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July 2, 2015

Via Electronic Filing

Ms. Kimberly Bose, Secretary
Federeal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: River Falls Hydroelectric Project, Project No. 10489
Traditional Licensing Process and Kinnickinnic River Corridor Plan
Intial Directed Studies

Dear Secretary Bose:

The City of River Falls (City) currently owns, operates, and maintains the River Falls Hydroelectric Project (Project). The City submitted its notice of intent to relicense the Project and pre-application document on November 27, 2013. The City also submitted a request to use the traditional licensing process on that date, which was granted by the Commission on January 27, 2014. Consistent with Commission regulations, an initial consultation meeting was held at the project facilities and the River Falls City Hall on March 24, 2014. It was widely attended by community members and other interested parties from the region and state. Initial comments and study requests from stakeholders were received by the City for consideration by May 23, 2014.

Since the study requests were received, City representatives have been continuing to evaluate the Project feasibility, public sentiment, and the scope of requested studies, and continuing informal conversations with community members and interested parties. The River Falls City Council has also since adopted a strategy and timeline to develop a comprehensive Kinnickinnic River Corridor Plan that includes a community process for determining the disposition of the project facilities. As part of that strategy to provide for community input and concurrent with this filing, the City is also submitting an application for amendment of the license to extend the date for termination of the license from August 31, 2018 to August 31, 2023.

The Kinnickinnic River Corridor Plan process will continue through 2019 and incorporates a decision point for whether the hydroelectric operations will continue and the continued disposition of facilities in fall 2017, consistent with Commission regulations for notice if the extension is granted. The planning process will also include continued and incremental study of the river corridor and project area, in consultation with stakeholders and community through the process. The study requests submitted as part of the traditional licensing proccess will be used as a guide for areas of potential study for the corridor planning process, although it is unlikely that the wide breadth of studies described in those communications will be necessary for corridor planning.

POWERful Choices! is a community-wide effort to instill a strong conservation ethic while demonstrating the effectiveness of energy efficiency, conservation and renewable resource development.

In anticipation of the river corridor planning process, staff and stakeholders have identified areas of need for immediate study to inform the process and future decisions. Enclosed with this letter is a response to the study requests received from stakeholders as part of the traditional licensing process regarding sediment and recreational studies. The attachments describe the sediment and recreational use studies that will occur immediately to inform the launch of the Kinnickinnic River Corridor Plan process. Some elements of suggested sediment and recreational use studies are not a priority to address at this time, but will be considered for future study in the corridor planning process. All other areas of study contained in the requests, such as temperature monitoring and wildlife and vegetagtion studies, will continue to be evaluated by staff and stakeholders as part of the corridor planning process.

By filing a study response only for sediment and recreation use, the City is notifying stakeholders that all of the other areas of study recommended will be considered as part of the corridor planning process. The additional study plans developed in consultation with stakeholders will continue to be filed with the Commission throughout the process. We have notified and provided an electronic copy of this filing to those individuals and state and federal agencies that have expessed an interest in this matter.

Please let me know if you have any questions regarding these materials.

Sincerely,

Raymond French
Management Analyst

INITIAL DIRECTED STUDIES

Sediment Analysis

An analysis of licensing options available to the City was prepared in fall 2014, which showed a wide range of potential costs for sediment management in the case of dam removal. Nearly every stakeholder submission as part of the traditional licensing process identified sediment as a key area of study, particularly as related to dam removal.

The primary goal of the sediment analysis to be conducted in 2015 is to identify the costs and methods for sediment management if the City were to pursue dam removal in the future at one or both hydroelectric facilities. Attached to this information is the request for proposal and questions answered for the sediment analysis project, developed in consultation with stakeholders.

Areas of Study

The areas of study are likely to include sediment sampling of both impoundments, an analysis of the physical and chemical properties of the sediment, and bathymetric surveys of the impoundments, or updating existing information where applicable.

Proposals are due by 5:00pm on Tuesday, July 7, 2015. Staff and stakeholders will meet on Monday, July 13 to review the proposals and provide a recommendation to the Utility Advisory Board (UAB). The UAB will consider a resolution authorizing the work at their Monday, July 20, 2015 meeting.

Other Requested Areas of Study for Future Consideration

The study requests list other areas of study that will not be completed as part of this analysis. They will continue to be considered for study as necessary to inform the Kinnickinnic River Corridor Plan and community process. They include:

- Benthic sediment survey to determine quantity and quality of aquatic habitat
- Confirming reservoir capacity and flow regime
- Determining rate of sedimentation in lakes (this is listed as an optional area of study in the request for proposals)

Recreational Uses

Another area identified as a priority for initial study is providing baseline recreational use and amenity data to inform the Kinnickinnic River Corridor Plan process. There are also existing requirements as part of the current license to document recreation uses in the project area, particularly regarding the Form 80 Recreation Report and a separate survey regarding downstream conditions for an updated dam break analysis.

The City is conducting a multi-faceted baseline survey of recreational use and an inventory of recreation opportunities in the project area. Data collection is already underway in some areas and further surveys will continue to be developed in consultation with stakeholders. There are likely to be additional surveys of current and future recreational use as part of the Kinnickinnic River Corridor Plan process, and the study requests will continue to form a basis for the scope and topics of those studies.

The deliverables of this baseline survey are :

1. *Preliminary Project Boundary Map*

City staff have developed a preliminary project boundary map to guide the areas of study for recreational uses. The current project boundary map is inadequate for this purpose. Should the City and community decide to continue hydroelectric operations and pursue relicensing, the preliminary project boundary map would be included in those materials. However, for these purposes, this map is only a guide.

2. *Inventory of Existing Recreation Amenities*

This was a key item identified in the study requests and will be completed as part of this survey. City staff is identifying and mapping existing recreation amenities in the preliminary project area. This data is collected through observations of use, self-reports by recreational users, and those amenities provided by the City.

3. *Form 80 Recreation Report*

Staff is using the inventory of existing recreation amenities and staff observations of use on peak weekends to prepare information sufficient for this report. The Hydroelectric Operator is also recording visitors observed per day and their activities in the project area when making rounds to the Upper and Lower Hydroelectric facilities.

4. *Other Recreational Use Surveying*

Staff will be working with interested stakeholders to conduct an observational survey of visitors to the project area and their recreational uses. This was another key item identified in the study requests, and the survey is intended to provide a guide for understanding the number of visitors to the project area and their activities. This data will also inform the reporting requirements for the current license.

5. *Downstream Conditions Recreational Use Survey*

Staff will be working with primary recreational use outfitters that sponsor access to the lower Kinnickinnic River below the Lower Hydro to identify the daily, weekly, and monthly visitors to this area. This will provide the data necessary for assessing downstream conditions.

Other Requested Areas of Study for Future Consideration

The study requests list other areas of study that will not be completed as part of this analysis. They will continue to be considered for study as necessary to inform the Kinnickinnic River Corridor Plan and community process. They include:

- Survey of perceptions of outdoor recreational opportunities and the project's effects (interviews and mail/telephone survey)
- Economic valuation of possible improvements due to removal of dams
- Creation of Recreation Plan for post-licensing
- Develop park inventory for parks in relation to project boundary

CITY OF RIVER FALLS, WI

Dan Toland, Mayor

REQUEST FOR PROPOSAL

SEDIMENT ANALYSIS

June 25, 2015

222 Lewis St. River Falls, WI 54022 715·425·0900 Fax: 715·425·0915

Contents

Section 1 – General Information

A. Introduction

The City of River Falls (City) is currently seeking proposals from qualified firms to provide professional consultative services in the area of sediment analysis for the River Falls Hydroelectric Project (P-10489). The purpose of this request for proposals (RFP) is to provide interested qualified firms with information to enable them to prepare and submit a proposal for a services agreement.

The primary goal of the sediment analysis is to identify the costs and methods for sediment management if the City were to pursue dam removal in the future at one or both hydroelectric facilities. This analysis follows up on the preceding analysis of licensing options available to the City showing a wide-range of potential costs for sediment management. Secondary questions include the amount of sediment contained in the impoundments, their physical and chemical properties, and the implications of this information on possible sediment management scenarios.

