

Department of Environmental Conservation

FY20 & FY21 Dam Safety and Hydrology Projects - prepared 2/20/2020 by Ben Green & Eric Blatt, Department of Environmental Conservation

DEC-Owned Dam Repairs and Major Maintenance and FEMA High Hazard Potential Dam (HHPD) Grant Match Funding

Update and Explanation of Capital Budget Adjustment Proposal for FY20 and FY21

This is an update to the documents submitted to the House Committee on Corrections and Institutions during the 2019 Legislative session and provides an update on FY20 Projects and Explanation for FY21 Capital Budget Adjustment Request for Dam Safety and Hydrology Projects. Updates to project budgets below are in *italic* text. Red highlighted text denotes expended or obligated monies.

As noted in 2019, the requested funds will be used for repair, major maintenance, and specialized engineering assessments of state-owned dams. In addition, we propose to reallocate left over funds from the Montpelier Flood Study Project (\$21,138) and the Waterbury Dam UST Removal Project (\$16,961) to support the 35% Match requirement of the 2019 FEMA HHPD Grant Project. No changes to FY21 budgeting are proposed at this time. The following is a summary of the work we are proposing to accomplish with SFY20 and SFY21 capital funds.

As part of this submission, we are also including the following:

- Attachment 1 – Photographs of the dams listed below
- Attachment 2 – Information on the FEMA HHPD Grant Program

Waterbury Dam, Waterbury (HIGH Hazard): Photos 1 – 4

FY20 \$135,000

Removal of formerly used UST that stored fuel for emergency generator. Project includes design, permitting, and tank removal with environmental monitoring, contaminated soil disposal, and backfill/compaction. Installation of a modern and up to code worker fall protection system at the principal spillway to allow for safe monitoring, maintenance, and repair of the radial arm flood gates.

UPDATE:

- *UST Removal Project - \$50,000 budget* *\$21,698.83*
 - *UST removed/project complete with exception of closeout paperwork submission*
- *Fall Protection System - \$85,000 budget* *\$0*
 - *Project not started.*

FY21 \$80,000

Design and installation of a new boat and debris barrier in the approach of principal spillway. Security improvements at dam to include alarm systems in the gatehouse and pump house and a system of cameras for remote surveillance.

FY21 \$240,000

Seepage control system cleaning and new dewatering pumps and instrumentation.

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Wrightsville Dam, Montpelier (HIGH Hazard): Photos 5 - 6

 FY20 \$15,000

Repair of a hole in the dividing wall tunnel between the flood tunnel and power tunnel within the dam.

UPDATE:

- *Tunnel Repair* *\$15,000*
 - *Repair designed and the pricing being solicited for the materials. Project is scheduled for completion before Spring 2020 high flows.*

 FY21 \$180,000

Design and installation of a new boat and debris barrier around the principal spillway. Maintenance to the auxiliary spillway channel, including removal of rock falls, removal of trees and brush, and maintenance to the rock cut face that comprises the left side of the spillway.

Miles Pond Dam, Concord (SIGNIFICANT Hazard) – FY21: Photo 7 \$100,000

Various repair work including: stoplog replacement, concrete repairs, fencing repairs, riprap replacement, and installation of a new boat barrier

Little Hosmer Dam, Craftsbury (LOW Hazard) - FY21: Photo 8 \$245,000

Assessment, design, permitting, and rehabilitation construction of the dam. Assessment work to include topographic survey, H&H analyses, and seepage analysis. Rehabilitation design to include filter/drainage, downstream channel armoring, stoplog replacement, concrete/crack repair, and a new boat barrier.

Lake Bomoseen Dam, Castleton (LOW Hazard) - FY21: Photo 9 \$50,000

Various minor repair work including electrical, fencing, new boat barrier, and miscellaneous repairs.

TOTAL BUDGETED **\$1,045,000**
Update:

We propose to meet the FEMA HHPD Grant Match requirement of \$109,099 (35%) by using in-kind work performed by the Dam Safety Program and our Grant Management Specialists (\$62,000), re-allocation of remaining funds in the completed Montpelier Flood Study Project (\$21,138), and use of unspent funds from the recent Waterbury Dam UST Project (\$16,961) of the available \$28,301.17, plus a private owner matching funds of \$9,000. The figures are presented below.

