



**US Army Corps
of Engineers**®
New England District

Update Report for Vermont



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Mission

Both the New England and New York districts of the U.S. Army Corps of Engineers (Corps) provide service to the residents of the Green Mountain state. The New England District is responsible for all civil works activities within the Connecticut River Basin, while the New York District handles activities in the Lake Champlain drainage area (<https://www.nan.usace.army.mil/>). The New England District (District) is responsible for the entire state for the Regulatory and Defense Environmental Restoration Programs, all Emergency Operations and is the Army Corps' lead for the Planning Assistance to States Program. This division of responsibility between the New York and New England districts is seamless to our stakeholders because the Army Corps strives to provide access to all our capabilities through a "One-Door-to-the-Corps" policy. Unless specifically noted, all activities included in this report are managed by the New England District.

The missions of the District include flood risk management, emergency preparedness and response to natural disasters and national emergencies, environmental remediation and restoration, natural resource management, streambank and shoreline protection, navigation maintenance and improvement, support to military facilities and installations, and engineering and construction support to other government agencies. The six New England states cover 66,000 square miles and have 6,100 miles of coastline, 170 federal navigation projects (13 deep draft commercial waterways), 13 major river basins, and thousands of miles of navigable rivers and streams. The District operates and maintains 31 dams, three hurricane barriers and the Cape Cod Canal. Through its Regulatory program, the District processes nearly 2,500 applications per year for work in waters and wetlands of the six-state region. We employ about 500 professional civilian employees, with about 300 stationed at our headquarters in Concord, Massachusetts. The other U.S. Army Corps of Engineers employees serve at District projects and offices throughout the region. For information on the District, visit: www.nae.usace.army.mil; on Twitter at: twitter.com/corpsnewengland or on Facebook at: facebook.com/CorpsNewEngland.

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Environmental Restoration

LAKE CHAMPLAIN WATERSHED ENVIRONMENTAL ASSISTANCE PROGRAM, VT & NY – The Lake Champlain watershed covers 8,234 square miles in Vermont, New York and Quebec, Canada. There are 11 major tributaries draining into the lake, ranging from 20 miles to 102 miles in stream length. In December 2000, Public Law 106-541, the Water Resources Development Act (WRDA) of 2000 was signed by the President. Section 542 of WRDA 2000 authorized the Secretary of the Army to establish a program for providing environmental assistance to non-federal interests in the Lake Champlain Watershed through the Corps. Congress is authorized to appropriate funding for this program; \$4.53 million for this program has been received to date. The goal of the Lake Champlain Watershed Environmental Assistance program is to provide assistance with planning, designing and implementation of large-scale projects that protect and enhance water quality, water supply, ecosystem integrity and other related issues within the watershed. The Lake Champlain Basin Program (LCBP) is the administrative partner of the Army Corps to implement this program under the terms of the General Management Plan. The Army

Corps' New York District is currently implementing two projects in the Lake Champlain watershed, identified a third for consideration, and are working with the LCBP to identify new projects: 1) Bartlett Brook Tributary and Bartlett Brook North, South Burlington, Vermont; design and environmental assessment; and construction completion to reduce pollution, flooding and runoff; and 2) A feasibility study of an invasive species barrier for New York state canals, partnering with the New England Interstate Water Pollution Control Commission (NEIWPCC), was initiated in 2017. For more information on these projects, visit the Army Corps' New York District website at: <https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487633/fact-sheet-lake-champlain-watershed-environmental-assistance-program-vermont-ne/>.

There also is a potential assessment study in 2020 of the Waterbury Dam spillway in Waterbury, Vermont, that is operated by the state of Vermont. The Army Corps was involved in dam construction in the 1930s and assists with dam modifications. The current dam spillway limits the provision of conservation flows to improve cold-water fish habitat and reduce water quality problems. The study would provide an initial assessment of conditions and options in collaboration with Vermont. This effort would be a cost-shared study (65% federal/35% non-federal sponsor). The District will take the lead on initiating this effort with Vermont.

