

Vermont Dam Safety Program



Waterbury Dam

House Committee on Corrections and Institutions

Ben Green, PE
Dam Safety Engineer
VTDEC Dam Safety Program

January 28, 2026

Emily Bird
Director
VT DEC Water Investment Division



Brief Dam Safety Program Overview

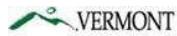
- Located in the Water Investment Division (WID) within VTDEC
- **"The mission of the DSP is to reduce risks to life, property, and the environment from dam incidents and dam failure through effective communication, education, regulation, and dam ownership"**
- RESPONSIBILITIES:
 - dam regulation
 - dam ownership
 - lands management
- CURRENT STAFFING:
 - (2) licensed engineers
 - (3) staff engineers
 - (1) technician
 - (1) program administrator
 - (1) project/budget manager (recruiting)
 - (1) project engineer (recruiting)



Lake Groton Dam, Groton

- REGULATORY:
 - 10 V.S.A Chapter 43: Dams, Non-federal, Non-power dams (Rules in development)
- DEC DAM OWNERSHIP: 14 dams including the (3) Winooski River Flood Control Dams (FPR + F&W = ~80).

Capital Proposal – Dam Safety Projects



FY26-FY27 Capital Bill - Gov Rec

Agency of Administration

Line #	Agency/Department: Project Description	FY26-FY27 CAPITAL BUDGET					Governor's Recommend					10 Year Plan					10 Year Total
		A	B	C	D	E	F	G	H	I	J	K	L				
86	DEC: Dam Safety and Hydrology Projects		FY26	FY26	FY27	Total	Total	FY28-FY29	FY30-FY31	FY32-FY33	FY34-FY35	FY28-FY35 Total					41,000,000
			500,000	-	500,000	1,000,000	1,000,000	10,000,000	10,000,000	10,000,000	10,000,000	40,000,000					



2. DEC: Dam Safety and Hydrology Projects \$1,000,000
FY26: \$500,000 | FY27: \$500,000

The Agency of Natural Resources owns approximately 100 dams and recently completed an initial risk assessment of a subset of those dams which pose the greatest safety risk to the public. FY26 & FY27 funds will be used for comprehensive assessment and final design of the Kent Pond Dam (classified Significant Hazard potential dam) located in Killington and owned by the Department of Fish and Wildlife, as well as the Lowell Lake Dam (classified High Hazard Potential dam) located in Londonderry and owned by the Department of Forest, Parks and Recreation. Any remaining available funds may be used for the planning and development of future high-priority dam projects.

Capital Budget Adjustment (W~Nick Kramer~FY26 FY27 Capital Budget Adjustment Act Booklet~1-22-2026.pdf not available at this time)

Priority 1: Capital Bill Section 9 Waterbury Dam Penstock and Tunnel Project Potential Cost Overruns (\$150,000)

