WINOOSKI ONE HYDROELECTRIC PROJECT, LIHI #16

REVIEW OF APPLICATION FOR RE-CERTIFICATION BY THE LOW IMPACT HYDROPOWER INSTITUTE

Prepared by Nicholas Funk

December 18, 2019

I. INTRODUCTION

This report summarizes the review findings of the application submitted by the City of Burlington, Vermont (Burlington Electric Department, or Applicant) to the Low Impact Hydropower Institute (LIHI) for re-certification of the Winooski One/Chace Mill Project, FERC P-2756 (Winooski One, or Project). The Project was first Low Impact Certified by LIHI on July 29, 2004 and recertified on July 29, 2009 and July 29, 2014. The most recent five-year term expired on July 29, 2019 and was extended to December 31, 2019 to accommodate the current recertification process.

The Project is located at lower Winooski Falls on the Winooski River ten miles upstream of its confluence with Lake Champlain, between the City of Winooski, on the north bank, and the City of Burlington, on the south bank. The current certification contains no LIHI conditions.

II. RECERTIFICATION PROCESS AND STANDARDS

Under the current LIHI Handbook, reviews are a two-phase process starting with a limited review of a completed LIHI application, focused on three questions:

(1) Is there any missing information from the application?

(2) Has there been a material change in the operation of the certified facility since the previous certificate term?

(3) Has there been a change in LIHI criteria since the Certificate was issued?

In accordance with the Recertification Standards, if the only issue is that there is some missing information, a Stage II review may not be required. These standards also state that "material changes" mean non-compliance and/or new or renewed issues of concern that are relevant to LIHI's criteria. If the answer to either question (2) or (3) is “Yes,” a more thorough review of the application using the LIHI criteria in effect at the time of the recertification application, and development of a complete Stage II Report, is required. As a result, all Projects currently applying for renewal must go through a full review unless their most recent certification was completed using the current Handbook.

III. ADEQUACY OF APPLICATION

The 2019 recertification application stated that there were no material changes at the Project during the term of the previous certification. However, there have been material changes in the LIHI criteria or certification process since the Project was last certified in that a new Certification Handbook has been published by LIHI. This current review was made using the new 2nd Edition LIHI Certification Handbook (Revision 2.03, December 20, 2018). In August 2019 LIHI received a complete application for Low Impact recertification of the Project.

This Stage II assessment included review of the application package, supplemental information provided by the Applicant, public records in the Federal Energy Regulatory Commission's (FERC) eLibrary since LIHI last reviewed the Project for recertification in 2014, and the annual compliance statements received by LIHI during the past term of recertification.

IV. PROJECT DESCRIPTION

The Project is a 7.455 megawatt (MW) run-of-river hydroelectric generating station located at lower Winooski Falls on the Winooski River between the cities of Burlington and Winooski, Vermont.

Constructed from 1990 to 1993, the Project consists of a 200-foot-long and 35-foot-high reinforced concrete dam, situated immediately downstream of and abutting an historic timber crib dam built in 1876; a 100-foot-long and 8-foot-high bascule crest gate with a crest elevation of 136 feet NGVD, installed at the top of the dam; a 70-foot-long concrete intake structure, which directs river flow into the station allowing for run-of-river operation; a 36-foot-long bascule gate between the intake structure and the right abutment of the main bascule crest gate; a reinforced concrete powerhouse consisting of three identical double-regulated Kaplan turbines, which yield 7.455 MW of synchronous generation capacity; a reinforced concrete fish trap facility; a 45-foot-wide and 125-foot-long tailrace channel excavated from ledge rock; a buried 400-foot-long 13.8 kilovolt transmission line; and an access road. A Project layout is provided below (Figure 1).

