section describes that license article 403 required the Survey as part of the Aesthetic Flow Adequacy Plan approved by FERC in 2005. This section should provide an explanation for the twelve-year delay in executing the Survey.

  The survey could not be conducted until the aesthetic flow photography was completed. Acquiring photographs of seven different target flows from three separate vantage points was a significant challenge for the following reasons:

  1) *Target flows over the main spillway could only be achieved by manipulating flows through the St. Anthony Falls Hydro powerhouse via the generators. The capacity of the powerhouse is approximately 4,300 cubic feet per second (cfs). Therefore, at any time that flows exceeded this threshold (≈ 77% per the Lost Generation Analysis), photographs could not be acquired. As mentioned above, licensee has no control over natural river flows.*

  2) *There were several periods where river flows were optimal for acquiring the photographs, however, major construction projects made the generators unavailable for extended periods of time.*

  3) *A new method of measuring flow over the main spillway, which included installation of a staff gage and acoustic transducer, was implemented in 2015. The new method was significantly more accurate at measuring flows over the main spillway. Acquiring photographs that accurately depict the various flows was paramount to the survey.*

- Section 1.2: The survey results are skewed to users who visit the area on weekdays and during the day. Less than a quarter of the survey times (5 of 23) were conducted on evenings or weekends, and no surveys were conducted on Sundays. While this is acknowledged in the Conclusions Section on page 22, this bias should be acknowledged earlier in the report concurrent with the Summary of Survey Dates and Hours. An explanation should be provided for how the survey dates and hours were selected and why weekdays during the day were preferenced over weekends and weekday evenings

  The survey days were randomly selected and thus more weekdays were surveyed because there are more weekdays than weekend days. Daytime surveys accounted for the majority of the surveys because peak visits occur during the day. Surveys were conducted on Sunday, August 21, however, the initial report submitted to the stakeholders failed to include this day in the table of dates and time and the survey calendar. The table and calendar have since been revised to include this survey date.

- Section 2.7: The frequency of visits seems irrelevant to the survey or at least was impacted by the survey dates and times. The total number of visitors to the area and amount invested since the license was granted would provide a better understanding of the significance of flows to the economic, recreational, cultural, and aesthetic value of the area.

Licensee reviewed its correspondence records and found no evidence that the NPS or any other stakeholder had a concern with Question 1 (How often do you visit the Stone Arch Bridge/Corps Visitor/Water Power Park?). The NPS' comments regarding the total number of visitors to the area and the significance of flows to the economic, recreational, and cultural value of the area are outside the scope of the survey and license article 403. The purpose of the survey was to determine an appropriate minimum flow for aesthetics.

- Section 2.9: The report describes that all of the photos were presented to the respondents on a poster board at the same time. Typically, if respondents are asked to rate images in a survey, only one image is presented at a time. This allows the respondent to rate the image on its own merits and not simply in relation to the larger sample. Displaying all photos at once may have resulted in respondents finding a larger range of flow rates acceptable than they otherwise would have if they were viewing discrete images one at a time. The data seems to indicate that respondents were able to distinguish the two extremes (100cfs and 2000cfs) but struggled in distinguishing the flows between.

  Licensee respectfully disagrees. It would be very difficult to distinguish some of the photographs without looking at them at the same time because of their similar appearance (i.e. 300 cfs v. 500 cfs, 750 cfs v. 1,000 cfs). Licensee conducted a pre-survey meeting with stakeholders on April 7, 2016, to explain the survey methodology and review the approved questionnaire. The NPS did not voice any concerns regarding methodology at that time.

- Section 2.9: The flows that were depicted on the poster board were also limited to the range of 100 to 2,000 cfs. Meanwhile, the flow rates that respondents observed in person were 2,200 to 25,000 cfs. By only presenting images of lower flows, this likely resulted in respondents rating those flows with higher levels of acceptability. Images depicting the entire range of possible flows should have been provided.

  River flows during the survey were beyond the control of licensee. As described above, surveying for flows higher than 2,000 cfs is outside the scope of license Article 403.

- Section 2.9.1: The order that the findings of photo ratings is presented is awkward and may reflect an implicit bias in the survey to highlight indifference among the public toward the amount of water flow over the Falls. The first bullet point presented on page 14 asserts a "fairly significant number of participants 9-25% chose the response do-not care/no opinion when asked the rate the photos." This category of response (No Response) is in all cases a small percentage and does not represent the prevailing views on any of the photos. The results in this section should be presented in the order of most significant to least significant findings.

  The words "fairly significant" have been removed from the report. There is no particular order in Section 2.9.1; it is simply a general summary of the survey results.

- Section 2.9.1: It is misleading to indicate respondents had a fairly wide "tolerance" for a range of flows when, clearly, higher flows were preferred. This is an assumption on the part of the surveyors.

Licensee agrees with its consultant's opinion that there is a "...fairly wide tolerance for a range of flows."

- Section 2.10: The flow rate (cfs) during each individual survey should be reported along with the Survey Responses in Appendix B.

  Licensee has included a graph (Figure 2-16) in the report depicting the approximate flow at the main spillway throughout the survey period. As described above, pursuant to Article 403 of the license, photographs of a range of flows between 100 cfs and 2,000 cfs over the spillway were required to be taken, based on FERC staff's recommendation in the environmental assessment that licensee monitor and document flows over the spillway sufficient to result in flows ranging between 100 cfs and 2,000 cfs over the spillway. See License at ¶ 46. Because the flows over the spillway for all days in which interviews were conducted was greater than 2,000 cfs, flow information correlated to the survey date would not have provided additional information relevant to the Commission's determination whether to increase the minimum aesthetic flow to more than 100 cfs.

- Section 2.11: This question is posed in a way that presumes that there are times that water should not be released over the Falls. This implicit bias may have skewed respondents' answers.

  FERC approved the survey questionnaire in its December 15, 2005 Order Modifying and Approving Aesthetic Flow Adequacy Plan.

- Section 3.0: It is unclear how it was assumed, without a specific question being asked, that the environment should be the primary concern and water should never be released for aesthetic purposes. This assumption seems irrelevant to the survey results and should be removed. It should not be used to determine the required minimum flows.

  Question 11 was dictated to the respondents verbatim, with each option being read out loud. 148 of the respondents chose to use the "other" option as a means to voice their unique opinions about the waterfall that did not fall into the multiple choice categories. Responses regarding the environment were provided by interviewees of their own volition and were not solicited by the interviewer.

- The majority of respondents clearly consider 2000 cfs (and up to 25,000 cfs) to be the optimum flow.

  NPS did not provide any support for this contention. As discussed above, the purpose of the survey is to assess flows between 100 cfs and 2,000 cfs.

- As indicated in our August 2003 comments, the NPS had concerns that discussions between Xcel Energy and other parties, including FERC, assumed that the aesthetic appearance is solely tied to the quantity of water flowing over the Falls. We recommended that, in combination with maintaining minimum flows, an analysis of treatments to the dam surface that would make the water jump and splash be conducted. With the right surface treatment,

the minimum required flow rate could possibly be lower while still maintaining and perhaps enhancing the aesthetics of the Falls.

This recommendation is outside the scope of license article 403.

Friends of the Mississippi River (FMR)

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

  Surveys were conducted primarily during the day to coincide with peak use. Furthermore, it is unlikely that users of the park during non-interviewed times would have provided significantly different opinions than those who were interviewed.

- 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.

  As mentioned previously, the survey days were randomly selected and thus more weekdays were surveyed because there are more weekdays than weekend days. The draft report failed to include the Sunday survey data in the results and has since been amended.

- There are considerable discrepancies between the raw data contained in Appendix A with the information reported in Table1---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.

  The report table and calendar have been updated to reflect the actual dates and times surveyed. The dates and times reported in Table 1 were the originally scheduled days. These were changed during the survey period due to rain, and in some cases, excessive heat.

- 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.

  The report table and calendar have been updated to reflect the actual dates and times surveyed. The dates and times initially reported in Table 1 were the originally scheduled days. These were changed during the survey period due to rain, and in some cases, excessive heat.

- 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.

  Re-administering the survey with more emphasis on weekends is unnecessary. To assume that weekend users would have a different opinion of flows versus weekday users is speculative and FMR has not provided any information to support this assertion. Nonetheless, the report has been amended to separate weekend visitors from all visitors and the results show no appreciable differences in the overall responses or trends. See Tables 2-4 and 2-5. Similarly, there is no evidence to support the claim that the time of day influences a preference for flow.

- 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.

  Licensee fulfilled the requirement of article 403 and the Aesthetic Flow Adequacy Plan by interviewing 500 individuals.

- 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.

  The survey questions were developed in consultation with the stakeholders and neither licensee nor the stakeholders could have anticipated that the majority of respondents would be first time visitors. Notwithstanding, the report has been amended to separate the results of first-time visitors from repeat visitors and there were no appreciable differences in the overall responses or trends.

- 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.

  The FMR was provided an opportunity to comment on the survey questionnaire and licensee's records show they did not provide comments. Question 9 was subsequently approved by FERC. As described above, surveying for flows greater than 2,000 cfs is beyond the scope of license Article 403. Furthermore, U.S. Geological Survey (USGS) streamflow data indicates that annual median flow in the Mississippi River at Brooklyn Park exceeds 7,050 cfs. Given that the maximum hydraulic capacity of the powerhouse is 4,300 cfs, one can conclude that approximately 1,500 cfs will be passing over the waterfall approximately 60% of the time (see Lost Generation Analysis).

- 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.

  The method of displaying all the photographs on a single board was presented to the stakeholders at the April 7, 2016 pre-survey meeting. Licensee's notes from the meeting do not indicate any objections to this method.

- 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.

  Licensee has amended the report to include a graph (Figure 2-16) depicting the approximate flow at the main spillway throughout the survey period. As mentioned above, licensee sees no value in developing a correlation between river flows and survey results as natural river flows are beyond the control of licensee and flows greater than 2,000 cfs are beyond the scope of license Article 403.