The City anticipates that there are multiple components to this analysis, including some combination of bathymetric surveys, sediment depth measurements, and sediment sampling and analysis. It will be up to the firm to propose any necessary phasing for study that can best satisfy the research question presented in the most cost-effective manner. The City also requests firms provide an optional study component that establishes the rate of sedimentation in the two impoundments.

Proposals will be accepted until 5:00pm on Tuesday, July 7, 2015. Electronic submittals are encouraged and submitted to Ray French at rfrench@rfcity.org. Hard copies may be mailed to:

Ray French
City of River Falls
222 Lewis Street
River Falls, WI 54022

Questions or requests for clarification may be directed to Ray French, Management Analyst, at 715-426-3437 or email at rfrench@rfcity.org.

B. Project Background

The River Falls Hydroelectric Project (P-10489) was granted a 30-year license from the Federal Energy Regulatory Commission (FERC) that expires on August 31, 2018. The project consists of the hydroelectric facilities at the Junction Falls (Upper) and Powell Falls (Lower) Dams. A draft map of the project boundary can be found here (8mb pdf).

The Junction Falls (Upper) Dam was constructed in 1920 and significant rehabilitation work was completed in 1990. It consists of a concrete gravity dam, 140 feet long and 32 feet high, with an uncontrolled overflow spillway and a crest length of 115 feet. The existing reservoir, Lake George is 16 acres with a storage capacity of 142 acre-feet. The Powell Falls (Lower) Dam was

constructed in 1966. It consists of a concrete gravity dam, 110 feet long and 22 feet high, with an uncontrolled overflow spillway. The reservoir, Lake Louise, is 15.4 acres with a normal 37 acre-feet capacity.

On November 27, 2013, the City filed a notice of intent to file a license application and a request to use the Traditional Licensing Process, along with its pre-application document (PAD). FERC approved use of the Traditional Licensing Process on January 27, 2014. On March 24, 2014 the City hosted an initial consultation meeting and site visit for interested parties and stakeholders. Those interested parties and stakeholders submitted their study requests and comments on the PAD by May 23, 2014.

Since then, City staff has continued to evaluate Project feasibility and engage in informational conversations with community members and interested parties. Given the significant interest in the Project and a preliminary analysis completed by staff, the City retained a licensing consultant to perform an alternatives analysis regarding licensing requirements and Project disposition. This analysis produced wide ranges of costs for the different licensing alternatives available.

In contemplation of the different licensing options and on January 13, 2015, the River Falls City Council adopted resolutions that directed staff to seek a license extension, adopted a draft Kinnickinnic River Corridor Planning Strategy, and provided additional oversight of hydro capital costs. Another resolution also directed staff to annually report the fund balance, if any, from hydro operations for future capital projects related to the future Kinnickinnic River Corridor Plan. Additional information can be found at http://www.rfcity.org/hydro.

The sediment analysis and related studies covered by this Request for Proposal are intended to answer the questions presented in the Introduction and be sufficient for use in future licensing applications, feasibility studies and plans for dam removal, and the sediment management options contained in each process.

Section 2 – Scope of Sediment Analysis

A. Scope

The City and stakeholders are interested in an analysis of the sediment in the two impoundments in order to establish reliable cost estimates and understand the methods for sediment management if dam removal is to be pursued in the future at one or both hydroelectric facilities.

A previous analysis of alternatives related to licensing and project disposition identified that, in the case of dam removal, sediment management results in the greatest variation in overall costs for the project. The goal of the sediment analysis is to identify what those costs would be and the requirements for managing the sediment in the two impoundments, specifically.

The City has some existing sediment data and a bathymetric survey completed in 2006 for Lake George. There is limited data existing on Lake Louise. Interested firms can find information on the bathymetric survey of Lake George here: http://1drv.ms/1Mi9fls. Also included in that folder is original data on the sediment of Lake George from 1980, 1990, and 2014 (WiDNR).

The City anticipates that there are multiple components to this analysis, including some combination of bathymetric surveys, sediment depth measurements, and sediment sampling and analysis. The firm shall include in the proposal the development of a bathymetric survey of Lake Louise and enough field checking and verification necessary to validate the existing survey of Lake George. The proposal shall include the firm's recommendations for a sufficient number of sediment probes to bedrock necessary to calculate sediment volumes and create digital base maps of bedrock. The proposal shall also include a program that may be based on a range of core samples sufficient to provide the City with an evaluation and characterization of the physical properties of the sediments in Lake George and Lake Louise. Analysis of core samples shall be completed in conformance with WiDNR requirements for chemical analysis. It is up to the firm to propose any necessary phasing for study that can best satisfy the research question presented in the most cost-effective manner.

In addition to the research, field work, analysis, and reporting requirements for this project, the City also requests that firms include in the proposal estimated costs for sufficient meetings prior to work beginning and for presentations of the findings to the local stakeholder group and community as may be required depending on findings. Adequate consultation with Wisconsin Department of Natural Resources staff on the issues that may impact this project in the case of dam removal or relicensing shall also be included prior to work beginning. City staff will be in communication with the selected firm and monitor progress throughout the project.

Optional Bid Item
The City requests firms provide bidding information for an optional task that determines an estimated rate of sedimentation in the two reservoirs. The concern addressed by this item is whether the data collected and reported in this analysis will be sufficient should the City and community pursue dam removal in the future, and whether there is a time limit on its value.

Limited sediment sampling and bathymetric survey data is available for the two impoundments and the body of information will be updated as part of this project. Proposals may address how this inquiry can be paired with existing project phasing and activities for the overall sediment analysis project. Proposals may also address the efficacy of this optional bid item and whether it would be useful information when evaluating dam removal feasibility or preparing dam removal and sediment management plans ten or more years into the future.

B. Timeline

The City has made every effort to include enough information in this RFP for a firm to prepare a responsive proposal. The City reserves the right to retain all proposals submitted and to use any ideas in a proposal, unless protected by copyright, regardless of whether that proposal is selected. Submission of a proposal indicates acceptance by the firm of the conditions contained in the RFP, unless clearly and specifically noted in the proposal submitted, and confirmed in the contract between the City of River Falls and the firm selected.

The City reserves the right to reject any and all proposals, cancel all or part of this RFP, waive any minor irregularities, and request additional information from proposing firms. The City will

not reimburse the respondents to this RFP for any expenses incurred in preparing proposals, or for the attendance at interviews. This RFP does not obligate the City to accept or contract for any services.

TIMELINE	
Distribution of RFP	June 25, 2015
Proposal submission, 5:00pm	July 7, 2015
Initial staff proposal review	July 8, 2015
Group proposal review with stakeholders	July 13, 2015
Notification of preliminary decision	July 15, 2015
Utility Advisory Board Resolution	July 20, 2015

The timing of the proposal process is as follows:

Distribution of RFP
The RFP will be made available on the City's website (www.rfcity.org) on June 25, 2015.

Proposal Submission
Proposals must be e-mailed to Ray French at rfrench@rfcity.org or received through the mail no later than 5:00pm on July 7, 2015. A confirmation e-mail will be sent upon receipt to ensure consideration of the proposal.

Initial Staff Proposal Review
City staff will prepare an initial review and summary of the proposals beginning on July 8, 2015 and provide it to a selected group of stakeholders for review.

Group Proposal Review with Stakeholders
A meeting with selected stakeholders to evaluate the proposals will occur on or about July 13, 2015. City staff and selected stakeholders will develop a recommendation for proposal approval for the Utility Advisory Board.

Notification of Preliminary Decision
Firms submitting proposals will be notified of the preliminary decision by July 15, 2015 in anticipation of the Utility Advisory Board packet publication. The packet will include a memo and resolution authorizing the agreement with selected firm, and the Group recommendation.

Utility Advisory Board Resolution
At their regularly scheduled meeting on July 20, 2015 at 6:30pm, the Utility Advisory Board will consider a resolution authorizing an agreement with the selected firm based on the recommendation of the staff and stakeholder group.