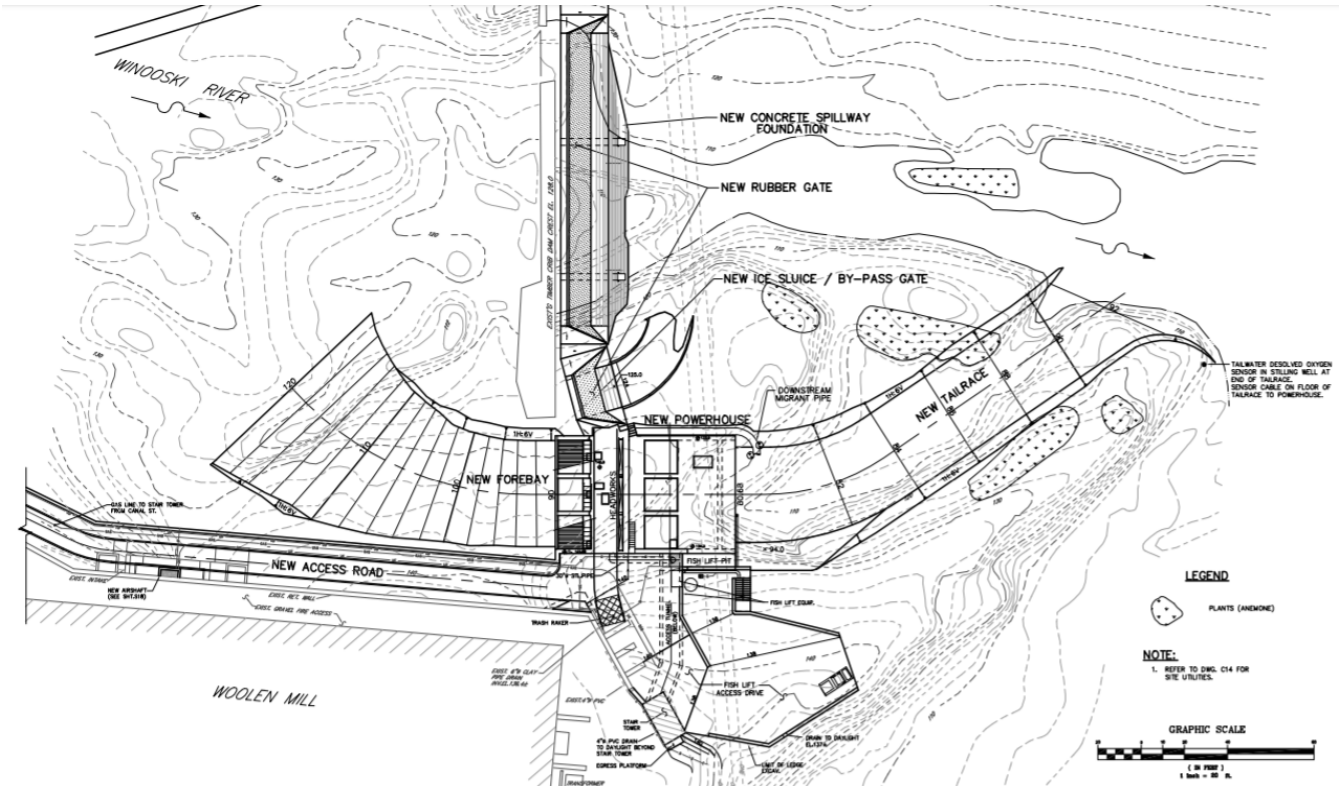

Figure 1 – Winooski One Project Layout

Located at River Mile (RM) 10, the Project is the first dam upstream from the Lower Winooski River's confluence with Lake Champlain. The Project is downstream of the Gorge No. 18 Hydroelectric Project at RM 12, the Essex No. 19 Hydroelectric Project (LIHI #146) at RM 18, and the Bolton Falls Hydroelectric Project at RM 43, all of which are owned by Green Mountain Power Corp. A map of Winooski One's location relative to upstream dams is shown below (Figure 2).