- 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 FMR was provided an opportunity to comment on the survey questionnaire and licensee's records show they did not provide comments. Again, the report has been amended and the survey results have been separated between first-time visitors and frequent visitors.

- 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.

  None of the stakeholders questioned Barr Engineering's survey credentials at the pre-survey meeting. Furthermore, Barr Engineering conducted a similar survey of Water Power

Park in 2014 using the same survey protocol and there were no concerns or objections from stakeholders at that time regarding their credentials or survey methodology.

Licensee takes exception to the implication that the survey was potentially biased because of Barr Engineering's professional relationship with licensee. FMR's comments are both speculative and unsubstantiated.

- 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.

  The report has been revised to include a description of the survey methodology. The number of persons intercepted, the number of disconnects, etc. would not have yielded any valuable information nor would they have impacted the survey results.

Attachment C

Stakeholder Correspondence

Xcel Energy®
RESPONSIBLE BY NATURE™

1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

December 22, 2016

Nanette Bischoff
US Army Corps of Engineers
190 5th Street East, Suite 401
St. Paul, MN 55101-1638

Subject: **Aesthetic Flow Survey Report**
St. Anthony Falls Hydro (P-2056)

Dear Ms. Bischoff:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

c: St. Anthony Falls Project Files
Scott Crotty, Robert Olson, Randy Volbrecht – Xcel Energy (via e-mail)

Distribution List for the Aesthetic Flow Adequacy Plan
St. Anthony Falls Hydroelectric Project (P-2056)

National Park Service:
Mississippi National River & Recreation Area
Attn: Susan Overson
111 East Kellogg Boulevard
St. Paul, MN 55101-1288

US Army Corps of Engineers
Attn: Nanette Bischoff
180 East 5th Street, Suite 700
St. Paul, MN 55101-1678

MN Dept. of Natural Resources
Division of Ecological Resources, Box 25
Attn: Charlotte Cohn
500 Lafayette Road
St. Paul, MN 55155-4025

Minneapolis Park & Recreation Board
Attn: Liz Wielinski
2117 West River Road
Minneapolis, MN 55411

Friends of the Mississippi River
Attn: Irene Jones
360 North Robert Street, Suite 400
St. Paul, MN 55101

Crown Hydro LLC
Attn: Gary Monson
13208 Sheffield Curve
Minnetonka, MN 55305

Xcel Energy®
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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

December 22, 2016

Ms. Charlotte Cohn
MN Department of Natural Resources
Division of Ecological Resources, Box 25
500 Lafayette Road
St. Paul, MN 55155-4025

Subject: **Aesthetic Flow Plan Meeting**
St. Anthony Falls Hydro (P-2056)

Dear Ms. Cohn:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

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Scott Crotty, Robert Olson, Randy Volbrecht – Xcel Energy (via e-mail)

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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

December 22, 2016

Liz Wielinski
Minneapolis Park & Recreation Board
2117 West River Road
Minneapolis, MN 55411

Subject: **Aesthetic Flow Plan Meeting**
St. Anthony Falls Hydro (P-2056)

Dear Ms. Wielinski:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

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1414 West Hamilton Avenue
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December 22, 2016

Susan Overson
Mississippi National River & Recreation Area
111 East Kellogg Boulevard
St. Paul, MN 55101-1288

Subject: **Aesthetic Flow Plan Meeting**
St. Anthony Falls Hydro (P-2056)

Dear Ms. Overson:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

c: St. Anthony Falls Project Files
Scott Crotty, Robert Olson, Randy Volbrecht – Xcel Energy (via e-mail)

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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

December 22, 2016

Irene Jones
Friends of the Mississippi River
360 North Robert Street, Suite 400
St. Paul, MN 55101

Subject: **Aesthetic Flow Plan Meeting**
St. Anthony Falls Hydro (P-2056)

Dear Ms. Jones:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

c: St. Anthony Falls Project Files
Scott Crotty, Robert Olson, Randy Volbrecht – Xcel Energy (via e-mail)

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Minnetonka, MN 55305

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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

December 22, 2016

Timothy Keane
Crown Hydro LLC
5436 Columbus Avenue South
Minneapolis, MN 55427

Subject: **Aesthetic Flow Survey Report**
St. Anthony Falls Hydro (P-2056)

Dear Mr. Keane:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

c: St. Anthony Falls Project Files
Scott Crotty, Robert Olson, Randy Volbrecht – Xcel Energy (via e-mail)

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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

December 22, 2016

Chris Ellis
St. Anthony Falls Laboratory
Mississippi River at 3rd Street SE
Minneapolis, MN 55414

Subject: **Aesthetic Flow Plan Meeting**
St. Anthony Falls Hydro (P-2056)

Dear Mr. Ellis:

Enclosed you will find a copy of the Aesthetic Flow Survey Report for St. Anthony Falls Hydro along with the corresponding distribution list of stakeholders. The survey was conducted in 2016, in part, to solicit public opinion regarding aesthetic flows over the main spillway. Please provide any comments you may have by February 15, 2017 so I may incorporate them into my submittal to the Federal Energy Regulatory Commission.

Sincerely,

Matthew J. Miller
Hydro License Compliance Consultant

Enclosures

c: St. Anthony Falls Project Files
Scott Crotty, Robert Olson, Randy Volbrecht – Xcel Energy (via e-mail)

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Friends of the Mississippi River
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360 North Robert Street, Suite 400
St. Paul, MN 55101

Crown Hydro LLC
Attn: Gary Monson
13208 Sheffield Curve
Minnetonka, MN 55305

From:	Bischoff, Nanette M CIV USARMY CEMVP (US)
To:	Miller, Matthew J; (Charlotte.Cohn@state.mn.us); "ellis005@umn.edu"; Irene Jones; Liz Wielinski - Minneapolis Parks & Rec Board; Susan Overson - National Park Service; "Timothy J. Keane"; Joel W. Toso; Metz, Owen
Subject:	RE: St. Anthony Falls Aesthetic Flow Survey Report
Date:	Tuesday, December 27, 2016 8:18:37 AM

****

Matt, I read the report. The following are my comments, which I will not send separately.

No surveys were taken on Sundays. Surveys were conducted on 2 Mondays, 6 Tuesdays, 5 Wednesdays, 5 Thursdays, 2 Fridays and 3 Saturdays. That could skew the results of question 3.

I suggest displaying what the river flow was on the days that the surveys were taken (although the report notes that it was 2,000-25,000 cfs). It is unfortunate that the actual flow in the river was not as low as in some of the photographs, so you could correlate the responses to your 10th question to the responses given to the photographs.

Nanette M. Bischoff, P.E.
Project Manager/FERC Coordinator

St. Paul District Corps of Engineers
180 Fifth Street E, Suite 700
St. Paul, MN 55101-1678

(651) 290-5426

-----Original Message-----
From: Miller, Matthew J [mailto:Matthew.J.Miller@xcelenergy.com]
Sent: Thursday, December 22, 2016 2:24 PM
To: (Charlotte.Cohn@state.mn.us) <Charlotte.Cohn@state.mn.us>; 'ellis005@umn.edu' <ellis005@umn.edu>; Irene Jones <ijones@fmr.org>; Liz Wielinski - Minneapolis Parks & Rec Board <lwielinski@minneapolisparks.org>; Bischoff, Nanette M CIV USARMY CEMVP (US) <nanette.m.bischoff@usace.army.mil>; Susan Overson - National Park Service <susan_overson@nps.gov>; 'Timothy J. Keane' <tjk@mgmllp.com>; Joel W. Toso <jtoso@wenck.com>; Metz, Owen <ometz@Dominiuminc.com>
Subject: [EXTERNAL] St. Anthony Falls Aesthetic Flow Survey Report

Hello All,

Attached you will find the Aesthetic Flow Survey Report for St. Anthony Falls Hydro conducted by Barr Engineering this past summer. Also included is a sample cover letter along with the distribution list of the stakeholders. Hard copies of the report were mailed out today to those listed on the distribution list. Please provide any written comments you may have no later than February 15, 2017. Have a Merry Christmas!

Matthew Miller
Xcel Energy | Responsible By Nature

Hydro License Compliance Consultant
1414 W. Hamilton Ave., P.O. Box 8, Eau Claire, WI 54702
P: 715.737-1353 F: 715.737.1077
E: matthew.j.miller@xcelenergy.com <mailto:matthew.j.miller@xcelenergy.com>

XCELENERGY.COM

From:	Cohn, Charlotte W (DNR)
To:	Miller, Matthew J
Subject:	St. Anthony Falls Aesthetic Flow Survey Report
Date:	Friday, February 03, 2017 11:38:28 PM
Attachments:	image004.png image005.png image006.png image009.png image010.png

Matt – as we covered in emails, I am resending to you the same email I sent earlier this week with the Minnesota Department of Natural Resources comments on the Xcel Energy's St. Anthony Falls Aesthetic flow Survey report. I am not resending this to the other people I originally copied.

As I noted, I am out of the office and the county until after your deadline and so redoing this as a signed letter would not be possible. I had put our new logo at the top of the original email and so you should be getting that. To resolve your concern with the long email string, I have gone through this and deleted the other emails including your request for review and comment and the original Xcel report you sent me.

Thanks.

Charlotte Cohn (02032017).

Charlotte W. Cohn
Hydropower Projects Manager | Ecological and Water Resources Division

Minnesota Department of Natural Resources
500 Lafayette Road
St. Paul, MN, 55144-4025
Phone: 651-259-5072
Email: charlotte.cohn@state.mn.us
mndnr.gov

DEPARTMENT OF NATURAL RESOURCES

DEPARTMENT OF NATURAL RESOURCES

Matt, I have read through the report you submitted which is the St. Anthony Falls Aesthetic Flow Survey conducted for Xcel Energy by Barr Engineering Company. I have also had other Minnesota Department of Natural Resources (MDNR) staff review the report.