Project work shall be completed in 2015 with report and presentation of results to City staff, stakeholders, and public by early November, 2015.

Section 3 – Bidding Instructions

A. Proposal Format

Firms are encouraged to be creative and thorough in their proposal submissions to include all of the following information:

1. Letter of Transmittal. The letter of transmittal shall include an introduction of the bidder's firm as well as the name, address, telephone number, and e-mail address of the contact person and other representatives dealing with the RFP, and signed by an authorized representative of the firm.

2. Executive Summary. An executive summary shall briefly describe the bidder's approach to the proposal, clearly outline any options or alternatives, and indicate if the bidder cannot meet any major requirements. The summary must also highlight the major features of the proposal and identify any pertinent supporting information.

3. Statement of Qualifications. This section shall provide information regarding the bidder's qualifications and experience, or those of his/her proposed partner's, relevant to the work to be performed, including what, if any, experience the bidder has in dam removal and sediment management in Wisconsin. It shall include a firm profile (if appropriate); references of similar contracts or work experience that is relevant to this RFP; and appropriate references, including addresses and phone numbers of individuals, groups or organizations with which the bidder has worked during the past 3-5 years.

4. Additional Information. Any information deemed pertinent to the RFP, but not outlined in the RFP may be included in this section. This section may also include firm brochures or other material.

5. Proprietary Information. Bidders are requested to mark any specific information contained in the proposal that is not to be disclosed to the public or used for purposes other than evaluation of the proposals. Pricing and service elements of the successful proposal will not be considered proprietary. The proposal and all supporting materials supplied will become the property of City of River Falls and will not be returned. Proposals submitted may be reviewed and evaluated by any person at the discretion of the City.

B. Submission Process

Proposals will be accepted until 5:00pm on Tuesday, July 7, 2015. Electronic submittals are encouraged and submitted to Ray French at rfrench@rfcity.org. Hard copies may be mailed to:

Ray French
City of River Falls
222 Lewis Street
River Falls, WI 54022

Questions or requests for clarification may be directed to Ray French, Management Analyst, at 715-426-3437 or email at rfrench@rfcity.org.

C. Evaluation Process

Proposals will be initially reviewed by City staff based on their alignment with the goals of the project. A summary of the proposals will be prepared, which will be shared with stakeholders along with the proposals themselves for their review. A meeting of City staff and selected stakeholders will occur on or about July 13. The group will come to consensus and communicate their recommendation to the Utility Advisory Board (UAB) and to bidding firms on July 15, with authorization to continue by the UAB on July 20, 2015.

It is the City's desire to select the firm that will provide the best overall value to the City. Best value is based not only on cost, but also includes the ability to best answer the questions presented for current and future process considerations.

Submitted proposals will be judged on the following evaluation criteria:

a. The demonstrated ability of the bidder to perform the work necessary to achieve the goals of the project, including providing adequate communication throughout the course of the project.

b. The experience of the firm and individuals to perform the work of the project, with particular interest in similar work performed in the State of Wisconsin according to state rules and regulations, or applicable work under federal guidance.

c. The proposed price and terms of the agreement that is offered.

D. Terms of the Consultant Services Agreement

The terms of the consultant service agreement will include specific language regarding the provision of services; required insurance and indemnification; agreement options, continuation, and termination clauses; timing of invoicing and payments; and requirements for interaction with City staff, elected representatives, stakeholders, and the public.

MEMORANDUM

TO: Prospective Bidders

FROM: Raymond French

DATE: July 2, 2015

TITLE: **RFP for Sediment Analysis: Questions Answered**

We have received a number of similar questions from prospective bidders that I would like to share with all interested firms.

1. Is there a boat launch on either impoundment?

There are no designated boat launches on either impoundment. There are flat areas where recreational users access the impoundments to put in or take out their kayaks/canoes and fish, but there are no traditional concrete boat launches.

2. Please clarify the requirement to conduct the sediment probes to bedrock. Typical studies of this nature probe to native substrate and the difference impacts the choice of equipment used for the sampling.

The primary goal of the sediment analysis is to identify the costs and methods for sediment management if the City were to pursue dam removal in the future at one or both hydroelectric facilities. If a prospective bidder considers that level of study to be unnecessary in providing the answer to the primary question of the study, bids may state the primary recommendation of the bidder between (1) probing to bedrock and (2) probing to native sediment, and provide a cost estimate for each. If probing to native sediment is recommended, bids shall provide reasoning for that recommendation. The approved course of work as adopted by the Utility Advisory Board considering the recommendation of the group reviewing the proposals will identify the option selected.

3. Please provide more information on the licensing analysis that showed a wide range of costs for sediment management.

The attached Enclosure is the analysis of licensing options referred to in the RFP. Please see page 16 for the reference to the wide range of costs for sediment management in the case of dam removal.

City of River Falls – Hydroelectric Operations Options

Executive Summary

The City of River Falls owns and operates two hydroelectric facilities located on the Kinnickinnic (Kinni) River. The two facilities, Junction Falls and Powell Falls, are located in the City, have a total installed capacity of 375 kW, and currently operate under a Minor Water Power Project license issued by the Federal Energy Regulatory Commission (FERC). The two hydroelectric facilities operate to generate electricity that is then sold to the City's electric customers, offsetting the need to purchase replacement power. The Project's FERC license (FERC P-10489) expires on 08/31/2018 and the City is currently in the process of relicensing the Project facilities. The Kinni River is designated as a Class I trout stream upstream and downstream of the Project, and Agencies and other stakeholders expressed interest in evaluating options that may result in the Project facilities being removed.

The City of River Falls contracted with TRC to assist the City by providing an alternatives analysis designed to assist the City in determining a course of action for the future of these facilities. Five options were evaluated: 1) FERC License Extension & Community Planning Process, 2) FERC License Application, 3) FERC License Application with a Settlement Agreement, 4) Surrender the License with Facilities in Place, and 5) Surrender the License with Dam Removal. TRC compiled a list of studies likely to be requested and associated cost estimates for each option.

Detailed information summarized below is outlined in the attached spreadsheets (Attachment A). Each sheet includes a summary of studies likely to be needed (ranked Low, Moderate, or High likelihood) for each option with cost estimates. For the License Extension Option we ranked the studies according to their value for the community-planning process. We included a range of low to high cost estimates, as study scope and costs are often negotiable and vary based on site-specific conditions. Where possible, we assumed City staff would work with the local university, Agencies, and stakeholders to conduct studies. Depending on the scope of study negotiated, this could help the City to gravitate more toward the low end of our estimates.

Summary of Options:

Option 1: FERC License Extension & Community Planning Process

Under Option 1, the City of River Falls would request a license extension from FERC. The City has initiated contact with members of FERC staff, who are evaluating the potential to grant a five to ten year extension. The extension request, if granted, would allow the City time to undergo its community planning process to thoroughly discuss the future of the hydroelectric projects, dams, and potential redevelopment of the river. Studies listed under Option 1 (Attachment A) are not required for a FERC license extension and, at the City's option, can be completed during the community planning process to help the City and its citizens evaluate current site conditions and potential future changes. During this planning process, the City would select the ultimate option (Option 2, 3, 4, or 5) they wish to pursue. Data gathered during the planning period may be utilized in the future, potentially reducing some costs for studies conducted under the future option chosen.

All of these studies are optional, and we believe some of the studies will add little value to the planning process. The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed in Attachment A. The cost estimate for Option 1 ranges from **$2,000 to**

$223,000. Note that the cost for this option would be added to whatever additional option the City determines to pursue when the extension expires.

Option 2: FERC License Application

Under Option 2, the City would continue to pursue the Traditional Licensing Process (TLP) as originally planned. This option would allow the City to relicense and operate the hydroelectric facilities and generate power for the duration of the license (30 years), or until it determines it no longer wishes to operate all or a portion of the Project facilities. The objective of the studies listed under Option 2 are to provide sufficient information in the relicensing, per 18 CFR 4.61 (contents of application for a License for a Minor Water Power Project and Major Water Power Projects 5 MW or less), to allow FERC to prepare an Environmental Assessment and issue a new license. This option treats the licensing of the hydroelectric facilities as separate from the Kinni River Corridor planning process.