VTDEC Dam Safety Program		Date:	Updated 1/27/25						*Not Listed: Little Hosmer Dam Comprehensive Assessment = \$190,000 total. \$150,000 Contract with MSK Engineers, \$40,000 FPR MOU for Property Line Survey and Legal Services		
CAPITAL FUNDED PROJECTS PLANNING		By:	BTG								
Updated from 2024 Version (updates are highlighted)											
Project Name	Project Type	Dam Name	Town Name	Dam Owner	Hazard Class	Estimated Cost	Update January 27, 2026		FY23	FY26	FY27
Wrightsville Dam Engineering Assessment - Geotechnical Explorations and Internal Erosion Study	Engineering Assessment	Wrightsville Dam	Montpelier/East Montpelier	DEC	HIGH	\$500,000	-Project is underway with GE. Project kickoff completed, Project planning in progress for spring/summer field work.	\$500,000	-	-	
Crystal Lake Dam Assessment	Comprehensive Assessment	Crystal Lake Dam	Barton	DEC	SIGN	\$220,444	-Colton Pond Dam and Kent Pond Dam are contracted with GZA	\$1,130,182	-	-	
Kent Pond Dam Assessment	Comprehensive Assessment	Kent Pond Dam	Killington	F&W	SIGN	\$214,658	GeoEnvironmental and underway. Crystal Lake Dam and Knapp No. 1 and 2 Dams are contracted with Pare				
Lowell Lake Dam Assessment	Comprehensive Assessment	Lowell Lake Dam	Londonberry	FPR	HIGH	\$169,244	Engineering and underway. Lowell Lake Dam is under contract with Dubois & King and underway.				
Knapp Brook Site No. 1 Dam Assessment	Comprehensive Assessment	Knapp Brook Site No. 1 Dam	Cavendish	F&W	SIGN	\$168,788					
Knapp Brook Site No. 2 Dam Assessment	Comprehensive Assessment	Knapp Brook Site No. 2 Dam	Cavendish	F&W	SIGN	\$168,788					
Colton Pond Dam Assessment	Comprehensive Assessment	Colton Pond Dam	Killington	F&W	SIGN	\$188,261					
Noyes Pond Dam Final Design Engineering, Permitting, Construction Phase Engineering - Pare Corporation	Final Design and Construction Phase Engineering	Noyes Pond Dam	Groton	DEC	SIGN	\$497,353	-Project contracted with Pare Engineering. Underway, project kickoff meeting, public meeting, floodway permitting complete, 60% design nearly complete. ~\$64k invoiced.	\$497,353	-	-	
Gale Meadows Dam and Dike Comprehensive Assessment - F&W MOA/GZA GeoEnvironmental	Comprehensive Assessment	Gale Meadows Dam and Dike	Londonberry	F&W	SIGN	\$199,765	-MOA with F&W. GZA on contract. Project largely completed. Invoicing for Dike (~\$41,836) being processed. About \$157,929 remains to be billed by F&W.	\$199,765	-	-	
Wrightsville Dam Flood Operations Flexibility Study USACE Cost Share	Engineering Assessment	Wrightsville Dam	Montpelier/East Montpelier	DEC	HIGH	\$352,700	-JAN. 2026 - USACE ready to move forward. Agreement to be signed by 2/13/2026 (expecting week anytime). Payment in full up front is planned.	\$350,000	\$2,700	-	
DEC Dams Instrumentation Installation/Startup	Equipment purchase/ Installation/	Multiple	Multiple	DEC	Varies	\$350,000	-Design Project due for completion by March 2026. Bid out for 2026 construction season implementation.	\$350,000	-	-	
Silver Lake Dam Final Design, Permitting, and Construction Phase Engineering	Final Design Phase Engineering	Silver Lake Dam	Barnard	DEC	HIGH	\$500,000	December 2025 to January 2026: RFP prepared by DSP, assigned by Business Office. Awaiting Business Office.	\$2,700	\$497,300	-	
Kent Pond Dam Final Design, Permitting, and Construction Phase Engineering	Final Design Phase	Kent Pond Dam	Killington	F&W	SIGN	\$250,000	Project targeted for FY27 Funds, \$250k of \$500k plus additional future funds.	-	-	\$250,000	
Lowell Lake Dam Final Design, Permitting, and Construction Phase Engineering	Final Design Phase	Lowell Lake Dam	Londonberry	FPR	HIGH	\$250,000	Project targeted for FY27 Funds, \$250k of \$500k plus additional future funds.	-	-	\$250,000	
REQUESTED BUDGET ADJUSTMENT: Waterbury Dam Tunnel and Penstock Project	Major Maintenance	Waterbury Dam	Waterbury	DEC	HIGH	\$200,000	Project overruns associated with drought, delays, winter conditions, etc.	\$50,000	-	\$150,000	
Other ANR High and Significant Hazard Potential Dams	DEC Staff Services	All High and Significant Hazard Dams				\$35,000		\$35,000	-	-	
								TOTALS	\$3,115,000	\$500,000	\$650,000