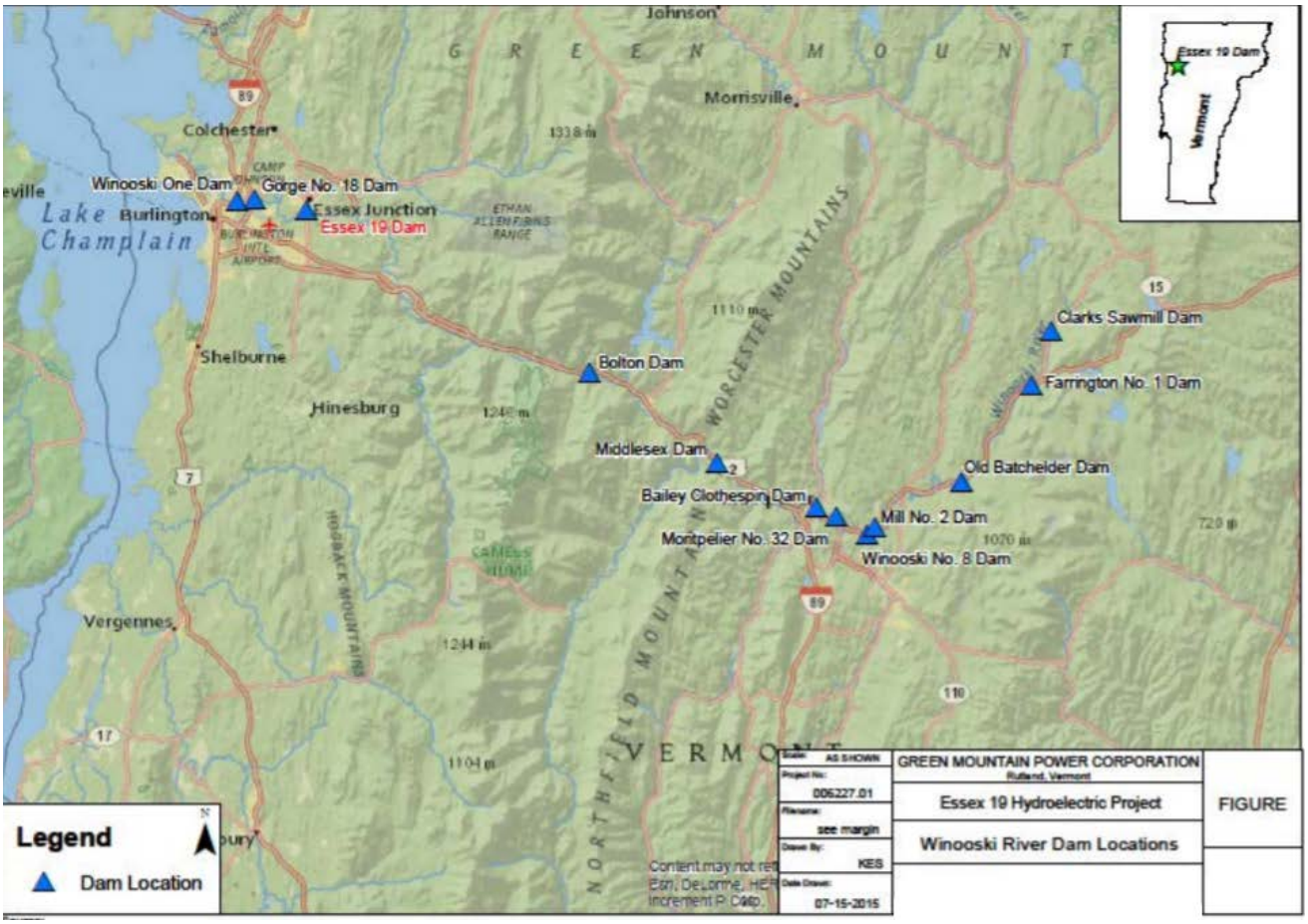

Figure 2 – Winooski One Project Geographic Location Map

V. ZONES OF EFFECTAND SUMMARY OF COMPLIANCE WITH LIHI CRITERIA

Three Zones of Effect (ZOE) were designated by the Applicant and were determined to be appropriate. Their locations are shown in Figure 3.

- Zone of Effect #1 is located in the Project impoundment area and defined by the Applicant as extending from the Project dam to the base of the upstream Winooski Falls (natural feature).

- Zone of Effect #2 is located in the bypass reach just below the Project dam and defined by the Applicant as extending from the Project dam approximately 250 feet to where the bypassed reach waters join the Project outflow (Figure 4).

- Zone of Effect #3 is located downstream of the bypassed reach and defined by the Applicant as extending approximately 1/3 of a mile from where the bypassed reach waters join the Project outflow to where the Lower Winooski River forms a single channel (Figure 5).

Figure 3 – Winooski One Project Zone of Effects

Figure 4 – Winooski One Project ZOE #2

Figure 5 – Winooski One Project ZOE #3

The following tables summarize the standards selected by the Applicant for the Project. I found that in some cases the Applicant choose a standard that was not the most appropriate alternative for the selected criterion. In addition, since one plant species, *Anemone multifidi*, is of particular concern in the Project area, a standard of F-4 (Acceptable Mitigation) was more appropriate for some of the selected ZOEs. Also, based on the Applicant's enforceable agreement with the Vermont Department of Fish & Wildlife to be a significant participant in a species recovery effort for the *Anemone multifidi*, I recommend that a **F-PLUS** standard be given for the ZOEs where the *Anemone multifidi* is found. Reviewer recommended standards are presented in **RED** text. Specific details of compliance with the criteria are presented in Section VIII.