The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed in Attachment A. The cost estimate for Option 2 ranges from **$218,000 to $444,000.** This cost estimate also includes the range of costs to prepare a license application. It does not include any costs of future license requirements.

Option 3: FERC License Application with Settlement Agreement

Under Option 3, the City would proceed with the FERC License Application with the addition of a Settlement Agreement among the City (as the Licensee), Agencies and other stakeholders. The objective of this option is to provide sufficient information in the relicensing process, per 18 CFR 4.61 (contents of application for a License for a Minor Water Power Project and Major Water Power Projects 5 MW or less), to allow FERC to prepare an Environmental Assessment, while also working with Agencies and other stakeholders to support the community-planning process for the Kinni River Corridor. The Settlement Agreement would need to address issues and concerns brought forward by the Agencies and other stakeholders and may allow the City to eliminate or decrease the scope of many of the studies in favor of using currently available data or easily developed data to determine necessary license requirements.

The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed in Attachment A. The cost estimate for Option 3 ranges from **$191,000 to $397,000.** In addition to studies, the cost estimate for this option includes an estimate for negotiating a Settlement Agreement and preparing the license application. It does not include any costs of future license requirements that result from the settlement.

Option 4: Surrender with Facilities in Place

The City may choose to surrender its FERC license and maintain the two hydroelectric project dams without operating the generating facilities. The objective of this option is to provide sufficient information in a surrender application to allow FERC to prepare an Environmental Assessment, issue an order, and transfer dam safety requirements to the state of Wisconsin (18 CFR Part 6 Surrender or

Termination of License; state of Wisconsin Chapter 31 regarding dam safety). For the purpose of this analysis, it was assumed the City of River Falls would retain ownership of the hydroelectric facilities. [1]

Power generation would cease and the City would need to commit to specific plans maintaining the dams in a safe and stable manner. Continued dam safety oversight would be through the WDNR. The City would need to coordinate with the WDNR to determine requirements for maintaining the dams.

TRC does not believe any significant studies should be required for this option. Other than historic structures, and possibly Projects Costs and Socioeconomics, TRC has placed a "Low" likelihood of these studies being required. That being said, we cannot be certain how FERC will rule on the need for all of these studies. There are additional risks regarding the unknown requirements FERC may place on the Project prior to issuing a surrender order, such as removal of one or both dams.

A surrender application for a minor project would be in the form of a letter outlining the proposed disposition of the project. Supporting documentation from Agencies and other stakeholders would be helpful to the process.

The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed in Attachment A. The cost estimate for Option 4 ranges from **$24,000 to $236,000.** It does not include any costs of future maintenance requirements under WDNR oversight, other possible FERC requirements under the surrender order, or future costs associated with dam removal or other Kinni River projects.

Option 5: Surrender with Dam Removal

The City may choose to surrender its FERC license and propose removal of one or both dams.[2] The reasons for removal rather than simply surrender with facilities in place would be based on a community desire to remove the facilities or the City's choice to eliminate all future dam safety obligations. The objective of this option is to provide sufficient information in the surrender-removal application to allow FERC to prepare an Environmental Assessment and issue an order (18 CFR Part 6, Surrender or Termination of License).

This option includes a variety of studies and activities that would likely be needed to ensure safe dam removal, stabilization of the river corridor, and minimization of environmental impacts. It includes cost estimates for removal, excavation and disposal of sediments, and surrender application preparation.

The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed in Attachment A. The cost estimate for Option 5 ranges from **$660,600 to $4,450,000.** The large range in the cost estimates is due to currently unknown site-specific characteristics, specifically any sediment removal from the impoundment. Studies outlined herein would provide detail needed to more accurately determine final costs. It should also be noted that costs for implementation of the Lake George Stormwater Plan are not included in this cost estimate.

[1] When a licensee surrenders a Project license, FERC first looks for another owner to take over the license and operate the hydroelectric facilities. To avoid the possibility of an alternate operator taking over the license, the City would need to clearly communicate its desire to shut down the generation and would require support of the Agencies and stakeholders. Due to the size of these projects, although possible, we believe it is unlikely that anyone else will step forward with the intent to buy and operate the project.

[2] If one of the two dams is removed under this option, the remaining dam would fall under Wisconsin Department of Natural Resources Chapter 31 jurisdiction, as in Option 4.

Summary of Cost Estimates

Cost estimates for each option are summarized below.

Table 1. Low and High Cost Estimates for Hydroelectric Options

Option	Low Cost	High Cost
Option 1: FERC License Extension & Community Planning Process (Ultimate disposition – the cost of the appropriate option is added to Option 1)	$2,000	$223,000
Option 2: FERC License Application (Relicensing)	$218,000	$444,000
Option 3: FERC License Application with Settlement Agreement	$191,000	$397,000
Option 4: Surrender with Facilities in Place (Does not consider future costs of dam removal and other River projects)	$24,000	$236,000
Option 5: Surrender with Dam Removal	$660,600	$4,450,000

River Falls - Hydroelectric Facility Options

Option #1: FERC License Extension & Community Planning Process

Objective: To provide time for the City to initiate and complete its public review and input process about the future of the hydroelectric projects, dams, and potential redevelopment of the river. Studies are likely to be done during the community planning process or optional (not specifically required by FERC).

Resource Considerations & Potential Study Needs for Option #1: FERC License Extension	Likelihood for Study	Planning Studies Cost* (Low)	Planning Studies Cost* (High)	Value of Information from Study
Geology and Soils				
Numerous agencies and stakeholders brought up concerns regarding sediment in the impoundments. A sediment analysis was last conducted in the 1990s. This plan may be reviewed and updated. A bathymetric survey and sediment probe survey to determine depth to bedrock in Lakes George and Louise may be prepared. A digital model may be used to map the sediment depths and calculate sediment volumes in both lakes. Sediment core samples could be analyzed for contaminants, including sediment oxygen demand, total phosphorus, ammonia nitrogen, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), and organic compounds (PAHs, PCBs, and pesticides).	Low	$ 20,000	$ 40,000	High
Water Resources				
Studies to address water quality and hydrology may need to be conducted. Basic water quality monitoring could include analysis of water temperature and modeling. Monitoring may take place upstream, downstream, and within both impoundments during the summer months (June - August). If studies are conducted, TRC recommends the City work with the University to complete.	Low	$ 3,000	$ 10,000	Low
Fish and Aquatic Resources				
The Kinni is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery. According to Wisconsin DNR, there is information about the fishery in the river up and downstream of the projects, and there is no information about the fishery in the impoundments. An aquatic survey for fish, mussels, and macroinvertebrates may be conducted to document species and habitat present within the impoundments. TRC recommends working directly with WDNR and the University to conduct these surveys. Survey methods may include seining and/or electrofishing. The dams currently serve as a barrier to aquatic invasive species. A baseline aquatic invasive survey may be needed to document species present within the project area (between Division Street and 300' below Powell Falls, including South Fork up to Cascade Falls).	Low	$ 20,000	$ 40,000	Low