VTDEC Dam Safety Program	Date:	Update 4/4/25							
CAPITAL FUNDED PROJECTS PLANNING	By:	BTG							
Updated from 3/20/2024 Version (updates are highlighted)									
Project Name	Project Type	Dam Name	Town Name	Dam Owner	Hazard Class	Status as of 4/4/25	FY23	FY26	FY27
Wrightsville Dam Engineering Assessment - Geotechnical Explorations and Internal Erosion Study	Engineering Assessment	Wrightsville Dam	Montpelier/East Montpelier	DEC	HIGH	-The RFP has been posted on the bid board and proposals are due 4/18/25. FY23 at \$500k of \$3.115M.	\$500,000	-	-
Crystal Lake Dam Assessment	Comprehensive Assessment	Crystal Lake Dam	Barton	DEC	SIGN	-Contracting underway with 3 consultants to complete project. An additional dam added (Knapp 2) for efficiency. Based on received bids, funding planned using FY23 for \$1M of \$3.115M and FY26 for \$130k of \$500k.	\$1,000,000	\$130,000	-
Kent Pond Dam Assessment	Comprehensive Assessment	Kent Pond Dam	Killington	F&W	SIGN				
Lowell Lake Dam Assessment	Comprehensive Assessment	Lowell Lake Dam	Londonerry	FPR	HIGH				
Knapp Brook Site No. 1 Dam Assessment	Comprehensive Assessment	Knapp Brook Site No. 1 Dam	Cavendish	F&W	SIGN				
Knapp Brook Site No. 2 Dam Assessment	Comprehensive Assessment	Knapp Brook Site No. 2 Dam	Cavendish	F&W	SIGN				
Colton Pond Dam Assessment	Comprehensive Assessment	Colton Pond Dam	Killington	F&W	SIGN				
Noyes Pond Dam Final Design Engineering, Permitting, Construction Phase Engineering - Pare Corporation	Final Design and Construction Phase Engineering	Noyes Pond Dam	Groton	DEC	SIGN	-Currently in contracting phase and should be underway soon. 16 month duration scheduled., Funding through FY23, \$497,353 of \$3.115M.	\$497,353	-	-
Gale Meadows Dam and Dike Comprehensive Assessment - F&W MOA/GZA GeoEnvironmental	Comprehensive Assessment	Gale Meadows Dam and Dike	Londonerry	F&W	SIGN	-Project currently underway due for completion later in 2025. Funding through FY23, \$199,765 of \$3.115M.	\$199,765	-	-
Wrightsville Dam Flood Operations Flexibility Study USACE Cost Share	Engineering Assessment	Wrightsville Dam	Montpelier/East Montpelier	DEC	HIGH	-Waiting to learn availability of Federal Funding in July 2025 or need to pivot to engineering consultant. Funding through FY23, \$350k of \$3.115M and FY26, \$37,882 of \$500k.	\$350,000	\$37,882	-
DEC Dams Instrumentation Installation/Startup	Equipment purchase/ Installation/ Construction	Multiple	Multiple	DEC	Varies	-Project targeted for bidding summer 2025. Funding through FY23, \$400k of \$3.115M.	\$400,000	-	-
Silver Lake Dam Final Design, Permitting, and Construction Phase Engineering	Final Design Phase Engineering	Silver Lake Dam	Barnard	DEC	HIGH	Project targeted for bidding spring/summer 2025. Funding through FY23, \$167,882 of \$3.115M and FY26, \$332,118 of \$500k.	\$167,882	\$332,118	-
Kent Pond Dam Final Design, Permitting, and Construction Phase Engineering	Final Design Phase Engineering	Kent Pond Dam	Killington	F&W	SIGN	Project targeted for FY27 Funds, \$250k of \$500k plus additional future funds.	-	-	\$250,000
Lowell Lake Dam Final Design, Permitting, and Construction Phase Engineering	Final Design Phase Engineering	Lowell Lake Dam	Londonerry	FPR	SIGN	Project targeted for FY27 Funds, \$250k of \$500k plus additional future funds.	-	-	\$250,000
						TOTALS	\$3,115,000	\$500,000	\$500,000

Requested Budget Adjustment for \$150,000

- Project: Waterbury Dam - Tunnel and Penstock Cleaning and Inspection Project
- Budget: ~\$1.8M (including engineering and contractors)
- Requested Budget Adjustment: \$150,000 (funds from Instrumentation Project leveraged, plan to backfill)

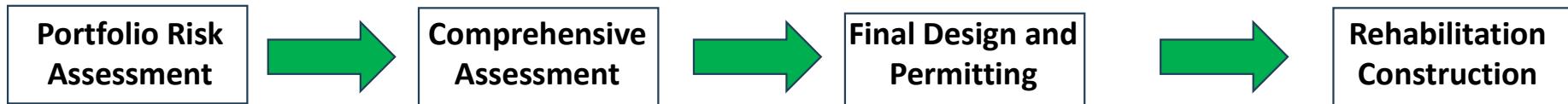
COST OVERRUNS:

- Fall drought delayed project start
- Schedule extended well into December/winter conditions
 - Snow and ice removal
 - Heating/blankets for water lines and tanks
 - Slowed production
 - Tanks unable to be unfrozen at cleaning completion, need to be cleaned/picked up in spring.
 - Spring cleanup
- Additional inspection -unexpected conditions in penstocks
 - Duration extended, additional confined space entries
 - Additional penstock preparation/testing of welds
- Servicing actuators for Rotocone and Fixed cone valves
 - Had not been serviced since installation in 1985.
 - Required additional repairs/servicing over what was planned.