<i>FY20 Waterbury Dam Projects Budget</i>	<i>\$135,000</i>
<i>Less Actual Waterbury Dam UST Project Cost</i>	<i>(\$21,699)</i>
<i>Less Budgeted Fall Protection System Project</i>	<i>(\$85,000)</i>
<i>Remaining, Available</i>	<i>\$28,301</i>

<i>35% State Match for HHPD Grant</i>	<i>\$109,099</i>
<i>Less State In-Kind Match</i>	<i>\$(62,000)</i>
<i>Less Private Funds Match</i>	<i>\$(9,000)</i>
<i>Remaining HHPD Grant Match Required of State</i>	<i>\$38,099</i>

<i>Proposed re-allocation of Montpelier Flood Study Remaining Budget</i>	<i>\$21,138</i>
<i>Proposed Use of Waterbury Dam UST Project Underrun</i>	<i>\$16,961</i>
	<i>\$38,099</i>

Attachment 1



Photo 1: Waterbury Dam Spillway Replacement, Risk Assessment, \$215k from previous years. The approach channel in need of a new boat barrier can be seen.

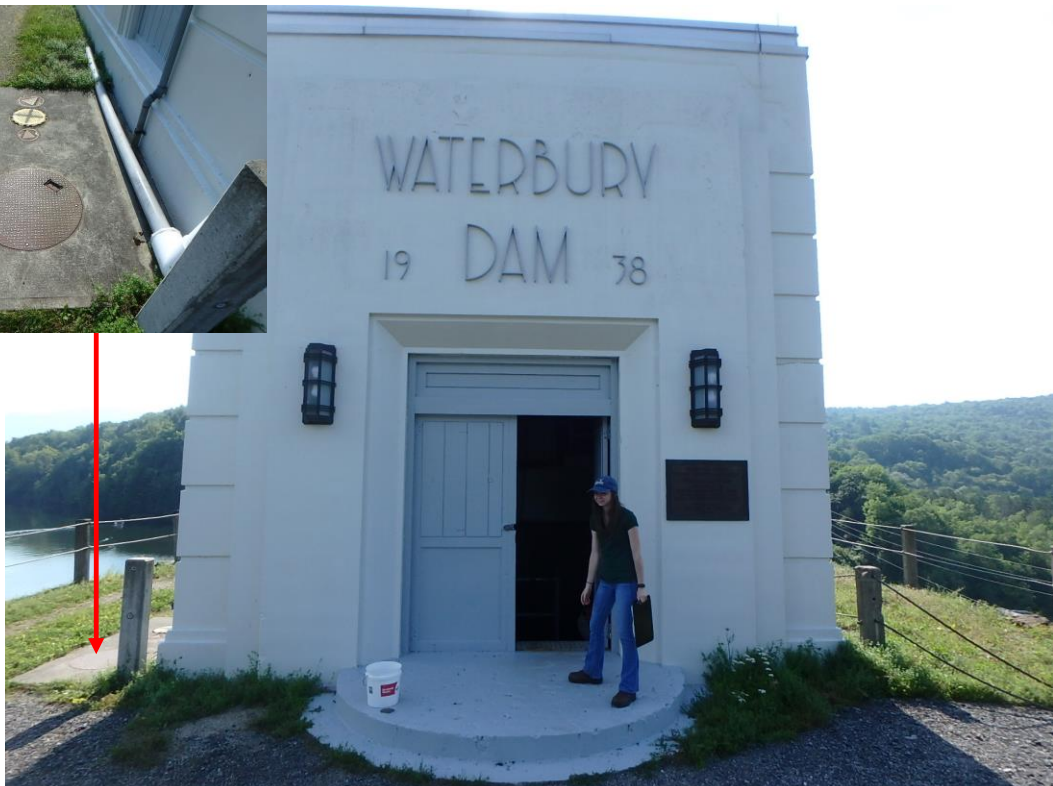


Photo 2: Waterbury Dam Gatehouse. The UST to be removed can be seen. A security and surveillance system for the dam and gatehouse are needed.



Photo 3: Waterbury Dam Spillway, the access ladders requiring a fall protection system can be seen.



Photo 4: Waterbury Dam Seepage Collection System.



Photo 5: Wrightsville Dam, principal spillway intake structure and leak in spillway tunnel.