Wildlife and Botanical Resources				
Wildlife and botanical resources within the project area may be documented. The potential presence of threatened and endangered species may be assessed by submitting a request to the Natural Heritage Inventory program at WDNR. Vegetative surveys documenting aquatic species, wetland species, and invasive species could also be conducted using an intuitive meander survey protocol during the active growing season. For this cost estimate, it was assumed the survey area would include 50' from the shoreline in the area between Division Street and 300' below Powell Falls, including the South Fork up to Cascade Falls.	Low	$ 8,000	$ 10,000	Low
Recreation				
A recreational study may be valuable in the planning process. Studies could include an inventory and survey of people fishing, kayaking, canoeing, swimming, hiking, walking, biking, rock climbing, picnicking, and viewing wildlife.	Low	$ 10,000	$ 20,000	High
Aesthetics				
An assessment of the aesthetic value of the existing Project and how it affects the community's "sense of place" may be undertaken. This could include an evaluation of possible alternative futures for the area with the restoration of the river falls. A visual impact assessment of the post-dam removal condition may be conducted.	Low	$ 5,000	$ 15,000	High
Land Use				
Current land uses within the Project boundary and on adjacent lands may be documented. Anticipated post-dam removal conditions could be reported.	Low	$ 2,000	$ 6,000	High
Project Costs				
A financial analysis would provide the City, agencies, and stakeholders with the financial analysis necessary to asses current hydroelectric operations and potential future improvements or changes. The analysis could include information pertaining to operating costs, income generation, electric rates for consumers, and employment impacts within the City.	Low	$ 2,000	$ 7,000	High
Socioeconomics				
A general description of the socio-economic conditions in the vicinity of the Project components including general land use patterns (e.g., urban, agricultural, forested), infrastructure in the Project area (water, sewer, gas lines), populations patterns, and sources of employment in the project vicinity.	Low	$ 5,000	$ 10,000	Moderate
Alternatives Analysis				
An alternatives analysis may be conducted to evaluate hydroelectric operation options through the City's Planning Process. The analysis could describe what alternatives were considered and why one option was chosen versus another option. This section also includes the City's public planning process, public meetings, and final report.	Low	$ 15,000	$ 50,000	High
Permits and Licenses Required				
A FERC license extension would be needed for this option. (This option will require consultation with the agencies and other stakeholders in order to gain concurrence with the extension prior to filing the request with FERC.)	Required	$ 2,000	$ 15,000	Required
	TOTAL**	**$ 2,000**	**$ 223,000**	

* Data gathered during the extension/planning period may be utilized in the future, decreasing some costs for studies conducted under the chosen option (2, 3, 4, or

** The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed above.

River Falls - Hydroelectric Facility Options
Option #2: FERC License Application

Objective: To provide sufficient information in the relicensing, per 18 CFR 4.61 (contents of application for a License for a Minor Water Project and Major Water Power Projects 5 MW or less) to allow FERC to prepare an Environmental Assessment and issue a new license.

Resource Considerations & Potential Study Needs for Option #2: FERC License Application	Likelihood for Study	Cost (Low)	Cost (High)
Geology and Soils			
Numerous agencies and stakeholders brought up concerns regarding sediment in the impoundments. A sediment analysis was last conducted in the 1990s. This plan may be reviewed and updated. A bathymetric survey and sediment probe survey to determine depth to bedrock in Lakes George and Louise may be prepared. A digital model may be used to map the sediment depths and calculate sediment volumes in both lakes. Sediment core samples could be analyzed for contaminants, including sediment oxygen demand, total phosphorus, ammonia nitrogen, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), and organic compounds (PAHs, PCBs, and pesticides).	High	$ 30,000	$ 40,000
Water Resources			
The Kinni River is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery, including water quality. To better understand the potential effects of project operation on the river, studies to address water quality and hydrology were requested and would need to be conducted. Water quality monitoring may include analysis of water levels, stream flow, water temperatures, water chemistry (dissolved oxygen, phosphorus, pH), bacteria, pollutants, and turbidity. Monitoring may take place upstream, downstream, and within both impoundments during the summer months (June - August), following WDNR water quality monitoring protocols. TRC recommends the City work with the University to complete water quality studies. The range of costs represents sampling based on citizen monitoring protocol (low cost) and data sondes recording data 24/7 for three months (June to August) installed in two locations, downstream of each dam along with sampling in the flowages periodically over the same time frame (high cost). A hydrologic assessment may be conducted to monitor flow activity and verify compliance with run-of-river conditions. This could be accomplished using plant generation records and measuring flow above the Junction Falls flowage compared to the USGS gage downstream of the Powell Falls dam (USGS 05342000). A USGS gage was installed upstream of the City (USGS 05341854, Kinni River at Steeple Drive near Hammond, WI). Reactivating this gage or requesting installation of another closer to the City may be an option. The City can review and may need to revise stormwater plans for waters directly entering the impoundments. The Lake George Stormwater Plan (Plan) may provide useful information for this effort; implementation of this Plan is not included in the cost estimate.	High	$ 10,000	$ 35,000

Fish and Aquatic Resources			
The Kinni is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery. According to Wisconsin DNR, there is information about the fishery in the river up and downstream of the projects, and there is no information about the fishery in the impoundments. An aquatic survey for fish, mussels, and macroinvertebrates may be conducted to document species and habitat present within the impoundments. TRC recommends working directly with WDNR and the University to conduct these surveys. Survey methods may include seining and/or electrofishing. The dams currently serve as a barrier to aquatic invasive species. A baseline aquatic invasive survey may be needed to document species present within the project area (between Division Street and 300' below Powell Falls, including South Fork up to Cascade Falls).	High	$ 40,000	$ 60,000
Wildlife and Botanical Resources			
Wildlife and botanical resources within the river, wetlands, and littoral zone may be documented. The potential presence of threatened and endangered species may be assessed by submitting a request to the Natural Heritage Inventory program at WDNR. Vegetative surveys documenting aquatic species, wetland species, and invasive species could also be conducted using an intuitive meander survey protocol during the active growing season. For this cost estimate, it was assumed the survey area would include 50' from the shoreline in the area between Division Street and 300' below Powell Falls, including the South Fork up to Cascade Falls.	High	$ 8,000	$ 15,000
Project Boundary			
The project boundary will need to be officially defined (surveyed and mapped per FERC standards for Exhibit G, 18 CFR 4.41(h) and 4.39). A list of current land owners within and adjacent to the defined project boundary may also be generated. A map of the project boundary will need to be included in any application made to FERC for the project. For purposes of these studies, we are assuming the project boundary represents the area defined by Division Street (North), 300 ft downstream of the Powell Falls dam (south) and 50 feet on either side of the impoundments (east and west).	High	$ 20,000	$ 50,000
Cultural Resources			
Consultation with Wisconsin SHPO will be required to determine if the project/powerhouses are eligible for the National Register of Historic Places. If so, prepare the NPS documentation for registering the project and submit to Wisconsin SHPO. A Phase I archaeology assessment (literature research only) will need to be conducted to determine if there are documented archaeological resources associated with the project. We are not proposing site evaluations at this time. Any site assessment would need to be completed prior to disturbance along with consultation with the Wisconsin SHPO.	High	$ 15,000	$ 18,000
Recreation			
Recreational use of the project will need to be documented within the project area. If not already completed, an inventory of recreation associated with the project should be completed and mapped. The study may be expanded to include a survey of recreational users to determine any additional recreation that may be added.	High	$ 10,000	$ 30,000
Aesthetics			
An assessment of the aesthetic value of the existing Project and how it affects the community's "sense of place" may be undertaken.	Low	$ 5,000	$ 15,000

Land Use			
Current land uses within the Project boundary and on adjacent lands may be documented.	Low	$ 2,000	$ 6,000
Project Costs			
Some comments requested a financial analysis of hydroelectric operation. Exhibit A of a license application for a minor project (18 CFR §4.61) requires the licensee to identify certain estimated costs of the project. These are: 1) estimated capital costs and annual operation and maintenance expense of each proposed environmental measure, 2) an estimated cost to develop license application, 4) on-peak and off-peak values of project power and the basis for estimating the values, 5) estimated average annual increase or decrease in project generation and estimated increase or decrease in the value of the power due to a change in operation, 6) remaining undepreciated net investment or book value of project, 7) annual operation and maintenance expenses including insurance and administrative and general costs.	High	$ 2,000	$ 7,000
Socioeconomics			
A general description of the socio-economic conditions in the vicinity of the Project components including general land use patterns (e.g., urban, agricultural, forested), infrastructure in the Project area (water, sewer, gas lines), populations patterns, and sources of employment in the project vicinity.	Moderate	$ 5,000	$ 10,000
Alternatives Analysis			
An alternatives analysis may be conducted to evaluate hydroelectric operation options. The analysis may describe what alternatives were considered and why one option was chosen versus another option.	Not required in 18 CFR 4.61	$ 0	$ 0
Permits and Licenses Required			
A FERC license would be needed for hydro relicensing. The City is currently undergoing the Traditional Licensing process.	Required	$ 75,000	$ 150,000
A Wisconsin DNR 401 Water Quality Certificate or waiver will be required. The 401 WQC process involves consultation with the Wisconsin DNR, sending a letter requesting the 401 WQC or waiver and working with the Wisconsin DNR on conditions of the 401 WQC.	Required	$ 3,000	$ 8,000
	TOTAL*	**$ 218,000**	**$ 444,000**

* The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed above.