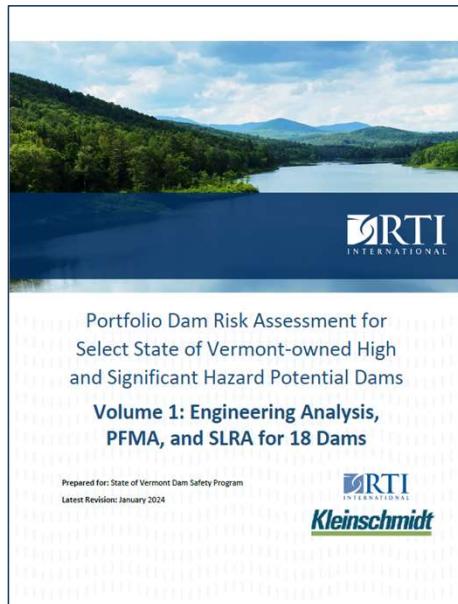
Penstock Cleaning Operations, Vactor Trucks, wastewater tanks, etc., Waterbury Dam

Dam Safety Program Workflow for Rehabilitation Projects



Portfolio Risk Assessment

-18 HIGH and SIGN Hazard ANR Dams
-Completed 2024



Comprehensive Assessment

In Process:
 -Little Hosmer Dam
 -Kent Pond Dam
 -Colton Pond Dam
 -Knapp 1/2 Dams
 -Crystal Lake Dam
 -Lowell Lake Dam
 -Gale Meadows Dam and Dike

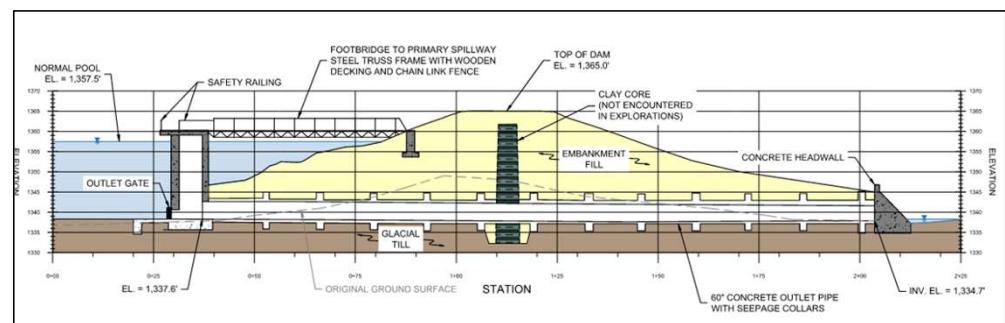


Final Design and Permitting

In Process:
 -Noyes Pond Dam
RFP:
 -Silver Lake Dam
 -Gale Meadows Dam and Dike (F&W)



Rehabilitation Construction



Working Towards Continuous Process Improvements

Challenges	Opportunities
<ul style="list-style-type: none"> • Time and resources spent moving multiple, similar contracts through process (RFP, Selection, Contract Negotiations, Execution) • Engineering Contract legal issues/ liability/ extended contract negotiations 	<p>Development of Dam Safety specific Engineering Retainer Contracts:</p> <ul style="list-style-type: none"> <input type="checkbox"/> DSP will be able to select qualified engineers and execute Purchase Order quickly and efficiently <input type="checkbox"/> Contract/legal language negotiated once in Retainer Contract lifespan (4+ years) <input type="checkbox"/> Select multiple engineers to Retainer Contracts <p>DSP Staffing:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Building team to 9 total including Engineers/Technicians, and Management Staff



VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request for
Proposals

Dam Safety Engineering Services Retainer Contract

Date

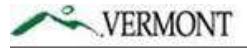
All communication related to this Request for Proposals (RFP) must be made through [VTBuys](#). The State of Vermont will make no attempt to contact suppliers who updated information. It is the responsibility of each supplier to periodically check [https://vtbuysprocurement.vermont.gov/](#) for any and all notifications, releases and amendments associated with the RFP. If you require assistance with technology, access, or have other issues with being able to complete your proposal, reach out to the contact person for this RFP identified in the RFP.

If you speak a language not listed on the website below or require additional help, we offer free language assistance services. Please reach out to the Agency of Natural Resources (ANR) at 802-636-7266 and we can support getting you access to the State of Vermont's free language services. The State of Vermont contracts with several Translation Services organizations, and you can visit this page for more information [https://anr.vermont.gov/special-topics/equity-and-accessibility/language-services](#).