The following are the comments we are submitting to you at this time:

- Section 1.2 has the survey dates and hours. Over the six month period, no surveys were taken on Sundays; surveys were taken on two Fridays, and three Saturdays (not consecutive days to the Fridays); and most of the surveys were taken during the middle of the week not during weekends. Surveys during evening hours only occurred once in each of the months of June, July, and August. No surveys were taken on the highly populated holiday weekends associated with July 4 and Labor Day. When the Stone Arch Bridge Festival occurred, the survey was only done one of the days of the weekend and in the afternoon. Surveys were done at the time of the Minneapolis Aquatennial only on Friday afternoon. These survey dates could affect the responses and results for a number of questions including in particular Question #3.
- Section 1.3 describing the demographics of the visitors surveyed is valuable showing the extent of national and international visitors on the days surveyed (Pages 2 to 3).
- Although the questions to be asked have been evaluated in the past, some of questions asking specific information about their viewing experiences seem not effective particularly when asking the question of "first time" users. This could be affecting the responses and results. These questions also suggest more frequent use than the one time or first time use. For example, if someone has been there just one time or this is the first time, asking about number of years using the area; times of day of use; seasons of use; frequency of noticing flowing water over the falls; and observations about water flow is different and the results are different than when posed to more frequent users. The results should differentiate between responses from "first time" users as opposed to those with more frequent use. This may affect the responses to Questions #2, 3, 4, 5, 6, and 7.
- Section 2.4 has the discussion regarding Question #4 which is confusing as is the summary of the results. The discussion indicates 58% only visit in the summer but this is based on and includes the 53% of the visitors surveyed as being "first time" visitors. They only visit in the summer but this was their first visit. The results should have included "first time user" as a response option to enable reviewers to be able to see the users who have been there more than once and information about when they use the area. A modified question for "first time" users could have been "what season would you come back?" With "first time" users, if they have only used the facility once, how

would someone know if the responses were the situation for other periods of time.

- Section 2.5 and Question #5 is difficult to correlate for "first time" users. The survey and the discussion should have included an option for the "first time" user. A question about how often the amount of water flowing is observed is difficult to ascertain when the majority of the responses are among "first time" users. A "first time" user would likely observe the flowing water once. Regarding the discussion, that 80% of respondents always notice the amount of water flowing over the dam, lends credibility to the fact that the amount of flow is important to visitors to this area.
- Section 2.6 and Question #6 (how often have you observed the waterfall when you thought there was too little water passing over it) should provide additional information to substantiate the conclusion in the report that "very few stated that they frequently or occasionally thought there was too little water." In addition regarding this question, since 53% of the respondents were first-time users and the surveys were performed when there was between 2,200 cubic feet per second (cfs) and 25,000 cfs, the results of this question do not provide statistically relevant information.
- Section 2.8 and Question #8 addresses the extent to which the amount of water passing over the falls influences the enjoyment of the area. The use of the phrase in the discussion "impeding their enjoyment" is subjective as the question was about influencing the enjoyment of the area.
- Section 2.9 addresses the General Summary of Photo Ratings (Page 18). I know from our discussions there may have been some issues with the photos. Regarding the 2,000 cfs photo, this appears to be the same photo as shown for the USACE Visitor Center and for Water Power Park. The correct photo(s) should be used in the report. The discussion throughout this section and in the photos (Pages 14 to 19) uses non-objective terms or phrases which in some cases do not correlate with the information from the surveys. Objective descriptions and evaluations should be used. These include: (1) Nine to 25% who chose the response do-not care/no opinion is not a "fairly significant number of participants" (Section 2.9.1); (2)"only 5% considered" and "only 3% found" 500 cfs and 750 cfs unacceptable (Section 2.9.4 and Section 2.9.5); (3) "surprising 21%" of respondents and "only 12% found it" unacceptable (Section 2.9.6); and (4) "only 10% found" the flow unacceptable (Section 2.9.7).
- Regarding Section 2.10 about Question #10 (based on what the waterfall looks like right now, how would you rate its appearance), at the time of the survey, the flow of water over the falls ranged from 2,200 cfs to 25,000 cfs. 67% rated the appearance as "optimum." However, Section 2.9 and the discussion of Question #9 indicates that 56% of respondents rated the highest option (2,000 cfs) as "optimum." It is unclear and not explained why 2,000 cfs was the highest cfs flow choice provided to respondents when the flow throughout the time of the survey was higher than 2,000 cfs and ranged to 25,000 cfs (and this question was based on actual flow not on the flow depicted in the photographs). It appears that if a higher option were given the participants, there is the potential that more respondents would have rated that option optimum.

- Regarding Section 2.11 and Question #11 (asking about when respondents think water should be released over the waterfall to improve its appearance/beauty), most visitors would likely not know that altering flows can have an adverse effect on aquatic life, so it's a surprise and beneficial that "the most common sentiment was that decisions about releasing water should be based on the environment." This is also coming from survey respondents where for 53% this is the first time visiting the area.
- Section 3.0 Report Conclusion #9 (Page 23). The conclusion states that "an overwhelming majority of users (87%) stated that the level of flow over St. Anthony Falls does not influence how often they visit the area. While the amount of water passing over the falls may not influence the frequency of visits, it does influence user enjoyment of the area." Sixty-eight percent of those questioned stated that their enjoyment of St. Anthony Falls was affected by the level of water flow." This is one of the only times in the report that the percentage was spelled out, instead of in number format. It is not a surprise that 87% of people stated that the level of flow does not influence how often they visit the area. In general, people do not know how to check the flow before planning a trip to the falls, but they clearly have an expectation that there will be optimum flow when they arrive. The 68% statistic here is considerably more important. In addition, based on the entire survey results in this report, 53% of all respondents were first-time visitors adding to the likelihood they may have not checked the flow before planning a trip to the area.
- Throughout the report, there seems to be a strong focus on responses from first-time visitors to the area (i.e., based on Question #1 the largest percentage of respondents). We suggest there should be additional concentration on the responses from frequent visitors or more frequent visitors who may have increased knowledge over one-time visitors about actual flows at St. Anthony Falls and the likely visual affects.
- Regarding a number of the responses, information about how only the "frequent users" responded to many of the questions (i.e., Questions 2, 3, 4, 5, 6, 7, and 8) would be beneficial to the reviewer and reader.

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2 February 2017

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Eau Claire, Wisconsin 54702

RE: Comments on St. Anthony Falls Aesthetic Flow Survey

Dear Mr. Miller:

The Minneapolis Park & Recreation Board (MPRB) has received a copy of the St. Anthony Falls Aesthetic Flow Survey prepared for Xcel Energy by Barr Engineering Company, dated December 2016. The MPRB maintains its consistently and publicly stated position that a 2,000 cubic feet per second flow scenario, which is presented in the survey report as the greatest minimum flow scenario, is artificially low relative to the visual and aural experience of the Falls. In addition, the MPRB takes exception to the methodology of the survey, noting it was not conducted in ways that offer statistically valid results or that fairly reflect the patterns of use of the Central Mississippi Riverfront Regional Park. Further, there would appear to be requirements of United States of America 113 FERC 62.215 Federal Energy Regulatory Commission Order Modifying and Approving Aesthetic Flow Adequacy Plan Pursuant to Article 403 (Article 403) that are not met by the referenced survey.

The MPRB was created by an act of the Minnesota Legislature in 1883. It serves as an independently elected, semi-autonomous governmental unit responsible for governing, maintaining, and developing the Minneapolis park system. The MPRB exists, in part and according to its mission, to "permanently preserve, protect, maintain, improve, and enhance is natural resources, park land, and recreational opportunities for current and future generations."

The MPRB is one of ten regional park implementing agencies in the Minneapolis-Saint Paul metropolitan area. It works with the Metropolitan Council to acquire and develop regional parks and trails to protect natural resources and provide outdoor recreation for public enjoyment in the metropolitan area. St. Anthony Falls is the centerpiece of the MPRB's Central Mississippi Riverfront Regional Park. With more than 2.1 million annual visits, the park is the fourth most visited regional park in the Twin Cities metropolitan area according the Metropolitan Council's annual visitor counts. The Board of Commissioners of the MPRB adopted a master plan for the park on 1 April 2015 (Resolution 2015-144), including a primary recommendation to rename the park to recognize Saint Anthony Falls as the park's primary natural feature.

Since the mid-1980s, the MPRB has consistently and publicly indicated that flows over St. Anthony Falls should not be less than 2,000 cfs. On this subject, the MPRB agrees with the National Park Service, contending that flows at 100 cfs over the dam greatly impair the falls as a natural, cultural, visual, and economic resource, and further contends that flows need to be far greater than the 200 cfs indicated as a minimum in the Low Flow Contingency and Management Plan for St. Anthony Falls. Further, the MPRB believes the water flow aesthetics should consider visual and aural factors, as the sound of the water passing over the dam is a significant factor in park users' experience. In the St. Anthony Falls Aesthetic Flow Survey, only visual factors appear to have been considered. The survey also presented low flow scenarios with the greatest minimum flow being 2,000 cfs, following the requirements of Article 403 but failing to demonstrate flows the MPRB and other agencies believe necessary to maintain the Falls as a natural, cultural, visual, and economic resource.