Navigation on Lake Champlain

GORDON'S LANDING, VT – The existing project (adopted in 1887) provides for a rock breakwater, 800 feet long, extending from the shoreline out to the 16-foot contour of Lake Champlain. The breakwater protects a local cross-lake commercial ferry landing from wind and wave action, and ice flows. Because of its age, the seaward head segment of the rock breakwater is in need of rebuilding and repair. Work would include a detailed assessment of the breakwater with subsequent engineering and design work for the award of a construction contract to rehabilitate the breakwater. Repairs to the breakwater are necessary for public safety to provide safe transit for commercial trucks, vehicles and passengers that use the ferries year-round to travel between Vermont and New York. The breakwater has experienced considerable subsidence and deterioration and can no longer adequately protect the harbor (and commercial ferry landing) from wave and ice flow damage. Funding was provided in fiscal year 2018, and a detailed condition assessment of the breakwater was scheduled in 2019 with a bathometric survey. Following the bathometric survey, cultural resources investigations, engineering and design work, and coordination with stakeholders will take place in order to prepare to perform extensive repairs to the structure. Additional funds are needed to complete full design and engineering work, as well as anticipated construction contracts to repair the breakwater, subject to the availability of funds. The breakwater is located in a historically significant area necessitating extensive cultural resources investigation and documentation prior to awarding a repair contract. For more information, visit the New York District website at: <https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487455/fact-sheet-gordons-landing-vt/>.

NARROWS OF LAKE CHAMPLAIN, VT AND NY – The project (adopted in 1917) provided for a channel 12 feet deep and generally 200 feet wide from Whitehall, New York, to Benson Landing. It included the installation of fender booms at Putts Rock, Putts Leap, Narrows near Dresden, Pulpit Point and Cedar Mountain. The length is about 13.5 miles. The existing project is about 77% complete, with a channel 12 feet deep and 150 feet wide having been excavated throughout the entire length of the improvement, except at the elbow, where the width is 110 feet. Fender booms have been placed at the elbow and opposite of the Delaware and Hudson railroad trestle. The uncompleted work is inactive. During fiscal year 2018, the requested \$45,000 was used to perform caretaker status work, including hydrographic surveys and minor channel maintenance activities and inspection of fender booms. During fiscal year 2017, \$45,000 was used to perform project condition surveys and minor maintenance to the east side fender boom anchoring system. Maintenance dredging of the channel was last performed during fiscal year 2002. For more information, visit the New York District website at: <https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487515/fact-sheet-narrows-of-lake-champlain-new-york-and-vermont/>.

Support to the U.S. Environmental Protection Agency (EPA)

WORK FOR THE U.S. ENVIRONMENTAL PROTECTION AGENCY – The District is designated as the USACE total support agency for the U.S. Environmental Protection Agency's (EPA) Region I (New England) Superfund program for those federal-lead projects assigned to the Army Corps by EPA. This includes responsibility for the design and/or construction execution of remediation projects. In addition, the District is providing technical

assistance upon request to EPA New England for other federal-lead projects assigned by EPA to private firms as well as for some potentially responsible party (PRP) remediation.

Superfund

ELIZABETH MINE SUPERFUND SITE, SOUTH STRAFFORD, VT – The Elizabeth Mine Superfund Site in Strafford is one of the largest and most intact historic mining sites in New England. It operated for more than 100 years, producing over 3.25 million tons of ore and 50,000 tons of copper. Mine dumps and tailings from the mine exposed to weathering and rain result in acid mine drainage (AMD) and acid rock drainage (ARD), producing high metals concentrations and low pH values in surface waters. Under two separate best value IDIQ contracts, the Elizabeth Mine Project Delivery Team (EPA/VTDEC/USACE/Nobis) has eliminated all major sources of contamination. Prior to 2020, the team completed building demolition/abatement compliant with historic preservation requirements, re-graded 43 acres of tailing pile, constructed an engineered cap over 3 million cubic yards of waste, and treated millions of gallons of ARD and iron-impacted water. Green Remediation Strategies implemented during construction received the Chief of Engineer's Green Dream Team Award in 2014. As designed, the 43-acre cap has been re-utilized by a private firm for a solar array which provides 5 megawatts of electricity -- enough to power about 1,200 Vermont homes annually. The team has also transformed the South Mine and South Open Cut (open pit lakes), improving site safety and eliminating two more contamination sources. Wetland replacement/restoration efforts performed at the site from 2013 through 2019 resulted in a net gain of approximately 299,129 SF (6.87 acres), a replication ratio of approximately 1.81:1. Since completing the first wetland replacement/restoration areas in 2013, the site has experienced an annual increase in the number of ducks, geese, frogs, turtles, birds, pollinators, and other wetland species returning to on-site wetlands.