ZOE #1 – Winooski One Project Impoundment

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes	x	x			
B	Water Quality		x			
C	Upstream Fish Passage	x	x			
D	Downstream Fish Passage		x			
E	Watershed and Shoreline Protection	x	x			
F	Threatened and Endangered Species Protection		x		x	x
G	Cultural and Historic Resources Protection		x			
H	Recreational Resources		x			

ZOE #2 – Winooski One Project Bypassed Reach

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		x			
B	Water Quality		x			
C	Upstream Fish Passage		x			
D	Downstream Fish Passage		x			
E	Watershed and Shoreline Protection	x	x			
F	Threatened and Endangered Species Protection		x			
G	Cultural and Historic Resources Protection		x			
H	Recreational Resources		x			

ZOE #3 – Winooski One Project Downstream (Tailrace) Reach

	Criterion	*Alternative Standards*				
		1	*2*	*3*	*4*	*Plus*
A	Ecological Flow Regimes		x			
B	Water Quality		x			
C	Upstream Fish Passage		x			
D	Downstream Fish Passage	x	x			
E	Watershed and Shoreline Protection	x	x			
F	Threatened and Endangered Species Protection		x		x	x
G	Cultural and Historic Resources Protection		x			
H	Recreational Resources		x			

VI. REGULATORY AND COMPLIANCE STATUS

FERC License

On November 3, 1988, FERC issued an order granting an original license to construct, operate, and maintain the Project.[1] The FERC license was issued for a period of 40 years with an expiration date of November 3, 2028. On August 29, 2014, FERC issued an order approving transfer of license from Winooski One Partnership to the Applicant. The Applicant agreed to accept all of the terms and conditions of the license and to be bound by the license as if it were the only original licensee.

Water Quality Certification

The current Water Quality Certification (WQC) for the Project was issued on May 5, 1987.[2] The Applicant continues to operate the Project in a strict run-of-the-river mode where the instantaneous flows below the tailrace shall equal instantaneous inflow to the impoundment. In July 2013, the previous Project owner, Winooski One Partnership, received a written authorization from Brian Fitzgerald, Streamflow Protection Coordinator of the Vermont Department of Environmental Conservation, to suspend the bypass flows at the Project during icing conditions.

Regulatory Compliance

A review of the FERC database (eLibrary) from July 29, 2014 through October 31, 2019 found no instances of license non-compliance by the Applicant.

VII. PUBLIC COMMENT RECEIVED OR SOLICITED BY LIHI

The application was posted for public comment on October 21, 2019 and the notice was forwarded to agencies and stakeholders listed in the application. The deadline for submission of comments on the LIHI certification application was December 20, 2019.

With no material changes since the last certification and the Project's limited footprint, no additional outreach was conducted. No public comments were received.

[1] https://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=13604070
[2] https://lowimpacthydro.org/assets/files/Winooski%20One/401cert.pdf

VIII. DETAILED CRITERIA REVIEW

A. ECOLOGICAL FLOW REGIMES

Goal: The flow regimes in riverine reaches that are affected by the facility support habitat and other conditions suitable for healthy fish and wildlife resources.

Assessment of Criterion Passage:

The Applicant selected **Standard A-2, Agency Recommendation** for ZOE #1. However, based on the Project's run-of-river operations **Standard A-1, Not Applicable/De Minimis Effect** is more appropriate. The Applicant has appropriately selected **Standard A-2, Agency Recommendation** for ZOE #2 and ZOE #3.

To mitigate impact to fish and wildlife resources, Article 405 of the Project FERC license requires the Applicant to operate the Project strictly in instantaneous run-of-river mode. The Applicant manages the Project impoundment to minimize the fluctuation of the impoundment surface elevation and may not draw down the impoundment without prior approval. When the Project is not operating, all flows are spilled at the dam. The Applicant provided, in Appendix B of the application, a July 3, 2019 letter from VDEC confirming run-of-river operations based on the Applicant's submittal of operations data to the agency.

Minimum flow releases to the bypassed reach are specified in Article 404 of the Project FERC license. The license article requires a continuous minimum flow of 168 cubic feet per second (cfs), as measured immediately downstream of the spillway, or the inflow to the reservoir, whichever is less. The WQC notes that 168 cfs is the 7Q10, the low consecutive seven-day average flow with a 10 percent annual probability of occurrence, for the Project. Article 404 also allows for modifications to the required minimum flow for emergencies and for short periods upon agreement with the Vermont Agency of Natural Resources (VANR) and the U.S. Fish and Wildlife Service (FWS).