In its review of the Aesthetic Flow Survey Report, the MPRB finds the following:

- The Aesthetic Flow Survey Report fails to indicate clearly the methodology used in the conduct of the survey or the qualifications of those individuals tasked with infield survey work or the analysis of collected results. Because those factors are not indicated in the report, it is impossible to determine whether the collection of data, its interpretation, or the conclusions of the report are statistically valid. Article 403 requires the use of "a professional survey firm or group to conduct the interviews," however it is not clear that Barr Engineering Company is such a professional survey firm.
- Days when the survey was conducted may not fairly reflect visitorship to the Central Mississippi Riverfront Regional Park. To wit, the Aesthetic Flow Survey Report suggests that no surveys were conducted on Sundays during the survey period. In fact, the survey dates seem to skew toward mid-week, with 16 of 23 survey dates occurring on Tuesdays, Wednesdays, and Thursdays, with those weekdays being nearly 70 percent of dates when surveys were conducted. There are no conclusions presented to reflect a correlation between preferences for flow scenarios and days of the week when surveys were conducted.
- Times when the surveys were conducted appear to be largely those hours between noon and 4 pm, which may skew results toward more infrequent visitors to the Falls area. In fact, information included in the report indicates that of the 23 dates when surveys were conducted, 78 percent were conducted between noon and 4 pm. There are no conclusions presented to reflect a correlation between preferences for flow scenarios and times when surveys were conducted.
- There is no correlated data or analysis to suggest preferences for flow scenarios between those visitors characterized as frequent or infrequent visitors. More frequent visitors to the Falls area may be more aware of changes in flow, especially when considering more dramatic high flow regimes. Correlated data

could reveal valuable insights and information, but no such data is presented in the survey report.

- Survey data appears to have been collected in locations where respondents would have a clear view of the Falls, which suggests that a correlation between a response and the flow condition might exist and be revealing as a part of the conclusions presented in the report. While flows are noted in the report being as much as 25,000 cfs on some survey dates, there is no correlation between actual flows and collected survey data. Without this correlation, there could be a tendency for responses to reflect actual flow conditions as opposed to those demonstrated by the images of the flow scenarios.
- The St. Anthony Falls Aesthetic Flow Survey report noted that images presented to survey respondents for a 1,000 cfs scenario were incorrectly displayed. This error was recognized only when survey results were being tabulated. Further, the report notes that the error was discovered "when tabulated results showed a surprising 21% of respondents considered this flow rate to be unacceptable." Regardless of the error, the use of the term "surprising" would seem to indicate a bias in the interpretation of the survey. Further, instead of dismissing that flow scenario based on incorrectly collected data, the report indicates the survey results were recalculated, raising questions of inconsistencies in all calculations. Further still, Article 403 requires the survey to be conducted with "at least 500 users during the late-spring through early-fall seasons," with those users looking at photographs representing various flow levels. If one set of data were inappropriately used in the survey, the requirements of Article 403 would appear to remain unsatisfied. It is unclear in the report if the recalculation reduced the number of respondents to less than the 500 users required by Article 403.
- The report repeats images for a 2,000 cfs scenario in Section 2.9.8, essentially showing images of that scenario from the viewpoint of the USACE Visitor Center at Lock and Dam twice, and not showing the image from the viewpoint of Water Power Park. While this may be an error in the presentation of the report, it reflects poorly on quality review processes that might extend to other aspects of the survey.

The need to correlate information across survey questions becomes critical in assessing and understanding the perspectives of responders. For instance, a quick review of the data suggests:

> Of the 119 respondents indicating they visit one of the three interview sites "frequently (one or more times per week)," 67 respondents (56 percent) indicated a preference for the image representing a flow at the Falls of 2,000 cfs. An additional 14 respondents who identified as frequent visitors indicated a preference for a flow of 1,500 cfs (some respondents indicated "optimal" for more than one image). This suggests that those respondents who are most familiar with the Falls have a clear preference for flows far in excess of those at the lower end of the range, with 68 percent of frequent visitor choosing 2,000 cfs or 1,500 cfs as the optimal flow scenario.

The MPRB highlights this example of the need to correlate data across responses. More important, however, this example is clear in its demonstration of the need to consider higher flows as the minimum threshold for aesthetics based not only on the consistently presented position of the MPRB but on the desire indicated by park users in the report. From the perspective of the MPRB, this is a strong indication that future surveys should reflect flows greater than 2,000 cfs in the choices offered interviewees.

As a result of what it considers to be serious deficiencies in the process of collecting and analyzing data, the MPRB cannot agree to any conclusions presented in the St. Anthony Falls Aesthetic Flow Survey. The MPRB requests that Xcel Energy, under the direction of the Minnesota Department of Natural Resources, Division of Ecological Resources, prepares and provides to the MPRB and other interested parties the following:

- A specific plan of work for the conduct of a statistically valid survey, including survey questions and the methods of correlating key data among and across responses;
- The qualifications of an entity qualified in the conduct of statistically valid surveys;
- A new survey, conducted according to the specific plan of work requested above; and
- A correlation of data across collected responses that offers more insightful and robust conclusions.

Questions regarding this letter or the positions of the MPRB relative to aesthetic flows at St. Anthony Falls may be directed to MPRB Superintendent Jayne Miller at jmiller@minneapolisparks.org.

Sincerely,

Anita Tabb
President
Minneapolis Park & Recreation Board

Cc Charlotte Cohn, Minnesota Department of Natural Resources, Division of Ecological Resources
Jayne Miller, Superintendent, Minneapolis Park & Recreation Board
Nan Bischoff, Army Corp of Engineers
Whitney Clark, Friends of the Mississippi
Susan Overson, National Park Service

United States Department of the Interior

NATIONAL PARK SERVICE
Mississippi National River and Recreation Area
111 E. Kellogg Blvd., Ste. 105
St. Paul, Minnesota 55101-1256

February 14, 2017

Mr. Matthew J. Miller
Hydro Licensing Compliance Consultant
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1414 West Hamilton Avenue
P.O. Box 8
Eau Claire, WI 54702-0008

Dear Mr. Miller:

The importance of maintaining St. Anthony Fall's (Falls) aesthetic, recreational, economic, historic and cultural significance cannot be understated. As the only major waterfall along the entire 2,350-mile length of the Mississippi River, the sights and sounds of the Falls have captured human imaginations for millennia. Indigenous people considered the original waterfall, with its sublime and natural beauty, a place of spiritual significance. As European explorers recounted their first visits here, it became one of the famed landmarks of the New World. Later, entrepreneurs harnessed the energy of the Falls to power lumber, textile, and flour mills, making it an industrial economic engine. The Falls gave birth to Minneapolis and are why we have the St. Anthony Falls Historic District, James J. Hill's Stone Arch Bridge (a Civil Engineering Landmark) and two National Historic Landmarks there.

While the character of the Falls has changed over time, public interest has only grown. Tourists, artists, and photographers continue to be drawn to the spectacle of St. Anthony Falls today as are new residents, restaurants, and businesses. According to the Minneapolis Riverfront Partnership, there has been $1.68 billion of public and private investment in the Central Riverfront between 2004 and 2014. [1] The Falls is directly tied to this significant public and private investment and development. Residential lofts, parks, and anchoring institutions such as Mill City Museum and The Guthrie Theater offer dramatic views of the riverfront, of which the Falls is the centerpiece. The Central Riverfront draws over 2.1 million visitors annually, meaning more eyes and ears are enjoying the Falls than ever before. St. Anthony Falls continues to be the heartbeat of Minneapolis, a national and international attraction, and the significance of the Falls' aesthetic values is increasingly important economically, recreationally, and culturally.

[1] Minneapolis Riverfront Partnership, "Investment in the Central Riverfront," http://www.minneapolisriverfront.org/riverfront-vitality-project/investment-in-the-central-riverfront/ (February, 2017)

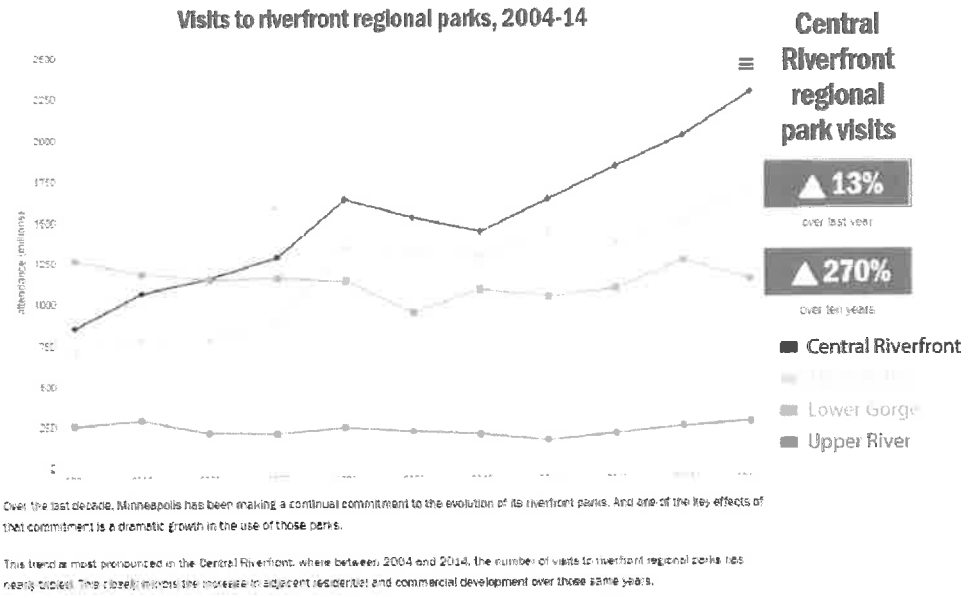
With this context, we appreciate the opportunity to provide comments on the draft St. Anthony Falls Aesthetic Flow Survey (Survey) conducted as part of the Saint Anthony Falls Hydro Project (FERC Project No. P-2056). We ask that you consider our comments as you prepare to submit a final report to the Federal Energy Regulatory Commission (FERC).

The Mississippi National River and Recreation Area (MISS) has reviewed the Survey on behalf of the National Park Service (NPS) as required under 16 U.S.C. § 460zz-3(b) and pursuant to Article 402 of the FERC license for the project issued on March 8, 2004. In addition, and as outlined in the Department of the Interior's (Department's) Motion to Intervene, submitted to FERC in August 2001, NPS has statutory responsibilities and represents the national public interest in the project. General laws pertinent to the Department's responsibilities and requiring the Department to review applications and other documents related to hydropower development are outlined in the Department's Motion to Intervene.

Survey Methodology

We identified several concerns regarding the manner in which the survey was executed, analyzed, and summarized.