Photo 6: Wrightsville Dam, aux. spillway, note overgrown and aging rock cut at left side of image.



Photo 7: Miles Pond Dam, various minor repairs needed.



Photo 8: Little Hosmer Dam, assessment, design, rehabilitation construction



Photo 9: Lake Bomoseen Dam, minor repairs.

ATTACHMENT 2

FEMA High Hazard Potential Dam Grant Information

Prepared for the House Corrections & Institutions Committee 2/20/2020 by Ben Green, Chief Dam Safety Engineer, Department of Environmental Conservation

In May 2019, FEMA solicited a Notice of Funding Opportunity called the High Hazard Potential Dam (HHPD) Grant Program. The Grant Program was the result of over 10 years of efforts of lobbying and advocacy by State and Local Government entities and the Private sector regarding the lack of Federal funding for dam safety projects. The new grant Program is under the Water Infrastructure Improvements Act (WIIN Act, signed December 16, 2016) under FEMA’s National Dam Safety Program.

The goal of the program is to provide technical, planning, design, and construction assistance for eligible high hazard dams in the form of grants. Eligible dams are HIGH hazard dams that are in POOR condition or have significant operational deficiencies. HIGH hazard dams are those that failure or mis-operation will probably cause loss of human life (i.e. loss of one or more human lives is expected).

For the Federal Fiscal Year 2019, FEMA appropriated \$10 Million for the Grant program, which can be used for planning and pre-construction activities over a 3-year period of performance. Future grant cycles will allow for both pre-construction and construction activities. Funding through this grant is subject to a local match, such that the Federal grant share represents 65% and the local match share is 35% of the total project cost. Funds are distributed to approved applications according to a formula that divides the \$10 Million in available funds according to the number of applicants and the number of dams in the applications.

The DEC Dam Safety Program (DSP) applied for funding to perform an eligible dam portfolio risk assessment study of ten dams, consisting of 6 municipal dams, 3 state dams, and 1 private dam. The ten dams in the risk assessment study are (in alphabetical order):

<i>Dam Name</i>	<i>Town</i>	<i>Owner</i>	<i>State ID</i>	<i>Owner Type</i>
East Long Pond Dam	Woodbury	Hardwick Electric Dept.	252.02	Municipal
Indian Brook Reservoir Dam	Essex	Town of Essex	69.01	Municipal
Institute Pond Dam	Lyndon	Lyndon Institute	119.01	Private
Lake Sadawga Dam	Whitingham	State of Vermont – F&W	243.03	State
Lake Sadawga West Dike	Whitingham	State of Vermont – F&W	243.11	State
St. Albans North Reservoir Dam	Fairfax	City of St. Albans	70.01	Municipal
Silver Lake Dam	Barnard	State of Vermont – DEC	11.01	State
Stiles Pond Dam	Waterford	Town of St. Johnsbury	227.01	Municipal
Thurman W. Dix Reservoir Dam	Orange	City of Barre	147.01	Municipal
Wolcott Dam	Wolcott	Hardwick Electric Dept.	251.04	Municipal

This approach was selected as the project will result in:

- an improved understanding of the risk associated with the ten dams,
- allow for the development of a risk based priority list, and
- will result in studies and analyses that will be helpful in future remedial design phases.

The DSP was awarded the following Grant:

- Total = \$311,700
- Federal Share (65%) = \$202,612
- Local Share (35%) = \$109,099

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The DSP proposes to address the local share requirement through a combination of in-kind services and matching funds from re-allocated capital projects. The in-kind services will total approximately \$62,000 and includes the following tasks

- Set up of Grant pass through program with Grant Management Specialists for future Funding Opportunities
- File reviews in State and Dam Owner files for the 10 dams
- Perform updated Dam Safety Inspections for the 10 dams
- Perform contract management and participation in the risk assessment studies.

We proposed to address the remaining match requirement through re-allocation of monies from the Montpelier Flood Study (\$21,138) and an underrun of the Waterbury Dam Underground Storage Tank Removal Project (\$16,961), and a private match from Lyndon Institute of \$9,000 for the Institute Pond Dam.

If more information on the HHPD Grant is desired, please contact Ben Green, Dam Safety Engineer by phone at 802-622-4093 or e-mail at Benjamin.green@vermont.gov.