

MEMORANDUM

To: Shannon Ames
From: Patricia McIlvaine
Date: July 14, 2021

Subject: Recertification Recommendation - Winooski 8 Project, LIHI #77

This memo contains my recommendation for conditional recertification of the Winooski 8 Hydroelectric Project (P-6470) (the “Project”) an 856 KW facility located Winooski River in East Montpelier, Vermont. Winooski Hydroelectric Company (WHC) has owned the Project since it was originally certified under the 1st Edition LIHI Handbook with an effective date of February 28, 2011. The Project was recertified in 2016 under the 2nd Edition LIHI Handbook with an expiration date of February 28, 2021, extended to June 30, 2021 and again to August 31, 2021.

1. Recertification Standards

This is one of the initial projects to submit a recertification application for the second time under the 2nd Edition Handbook. LIHI developed a streamlined application format for such projects to facilitate review in accordance with Handbook Section 6.1. Similar to the recertification process that was used in the 1st Edition Handbook, the current review verifies the information submitted, considers any public comments received, and assesses whether there have been any material changes at the facility or in the LIHI Handbook that affect compliance with the LIHI Criteria.

a) Adequacy of the Recertification Application Package

The application package was submitted on March 24, 2021 and the application was posted on March 25, 2021 for the 60-day public comment which closed on May 24, 2021.

WHC has initiated with the Federal Energy Regulatory Commission (FERC) the process of relicensing its Project using the FERC’s Traditional Licensing Process (TLP). The current license for the Project expires on July 31, 2023. On July 31, 2018, WHC filed its Pre-Application Document (PAD) and Notice of Intent (NOI) with the Commission. In a letter dated September 21, 2018, FERC approved WHC’s request to use the TLP. WHC held the joint agency meeting and site visit on November 16, 2018. On January 12, 2019, the Vermont Agency of Natural Resources (VANR) and the Vermont Division of Historic Preservation (VDHP) submitted study requests and comments on the PAD to WHC. VDHP indicated that they had no study requests at that time. The VANR submitted study requests. WHC transmitted via email its Draft Study Plan (DSP) to stakeholders on May 22, 2019 and held a DSP meeting at the VANR offices on June 27, 2019. Comments on the DSP were due by July 10, 2019. WHC transmitted via email its Final Study Plan

(FSP) to stakeholders on July 23, 2019. Documents not linked to WHC's application were obtained from the FERC eLibrary. The following summarizes these submissions. Additional details are noted under the applicable criteria discussions.

- On January 29, 2021, WHC submitted its Draft License Application (DLA) for its license renewal.
- An April 6, 2021 DLA comment letter from the Central Vermont Regional Planning Commission (CVRPC), reflecting on January 2021 VANR correspondence, noted the need for assessing water quality impacts from proposed dredging activities, and potentially insufficient minimum flows.¹
- An April 29, 2021 DLA comment letter from VANR Department of Fish and Wildlife (VDF&W) noted that minimum flows and aesthetic flows should be increased over that proposed by WHC should be required.²
- FERC sent a letter dated April 22, 2021 to WHC outlining additional data needed for the final application. Of particular interest to LIHI was the need for current water quality studies and clarification on Project recreational attributes. FERC also noted that it appears an expansion of the Project boundary to include all fee-owned land was proposed, and requested an explanation of why WHC is making this proposal and how much additional land will now be included within the project boundary.³

My evaluation of the Project included review of the above noted documents, and my summary findings often reflect information from these documents, including agency recommended mitigation measures identified to date. This review found the application to be complete, that no material changes have occurred at the Project, and that no material changes have occurred in the Handbook since the last recertification. Therefore, only a Stage I review was required.

No public comments were received on the LIHI application, and the publicly available materials made it unnecessary to reach out to agencies or stakeholders for clarification of any aspect of the application.

In my opinion, the materials now in LIHI's possession are sufficient to make a recertification recommendation and no Stage II review is needed.

¹ https://elibrary.ferc.gov/eLibrary/filelist?document_id=14955423&optimized=false

² <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15781369>

³ <https://elibrary.ferc.gov/eLibrary/filedownload?fileid=15774506>

b) There have been no “material changes” at the facility that would affect the certification.