- Section 1.0: Change "thousands of visitors" to "millions of visitors".[2] In 2015, the Central Mississippi Riverfront Regional Park (Central Riverfront) had over 2.1 million visits.[3] From 2004 to 2014, annual visitation to the Central Riverfront has increased by 270%.[4]



[2] (per St. Anthony Falls Heritage Board's *Change Relationship to the Power of the Falls*, December 2014)
[3] Metropolitan Council, *Annual Use Estimates of the Regional Park System for 2015*, http://www.minneapolisriverfront.org/riverfront-vitality-project/parks-usage/, July 2016
[4] Minneapolis Riverfront Partnership, "Visits to riverfront regional parks, 2004-14," http://www.minneapolisriverfront.org/riverfront-vitality-project/parks-usage/, (February, 2017)

- Section 1.0: The background section describes that license article 403 required the Survey as part of the Aesthetic Flow Adequacy Plan approved by FERC in 2005. This section should provide an explanation for the twelve-year delay in executing the Survey.

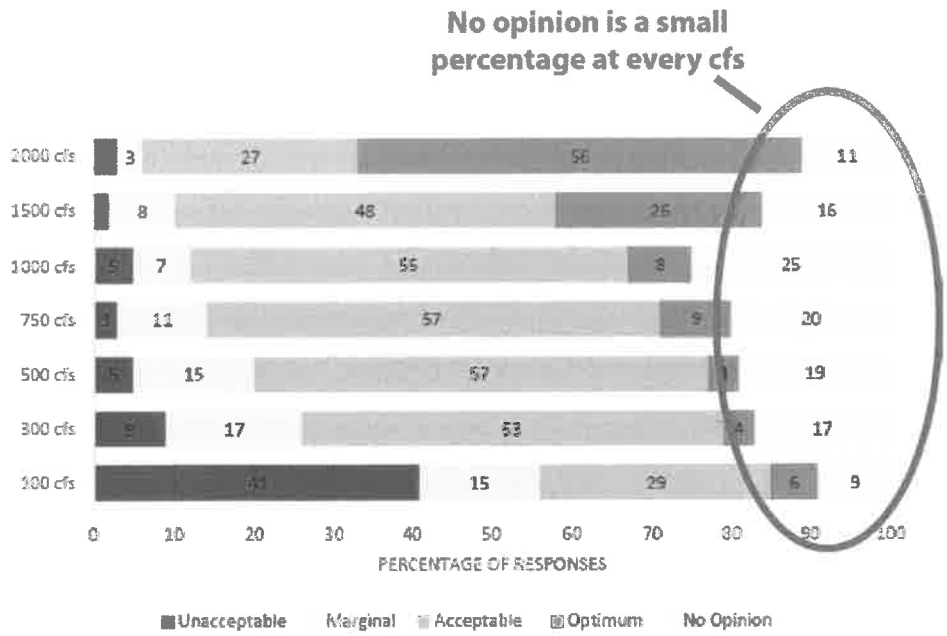
- Section 1.2: The survey results are skewed to users who visit the area on weekdays and during the day. Less than a quarter of the survey times (5 of 23) were conducted on evenings or weekends, and no surveys were conducted on Sundays. While this is acknowledged in the Conclusions Section on page 22, this bias should be acknowledged earlier in the report concurrent with the Summary of Survey Dates and Hours. An explanation should be provided for how the survey dates and hours were selected and why weekdays during the day were preferenced over weekends and weekday evenings.

- Section 2.7: The frequency of visits seems irrelevant to the survey or at least was impacted by the survey dates and times. The total number of visitors to the area and amount invested since the license was granted would provide a better understanding of the significance of flows to the economic, recreational, cultural, and aesthetic value of the area.

- Section 2.9: The report describes that all of the photos were presented to the respondents on a poster board at the same time. Typically, if respondents are asked to rate images in a survey, only one image is presented at a time. This allows the respondent to rate the image on its own merits and not simply in relation to the larger sample. Displaying all photos at once may have resulted in respondents finding a larger range of flow rates acceptable than they otherwise would have if they were viewing discrete images one at a time. The data seems to indicate that respondents were able to distinguish the two extremes (100cfs and 2000cfs) but struggled in distinguishing the flows between.

- Section 2.9: The flows that were depicted on the poster board were also limited to the range of 100 to 2,000 cfs. Meanwhile, the flow rates that respondents observed in person were 2,200 to 25,000 cfs. By only presenting images of lower flows, this likely resulted in respondents rating those flows with higher levels of acceptability. Images depicting the entire range of possible flows should have been provided.

- Section 2.9.1: The order that the findings of photo ratings is presented is awkward and may reflect an implicit bias in the survey to highlight indifference among the public toward the amount of water flow over the Falls. The first bullet point presented on page 14 asserts a "fairly significant number of participants 9-25% chose the response do-not care/no opinion when asked the rate the photos." This category of response (No Response) is in all cases a small percentage and does not represent the prevailing views on any of the photos. The results in this section should be presented in the order of most significant to least significant findings.



- Section 2.9.1: It is misleading to indicate respondents had a fairly wide "tolerance" for a range of flows when, clearly, higher flows were preferred. This is an assumption on the part of the surveyors.

- Section 2.10: The flow rate (cfs) during each individual survey should be reported along with the Survey Responses in Appendix B.

- Section 2.11: This question is posed in a way that presumes that there are times that water should not be released over the Falls. This implicit bias may have skewed respondents' answers.

- Section 3.0: It is unclear how it was assumed, without a specific question being asked, that the environment should be the primary concern and water should never be released for aesthetic purposes. This assumption seems irrelevant to the survey results and should be removed. It should not be used to determine the required minimum flows.

Survey Conclusions

In spite of the Survey's potential biases and weaknesses, the results and conclusions provide compelling evidence for increasing the required minimum flows over St. Anthony Falls for aesthetic purposes, as supported by the high percentage of respondents that felt the amount of flow over the Falls had a significant influence on their enjoyment of the area. As such, we offer the following observations and recommendations:

- The importance for maintaining the Falls' aesthetic, recreational, economic, and cultural significance cannot be understated as it is directly tied to the significant investment and development occurring in the area. As mentioned previously, according to the Minneapolis Riverfront Partnership, there has been $1.68 billion of public and private investment in the Central Riverfront between 2004 and 2014. The relevance and

significance of the Falls' aesthetic values, economically, recreationally, and culturally, have increased since the issuance of the license in 2004, and will continue to do so.

- The current required minimum flow, 100 cfs, is unacceptable to a majority of the respondents. This flow rate has also been considered unacceptable to NPS and a majority of agencies since the discussion of minimum aesthetic flows began.

- Flow ranges of 500 cfs – 2000 cfs are what respondents considered acceptable, but they clearly preferred higher levels of flow (2000 and 1500 cfs).

- The majority of respondents clearly consider 2000 cfs (and up to 25,000 cfs) to be the optimum flow.

- As indicated in our August 2003 comments, the NPS had concerns that discussions between Xcel Energy and other parties, including FERC, assumed that the aesthetic appearance is solely tied to the quantity of water flowing over the Falls. We recommended that, in combination with maintaining minimum flows, an analysis of treatments to the dam surface that would make the water jump and splash be conducted. With the right surface treatment, the minimum required flow rate could possibly be lower while still maintaining and perhaps enhancing the aesthetics of the Falls.

In conclusion, the survey results, despite its issues, clearly indicate a preference toward higher minimum flows over the Falls. It appears that a minimum flow between 500-2000 cfs (or the appearance of through treatment to the dam surface) could possibly reduce the project's aesthetic impacts and maintain the Falls' recreational, economic, and cultural significance.

Please feel free to contact me at 651-293-8432 or by email at john_anfinson@nps.gov if you have questions or would like to discuss any of these comments further.

Sincerely,

John O. Anfinson
Superintendent

cc:
Official service list

FRIENDS OF THE MISSISSIPPI RIVER

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February 21, 2017

Mr. Matthew J. Miller
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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 Table1-1. 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

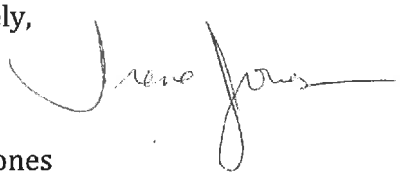
survey company agreeable to all consulting agencies to redesign and re-administer the survey based on the concerns identified in this and other agency comment letters.

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,



Irene Jones
River Corridor Program Director

From: Chris Ellis
To: Miller, Matthew J
Subject: Re: St. Anthony Falls Aesthetic Flow Survey Report
Date: Monday, February 13, 2017 1:42:44 PM

Matt-

This email constitutes my written comments on the Aesthetic Flow Survey Report for St. Anthony Falls Hydro conducted by Barr Engineering. All through this process, my main involvement and interest has been with the accurate depiction of the spillway at know flows. This was of particular concern during the October 29, 2013 meeting held at the Park Board office where photos were shown of the spillway which were labeled with flows that were obviously wrong. The photos used for and included with the December 2016 Barr document are much more reasonable and closely match those that I took in 1987, especially for flows of 300 CFS and above, using much the same method that was used in this recent study to estimate spillway flow. I am not 100% convinced that the photos showing the 100 CFS spillway flow are actually at that flow. Comparing those to my 1987 photos, the depicted flow looks more like the photos that I took at flow of about 50 CFS. Since it is very possible that the minimum required flow ultimately set by this process might be this (100 CFS) flow, this may be the most important set of photos in the report. In as much as the spillway looks so markedly different at this low flow (whatever it is exactly) than it does at flows 300 CFS and above, e.g. the water is well aerated (white) at all of the larger flows , perhaps the difference really doesn't matter much. I just wanted to point out this apparent difference.

One other small editorial error that I assume has been noticed and corrected is that photo on page 18 that is labeled with 2000 CFS from Water Power Park is a duplicate of one taken from the lock side.

Best regards,
Chris

PS- Is the spillway flow, as computed from the water surface gage installed adjacent to the spillway, available? On the web? Thanks.