Based upon review of past documents, during the second winter the Project was operated, a severe build-up of ice accumulated on the dam crest due to cold temperatures freezing the bypass flow. The licensee at that time was granted an authorization to temporarily suspend spillage. Additional authorizations were granted in subsequent years during the winter months but were not well documented. In a letter dated July 29, 2013[3], the VDEC provided written consent for temporary suspensions of flows over the dam during periods when significant ice build-up on the dam crest is occurring. A record of the periods when flow is suspended is maintained in the Project's operating records, and those records are available to the VANR upon request. Based on review of available materials this flow wavier remains in effect.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Ecological Flow Regimes criterion.

The Project Passes Criterion A – Ecological Flow Regimes

[3] https://lowimpacthydro.org/wp-content/uploads/2014/04/WinooskiOne2014ApplicationAttachments.pdf

B. WATER QUALITY

Goal: Water Quality is protected in waterbodies directly affected by the facility, including downstream reaches, bypassed reaches, and impoundments above dams and diversions.

Assessment of Criterion Passage:

The Applicant appropriately selected **Standard B-2, Agency Recommendation,** for all ZOEs.

The water quality impacts of the Project are monitored by the Vermont Department of Environmental Conservation (VDEC) through the Project's WQC.

When the WQC was issued, the VDEC designated the Lower Winooski River as Class C, waters managed to provide habitat suitable for aquatic biota, fish, and wildlife and to support uses including recreational boating and any recreational or other water uses in which contact with the water is minimal and ingestion not probable; irrigation of crops not used for human consumption without cooking; and compatible industrial uses. Class C waters were also designated in order to provide receiving waters for effluent from wastewater treatment facilities.

The VDEC also designated the Lower Winooski River as a warm water fish habitat from June 1 through September 30 and a cold-water fish habitat from October 1 through May 31. This seasonal designation results in two sets of standards for the water quality parameters of dissolved oxygen (DO), temperature, and turbidity. Article 407 of the Project FERC license requires the Applicant to meet the following DO standards: (a) June 1 through September 30, 5.0 milligrams per liter (mg/l) or 60 percent saturation in reaches of the river that are not salmonid spawning habitat; (b) October through May 31, 6.0 mg/l, or 70 percent saturation in reaches of the river that are not salmonid spawning habitat and 7.0 mg/l, or 75 percent saturation in reaches of the river that are salmonid spawning habitat.

Based upon current review[4], the Lower Winooski River is now classified as Class B, waters managed to maintain a level of quality that fully supports aquatic biota, wildlife, and aquatic habitat; aesthetics; public water supply; irrigation; swimming; and boating, fishing, and other recreational uses. In addition, a review of comments from the VDEC during the 2014 re-certification of the Project[5] indicates that the minimum flow requirement[6] at the Project is primarily in place for reaeration due to DO concerns during Project operation, with the most critical parameter being summer DO levels. The stretch of the Lower Winooski River occupied by the Project is in a waste management zone due to discharges from wastewater facilities. The river is 303(d)[7] listed only for *E.Coli* caused by combined sewage overflows, but the Project is not a contributor of that pollutant. The July 3, 2019 letter from VDEC noted above also confirms continued Project compliance with DO standards.

[4] Vermont Water Quality Standards
[5] https://lowimpacthydro.org/wp-content/uploads/2014/04/WinooskiOne2014ApplicationAttachments.pdf
[6] In a letter dated December 21, 2012, VT DEC determined that spillage flows were unnecessary to prevent dewatering of aquatic habitat between the tailrace and the dam as the reach is backwatered by the tailrace discharge.
[7] Vermont 2018 303(d) List of Impaired Waters

There were no reports of non-compliance with Article 407 of the Project license found on FERC's eLibrary. The Applicant has been following the Project's DO water quality parameter since the last recertification.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Water Quality criterion.

The Project Passes Criterion B – Water Quality

C. UPSTREAM FISH PASSAGE

Goal: The facility allows for the safe, timely, and effective upstream passage of migratory fish. This criterion is intended to ensure that migratory species can successfully complete their life cycles and maintain healthy, sustainable fish and wildlife resources in areas affected by the facility.

Assessment of Criterion Passage:

The Applicant selected **Standard C-2, Agency Recommendation** for ZOE #1. However, **Standard C-1, Not Applicable/De Minimis Effect** is more appropriate for ZOE #1 because once upstream of the Project dam there is no further Project-related barrier to fish passage. The Applicant has appropriately selected **Standard C-2, Agency Recommendation** for ZOE #2 and ZOE #3.

The Winooski River is one of the most popular fisheries in the state. From clear, cold mountain streams full of wild brook trout in the headwaters, to the meandering bass, perch and panfish habitat in the final stretches, it is home to a multitude of species. Some of the most popular game fish to be caught are: brook, brown and rainbow trout; perch and walleye; smallmouth and largemouth bass; and landlocked salmon.