In accordance with the recertification standards, “material changes” mean non-compliance, operational changes, and/or new or renewed issues of concern relevant to the LIHI Criteria. None were identified.

Compliance Status

My assessment of the Project included review of the recertification materials, the last recertification application and review report, annual compliance statements submitted during the current certification term, and FERC's public records during the same period, including the available re-licensing documents.

There are no conditions on the current Certificate and no compliance issues were identified in the annual compliance statements. A search of the FERC elibrary from January 1, 2016 to present revealed no reports of deviations or non-compliances with environmental aspects of the Project.

New/Renewed Issues of Concern

No other changes have occurred at the facility which affect the LIHI Criteria and no issues of concern were identified. However, as noted previously, FERC requested clarification on the proposed need for and expansion of the Project boundary. If it should change, depending on the size and environmental features of the added land, it may not impact LIHI's recertification assessment of the Project. However, LIHI's records nonetheless would need to be updated. The application, mostly via the linked re-licensing documents, included updated information as follows:

Ecological Flows

- There have been no flow changes since the Project was last recertified and no deviations from the minimum flow requirements were identified in the FERC records.
- As part of the re-licensing effort, WHC conducted an Instream Flow Study to determine the minimum flow needed to meet Vermont Water Quality Standards (VWQS) in the bypass reach. The study objective was to quantitatively assess the relationship between flow and aquatic habitat in the bypass reach for target fish species. The target species were juvenile and adult life stages of the following fish: longnose dace, fallfish, brown trout, rainbow trout and white sucker. Results presented in an October 2020 study report showed that despite a wide range of flows evaluated, changes in flow across the modeled flow range would not substantially affect the amount of habitat available to the target species and life stages. The lowest measured flow (18.4 cfs) provides a high percentage of suitable habitat that is available within the reach, as does the licensed minimum flow

of 25 cfs that is typically provided from the minimum flow unit. VDF&W commented that minimum flows greater than 25 cfs would be required to support aquatic habitat (40 cfs provided 80% of available habitat adult rainbow trout and juvenile fallfish); however, their letter did not specifically state what flow should be released. CVRPC agreed that more flow is needed.

- An Aesthetic Flow Study was also conducted that examined water spilling over the flashboard crest of the dam and into the bypass reach and the energy impact corresponding to various aesthetic flows to gauge the trade-offs of power and non-power resources. As noted in a 2020 study report, flows examined were equivalent to approximately 0.5, 0.75, and 1.0 inch spill depths, resulting in target flows of approximately 11, 13, and 16 cfs, respectively. The assessment which took place in November 2019, all resulted in thin, uneven veils. The assessment team noted ice buildup on the flashboard crest, which may have contributed to the uneven appearance of the spill flows. The report estimated energy losses ranging from 154 to 224 MWh/year assuming the aesthetic flow is provided year-round when spillage is not already occurring but would be less if the aesthetic flows were only provided during non-freeze periods. VDF&W commented that their analysis of the documentation of spillage flows indicates that at least one inch of spill will likely be needed to support the aesthetic use, rather than the 0.5-inch proposed by WHC.
- No Agency Protection, Mitigation, and Enhancement (PM&E) measures have been issued to date. WHC offered a mitigation proposal addressing aesthetic flows in their draft license application.

Water Quality

- In the 2020 State of Vermont 303(d) List of Impaired Waters, the segment of the Winooski River in the Project area is not listed on the final lists of Impaired or Altered segments.
- The application did not contain a more recent letter from VANR typically needed to confirm that the Water Quality Certification (WQC) which is from 1982 is still valid, since the acknowledgement submitted for the past recertification. However, since VANR has been active in the re-licensing activities, I believe VANR would have identified any concerns in their current communications with WHC, which they have not.
- On May 22, 2019, the Applicant provided its Draft Study Plan to stakeholders, including a water quality study plan in response to VANR's January 15, 2019 comments on the PAD. A meeting was held in 2019 to discuss all of the study plans. On July 11, 2019, the VANR emailed the Applicant its comments on the water quality study plan, in which they recommended WHC conduct the water quality study after the operational changes have been implemented on the upstream Molly Falls Hydroelectric Project to ensure the data reviewed accurately reflects the baseline conditions that will occur over the course of the