River Falls - Hydroelectric Facility Options
Option #3: FERC License Application with Settlement Agreement

Objective: To provide sufficient information in the relicensing, per 18 CFR 4.61 (contents of application for a License for a Minor Water Project and Major Water Power Projects 5 MW or less) to allow FERC to prepare an Environmental Assessment. The settlement agreement will hopefully allow the City to eliminate or decrease the scope of many of the studies in favor of using currently available data or easily developable data to determine necessary license requirements.

Resource Considerations & Potential Study Needs for Option #3: FERC License Application with Settlement Agreement	Likelihood for Study	Cost (Low)	Cost (High)
Geology and Soils			
Numerous agencies and stakeholders brought up concerns regarding sediment in the impoundments. A sediment analysis was last conducted in the 1990s. This plan may be reviewed and updated. A bathymetric survey and sediment probe survey to determine depth to bedrock in Lakes George and Louise may be prepared. A digital model may be used to map the sediment depths and calculate sediment volumes in both lakes. Sediment core samples could be analyzed for contaminants, including sediment oxygen demand, total phosphorus, ammonia nitrogen, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), and organic compounds (PAHs, PCBs, and pesticides).	Moderate	$ 10,000	$ 25,000
Water Resources			
The Kinni River is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery, including water quality. Studies to address water quality and hydrology could be conducted. Water quality monitoring may include analysis of water levels, stream flow, water temperatures, water chemistry (dissolved oxygen, phosphorus, pH), bacteria, pollutants, and turbidity. Monitoring may take place upstream, downstream, and within both impoundments during the summer months (June - August), following WDNR water quality monitoring protocols. The range of costs represents sampling based on citizen monitoring protocol, working with the University and Project stakeholders. A hydrologic assessment may be conducted to monitor flow activity and verify compliance with run-of-river conditions. This could be accomplished using plant generation records and measuring flow above the Junction Falls flowage compared to the USGS gage downstream of the Powell Falls dam (USGS 05342000). A USGS gage was installed upstream of the City (USGS 05341854, Kinni River at Steeple Drive near Hammond, WI). Reactivating this gage or requesting installation of another closer to the City may be an option. The City can review and may need to revise stormwater plans for waters directly entering the impoundments. The Lake George Stormwater Plan (Plan) may provide useful information for this effort; implementation of this Plan is not included in the cost estimate.	Moderate	$ 5,000	$ 15,000

Fish and Aquatic Resources			
Studies to address fish and aquatic resources may need to be conducted. TRC recommends working with project partners to determine and summarize available aquatic data and evaluate future survey needs during the settlement process. The Kinni is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery. According to Wisconsin DNR, there is information about the fishery in the river up and downstream of the projects, and there is no information about the fishery in the impoundments. An aquatic survey for fish, mussels, and macroinvertebrates may be conducted to document species and habitat present within the impoundments. TRC recommends working directly with WDNR and the University to conduct these surveys. Survey methods may include seining and/or electrofishing. The dams currently serve as a barrier to aquatic invasive species. A baseline aquatic invasive survey may be needed to document species present within the project area (between Division Street and 300' below Powell Falls, including South Fork up to Cascade Falls).	Moderate	$ 15,000	$ 25,000
Wildlife and Botanical Resources			
Wildlife and botanical resources within the river, wetlands, and littoral zone may be documented. The potential presence of threatened and endangered species may be assessed by submitting a request to the Natural Heritage Inventory program at WDNR. Vegetative surveys documenting aquatic species, wetland species, and invasive species could also be conducted using an intuitive meander survey protocol during the active growing season. For this cost estimate, it was assumed the survey area would include 50' from the shoreline in the area between Division Street and 300' below Powell Falls, including the South Fork up to Cascade Falls.	Moderate	$ 8,000	$ 8,000
Project Boundary			
The project boundary will need to be officially defined (surveyed and mapped per FERC standards for Exhibit G, 18 CFR 4.41(h) and 4.39). A list of current land owners within and adjacent to the defined project boundary may also be generated. A map of the project boundary will need to be included in any application made to FERC for the project. For purposes of these studies, we are assuming the project boundary represents the area defined by Division Street (North), 300 ft downstream of the Powell Falls dam (south) and 50 feet on either side of the impoundments (east and west).	High	$ 20,000	$ 50,000
Cultural Resources			
Consultation with Wisconsin SHPO will be required to determine if the project/powerhouses are eligible for the National Register of Historic Places. If so, prepare the NPS documentation for registering the project and submit to Wisconsin SHPO. A Phase I archaeology assessment (literature research only) will need to be conducted to determine if there are documented archaeological resources associated with the project. We are not proposing site evaluations at this time. Any site assessment would need to be completed prior to disturbance along with consultation with the Wisconsin SHPO.	High	$ 15,000	$ 18,000

Recreation			
Recreational use of the project may need to be documented within the project area. If not already completed, an inventory of recreation associated with the project may be completed and mapped. The study may be expanded to include a survey of recreational users to determine any additional recreation that may be added.	Moderate - High	$ 8,000	$ 15,000
Aesthetics			
An assessment of the aesthetic value of the existing Project and how it affects the community's "sense of place" may be undertaken.	Low	$ 5,000	$ 15,000
Land Use			
Current land uses within the Project boundary and on adjacent lands may be documented.	Low	$ 2,000	$ 6,000
Project Costs			
Some comments requested a financial analysis of hydroelectric operation. Exhibit A of a license application for a minor project (18 CFR §4.61) requires the licensee to identify certain estimated costs of the project. These are: 1) estimated capital costs and annual operation and maintenance expense of each proposed environmental measure, 2) an estimated cost to develop license application, 4) on-peak and off-peak values of project power and the basis for estimating the values, 5) estimated average annual increase or decrease in project generation and estimated increase or decrease in the value of the power due to a change in operation, 6) remaining undepreciated net investment or book value of project, 7) annual operation and maintenance expenses including insurance and administrative and general costs.	High	$ 2,000	$ 7,000
Socioeconomics			
A general description of the socio-economic conditions in the vicinity of the Project components including general land use patterns (e.g., urban, agricultural, forested), infrastructure in the Project area (water, sewer, gas lines), populations patterns, and sources of employment in the project vicinity.	Moderate	$ 5,000	$ 10,000
Alternatives Analysis			
An alternatives analysis may be conducted to evaluate hydroelectric operation options. The analysis may describe what alternatives were considered and why one option was chosen versus another option.	Not required per 18 CFR 4.61	$ 0	$ 0
Permits and Licenses Required			
A FERC license would be needed for hydro relicensing. The City is currently undergoing the Traditional Licensing process.	Required	$ 75,000	$ 150,000
A Wisconsin DNR 401 Water Quality Certificate or waiver will be required. The 401 WQC process involves consultation with the Wisconsin DNR, sending a letter requesting the 401 WQC or waiver and working with the Wisconsin DNR on conditions of the 401 WQC.	Required	$ 3,000	$ 8,000
Settlement Agreement (negotiations and preparing document for signatures). This estimate assumes the settlement agreement would be negotiated in 3 to 4 months.	High	$ 25,000	$ 45,000
	TOTAL*	**$ 191,000**	**$ 397,000**

* The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed above.