In 2020, Nobis and the Elizabeth Mine team focused on remaining tasks to allow site turnover to the State of Vermont. The team reconstructed 2.3 miles of State Route 132 (a haul route to the project site), including 3/4-mile of full box replacement; 1.55 miles of reclaiming, regrading and repaving; 22 culvert replacements; and one bridge assessment. The team also completed construction of a new Passive Treatment System that uses natural chemistry (lime, organics and oxygen) and gravity to treat ~10 gpm (5.3M gallons/year) of effluent with high concentrations of iron from the Mine Tailing Impoundment. The system consistently achieves 99.9% iron removal and pH neutralization (as designed) before the effluent is discharged into Copperas Brook and eliminates the \$300k annual cost to run the Water Treatment Plant now removed from the site. The team also utilized geophysical survey methods and bedrock drilling techniques to locate and penetrate two 7-foot wide mine adits (horizontal access tunnels to the underground mine workings) 30 feet to 60 feet below the ground surface. Work planned for 2021 includes closure of the 1898 adit to reduce and likely eliminate the risk of a future release of mine water from the inner workings of the mine, replacement of the Tyson Road bridge deck, and other site-wide closure activities and punch list items.

Defense Environmental Restoration Program/Formerly Used Defense Sites

This Congressionally directed program (PL 98-212) provides for an expanded effort in environmental restoration. It emphasizes the identification, investigation, and prompt cleanup of hazardous and toxic waste; unexploded ordnance; and unsafe buildings, structures and debris at current and former military facilities. Site and project eligibility investigations have been completed at all 13 formerly used defense sites in Vermont, which includes nine where no work was found to be necessary. The four sites where work remains includes: **Burlington International Airport, Fort Ethan Allen in Burlington, and the St. Albans and Lyndonville Air Force stations.**

For Lyndonville Air Force Station, the remedial investigation (RI) report and feasibility study (FS) report have been finalized. The proposed plan summarizing the preferred site remedy (excavation of contaminated soil) has been finalized. A public meeting to inform the community of the rationale for selection of the preferred remedy and to encourage and facilitate community participation was conducted on July 15, 2015. The decision document was finalized (signed by the Army Corps) in September 2016. The remedial action contract to implement the site remedy was awarded in September 2016. The remedial action work plans have been finalized, and the site pre-design work began in May 2017. The remedial action (soil excavation) was completed in October 2017. A site closure report was reviewed by the Vermont Department of Environmental Conservation and has been finalized. A project closeout memorandum was signed in June 2019, and the project is considered closed in the DERP-FUDS program.

For Saint Albans Air Force Station, the RI report was finalized in May 2015. The feasibility study report, summarizing the site alternatives, was finalized in January 2016. The proposed plan has been finalized and sent to stakeholders. The proposed plan public meeting was held on Nov. 15, 2016, in the town of Saint Albans, Vermont. The decision document was finalized (signed by the Army Corps) in June 2017. The remedial action contract to implement the site remedy was awarded in July 2017. A pre-design investigation to refine the amount of soil that requires removal was performed in November 2017. The pre-design investigation report has been finalized. The outcome of this investigation concludes that no soil removal is necessary based on the concentration of contaminants in soil, which did not exceed remedial goals based on human health risk assessment. Site restoration has been completed, and the closure report for the project was finalized in September 2019. A Project Closeout Memorandum was signed in December 2019, and the project is considered closed in the DERP-FUDS program.

Planning Assistance

Cost-sharing (50/50) for the Section 22, Planning Assistance to States Program has presented challenges to the state of Vermont in identifying funds that would be used for the nonfederal contribution. The state's interest in the program continues, and it plans to identify future needs within the state of Vermont. For more information on Planning Assistance to States, visit the Corps website at: <https://www.nae.usace.army.mil/Missions/Public-Services/Planning-Assistance-to-States/>.