new license term and to identify any potential project effects. The new WQC will include this as a Condition. Thus, new data will only be available at this to-be-determined future date. However, in their comments to WHC, FERC did not agree with this delay, and noted their need for more current water quality data to establish a baseline against which proposed or required enhancements may be compared as well to determine if Project operation could affect water quality. Thus, FERC recommended that if other data is not available, then water quality studies be performed in the Project waters with the results included in the final license application.

- The DLA noted that in January 2021, the “VANR has indicated that it will require a) a Sediment Dredging Management Plan for future dredging operations to control turbidity concentrations below the Project, b) a bypass flow needed to protect aquatic resources in the bypass reach, and c) spillage over the flashboard crest as aesthetics is a designated use under the VWQS”. CVRPC supported the need for water quality studies to confirm impacts from proposed regular dredging at the intakes.
- The Updated Winooski River Tactical Basin Plan 2018⁴ was reviewed as part of this assessment. This Plan listed nine plan Objectives, including to “Protect and Enhance River Corridors” which has “corridor protection” and “review of permits to ensure adequate flow” as strategies potentially applicable to Winooski 8. It is assumed that the Vermont Department of Conservation (part of VANR) will ensure these are applied during the ongoing re-licensing activities and issuance of a new WQC.

Upstream and Downstream Fish Passage

- There are currently no requirements or agency recommendations for upstream or downstream fish passage for migratory species due to dams downstream preventing their migration to the Project’s waters.
- No studies on fish species, other than the Instream Flow Studies previously noted, were requested or conducted during re-licensing activities. WHC expects flow requirements in the bypass to support aquatic habitat will continue to be required.
- As a cold-water fishery, the Project waters are not a focus of the Statewide Management Plan for Largemouth and Smallmouth Bass 2017⁵. As a run-of-river Project, regular significant impoundment drawdowns, which are noted as possibly affecting bass habitat, are not part of Winooski 8’s operations, except when dredging operations occur.

⁴ <https://dec.vermont.gov/sites/dec/files/documents/2018%20Winooski%20River%20TBP.pdf>

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<https://vtfishandwildlife.com/sites/fishandwildlife/files/documents/Learn%20More/Library/REPORTS%20AND%20DOCUMENTS/FISHERIES%20MANAGEMENT/BASS%20MANAGEMENT%20PLAN%20-%202017.pdf>

Shoreline and Watershed Protection

- The DLA noted “according to National Wetland Inventory data, there is [sic] approximately 1.07 acres of riverine wetlands within the Project Boundary. The wetland plant communities that currently exist within the Project boundary have become established under the current run-of-river operating regime that has existed for many years since the Project was constructed.” Also, it noted that there are only 4.5 acres of uplands within the Project boundary, with the rest of the 10.9 acres being water.
- WHC stated they are not aware of any agency concerns with shoreline protection.

Endangered and Threatened Species

- Updated threatened and endangered species information from the USF&WS Information for Planning and Conservation (IPaC) database notes only the Northern long-eared bat (federally threatened) might be present. Correspondence with VDF&W included in the LIHI application noted there are no records of Northern long-eared bats within 1 mile of the Project (N. Dodge, Personal Communication, May 7, 2018). Project operations and lack of need to cut potential roosting trees in the small Project footprint are unlikely to affect the species. The DLA noted that no state-listed species or critical habitats are present in the Project area, although as noted below, field studies indicated the presence of the eastern pearlshell, a state-threatened mussel.
- A re-licensing field mussel survey within the impoundment, bypass reach and below the tailrace study was requested and conducted with the objectives to a) collect information on the distribution, relative abundance, and population structure of rare, threatened, or endangered freshwater mussel species in the Project area, and b) identify management measures to reduce the impact of Project operations, including maintenance and dredging, where operations-related biodiversity concerns are suspected. The mussel survey was completed on August 4-5, 2019. The study found only one live mussel, an eastern pearlshell, as well as two complete and one incomplete large shells of eastern pearlshell. No other mussel species were found. The Winooski River upstream of the Project has a heavy sediment load of silt/sand that deposits in the impoundment, requiring regular removal, which may impact such mussel species if they occur in the area to be dredged, unless mitigation measures are implemented.
- WHC stated they are not aware of any agency proposed PM&E measures related to terrestrial resources, including protected species. WHC expects they will be required and are committed to implementing mitigative measures to minimize impacts to mussels that may be found in areas to be dredged for sediment removal in the future. VDF&W commented that inspections for mussels conducted by WHC during impoundment drawdowns should involve a mussel biologist.