Miller, Matthew J wrote:

> Hello All,
>
> Attached you will find the Aesthetic Flow Survey Report for St. Anthony Falls Hydro conducted by Barr Engineering this past summer. Also included is a sample cover letter along with the distribution list of the stakeholders. Hard copies of the report were mailed out today to those listed on the distribution list. Please provide any written comments you may have no later than **February 15, 2017**. Have a Merry Christmas!

Matthew Miller
Xcel Energy | Responsible By Nature
Hydro License Compliance Consultant
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February 15, 2017

Matthew Miller
Xcel Energy
1414 W. Hamilton Ave
P.O. Box 8
Eau Claire, WI 54702

RE: City of Minneapolis Comments in Response to the 2016 Aesthetic Flow Survey Report for St. Anthony Falls Hydro (P-2056)

Dear Mr. Miller,

The purpose of this letter is to provide comments from the City of Minneapolis on the 2016 Aesthetic Flow Survey Report. The City of Minneapolis is not identified as one of the consulting agencies identified in the 2005 Federal Energy Regulatory Commission (FERC) Order regarding the Aesthetic Flow Adequacy Plan and the Aesthetic Flow Survey Report. However, the City of Minneapolis was involved in the review and comment of the EA that informed the development of the Aesthetic Flow Adequacy Plan. The City of Minneapolis asks that you include this letter containing our comments with the other letters from the consulting agencies in your submission to FERC.

The second paragraph of the Aesthetic Flow Survey Report states "The history of the area and the beauty of the falls draw thousands of visitors to this area each year." This seems to underestimate the area's importance as a tourism and recreational draw. In 2016, the Metropolitan Council published the "Annual Use Estimate of the Regional Parks System for 2015." This document estimates the 2015 attendance to the Central Mississippi Riverfront Regional Park is 2,115,500. The St. Anthony Falls are a focal point in this park, which extends downriver from Plymouth Avenue to the Interstate 35W Bridge.

In relation to the cubic feet (cfs) per second of water over the falls, the Aesthetic Flow Survey Report concludes that "Respondents to the survey preferred higher levels of flow (2,000 and 1,500 cfs). The majority of respondents (56%) considered 2,000 cfs (Photo 2) to be an optimum flow rate; 26% also rated the 1,500 cfs flow (Photo 5) as optimum. 51 percent of the 500 survey respondents believe that 100 cfs flow is aesthetically unacceptable or marginal."

These 500 survey responses are consistent with previous comments provided by the City of Minneapolis to FERC regarding the Aesthetic flow of water over St. Anthony Falls.

In its August 19, 2003 comments to FERC on the EA for Xcel's St. Anthony Falls Hydroelectric facility (Project No 2056-016) the City of Minneapolis stated "The City and Park Board share the contention that 2,000 cfs is needed to fully provide aesthetic flows."

In its October 21, 2016 comments on the Crown Mill Hydroelectric Project EA the City of Minneapolis stated "The '100 cfs minimum flow over St. Anthony Falls dam' is much lower than the City and other local agencies have identified as being necessary to preserve historic , cultural and aesthetic values of St. Anthony Falls. We don't think this minimum flow level is adequate."

The City of Minneapolis encourages FERC to consider a new minimum flow that is higher than the current minimum of 100cfs over the spillway.

Thank you for your consideration.

Regards,

D. Craig Taylor
Executive Director
Community Planning and Economic Development
City of Minneapolis

cc. Erik Nilsson, Deputy Minneapolis City Attorney
Corey Conover, Assistant Minneapolis City Attorney
Gayle Prest, Sustainability Director
Jack Byers, Manager of Long Range Planning
Brian Schaffer, Principal Planner, Minneapolis CPED

Attachment D

Lost Generation Analysis

St. Anthony Falls - SAH - Lost Generation Analysis

Objective: Estimate the value of lost generation for various minimum spillway flow scenarios at Hennepin Island Hydroelectric Plant

Assumptions

Calculations Assume 48' net head (NP Headwater = 798.80. NP Tailwater = 750.80)

Lost generation was calculated assuming a constant water to wire plant efficiency. It is assumed that the Kaplan and Francis units are operated and run so as to maintain maximum efficiency over the entire operating range of the plant

The U.S. Geological Survey (USGS) station 05288500, Mississippi River at Highway 610 in Brooklyn Park, daily mean flow period of record is from 1931 to present. Long term trends of increasing flow are evident when the entire data set is examined. In order to reduce the apparent long term trends, the last 50 years of data was used (1967 to 2017).

Generator Data and Inputs

Generator output at full capacity	13815	*kW*
Flow capacity of turbines	4366	*cfs*
Value of Production	$ 0.02	*$/kWh*
Minimum Operating Flow	800	*cfs*

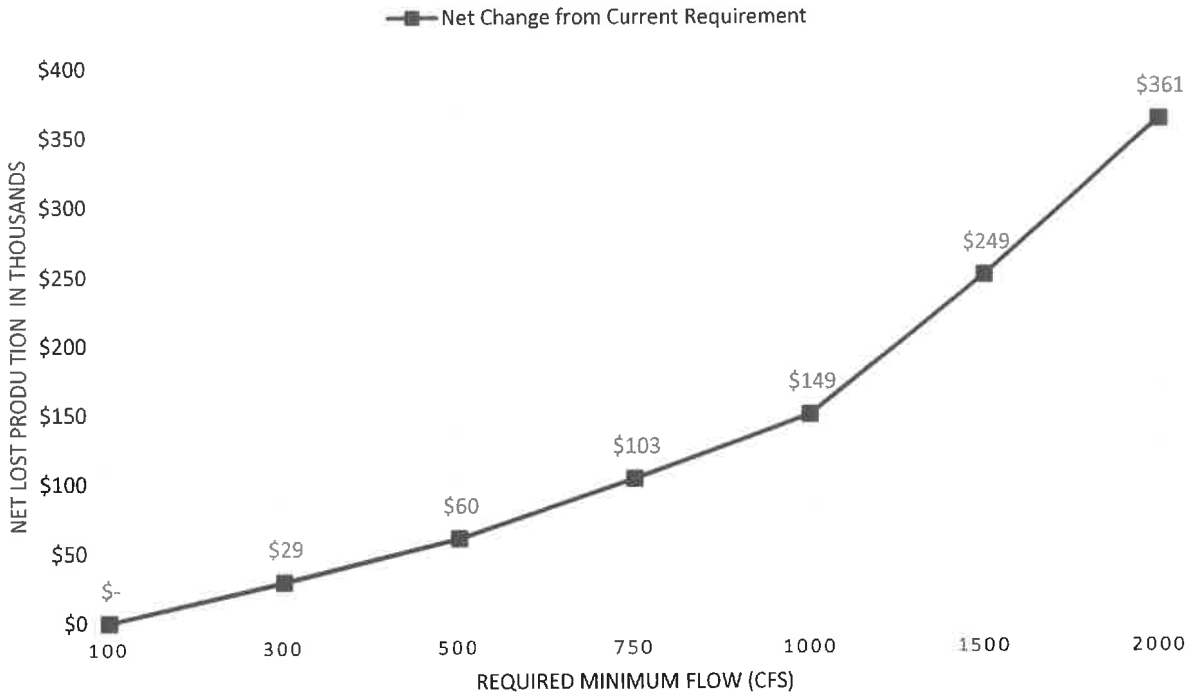
Reference: Development Renewable Energy Production Tax Credit for Incremental Capacity and Efficiency Improvements - Request for Commission Certification - St. Anthony Falls Hydroelectric Project (FERC Project No. 2056), September 7, 2011.

Lost Generation Calculations

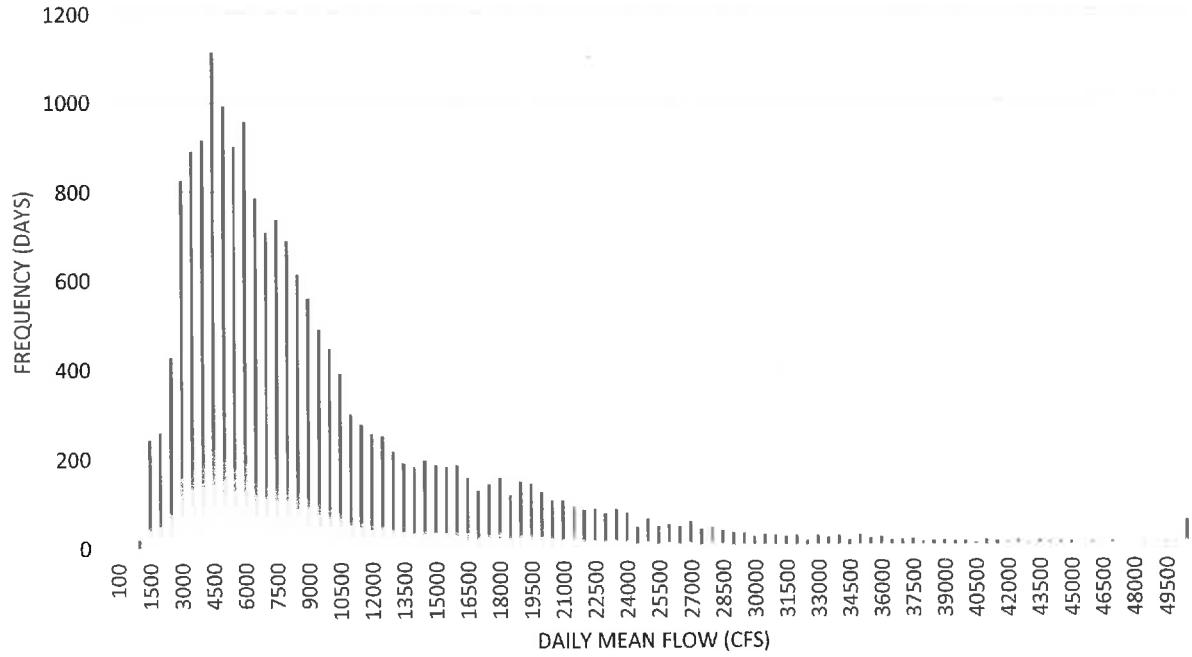
Minimum Flow (cfs)	Lost Generation (kwH/yr)	Lost Production per Year	Net Change from Current Requirement	Percent of Annual Generation Lost*
100	667808	$ 13,000	$ -	1%
300	2108092	$ 42,000	$ 29,000	4%
500	3674946	$ 73,000	$ 60,000	6%
750	5795810	$ 116,000	$ 103,000	10%
1000	8094999	$ 162,000	$ 149,000	14%
1500	13124594	$ 262,000	$ 249,000	23%
2000	18675630	$ 374,000	$ 361,000	32%