Flood Plain Management (FPM)

VERMONT SILVER JACKETS TEAM – A quarterly Vermont Silver Jackets (SJ) meeting was held virtually on July 16, 2020 (due to the COVID-19 emergency). The fiscal year 2020 FPM/SJ project, “Vermont Ice Jam Assessment and Outreach project,” was discussed. It is expected that the outreach to the communities will occur late summer with meetings via webinar. This project, through a partnership with the Army Corps’ Cold Region Research and Engineering Lab (CRREL), and state and local officials, will be able to increase the communities’ understanding of ice jam science, and the causative mechanisms leading to such occurrences. The ongoing fiscal year 2019 FPM/SJ project “Chestnut Hill Dam break/EAP & Whetstone Brook” in Brattleboro is finalizing the HEC-RAS model for the Whetstone Brook and completing the dam break analysis and EAP for the Chestnut Hill Dam. The FY2021 FPM Silver Jackets proposal “Brandon, VT Loss Avoidance study” has been funded and will start in FY2021 (October 2020). For more information, visit: <https://silverjackets.nrfmp.us/State-Teams/Vermont>.

Flood Damage Reduction

WINOOSKI RIVER, MONTPELIER – A reconnaissance study on flood damage reduction in the city of Montpelier, Vermont, was authorized under Section 309(l) of the 1992 WRDA. A recommended report was completed in 1996 and updated in 2009. In 2010, a feasibility cost-sharing agreement (FCSA) was executed with the city of Montpelier with support from the state of Vermont. The focus of the study is to mitigate potential flood damages resulting from ice jams on the Winooski River in downtown Montpelier. Alternatives involving ice piers were ranked highest during the 1996 reconnaissance report and will be reviewed in greater detail during the feasibility phase.

Existing conditions, surveys, and hydrologic and hydraulic models have been completed and updated by the CRREL in Hanover, New Hampshire. The project has been unfunded since 2010. The sponsor has advanced some work as per the FCSA and project management plan to bring the study into a cost-share balance. The total cost of the study is \$1.5 million and is cost-shared 50/50 with the city of Montpelier and the state of Vermont. For more project information, visit the New York District website at: <https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487643/fact-sheet-winooski-river-montpelier/>.

Special Studies

AQUATIC PLANT CONTROL PROGRAM, LAKE CHAMPLAIN – Authorized by the River and Harbor Act of 1958, the aquatic plant control program (APC) for Lake Champlain authorizes the Corps to cooperate with other federal and non-federal agencies in comprehensive programs for the control of invasive aquatic plants, which have adverse effects on navigation and the ecosystem. The APC for the state of Vermont is in the Lake Champlain basin. Lake Champlain is located between New York on the west and Vermont on the east. Approximately 1,615 acres of aquatic plants, water chestnuts and Eurasian water-milfoil infest the Lake Champlain Basin. Un-harvested acreage of these foreign plants is a constant source of future infestation and requires removal since they have adverse effects on navigation and the ecosystem, especially native aquatic plants. In 2016, six Lake Champlain basin lakes hosted four APC projects – Lake Bomoseen, Caspian Lake, Lake Iroquois, and the Lake Catherine three-lake system. Areas of interest to target are coordinated between partners and updated as the control efforts evolve in order to maximize effectiveness and meet the project goals. Some \$500,000 of fiscal year 2017 federal funds are being used by New York District to continue the APC with the state of Vermont in the Lake Champlain Basin. APC project partnership agreements are executed annually. For more information, visit the New York District webpage at: <https://www.nan.usace.army.mil/Media/Fact-Sheets/Fact-Sheet-Article-View/Article/487394/fact-sheet-aquatic-plant-control-program-vt/>.

CONNECTICUT RIVER ECOSYSTEM RESTORATION STUDY – Authority to conduct an ecosystem restoration study in the upper Connecticut River watershed is provided through a resolution adopted by the Committee on Environment and Public Works of the U.S. Senate on May 23, 2001. A reconnaissance report identified several ecosystem restoration opportunities along the main stem of the Connecticut River. Since then, the 2007 WRDA authorized the Corps to partner with The Nature Conservancy (TNC). A feasibility study was initiated with TNC in 2008. The study investigated alternatives to manage the flow for the 73 largest dams in the basin with the goal of improving aquatic habitat while maintaining human uses such as flood control, hydropower, water supply and recreation. Various tools (e.g., operation and optimization computer models) have been developed to assess these management measures. A final report was completed in 2018 and is available for review at: <http://www.nae.usace.army.mil/Missions/Projects-Topics/Connecticut-River/>.