Article 408 of the Project license required the development of a trap-and-truck facility immediately downstream of the Project dam to ensure upstream fish passage. This fish passage facility is a key component of the Lake Champlain Fish and Wildlife Cooperative's salmonid restoration program as it allows salmon access to important spawning and nursery areas. According to a July 14, 2004 letter from FWS the facility began operating in 1993 to facilitate passage of steelhead rainbow trout in the spring (March 15 to May 1) and landlocked Atlantic salmon in the fall (October 1 to November 15). In a September 9, 2004 telephone conversation, FWS added migratory walleye to this list. Upstream passage is provided by a cooperatively managed trap-and-truck facility that includes a fish lift. Collected fish are transported above the Project dam, with some transported above the Essex 19 Project (LIHI #146).

In a letter dated May 28, 2019, the FWS indicated the Applicant has operated in compliance with all their fish passage permit conditions and have been enthusiastic about the program and fully cooperative with the FWS in ensuring the lift operates in a manner that allows the system to "fish" most effectively. The July 3, 2019 letter from VDEC also confirms the upstream fish passage facilities "efficiently and effectively support federal and state fishery objectives." The

Applicant has made several lift modifications requested by the FWS and the VANR to improve the lift's efficiency. Some lift modifications have also been suggested by the Applicant as a result of their gained experience in running the facility. Furthermore, the Applicant has assisted biologists in processing lifted fish as well as assisting state and federal hatchery personnel with stocking juvenile fish at the facility.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Upstream Fish Passage criterion.

The Project Passes Criterion C – Upstream Fish Passage

D. DOWNSTREAM FISH PASSAGE AND PROTECTION

Goal: The facility allows for the safe, timely, and effective downstream passage of migratory fish. For riverine (resident) fish, the facility minimizes loss of fish from reservoirs and upstream river reaches affected by Facility operations. All migratory species are able to successfully complete their life cycles and to maintain healthy, sustainable fish and wildlife resources in the areas affected by the Facility.

Assessment of Criterion Passage:

The Applicant has appropriately selected **Standard D-2, Agency Recommendation** for ZOE #1 and ZOE #2. The Applicant selected **Standard D-2, Agency Recommendation** for ZOE #3. However, **Standard D-1, Not Applicable/De Minimis Effect** is more appropriate for ZOE #3 because once downstream of the Project dam and powerhouse there is no further Project-related barrier to fish passage.

Article 408 of the Project license requires the Applicant to maintain facilities at the Project dam to ensure downstream fish passage. The Applicant in coordination with the FWS and the VANR maintains downstream bypass facilities that can be accessed via two entry points at the Project dam, as well as the spillway that spills during much of the spring migration period. Recent studies confirm that downstream migrants use these facilities, but also that opportunities may exist for improving passage and survival in the future. The VDEC, in its July 3, 2019 letter stated that the agency hopes to work collaboratively with the Applicant and other stakeholders to identify opportunities for downstream passage improvements during the Project's future relicensing which will be initiated in 2023.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Downstream Fish Passage and Protection criterion.

The Project Passes Criterion D – Downstream Fish Passage and Protection

E. SHORELINE AND WATERSHED PROTECTION

Goal: The Facility has demonstrated that sufficient action has been taken to protect, mitigate and enhance the condition of soils, vegetation and ecosystem functions on shoreline and watershed lands associated with the facility.

Assessment of Criterion Passage:

The Applicant selected **Standard E-2, Agency Recommendation** for all three Project ZOEs. However, **Standard E-1, Not Applicable/De Minimis Effect** is more appropriate for all three Project ZOEs given the Project's small land footprint that contains a total of 50 acres on land and water. ZOE #1 is surrounded by an engineered shoreline with buildings and other structures dominating the shoreline. ZOE #2 and ZOE #3 are surrounded by rock outcrop and forested shoreline. The Project also contributes little to no localized shoreline erosion through normal Project operations.

- *Watershed and Shoreline Protection*: As Winooski One is a run-of-river facility the Agency has few concerns about project effects on the watershed and shoreline. Winooski One continues to request preapproval when maintenance requires operations to deviate from run-of-river and operates according to Agency recommendations during that time.

Article 411 of the FERC Project license requires the Applicant to file a plan at least 60 days before the start of any land-clearing, land-disturbing, or spoil producing activities. In addition, the plan will include measures to minimize visual character incompatibility of all Project structures with adjacent structures and the surrounding landscape. VDEC's July 3, 2019 letter notes that the agency is unconcerned about Project effects due to run-of-river operations and that the Applicant requests preapproval as needed when maintenance requires temporary operational changes.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Shoreline and Watershed Protection criterion.