*58,000 MWH annual generation based on 2001 to 2015 data

SAH LOST PRODUCTION AT VARIOUS MINIMUM SPILLWAY FLOW RATES



HISTOGRAM OF DAILY MEAN FLOW DATA FROM FEB. 1967 TO FEB. 2017 (50 YRS.) AT USGS 05288500



		Released water at various inflows for each low flow requirement (cfs)						
Flow	% time at flow	100	300	500	750	1000	1500	2000
6300	0.92%	0	0	0	0	0	0	66
6200	0.89%	0	0	0	0	0	0	166
6100	0.97%	0	0	0	0	0	0	266
6000	0.92%	0	0	0	0	0	0	366
5900	0.88%	0	0	0	0	0	0	466
5800	1.33%	0	0	0	0	0	66	566
5700	1.08%	0	0	0	0	0	166	666
5600	1.04%	0	0	0	0	0	266	766
5500	1.04%	0	0	0	0	0	366	866
5400	0.85%	0	0	0	0	0	466	966
5300	1.02%	0	0	0	0	66	566	1066
5200	1.02%	0	0	0	0	166	666	1166
5100	1.02%	0	0	0	16	266	766	1266
5000	1.05%	0	0	0	116	366	866	1366
4900	1.03%	0	0	0	216	466	966	1466
4800	1.06%	0	0	66	316	566	1066	1566
4700	1.09%	0	0	166	416	666	1166	1666
4600	1.21%	0	66	266	516	766	1266	1766
4500	1.27%	0	166	366	616	866	1366	1866
4400	1.27%	66	266	466	716	966	1466	1966
4300	1.17%	100	300	500	750	1000	1500	2000
4200	1.04%	100	300	500	750	1000	1500	2000
4100	1.34%	100	300	500	750	1000	1500	2000
4000	1.05%	100	300	500	750	1000	1500	2000
3900	1.16%	100	300	500	750	1000	1500	2000
3800	0.90%	100	300	500	750	1000	1500	2000
3700	0.92%	100	300	500	750	1000	1500	2000
3600	0.99%	100	300	500	750	1000	1500	2000
3500	0.79%	100	300	500	750	1000	1500	2000
3400	0.97%	100	300	500	750	1000	1500	2000
3300	0.99%	100	300	500	750	1000	1500	2000
3200	0.97%	100	300	500	750	1000	1500	2000
3100	1.17%	100	300	500	750	1000	1500	2000
3000	1.21%	100	300	500	750	1000	1500	2000
2900	0.97%	100	300	500	750	1000	1500	2000
2800	0.87%	100	300	500	750	1000	1500	2000
2700	0.87%	100	300	500	750	1000	1500	2000
2600	0.61%	100	300	500	750	1000	1500	2000
2500	0.49%	100	300	500	750	1000	1500	2000
2400	0.59%	100	300	500	750	1000	1500	2000
2300	0.43%	100	300	500	750	1000	1500	2000
2200	0.43%	100	300	500	750	1000	1500	2000
2100	0.41%	100	300	500	750	1000	1500	2000
2000	0.29%	100	300	500	750	1000	1500	2000
1900	0.31%	100	300	500	750	1000	1500	1900
1800	0.33%	100	300	500	750	1000	1500	1800
1700	0.25%	100	300	500	750	1000	1500	1700
1600	0.25%	100	300	500	750	1000	1500	1600
1500	0.29%	100	300	500	750	1000	1500	1500
1400	0.25%	100	300	500	750	1000	1400	1400
1300	0.26%	100	300	500	750	1000	1300	1300
1200	0.31%	100	300	500	750	1000	1200	1200
1100	0.24%	100	300	500	750	1000	1100	1100
1000	0.05%	100	300	500	750	1000	1000	1000
900	0.05%	100	300	500	750	900	900	900
800	0.01%	100	300	500	750	800	800	800

Lost Generation (kW-Hr per year)						
100	300	500	750	1000	1500	2000
0	0	0	0	0	0	16867
0	0	0	0	0	0	40907
0	0	0	0	0	0	71619
0	0	0	0	0	0	93533
0	0	0	0	0	0	113418
0	0	0	0	0	24396	209217
0	0	0	0	0	49492	198566
0	0	0	0	0	76475	220225
0	0	0	0	0	105782	250292
0	0	0	0	0	109873	227763
0	0	0	0	18573	159281	299988
0	0	0	0	46715	187422	328130
0	0	0	4527	75261	216729	358197
0	0	0	33703	106338	251609	396880
0	0	0	61771	133266	276255	419244
0	0	19477	93253	167030	314582	462135
0	0	50250	125928	201606	352961	504317
0	22087	89018	172682	256346	423674	591002
0	58583	129165	217392	305620	482074	658529
23292	93874	164456	252683	340910	517365	693820
32401	97202	162004	243005	324007	486011	648015
28902	86706	144510	216765	289021	433531	578041
37268	111805	186342	279513	372684	559027	745369
29206	87619	146031	219047	292063	438094	584126
32097	96290	160483	240724	320965	481448	641930
24947	74841	124735	187103	249470	374206	498941
25556	76667	127778	191666	255555	383333	511110
27533	82599	137665	206498	275330	412995	550660
21905	65714	109524	164285	219047	328571	438094
26772	80317	133862	200793	267724	401587	535449
27533	82599	137665	206498	275330	412995	550660
26925	80774	134623	201934	269246	403868	538491
32401	97202	162004	243005	324007	486011	648015
33466	100397	167328	250992	334655	501983	669311
26772	80317	133862	200793	267724	401587	535449
24186	72559	120932	181398	241865	362797	483729
24186	72559	120932	181398	241865	362797	483729
17037	51111	85185	127778	170370	255555	340740
13690	41071	68452	102678	136905	205357	273809
16429	49286	82143	123214	164285	246428	328571
12017	36052	60086	90129	120172	180258	240343
11865	35595	59325	88988	118651	177976	237301
11257	33770	56283	84424	112566	168849	225132
7910	23730	39550	59325	79100	118651	158201
8671	26012	43353	65030	86706	130059	164742
9127	27381	45635	68452	91270	136905	164285
6997	20992	34987	52480	69973	104960	118955
6997	20992	34987	52480	69973	104960	111957
8062	24186	40311	60466	80622	120932	120932
6845	20536	34226	51339	68452	95833	95833
7149	21448	35747	53621	71495	92943	92943
8671	26012	43353	65030	86706	104047	104047
6541	19623	32705	49057	65410	71951	71951
1521	4563	7606	11409	15212	15212	15212
1521	4563	7606	11409	13690	13690	13690
152	456	761	1141	1217	1217	1217
667808	2108092	3674946	5795810	8094999	13124594	18675630

Flow (cfs)	% Exceedance	% time at Flow Range
6300	55.78%	0.92%
6200	56.71%	0.89%
6100	57.60%	0.97%
6000	58.57%	0.92%
5900	59.49%	0.88%
5800	60.37%	1.33%
5700	61.70%	1.08%
5600	62.78%	1.04%
5500	63.81%	1.04%
5400	64.86%	0.85%
5300	65.71%	1.02%
5200	66.72%	1.02%
5100	67.74%	1.02%
5000	68.76%	1.05%
4900	69.81%	1.03%
4800	70.84%	1.06%
4700	71.90%	1.09%
4600	72.99%	1.21%
4500	74.20%	1.27%
4400	75.47%	1.27%
4300	76.75%	1.17%
4200	77.92%	1.04%
4100	78.96%	1.34%
4000	80.30%	1.05%
3900	81.36%	1.16%
3800	82.52%	0.90%
3700	83.42%	0.92%
3600	84.34%	0.99%
3500	85.33%	0.79%
3400	86.12%	0.97%
3300	87.09%	0.99%
3200	88.08%	0.97%
3100	89.05%	1.17%
3000	90.22%	1.21%
2900	91.43%	0.97%
2800	92.39%	0.87%
2700	93.27%	0.87%
2600	94.14%	0.61%
2500	94.75%	0.49%
2400	95.25%	0.59%
2300	95.84%	0.43%
2200	96.27%	0.43%
2100	96.70%	0.41%
2000	97.11%	0.29%
1900	97.39%	0.31%
1800	97.71%	0.33%
1700	98.04%	0.25%
1600	98.29%	0.25%
1500	98.54%	0.29%
1400	98.83%	0.25%
1300	99.08%	0.26%
1200	99.34%	0.31%
1100	99.65%	0.24%
1000	99.88%	0.05%
900	99.94%	0.05%
800	99.99%	0.01%
700	100.00%	0.00%
600	100.00%	0.00%
500	100.00%	0.00%
400	100.00%	0.00%
300	100.00%	0.00%
200	100.00%	0.00%
100	100.00%	

Exhibit D

RESOLUTION NO. 99-176

RELATING TO HYDROELECTRIC POWER AND THE GENERATION AND TRANSMISSION OF ELECTRIC POWER; AUTHORIZING THE MINNEAPOLIS PARK & RECREATION BOARD TO EXERCISE POWERS RELATING TO THE CONSTRUCTION AND OPERATION OF A HYDROELECTRIC FACILITY IN ACCORDANCE WITH MINNESOTA STATUTES, CHAPTER 453.