UPPER CONNECTICUT RIVER WATERSHED FLOOD RISK MANAGEMENT STUDY – Authority to conduct a flood risk management feasibility study in the upper Connecticut River watershed in Vermont is provided through a resolution adopted by the Committee on Environment and Public Works of the U.S. Senate on May 23, 2001 and the Bipartisan Budget Act of 2018 (P.L. 115-123). A feasibility study cost-sharing agreement was executed with the study non-federal sponsor, the Vermont Department of Environmental Conservation in December 2018. The Connecticut River is New England's great river and one of only 14 designated American Heritage Rivers. The Connecticut River is New England's largest watershed, river, and freshwater ecosystem covers approximately 11,000 square-miles, 410 miles, 7.2 million acres, respectively. The Connecticut River flows through four states and connects 148 tributaries. New Hampshire and Vermont share approximately 67% of the river's length and 63% of the watershed (7,000 square miles). Within the state of Vermont, the watershed covers 41% of Vermont land area, including 114 Vermont towns, of which 27 Vermont towns lie on the river. There are five Corps flood control dams within Vermont and hundreds of small dams with various uses (non-Corps) on tributaries. The study will investigate flood risk reduction alternatives (structural and non-structural) for the Vermont portion of the Connecticut River watershed. Coordination is ongoing with the non-federal sponsor and partner communities for the feasibility study. Field visits were conducted April 29-30, 2019 and Aug. 5-8, 2019. The alternatives milestone meeting (an internal Corps agency checkpoint) was successful on June 5, 2019. The team completed the tentatively selected plan (TSP) milestone on May 26, 2020 and is now working toward release of a draft report. Public release and review of the draft feasibility report and EA identifying the tentatively selected plan was scheduled for fall 2020.

WATERBURY DAM ASSESSMENT STUDY - An initial dam risk assessment study is being conducted through authority provided by Section 542 of the Water Resources Development Act of 2000, as amended (Section 542). The Waterbury Dam impounds Waterbury Reservoir, located in Waterbury, Vermont along the Little River, a tributary to the Winooski River, within the Lake Champlain Watershed. Waterbury Dam is an earthen dam designed for downstream flood risk management. It also provides water for power generation by Green Mountain Hydro and the reservoir is used for recreation, with two state campgrounds and three public boat launches. It was constructed by the Civilian Conservation Corps under the direction of the Army Corps in 1938. The dam is owned and operated by the state of Vermont.

The current operation of the Waterbury Dam is potentially contributing to water quality issues. Specifically, since the tainter gates cannot currently be operated as designed, pool levels and release schedules are suboptimal for the purpose of maintaining water quality and fish habitat. The gate and spillway cannot be considered in isolation from the broader issues of dam safety. The initial dam risk assessment is underway and will be completed in 2020. The non-federal sponsor for the study is the state of Vermont, Department of Environmental Conservation.

Interagency and International Support

SUPPORT TO THE U.S. DEPARTMENT OF VETERANS AFFAIRS – The District has teamed up with a sister federal agency in an effort to improve the care service members are receiving at military hospitals. The U.S. Department of Veterans Affairs (VA) and the Army Corps entered into an interagency agreement in 2001 for the goods and services the Army Corps may provide to the VA when needed. These include project management, design services, construction management services, environmental services, preliminary technical investigations, surveying, and historical presentation compliance at VA facilities. In 2008, the VA started exercising its agreement with the District and is now supporting the VA with services at several facilities in New England. Current or recent projects are in Massachusetts, Rhode Island and Connecticut.

Flood Risk Management Dams, Recreation and Natural Resources Management

The District constructed, operates and maintains five flood risk management project dams in Vermont. In addition to flood risk management activities, the District also manages the natural resources at these projects for multiple uses such as recreation and wildlife management. Information on each is provided below. The District is responsible for the conservation of natural resources held in public trust at civil works water resources projects. Recreation areas at the 31 federal flood risk management projects and the Cape Cod Canal within New England are managed for multiple uses. In some areas, management is delegated to the states for specific purposes, e.g., campgrounds, wildlife management and forestry. Recreation areas at these facilities are generally open from mid-May to mid-September. The District works with state and local officials and the public to ensure that the District projects meet their recreation and natural resources needs. For information on recreation in New England visit the District website at www.nae.usace.army.mil and select “recreation” or for Vermont projects, go directly to the following link: <https://www.nae.usace.army.mil/Missions/Recreation/Vermont/>.