The Project Passes Criterion E – Shoreline and Watershed Protection

F. THREATENED AND ENDANGERED SPECIES PROTECTION

Goal: The Facility does not negatively impact federal or state listed species.

Assessment of Criterion Passage:

The Applicant selected **Standard F-2**, **Agency Recommendation** for all of the Project ZOEs. However, while **Standard F-2**, **Agency Recommendation** is appropriate for ZOE #2, **Standard F-4, Acceptable Mitigation** may be more appropriate for ZOE #1 and ZOE #3 based on the Applicant's recent work with the Vermont Department of Fish and Wildlife (VDFW) to collect seeds of the *Anemone multifidi* and sow them in cracks in the rock at the Project. In addition, I recommend that an **F-PLUS Standard** be given for the ZOEs where the *Anemone multifidi* is found based on the Applicant's voluntary agreement with the VDFW to be a significant participant in the species recovery effort for the *Anemone multifidi* in these areas.

Article 409 of the Project license requires the Applicant to implement a mitigative plan for the rare plant species state-endangered cut leaved anemone (*Anemone multifidi)* and Garber's sedge (*Carex garberi)*. However, the state threatened *Carex garberi* has not been observed more recently. The Applicant, in coordination with VDFW, conducts yearly monitoring of *Anemone multifidi* at the Project location. The Applicant also makes annual payments for mitigation to the state.

In a letter dated July 29, 2016 the VDFW noted that the *Anemone multifidi* was still extant at the Project site in all five previously identified subpopulations, but that it has continued its long-term decline. From 2010 to 2016 the total plant count dropped from 117 plants to 67 plants. Over half (40) of the extant plants are in the most heavily trafficked area of ZOE #1, dubbed the West Bench, which is adjacent to a parking lot and easily accessible, receiving by far the heaviest foot traffic of all the subpopulations. Monitoring suggests plants are occasionally lost here due to trampling or even small recreational fires, but that this has not proven to be a major source of loss, or driver of overall declines, over the years. Many of the plants are situated in slightly topographically sheltered areas that are less likely to be stepped upon. However, these crevices are slowly accumulating more shrubs and woody plants, which likely impacts the *Anemone multifidi* negatively through shading, competition, and greater leaf litter accumulation, even while it protects the plants from direct trampling and may offer slight protection from moisture stress (via shading).

The other subpopulations are all quite small, from 3-11 plants each. This is noteworthy given that two of these, the Island (ZOE #3) and the East Bench (ZOE #1), were among the most robust subpopulations in the past, with >300 and nearly 100 plants, respectively. Increased shading and growth of woody vegetation is a potential concern at the East Bench, which is increasingly overhung by trees and shrubs from the adjacent riverbank.

Annual monitoring in 2018 and 2019 revealed the population at about 71 and 67 plants, respectively. In a letter dated July 1, 2019, the Applicant discussed the on-going *Anemone multifidi* conservation work in coordination with VDFW. In total, the Applicant collected 238 seeds and planted them in several areas of existing subpopulations, and removed competing woody vegetation, invasive plants, and leaf litter to improve conditions for the anemone. The Applicant's consultant notes in the 2019 letter that the seed augmentation work is ongoing and depending on results, more intensive efforts may be needed in the future.

Overall, the present patterns in the *Anemone multifidi* population appear consistent with previous findings that suggest that climatic factors (hot, dry summers) rather than direct human impacts are likely driving the long-term decline through an excess of mortality over new plant establishment. Some experimental management of woody plants at the site could occur to reduce potential shading stress, but it appears unlikely that this would reverse decline.

A November 12, 2019 check of FWS IPaC online mapping (https://ecos.fws.gov/ipac/) for the Project area shows these federally threatened species, but no critical habitats for them are present.

- Northern long-eared bat

The Vermont Heritage Inventory lists the following endangered/threatened aquatic species near the Project area:

- Lake Sturgeon
- Eastern Sand Darter
- American Brook Lamprey
- Channel Darter
- Pocketbook
- Fluted-shell
- Fragile Papershell
- Pink Heelsplitter
- Giant Floater

However, based on previous consultation with the VDEC, the Project does not affect aquatic organisms during normal Project operations and the agency's July 3, 2019 letter confirms that finding. Therefore, I do not believe the Project affects any of these aquatic species in a negative manner. The Northern long-eared bat range includes the Project area but given the very small Project footprint and its urban location, it is very unlikely that the Project would affect this species if it were present.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Threatened and Endangered Species criterion. I recommend that the Project be awarded three extra years of certification since it qualifies for the F-PLUS standard.