River Falls - Hydroelectric Facility Options

Option #4: Surrender the License with Facilities in Place

Objective: To provide sufficient information in a surrender application to allow FERC to prepare an Environmental Assessment, issue an order and transfer dam safety requirements to the state of Wisconsin (18 CFR Part 6 Surrender or Termination of License; state of Wisconsin Chapter 31 regarding dam safety). The City of River Falls would retain ownership of the hydroelectric facilities.

FERC Regulations CFR 18 Part §6.1 Application for Surrender: "Every application for surrender of a license shall state the reason therefor; and except in the case of an application for surrender of a minor project, or for a transmission line only, shall be executed by the licensee and filed in the same form and manner as the application for license, and shall be accompanied by the license and all amendments thereof."

TRC does not believe any significant studies should be required for this option and accordingly, other than historic structures, and possibly Projects Costs and Socioeconomics, has placed a "Low" likelihood of these studies being required. That being said, we cannot be sure how FERC will rule on this issue. A surrender application for a minor project would be in the form of a letter outlining the proposed disposition.

Resource Considerations & Potential Study Needs for Option #4: Surrender the License with Facilities in Place	Likelihood for Study	Cost (Low)	Cost (High)
Geology and Soils			
Numerous agencies and stakeholders brought up concerns regarding sediment in the impoundments. A sediment analysis was last conducted in the 1990s; WDNR may request this plan be reviewed and updated. A bathymetric survey and sediment probe survey may be requested to determine depth to bedrock in Lakes George and Louise. A digital model may be used to map the sediment depths and calculate sediment volumes in both lakes. Sediment core samples could be analyzed for contaminants, including sediment oxygen demand, total phosphorus, ammonia nitrogen, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), and organic compounds (PAHs, PCBs, and pesticides).	Low	$ 20,000	$ 40,000

Water Resources			
The Kinni River is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric facilities have on the fishery, including water quality. To better understand the potential effects of project infrastructure on the river, studies to address water quality and hydrology were requested and would need to be conducted. Water quality monitoring may include analysis of water levels, stream flow, water temperatures, water chemistry (dissolved oxygen, phosphorus, pH), bacteria, pollutants, and turbidity. Monitoring may take place upstream, downstream, and within both impoundments during the summer months (June - August), following WDNR water quality monitoring protocols. The range of costs represents sampling based on citizen monitoring protocol, working with the University and Project stakeholders. The City can review and may need to revise stormwater plans for waters directly entering the impoundments. The Lake George Stormwater Plan (Plan) may provide useful information for this effort; implementation of this Plan is not included in the cost estimate.	Low	$ 5,000	$ 20,000
Fish and Aquatic Resources			
The Kinni is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery. According to Wisconsin DNR, there is information about the fishery in the river up and downstream of the projects, and there is no information about the fishery in the impoundments. An aquatic survey for fish, mussels, and macroinvertebrates may be conducted to document species and habitat present within the impoundments. TRC recommends working directly with WDNR and the University to conduct these surveys. Survey methods may include seining and/or electrofishing. The dams currently serve as a barrier to aquatic invasive species. A baseline aquatic invasive survey may be needed to document species present within the project area (between Division Street and 300' below Powell Falls, including South Fork up to Cascade Falls).	Low	$ 20,000	$ 30,000
Wildlife and Botanical Resources			
Wildlife and botanical resources within the river, wetlands, and littoral zone may be documented. The potential presence of threatened and endangered species may be assessed by submitting a request to the Natural Heritage Inventory program at WDNR. Vegetative surveys documenting aquatic species, wetland species, and invasive species could also be conducted using an intuitive meander survey protocol during the active growing season. For this cost estimate, it was assumed the survey area would include 50' from the shoreline in the area between Division Street and 300' below Powell Falls, including the South Fork up to Cascade Falls.	Low	$ 8,000	$ 10,000

Project Boundary			
For purposes of these studies, we are assuming the project boundary represents the area defined by Division Street (North), 300 ft downstream of the Powell Falls dam (south) and 50 feet on either side of the impoundments (east and west). The state may want a clearly defined boundary to understand its regulatory authority but it is not clear that will be necessary for dam safety oversight.	Low	$ 20,000	$ 50,000
Cultural Resources			
Consultation with Wisconsin SHPO will be required to determine if the project/powerhouses are eligible for the National Register of Historic Places. If so, prepare the NPS documentation for registering the project and submit to Wisconsin SHPO. A Phase I archaeology assessment (literature research only) will need to be conducted to determine if there are documented archaeological resources associated with the project. We are not proposing site evaluations at this time. Any site assessment would need to be completed prior to disturbance along with consultation with the Wisconsin SHPO.	Moderate	$ 15,000	$ 18,000
Recreation			
Recreational use of the project may need to be documented within the project area. If not already completed, an inventory of recreation associated with the project may be completed and mapped. The study may be expanded to include a survey of recreational users to determine any additional recreation that may be added.	Low	$ 8,000	$ 15,000
Aesthetics			
An assessment of the aesthetic value of the existing Project and how it affects the community's "sense of place" may be undertaken.	Low	$ 5,000	$ 15,000
Land Use			
Current land uses within the Project boundary and on adjacent lands may be documented.	Low	$ 2,000	$ 6,000
Project Costs			
A financial analysis would provide the City, agencies, and stakeholders with the financial analysis necessary to asses current hydroelectric operations and potential future improvements or changes. The analysis could include information pertaining to operating costs, income generation, electric rates for consumers, and employment impacts within the City.	Moderate	$ 2,000	$ 7,000
Socioeconomics			
A general description of the socio-economic conditions in the vicinity of the Project components including general land use patterns (e.g., urban, agricultural, forested), infrastructure in the Project area (water, sewer, gas lines), populations patterns, and sources of employment in the project vicinity.	Moderate	$ 5,000	$ 10,000
Alternatives Analysis			
An alternatives analysis may be conducted to evaluate hydroelectric operation options. The analysis may describe what alternatives were considered and why one option was chosen versus another option.	Not required per 18 CFR Part 6	$ 0	$ 0
Permits and Licenses Required			
A FERC license surrender application would be needed for this option.	Required	$ 2,000	$ 15,000
	TOTAL*	**$ 24,000**	**$ 236,000**

* The low cost estimate excludes the "Low" likelihood studies, while the high cost estimate includes all of the studies listed above.

River Falls - Hydroelectric Facility Options
Option #5: Surrender with the License with Dam Removal

Objective: To provide sufficient information in the surrender-removal application to allow FERC to prepare an Environmental Assessment and issue an order (18 CFR Part 6, Surrender or Termination of License.)

Resource Considerations & Potential Study Needs for Option #5: Surrender the License with Dam Removal	Likelihood for Study	Cost (Low)	Cost (High)
Geology and Soils			
Numerous agencies and stakeholders brought up concerns regarding sediment in the impoundments. A sediment analysis was last conducted in the 1990s. This plan may be reviewed and updated. A bathymetric survey and sediment probe survey to determine depth to bedrock in Lakes George and Louise may be prepared. A digital model may be used to map the sediment depths and calculate sediment volumes in both lakes. Sediment core samples could be analyzed for contaminants, including sediment oxygen demand, total phosphorus, ammonia nitrogen, trace metals (As, Cd, Cr, Cu, Hg, Ni, Pb, Zn), and organic compounds (PAHs, PCBs, and pesticides).	High	$ 30,000	$ 40,000
If the sediments are determined to be "special wastes" (contaminated) they may require removal and disposal at a special waste landfill. Costs associated with such disposal would include excavation costs, travel distance, and disposal fees. All three components are proportional to the quantity of sediment to be removed. Even if the sediments are not contaminated, some removal of sediments from the impoundments may be required to minimize mobilization of sediment downstream. The low end cost assumes soils are not contaminated and no sediments are removed. The high cost estimate represents the worst case scenario and assumes soils are contaminated.	High	$ 0	$ 2,775,000
Areas of erosion and bank slumping along the shoreline of the Kinni River and Project area tributaries that may be the result of lowered water levels due to dam removal may need to be identified and possibly stabilized.	High	$ 1,000	$ 35,000
Conduct engineering assessment of Maple, Division, Winter Street and foot bridge abutments as appropriate for scour impacts due to lower water levels and faster moving water.	High	$ 5,000	$ 5,000