BALL MOUNTAIN LAKE DAM on the West River in Jamaica was constructed at the cost of \$11 million in 1961. The 915-foot-long, 265-foot-high dam can impound a 54,600-acre-foot reservoir, which is equivalent to 17.8 billion gallons of water. During the 1987 floods, Ball Mountain Dam utilized 100% of its storage capacity and prevented damages of \$18.3 million. Since it was placed in operation in 1961, it has prevented damages of \$185.4 million. The reservoir area offers recreational opportunities, including swimming, picnicking, fishing, hunting, canoeing, nature study and camping at Winhall Brook Camping Area in South Londonderry. This popular camping area offers 111 sites for tent or recreational vehicle (RV) campers; some sites have hookups and others have lean-to shelters for rent. Ball Mountain welcomes more than 130,000 visitors each year. For more information, call (802) 874-4881 or visit the website at <https://www.nae.usace.army.mil/Missions/Recreation/Ball-Mountain-Lake/>.

NORTH HARTLAND LAKE DAM on the Ottauquechee River in Hartland was completed in 1961 at the cost of \$7.3 million. The 1,640-foot-long, 185-foot-high earthen structure can impound a 1,100-acre lake capable of storing 23.2 billion gallons of water, and the facility has prevented damages to date of \$163.5 million. More than 377,000 visitors annually enjoy picnicking, swimming, fishing, hunting, hiking and snowmobiling. The District and the state of Vermont are partners in the management of part of the reservoir. Vermont manages Quechee Gorge State Park in the upper third of the reservoir and provides a campground, picnic facilities and trails for the visiting public. North Hartland Lake has a large day-use area with three pavilions available for a nominal fee, a developed beach area and boat launch, picnic facilities and trails.

The District also maintains the Quechee Gorge Visitor Center. In conjunction with the Hartford Chamber of Commerce, the District helps staff the center and offers expertise about the local area. For more information, call (802) 295-2855 or visit the website at:

<https://www.nae.usace.army.mil/Missions/Recreation/North-Hartland-Lake/>.

NORTH SPRINGFIELD LAKE DAM on the Black River in North Springfield was completed in 1960 at the cost of \$6.8 million. The 2,940-foot-long, 120-foot-high earthen dam can impound a 1,200-acre lake, capable of storing 16.5 billion gallons of water. Nearly \$134.8 million in flood damages have been prevented by the North Springfield Dam. Picnicking, swimming, hiking, hunting, fishing and snowmobiling are enjoyed at the 1,372 acres of land and water by more than 30,000 visitors each year. For more information, call (802) 886-2775 or visit the website at <https://www.nae.usace.army.mil/Missions/Recreation/North-Springfield-Lake/>.

TOWNSHEND LAKE DAM on the West River in Townshend is 1,700 feet long, 133 feet high and cost \$7.4 million to construct. Its lake can hold a 33,700-acre-foot reservoir with a capacity to store 11 billion gallons of water. During the 1987 floods, the dam utilized 100% of its storage capacity and prevented damages of \$14.2 million. Since it was placed in operation in 1961, it has prevented damages of \$149.1 million. The reservoir area offers recreational opportunities, including swimming, picnicking, fishing, hunting, canoeing, boating and nature study and annually attracts nearly 81,000 visitors. Townshend Lake, in conjunction with Ball Mountain Lake, provides scheduled white-water releases. More than 800 canoeists, kayakers and rafters take advantage of the event.

A \$480,200 contract to paint the spillway bridge at the Townshend Dam was awarded on Sept. 24, 2018. Work consists of the construction of an access system to allow for access to the bridge substructure; preparation of steel surfaces by solvent cleaning and abrasive blasting; application of base and top coats of paint; replacing several nuts and bolts; application of sealant to the concrete approach slab on both approaches; replacing the damaged guardrail support posts, concrete and guardrail on the south side of the east end of the bridge, where it joins Highway 30; and installing grout around the west bearing pad. The work to complete this painting project started in late April 2019 and was completed by late July 2019.