WHEREAS, Minnesota Statutes, Chapter 453 is intended to provide political subdivisions with a means to own and operate utilities for the local distribution of electric energy, for purposes of securing either individually, cooperatively or through contract with other public or private entities, an adequate, economical and reliable supply of energy;

WHEREAS, one of the purposes of Minnesota Statutes, Chapter 453 is to provide a means for certain Minnesota political subdivisions to construct and operate hydroelectric generating plants;

WHEREAS, Minnesota Statutes, Section 453.58 authorizes a city by resolution to individually exercise the powers granted in Minnesota Statutes, Sections 453.51 to 453.62 relating to the acquisition, construction, reconstruction, operation, repair, extension and improvement of electric generation and transmission facilities and the acquisition of any interest therein or any right to part or all of the capacity thereof;

WHEREAS, 1999 Minn. Laws, Chapter 198, Section 1 specifically authorizes the Minneapolis Park and Recreation Board to exercise the powers granted in Minnesota Statutes, Section 453.51 to 453.62 by defining city to include a park and recreation board in a city of the first class;

WHEREAS, the Minneapolis Park and Recreation Board wishes to exercise all powers granted to it in Minnesota Statutes, Sections 453.51 to 453.62 relating to the acquisition, construction, reconstruction, operation, repair, extension and improvement of electric generation and transmission facilities for the purpose of constructing and operating a hydroelectric generating facility at the Falls of Saint Anthony on the Mississippi River (hereinafter the "Hydroelectric Project"); and

WHEREAS, a hydroelectric generating facility will help ensure the natural, historical, ecological and aesthetic value of the Mississippi River at the Falls of St. Anthony;

NOW, THEREFORE, BE IT RESOLVED THAT THE MINNEAPOLIS PARK AND RECREATION BOARD wishes to exercise all powers authorized by Minnesota Statutes, Chapter 453 relating to the acquisition, construction, reconstruction, operation, repair, extension and improvement of a hydroelectric generation and transmission facility at the Falls of Saint Anthony, including, but not limited to, the power to:

1. Plan, acquire, construct, reconstruct, operate, maintain, repair, extend, and improve the Hydroelectric Project and all appurtenances thereto; acquire any interest in any right to capacity of the Hydroelectric Project and act as agent or designate one or more of the other

EXHIBIT 6

persons participating in the Hydroelectric Project to act as its agent, in connection with the planning, acquisition, construction, reconstruction, operation, maintenance, repair, extension, and improvement of the Hydroelectric Project;

2. Investigate the desirability of and necessity for additional resources and supplies of electric energy and make studies, surveys, and estimates as may be necessary to determine the feasibility and cost thereof;

3. Cooperate with other persons, public agencies, private corporations, firms, partnerships, cooperative associations or business trusts of any nature whatsoever in the development of sources and supplies of electric energy;

4. Apply to any public agency for consents, authorizations, or approvals required for the Hydroelectric Project and take all actions necessary to comply with the conditions thereof;

5. Acquire, hold, use and dispose of income, revenues, funds and money;

6. Invest in various technologies to minimize long-run costs of providing electrical services to consumers, including energy conservation managers and renewable resources;

7. Acquire, own, hire, use, operate and dispose of personal property;

8. Acquire, own, use, lease as lessor or lessee, operate and dispose of real property and interest in real property and make improvements thereon;

9. Grant the use by franchise, lease, or otherwise, and make charges for the use of any property or facility owned or controlled by it;

10. Borrow money and issue negotiable bonds or notes, secured or unsecured, in accordance with Minn. Stat. § 453.55 and other applicable law;

11. Subject to any agreement with bond holders or note holders invest money associated with the Hydroelectric Project and not required for immediate use, including proceeds from the sale of any bonds or notes, in such obligations, securities, and other investments as the Park Board shall deem prudent, notwithstanding the provisions of any other law relating to the investment of public funds;

12. Exercise the power of eminent domain in accordance with Minn. Stat. § 453.56;

13. Determine the location and character of, and all other matters in connection with, the Hydroelectric Project;

14. Contract with any person within and outside the state for the construction of the Hydroelectric Project and for the sale, with or without advertising for bids, or transmission of electric energy generated by the Hydroelectric Project, and for any interest therein or any right of capacity thereof, on such terms and for such period of time as the Park Board may determine;

15. Purchase, sell, exchange and transmit electric energy within and outside the state in such amounts as it shall determine to be necessary and appropriate to make the most effective use of its powers and to meet its responsibilities, and enter into agreements with any person, public agency, private corporation, firm, partnership, cooperation association and business trust of any nature whatsoever with respect to that purchase, sale, exchange, and transmission, on such terms and for such period of time as the Park Board determines;

16. Procure insurance against any losses in connection with the Hydroelectric Project, its property, operations, and assets in such amounts and from such insureds as it deems desirable;

17. Contract for and accept any gifts, grants or loans of funds or property or financial or other aid in any form from any public agency or other person, and may comply subject to the provisions of Minn. Stat. § 453.51 to 453.62, with the terms and conditions thereof;

18. Mortgage, pledge and grant security interest in any or all of its real and personal property to secure the payment of its bonds, notes or other obligations or contracts; and

19. Exercise all other powers not inconsistent with the constitution of the State of Minnesota or the United States which powers may be reasonably necessary or appropriate for or incidental to the effectuation of its authorized purposes or to the exercise of any of the powers enumerated in Minnesota Statutes, Chapter 453 and generally may exercise in connection with its property and affairs, and in connection with property within its control, any and all powers which might be exercised by a natural person or private corporation in connection with similar property and affairs.

20. Exercise any and all other powers granted by Chapter 453 and other state and federal laws.

BE IT FURTHER RESOLVED THAT THE Secretary is authorized to publish a copy of this resolution in Finance and Commerce and the Star-Tribune, the official newspaper of the Park Board.

Adopted by the Park and Recreation Board
in formal meeting assembled on September 1, 1999.

Bob Fine, President

Norman C. Merrifield, Secretary

Approved:

Sharon Sayles Belton, Mayor

#74775

Exhibit E

FEDERAL ENERGY REGULATORY COMMISSION
Washington, DC 20426

December 22, 2015

Donald H. Clarke
Duncan, Weinberg, Genzer & Pembroke, P.C.
1615 M Stret, N.W.
Suite 800
Washington, DC 20036

Re: FERC Hydropower Annual Charges for Crown Mill Hydroelectric Project, FERC Project No. 11175

Dear Mr. Clarke,

Pursuant to section 10(e) of the Federal Power Act and section 3401 of the Omnibus Budget Reconciliation Act of 1986, the Federal Energy Regulatory Commission ("FERC" or "Commission") assesses reasonable annual charges against licensees and exemptees to reimburse the United States for the costs of administration of the Commission's hydropower regulatory program. As set forth in 18 CFR 11.1(b), the annual charges under this section will be charged to and allocated among licensees and exemptees of projects of more than 1.5 megawatts of installed capacity. Pursuant to 18 CFR 11.1(c) (5), the assessments are to start on the date of commencement of project construction.

Crown Hydro, LLC ("Crown Hydro"), licensee for the Crown Mill Hydroelectric Project ("Crown Project"), was issued a license on March 19, 1999. Article 201(1) of that order states that the licensee shall pay the United States annual charges, effective as of the date of commencement of project construction, and as determined in accordance with provisions of the Commission's regulations in effect from time to time, for the purposes of:

(1) reimbursing the United States for the cost of administration of Part I of the FPA, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time. The authorized capacity for that purpose is 3,400 kW.
(2) recompensing the United States for the use, occupancy, and enjoyment of 0.5 acres of its lands, a reasonable amount as determined in accordance with the provisions of the Commission's regulations in effect from time to time.
(3) recompensing the United States for utilization of surplus water or water power from a government facility, a reasonable amount as determined in accordance

with the provisions of the Commission's regulations in effect from time to time.

According to our records, start of construction of the Crown Mill Project occurred in March 2003.

The 2015 Assessment of FERC Hydropower Annual Charges to Crown Hydro, dated July 22, 2015, in the amount of $10,018.92, represents Crown Hydro's assessment for 2015. A second assessment, dated September 17, 2015, the amount of $50,071.31, represents Crown Hydro's total retroactive assessment from 2007 to 2014.

By letter dated December 7, 2015, you proposed that:

- Crown Hydro would submit payment in full the amount invoiced on the 2015 Assessment, representing its obligation for the FERC 2015 fiscal year.
- Crown Hydro would keep current with all future annual assessments.
- The Commission would agree to defer payment of the 2007-2014 Backbill, representing Crown Hydro's total assessments from 2007 to 2014, until (a) Crown Project commencing production or (b) five years from the date that the Commission approves this payment plan, whichever is earlier.
- The Commission and Crown Hydro would agree that the amounts invoiced on the 2015 Assessment and 2007-2014 Backbill represent the entirety of Crown Hydro's obligations with respect to FERC Hydropower Annual Charges incurred to date.

We have reviewed your proposal and find it generally acceptable, with the exception of deferring all payment of the retroactive assessments. We would, however, accept the payment plan noted above with a partial deferral of the retroactive assessments as described below:

- Crown Hydro will immediately submit payment in full for the 2015 FERC Annual Charges Assessment.
- In addition to keeping current with annual assessments going forward, Crown Hydro will submit payment of $5,000 each year towards the $50,071.31 retroactive assessment.
- Crown Hydro will submit payment on the balance of the total assessments from 2007 to 2014 ($50,071.31) plus interest, on the earlier of (a) the date Crown

Project commences production or (b) five years from the date that the Commission approves this payment plan.

- The Commission and Crown Hydro would agree that the amounts invoiced on the 2015 Assessment and 2007-2014 Backbill represent the entirety of Crown Hydro's obligations with respect to FERC Hydropower Annual Charges incurred through the period assessed by the 2015.

Please contact me at your earliest convenience regarding accepting this proposal.

Respectfully,

Raven A. Rodriguez, Accountant
Office of Executive Director
Financial Management Division
Revenue and Receivables Branch