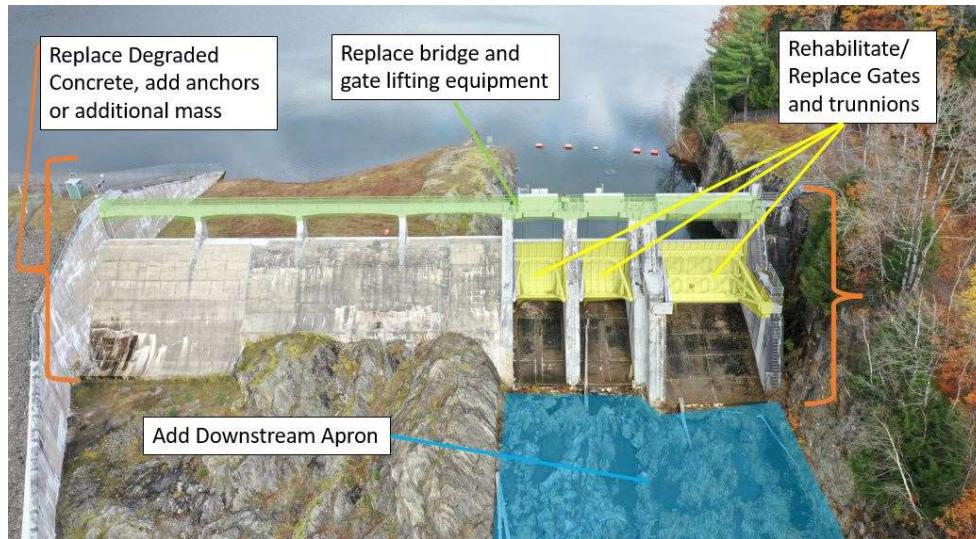
VTBuys Support:

If you're interested in submitting a proposal for this project, you/the Supplier will need a [VTBuys](#) account. For additional support and training resources, including a Learner's Guide that details how to create an account and register as a Supplier in VTBuys, refer to [https://vtbuysprocurement.vermont.gov/supplier-trainings](#). If you require additional assistance

Waterbury Dam Spillway Project



- In 2000s Radial Arm Flood Gate jamming, leading to Flood load restrictions on gates
- Section 1177, WIIN 2016 Funding, \$60M available in Federal Funds - US Army Corps New England
- General Assembly has allocated match needed for up to \$60M in Federal Funds
- Current Total Project Cost is ~\$76.2 M per Fall 2025 USACE Estimates.
- Improvements to gates, concrete spillways, bridge, lifting equipment, discharge channel
- Mod. Study Draft under review, Design ~2025/2028, Construction ~2028/2030 (pending funding)
- Tunnel and Penstock inspection project (underway)
- <https://dec.vermont.gov/water-investment/dam-safety/dec-owned-dams/waterbury-dam-spillway-project>



Waterbury Dam Spillway, Waterbury



Waterbury Dam Head Gate in Closed Position, Fall 2024 prior to cleaning.

Waterbury Dam Spillway Project



FUNDING STATUS:

- Latest cost estimate from USACE dam safety modification study shown in table, below.
- Project is a partnership with USACE. Vermont has a 7.1% cost share agreement for this project with a \$60m federal funding limit.
- VTDEC is seeking to lift the federal limit to help fund the remainder of the project. Vermont's congressional delegation is pursuing an increased limit to \$80M in the next Water Resources Development Act (WRDA) (WRDA 2026).
- If the federal limit can be lifted, the state would need to secure an additional ~\$1m to meet the 7.1% cost share on the \$76m project (~\$5.4m state cost share needed, minus \$4.5m already secured).
- If the federal limit cannot be lifted, the state would need to secure an additional \$13m to complete implementation of the project under the current cost estimate.