A \$237,690 contract for valve removal and v-notch weir installation at the Townshend Dam was awarded on Sept. 20, 2018. Work involves the excavation and removal of seven cast iron valves ranging in depth from 2-8 feet, which connect the relief well system to a below-ground collector pipe that outlets to a small pond on the downstream side of the dam. The valves will be replaced with sections of steel free-flowing pipe. In addition, the construction of a reinforced concrete outlet structure that has a central dividing wall and a v-notch weir for both of the collector pipes also will be required. The contractor will connect the toe drain collector pipe to the new outlet structure. No other work will be required on the toe drain collector pipe, which runs parallel to the dam and outlets to the small pond. In addition to the outlet work construction, the pond will be dewatered and one foot of material will be dredged from the area. All of the above work took place at the toe of the dam on the downstream side. As of mid-July 2019, this work was substantially complete. For more information about the Townshend Lake Dam, call (802) 365-7703 or visit the website at:

<https://www.nae.usace.army.mil/Missions/Recreation/Townshend-Lake/>.

UNION VILLAGE DAM, a dry-bed reservoir project on the **Ompompanoosuc River in Thetford**, is a 1,100-foot-long, 170-foot-high earthen structure capable of storing 12.3 billion gallons of water in a 740-acre lake. Construction on the \$4.1 million dam was completed in 1950, and since that time, the facility has prevented damages of more than \$64.8 million. More than 41,000 visitors annually enjoy picnicking, including a pavilion which can be reserved for a nominal fee, swimming, hiking, fishing, hunting and snowmobiling available on Union Village's 991 acres of land and water. For more information about the Union Village Dam, call (802) 649-1606 or visit the website at: <https://www.nae.usace.army.mil/Missions/Recreation/Union-Village-Dam/>.

In addition, the New York District designed three dams in the Lake Champlain drainage area during the mid-1930s (<https://www.nan.usace.army.mil>). These include **EAST BARRE DAM** on the Jail Branch of the Winooski River in Barre; **WATERBURY DAM** on the Little River in Waterbury; and **WRIGHTSVILLE DAM** on the North Branch of the Winooski River in Montpelier. These dams were constructed by the Civilian Conservation Corps under the direction of the Army Corps' New York District, and all are operated and maintained by the state of Vermont. A dam risk assessment study for the Waterbury Dam is underway at the District. Click [here](#) to view the details listed above.

Regulatory Activities

STATUS OF PROGRAM – Department of the Army permits are required from the Army Corps under Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research and Sanctuaries Act. The Army Corps reviews permit applications for work affecting navigable waters under its Section 10 authority and the discharge of fill material into all waters, including inland wetlands, under Section 404. A list of monthly general and individual permit authorizations can be found on the District website at <https://www.nae.usace.army.mil/Missions/Regulatory/permits-Issued/>. Relevant environmental documents are available upon written request. For information about Army Corps jurisdiction of wetlands and whether a permit is required for your work in Vermont, contact the Regulatory Division at either 978-318-8860 or 802-872-2893; by email: cenae-r-vt@usace.army.mil; or visit the website at: <https://www.nae.usace.army.mil/Missions/Regulatory/>.

GENERAL PERMITS – The District has comprehensive Regional General Permits (RGPs) in place for each of the six New England states that provide protection to the aquatic environment and the public interest while effectively authorizing activities that have no more than minimal individual and cumulative environmental effects. Up to 98% of all permits issued in New England are RGPs. Work eligible under the RGPs is generally approved in less than 60 days. The District has issued the statewide Vermont General Permits (GPs) for minimal impact activities to waters of the United States. The GPs became effective on Dec. 6, 2017, and are organized into 21 activity-specific GPs. The current Vermont GPs are available at: <https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/Vermont-General-Permit/>

VERMONT IN LIEU FEE PROGRAM – Generally, projects impacting more than 0.23 acres of wetland may be required to provide compensatory mitigation to offset the loss of functions and services of aquatic resources. On Jan. 6, 2011, the Army Corps signed an in-lieu fee (ILF) instrument with Ducks Unlimited (DU) to establish a program that provides an alternative to permit applicants for compensatory mitigation. Instead of doing mitigation themselves, for which the applicant is responsible in perpetuity, applicants can pay a fee based on the area and type of their impact to aquatic resources. The fee is deposited into an account held by DU, which is then used to develop ecologically meaningful wetland restoration, rehabilitation, creation, and/or preservation projects selected based on a watershed approach. Funds are differentiated by watershed so that functions and services lost will be compensated for in the same watershed. To date, more than \$3.9 million has been paid into the program and two mitigation sites have been funded in Middlebury in the Richelieu service area and in Guildhall in the Connecticut service area. An additional site in the St. Francois service area is currently in the final stages of review and is expected to be approved soon.