Cultural Resources and Protection

- No known cultural resource issues were identified in the PAD. VDHP concurred with this assessment and did not have any study requests. However, as the powerhouse and associated facilities will become 50 years old during the term of the proposed license, VDHP requested that the license include a provision to evaluate the hydroelectric facility in 2035 for National Register of Historic Places eligibility.

Recreational Resources

- Since last recertified by LIHI in 2016, an easement was granted by WHC and approved by FERC on December 11, 2018, for Central VT Trails Association's extension of a trail starting at the intersection of Gallison Road and PowerPlant Road (PowerPlant Road is in the FERC Project Boundary), crossing onto the Licensee's property near the dam before crossing the Winooski River via a proposed bridge (currently under construction).
- The latest Vermont State Comprehensive Outdoor Recreation Plan (SCORP)⁶ for years 2019 to 2023 discussed general recreational demands for the state of Vermont, including for select towns; however, specific needs for Washington County, or the towns of East Montpelier or Berlin, were not identified in the document.
- No recreational study needs or concerns have been identified during re-licensing activities. However, WHC did note that through an agreement with the Cross Vermont Trail Association on Project lands, some recreational enhancements including a new trail, would be developed by the Trail Association through an easement from WHC across Project lands.
- In their comments on the DLA, FERC requested clarification of Project owned and operated facilities and those managed by others in the Project area. They also requested discussion of the current condition of these areas and how they would be improved by WHC's proposed measures. They noted that while there may be existing agreements with other entities to construct, maintain, and operate recreation facilities, WHC will ultimately be responsible for maintaining any Project recreation facilities.

c) LIHI's certification criteria have not materially changed since the previous certification was issued in 2016.

The LIHI Criteria have not materially changed from the original 2nd Edition Handbook issued in 2016 to the current Revision 2.04 issued April 1, 2020.

⁶ https://fpr.vermont.gov/sites/fpr/files/Recreation/Vermont_SCORP_12_23%20-%20Split%20Pages%20-%20Edge%20to%20Edge.pdf

2. Conclusion

In light of the above, I recommend recertification of the Project for a five (5)-year term with the following conditions:

Condition 1 - The current FERC license for the facility will expire in 2023, before the end of the term of the new LIHI Certificate. LIHI certification does not imply any judgment or recommendation on what the terms of a future FERC license should be. If a new FERC license is issued before the end of the new LIHI certification, the facility Owner shall provide LIHI with notification of that fact within 60 days of the FERC Order and describe all differences between the previous and new license that are relevant to the LIHI criteria. LIHI staff will review those differences and decide whether any changes will be required to the current LIHI certificate. The Owner shall summarize the status of re-licensing and any post-licensing activities in the LIHI annual compliance statements. LIHI reserves the right to modify its certification of the facility to maintain consistency with future FERC requirements and the agency recommendations therein.

Condition 2 - To minimize impacts to any protected mussels that may be present in areas to be dredged, the facility Owner shall implement the mitigation proposal included in the draft license application which states that immediately following an impoundment drawdown, the exposed impoundment shoreline will be walked and searched for mussels. As recommended by VDF&W, a mussel biologist must be involved in such inspections. If any exposed mussels are found, they will be relocated into deeper waters to prevent exposure. Findings shall be reported to VDF&W upon inspection completion. The Owner shall summarize any findings and VDF&W comments in LIHI annual compliance statements.