Water Resources			
The Kinni River is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric facilities have on the fishery, including water quality. To better understand the potential effects of project infrastructure on the river, studies to address water quality and hydrology were requested and would need to be conducted. Water quality monitoring may include analysis of water levels, stream flow, water temperatures, water chemistry (dissolved oxygen, phosphorus, pH), bacteria, pollutants, and turbidity. Monitoring may take place upstream, downstream, and within both impoundments during the summer months (June - August), following WDNR water quality monitoring protocols. The range of costs represents sampling based on citizen monitoring protocol, working with the University and Project stakeholders. The City can review and may need to revise stormwater plans for waters directly entering the impoundments. The Lake George Stormwater Plan (Plan) may provide useful information for this effort; implementation of this Plan is not included in the cost estimate.	High	$ 20,000	$ 28,000
An analysis of existing thermal data may be undertaken to evaluate the thermal effect of the impoundments/loss of impoundments individually and collectively. This may require a modelling effort to predict thermal impacts of dam removal.	Moderate	$ 2,000	$ 10,000
A hydrologic assessment may be needed to predict post dam removal flows. The HEC-RAS modelling effort would use existing discharge and precipitation data to determine flows and elevation effects at various flood events.	High	$ 5,000	$ 15,000
Any wells or other infrastructure in the Project vicinity that is dependent on groundwater can be identified and monitored to determine if they are impacted following dam removal.	Moderate	$ 1,000	$ 3,000
Assess whether the chance of ice jams would increase following dam removal.	Low	$ 5,000	$ 15,000
Fish and Aquatic Resources			
The Kinni is classified as a Class I trout stream above and below the hydroelectric facilities. Agencies and stakeholders wish to protect this resource and want to understand the impacts the hydroelectric operations have on the fishery. According to Wisconsin DNR, there is information about the fishery in the river up and downstream of the projects, and there is no information about the fishery in the impoundments. An aquatic survey for fish, mussels, and macroinvertebrates may be conducted to document species and habitat present within the impoundments. TRC recommends working directly with WDNR and the University to conduct these surveys. Survey methods may include seining and/or electrofishing. Based on a determination by WDNR, a mussel relocation effort may be required at the time of dam removal. Similarly, other aquatic organisms stranded as the time of dam removal may also have to be relocated. The dams currently serve as a barrier to aquatic invasive species. A baseline aquatic invasive survey may be needed to document species present within the project area (between Division Street and 300' below Powell Falls, including South Fork up to Cascade Falls).	High	$ 11,000	$ 22,000

Wildlife and Botanical Resources			
Wildlife and botanical resources within the Project boundary may be documented based on readily available existing information. Anticipated post-dam removal conditions could be reported. Wetlands within the Project boundary may be delineated. Anticipated post-dam removal conditions, including changes in wetland quantity and type may be reported. The potential presence of threatened and endangered species may be assessed by submitting a request to the Natural Heritage Inventory program at WDNR. If rare, threatened, or endangered (RTE) species are found, and deemed likely to be impacted by dam removal, an incidental take permit from DNR may be required. Determine if RTE species presence would impact dam removal timing.	High	$ 8,600	$ 12,000
Project Boundary			
The project boundary will need to be officially defined (surveyed and mapped per FERC standards for Exhibit G, 18 CFR 4.41(h) and 4.39). A list of current land owners within and adjacent to the defined project boundary may also be generated. A map of the project boundary will need to be included in any application made to FERC for the project. For purposes of these studies, we are assuming the project boundary represents the area defined by Division Street (North), 300 ft downstream of the Powell Falls dam (south) and 50 feet on either side of the impoundments (east and west).	Low	$ 20,000	$ 50,000
Cultural Resources			
Consultation with Wisconsin SHPO will be required to determine if the project/powerhouses are eligible for the National Register of Historic Places If so, prepare documentation for registering the Project and submit to Wisconsin SHPO. If a historic architecture survey of the facilities has not been undertaken, one will need to be conducted. If the facilities are found to be NRHP-eligible, a Memorandum of Agreement with the WI SHPO will be developed, which may include the need for Historic American Building Survey and a Historic American Engineering Record (HABS/HAER) recordation of any structures that will be altered as part of dam removal. The Wisconsin SHPO and local tribes should also be consulted to determine if there is any documentation of pre-contact (Native American) and/or post-contact sites were historically located within the area of the impoundments. In addition, a Phase I archaeology assessment (literature research only) will need to be conducted to determine if there are documented archaeological resources associated with the Project. No site evaluations are proposed at this time. Any site assessment would need to be completed prior to disturbance along with consultation with the Wisconsin SHPO. Presence off archaeology sites could impact how sediments are handled.	High	$ 15,000	$ 20,000
HABS/HAER documentation.	Low	$ 25,000	$ 40,000
Recreation			
Current recreation facilities associated with the Project may need to be identified. Potential impacts to the recreation facilities due to dam removal should also be identified and potential mitigation proposed.	High	$ 3,000	$ 5,000

Aesthetics			
An assessment of the aesthetic value of the existing Project and how it affects the community's "sense of place" may be undertaken. This could include an evaluation of possible alternative futures for the area with the restoration of the river falls. A visual impact assessment of the post-dam removal condition will be conducted.	Moderate	$ 10,000	$ 15,000
Land Use			
Current land uses within the Project boundary and on adjacent lands should be documented. Anticipated post-dam removal conditions can be reported.	Moderate	$ 2,000	$ 6,000
A restoration plan should be developed. This plan would outline restoration activities that would take place following dam removal.	High	$ 10,000	$ 25,000
Project Costs			
A financial analysis would provide the City, agencies, and stakeholders with the financial analysis necessary to asses current hydroelectric operations and potential future improvements or changes. The analysis could include information pertaining to operating costs, income generation, electric rates for consumers, and employment impacts within the City.	High	$ 2,000	$ 7,000
Socioeconomics			
A general description of the socio-economic conditions in the vicinity of the Project components including general land use patterns (e.g., urban, agricultural, forested), infrastructure in the Project area (water, sewer, gas lines), populations patterns, and sources of employment in the project vicinity.	Moderate	$ 5,000	$ 12,000
Alternatives Analysis			
An alternatives analysis may be conducted to evaluate hydroelectric operation options. The analysis may describe what alternatives were considered and why one option was chosen versus another option.	Not required per 18 CFR Part 6	$ 0	$ 0
Dam Deconstruction/Removal			
An alternatives analysis may be conducted to assess the various options for dam removal. The analysis can include consideration of one or both dams being removed, the extent of removal (full or partial) methodology for removal (controlled blast, ram hoe, use of coffer dams) and constructability of the alternatives. Other considerations could include the need for pre- and post-blast surveys, the length of time needed for dam removal, noise generation, traffic constraints, and debris removal and disposal. In addition, public safety issues must be considered both during the active removal phase and the projects final condition. TRC highly recommends that local contractors with deconstruction experience be consulted regarding the physical dam removal process. There also should be assurance that remaining structures are left in a safe and stable condition.	High	$ 10,000	$ 50,000
Physical removal and disposal of the dam(s).*	High	$ 500,000	$ 1,200,000

Permits and Licenses Required			
A FERC license surrender application needs to be developed. This application should provide sufficient information to allow FERC to prepare an Environmental Assessment (EA) and issue an order. In addition, the U.S. Army Corps of Engineers will have to issue a Section 404 permit if there is any in water work, which there undoubtedly will be. The Wisconsin DNR will have to issue a Section 401 Water Quality Certification. Ideally, essentially the same application can be used for all three agencies. In addition, local (county or city) permits may be needed. These could include demolition and waste disposal permits.	Required	$ 20,000	$ 60,000
	TOTAL**	**$ 660,600**	**$ 4,450,000**

* Cost may be higher depending on the removal process and requirements for structural integrity during removal.

** The low cost estimate excludes the “Low” likelihood studies, while the high cost estimate includes all of the studies listed above.