**Table 6.7: Waterbury Dam Cost Sharing
Fully Funded Total Project Costs.**

Total Project Costs (also known as fully funded costs)	Federal \$	Non-Federal \$	Total \$
Percentage	92.90%	7.10%	100%
Cost-Share for Design and Implementation	58,364,200	4,460,558	62,824,758
Non-Federal Sponsor costs in excess of the Federal Participation Limit of \$60,000,000	0	13,345,711	13,345,711
Total Project Costs Design and Construction	58,364,200	17,806,268	76,170,468

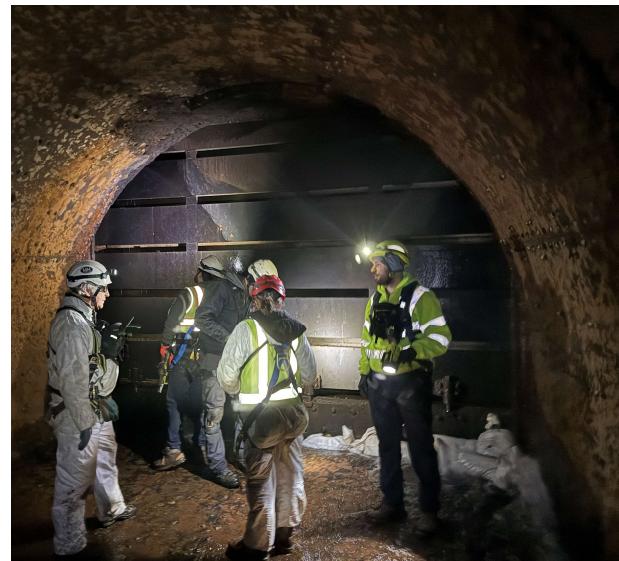
Waterbury Dam – Tunnel and Penstock Project



- Objective: Perform inspection, destructive/non-destructive testing of concrete tunnel and steel penstocks to evaluate condition and remaining service life.
- Scope included:
 - Dive Inspection and cleaning of head gate guides and seats
 - Cleaning of interior of tunnel and penstocks (management of wastewater and solids)
 - Installation of new manhole and drains in penstocks, steel work platform, and stairs.
 - Installation of jib and davit cranes for installation of equipment
 - New Air release valve, repair/replacement of Rotocone & Fixed Cone actuators
 - 3-D Scanning, UT Testing, Mag Particle Testing, coating/lining evaluation, etc.



Tunnel to Penstock Transition post cleaning, December 2025



Tunnel and head gate in closed position post cleaning, December 2025



Penstock mapping post cleaning, December 2025

Waterbury Dam – Gate 3 Motor Replacement

- During routine/annual inspection in September 2025, Gate 3 was “red tagged” and placed out of service due to issues with the brake system.
- The dam’s Emergency Action Plan (EAP) was activated on the non-emergency/advisory level.
- A replacement system was designed and ordered (special order)
- Installation was completed in January 2026.
- Total project cost ~\$20,000 (design, equipment purchase, logistics, and installation)
- EAP was deactivated following successful startup and testing. Gates are now all in fully operable service.
- Serves as a good reminder of the need and importance of the Spillway Project as components continue to age and are at/nearing their reliable service lives.

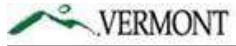


Gate 3 – Removal of old motor, January 2026



Gate 3 – new motor with integrated braking system, January 2026

Waterbury Dam – Operation & Maintenance Costs



- Analysis of maintenance and capital costs from 1982-2025.
- Major Capital Projects, State partnered with USACE not included:
 - Mid-2000s Seepage Control Project (~\$26M)
 - Planned Spillway Project (~\$76.2M)
- Strive to meet all upcoming Dam Safety Rules and standards, be good stewards of the State's largest and most valued flood control facility that protects the Winooski Valley and Waterbury.
- O&M Costs from 1982 to 2025 (in current dollars):
 - Average ~\$200k/year
 - Low ~\$0
 - High ~\$1.6M
- Need to “play catchup” over next ~10 years
- Estimated annual need is ~\$500k during that period annualized (some years less, other years more)
- Extending analysis to include other flood control dams and ANR-owned dams, present findings soon.

CATEGORIES:

GENERAL – Mowing & Brushing, Buildings

ENG. & INST. – Comprehensive Engineering Assessment, Instruments, Surveying

OUTLET WORKS – Cleaning, inspection, lining/coating tunnel/penstocks, Broome Gate

MECHANICAL – Actuators, Valves, Hoist Systems

SPILLWAY – Flood Gates, Boat Barrier, discharge channel, fixed crest weir.

SEEPAGE – Active and passive systems evaluation, maintenance, etc.

ELECTRICAL – Emergency Generator, lighting, etc.

CONTROLS – Dewatering Wells



Waterbury Dam – Spring 2019 Flood Storage

Thank you! Questions?

Ben Green, PE
Dam Safety Engineer
VTDEC Dam Safety Program
Benjamin.Green@vermont.gov

Emily Bird
Director
VTDEC Water Investment Division
Eric.Blatt@vermont.gov



Wrightsville Dam