The Project Passes Criterion F – Threatened and Endangered Species Protection

G. CULTURAL AND HISTORIC RESOURCE PROTECTION

Goal: The facility does not unnecessarily impact cultural or historic resources that are associated with the Facility's lands and waters, including resources important to local indigenous populations, such as Native Americans.

Assessment of Criterion Passage:

The Applicant appropriately selected **Standard G-2, Agency Recommendation,** for all ZOEs.

License Article 412 requires the Applicant to implement a Cultural Resources Management Plan (CRMP) based on the results of consultations with the Vermont State Historic Preservation

Officer (VT SHPO) and the Historic American Engineering Record (HAER) of the Department of the Interior. The CRMP was filed on October 8, 1991 and approved by FERC on October 29, 1991. License Article 414 requires the Applicant to consult with the VT SHPO prior to any land-clearing or land-disturbing activities within the Project boundaries, other than those specifically authorized in the Project license.

Although the Order Approving Transfer of License, issued by FERC on August 29, 2014, did not include a condition for the Applicant to enhance existing cultural resources at the Project, the Applicant has engaged in cultural outreach with the Heritage Winooski Mill Museum located near the Project. In a letter dated May 24, 2019, the executive director of the Heritage Winooski Mill Museum notes that the Applicant has helped maintain a waterpower exhibit containing information and labelled illustrations of the hydropower plant and the fish elevator provided at the Project. In addition, the letter notes that the Applicant gave a complimentary tour of the fish elevator and facilities to a local school group as an extension of a waterpower workshop given at the Heritage Winooski Mill Museum (documents are included in Appendix A of the application).

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Cultural and Historic Resource Protection criterion.

The Project Passes Criterion G - Cultural and Historic Resource Protection

H. RECREATIONAL RESOURCES

Goal: The facility accommodates recreation activities on lands and waters controlled by the facility and provides recreational access to its associated lands and waters without fee or charge.

Assessment of Criterion Passage:

The Applicant appropriately selected **Standard H-2, Agency Recommendation,** for all ZOEs.

License Article 410 required the original licensee to construct, operate, and maintain, or arrange for the construction, operation, and maintenance of, a walkway (Champlain Mill Path) in front of the Forest Hills Mill and under the highway bridge; maintain the existing public access trail situated on the west riverbank downstream of the Project dam; and provide $150,000 to the City of Winooski for improvements associated with the proposed walkway, to include, but not be limited to, hand rails, landscaping, and planting trees. Pursuant to its FERC license, Winooski One provided $150,000 to the City of Winooski for park (Winooski Falls Park) improvements during construction from 1990 to 1993. Letters from the City of Winooski Planning Commission, Winooski Valley Park District, and Agency of Natural Resources, each written to communicate satisfaction with the completion of the park in 1993. The FERC approved transfer of license did not include a condition to enhance recreational resources. As noted above, the Project footprint is quite small and safety considerations preclude additional recreation facilities within the Project boundary; however, according to the FERC Environmental Assessment (see footnote 1) there are existing recreational opportunities in the immediate vicinity including the Salmon Hole a popular fishing area downstream of the dam, several waterfront parks, and a

network of hiking and nature trails.

Based on my review of the application, supporting documentation, and publicly available information, the Project continues to satisfy the Recreational Resources criterion.

The Project Passes Criterion H – Recreational Resources

IX. GENERAL CONCLUSIONS AND REVIEWER RECOMMENDATION

Based on my review, I believe the Project meets the requirements of Low Impact facilities and recommend it be re-certified for an eight-year period to include three extra years for the Threatened and Endangered Species PLUS standard.

The Project will enter relicensing during the LIHI Certification term although is not expected to receive a new license during the term. However, I recommend the following condition intended to alert LIHI to any changes made or agreed to during the relicensing process:

> **Condition 1:** Since the Project will begin relicensing during the new LIHI Certification term, the facility Owner shall provide to LIHI as part of the annual compliance report, a status report of the FERC licensing progress listing significant agency interactions that have occurred in the past year that are relevant to any LIHI criteria, and highlighting major topics of agreement or disagreement. LIHI reserves the right to request additional details if necessary, if highlighted topics are relevant to the LIHI criteria and their associated goals. LIHI also reserves the right to modify the Certificate conditions again if needed.