



US Army Corps
of Engineers
New England District

Update Report for Vermont



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696 Virginia Road, Concord, Massachusetts 01742-2751
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Introduction/Mission

Both the New England and New York districts provide service to the residents of the Green Mountain State. New England District is responsible for all civil works activities within the Connecticut River Basin, while New York District handles activities in the Lake Champlain drainage area. The New England District is responsible for the entire state for the Regulatory and Defense Environmental Restoration programs, all Emergency Operations and is the 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 customers, because the 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.

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The missions of the New England District, U.S. Army Corps of Engineers, include flood damage reduction and control, 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, 11 deep water ports, 102 recreational and small commercial harbors, 13 major river basins, and thousands of miles of navigable rivers and streams. The district operates and maintains 31 dams, two hurricane barriers and the Cape Cod Canal. Through its Regulatory program, the district processes about 6,000 applications per year for work in waters and wetlands of the six-state region. We employ about 550 professional civilian employees, with about 400 stationed at our headquarters in Concord, Mass. The other Corps of Engineers employees serve at Corps projects and offices throughout the region.

Flood Control Studies

HARDWICK LAKE, HARDWICK – The State of Vermont (Agency of Natural Resources) has requested the New York District investigate whether flood damage reduction (Section 205) and/or aquatic ecosystem restoration (Section 206) opportunities exist on the Lamoille River at Hardwick Lake in Hardwick. There is a long history of ice jam-related flooding at Hardwick Lake. The frequency of damaging jams has been reduced in past years through winter drawdowns and the installation of an ice retention structure upstream of the Village. However, the potential

for a crippling ice jam in Hardwick still persists. Also, the annual drawdowns and the in-channel impoundment have caused degradation of the natural resources of the Lamoille River. The New York District recently completed an Initial Appraisal Report (IAR), which found that Federal interest does exist for dam removal and channel restoration. However, there is no local support for this potential project; the Town of Hardwick held a public meeting during which the residents voted to not remove the dam.

Streambank Protection

RICHFORD WATER SUPPLY, MISSISQUOI AT RICHFORD - The New York District is currently *completing* the Planning, Design and Analysis phase of

the project, which is being pursued under Section 14 of the Continuing Authorities Program. The project entails *relocating* the primary water supply line for the

community of Richford, Vermont. The Town of Richford has indicated its willingness to act as the nonfederal sponsor. *Construction is scheduled to begin in October 2004.*

WHITE RIVER, HANCOCK – New England District has

Environmental Restoration

MAD RIVER, WARREN, VT – The New York District determined that federal interest in a Section 205 (Flood Damage Reduction) study was not warranted. A Section 206 (Aquatic Ecosystem Restoration) study was recommended, for which study the local sponsor sent a letter of support. The Preliminary Restoration Report (PRP) recommended removal of the dam and the associated sediments, and approximately 2,000 linear feet of channel restoration. *The New York District is currently in the Planning, Design and Analysis phase of the project. After PCA execution, which is scheduled for September 2004, the Town of Warren intends to remove the dam itself as an in-kind service. Channel restoration will be scheduled for the following year in the spring of 2006.*

NEW HAVEN RIVER, BRISTOL, VT - The New York District determined that federal interest in a Section 205 (Flood Damage Reduction) study was not warranted. A Section 206 (Aquatic Ecosystem Restoration) study was recommended. A Preliminary Restoration Report (PRP), was completed in September 2002. *In October 2003, the local sponsor indicated their interest in pursuing this restoration project; however, they do not have sufficient funds at this time to proceed forward.*

WILD BRANCH, WOLCOTT, VT - The New York District conducted a site visit along with state officials to assess flooding problems and opportunities for environmental restoration along the Lamoille River. The Lamoille watershed forms part of the drainage divide, which separates the Connecticut and St. Lawrence River Basins. Based upon initial findings and a letter of support from the Vermont Environmental Conservation Department, a Section 206 study (Ecosystem Restoration) has been initiated for the Wild Branch of the Lamoille River in Wolcott, Vermont. The New York

Superfund

WORK FOR THE ENVIRONMENTAL PROTECTION AGENCY - The New England District is designated as the Corps of Engineers total support agency for the Environmental Protection Agency's (EPA) Region I (New England) Superfund program for those federal-lead

recommended termination of this investigation due to an inability to identify a sponsor willing and able to provide the assurances required for Federal partnerships. Should an eligible sponsor be identified, there would be an opportunity to revisit the project.

District completed a preliminary restoration report (PRP), which determined that there is Federal interest in continuing into the feasibility phase of study. Feasibility study scope, cost and schedule are being finalized.

LAKE CHAMPLAIN WATERSHED, VT & NY – The New York District *coordinated* with the Lake Champlain Steering Committee on the establishment of an environmental restoration program that was authorized by Section 542 of the Water Resources Development Act of 2000. The program *provides* assistance to Vermont and New York with planning and project implementing to improve water quality in Lake Champlain as well as ecosystem restoration projects in the entire Lake Champlain Watershed. The program is cost shared at 65% Federal and 35% Non-Federal. The New York District in partnership with the Lake Champlain Steering Committee *prepared* a General Management Plan (GMP), which defines the selection and implementation process of projects to be accomplished under this program. *The GMP was completed in March 2004 and approved in June 2004. The first two projects are now being prepared for implementation. They are the Lake George Storm Water Project in New York and the Tyler's Branch Project in Vermont.*

LAKE CHAMPLAIN SEA LAMPREY BARRIERS, VT & NY- *In cooperation with the U.S. Fish and Wildlife Service and the Lake Champlain Basin Program, New York and Vermont, the New York District has scheduled a site visit for Aug. 31, 2004. Following the visit, a Preliminary Restoration Plan will be prepared. If warranted, a feasibility study will be initiated to analyze potential restoration alternatives focused on sea lamprey barriers under Section 1135, WRDA 1986, as amended.*

projects assigned to the Corps by EPA. This includes responsibility for 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.

ELIZABETH MINES SUPERFUND SITE, SOUTH STRAFFORD – The site is an abandoned copper and iron-sulfate mine that operated from 1806 until its closure in 1958. The operations consisted of open-pit type mining. The mine workings were abandoned without any closure measures to restrict access or prevent runoff from entering the mine. In addition, there are about 40 acres of exposed tailings piles which are still producing acid mine drainage. This acid runoff is causing water quality problems in receiving waters of the drainage, Copperas Brook, and downstream in the West Branch of the Ompompanoosuc River.

New England District was approached by the U.S. Environmental Protection Agency in 1999 to assist in characterization of the Acid Mine Drainage issues at this site. In 2002, New England District supported preparation of an Engineering Evaluation/Cost Analysis supporting cleanup of the tailing piles at a total estimated cost of about \$15 million.

In addition, USACE is conducting field investigations

supporting a Remedial Investigation/Feasibility Study (RI/FS). A final RI/FS report is anticipated in July 2004. New England District has received approximately \$4,000,000 to support site investigations to date.

As part of our work supporting the RI/FS, USACE performed geotechnical investigations of the tailing impoundments at the site. These investigations revealed that the larger tailing dam (TP1) was unstable and needed to be addressed to minimize risk of failure. This failure would adversely impact the aquatic ecosystem in the Ompompanoosuc and Connecticut Rivers, as well as jeopardize private homes downstream of the mine.

USACE is performing stabilization measures for EPA to address this instability. USACE has begun work to buttress the tailing dam slope to stabilize it against failure. *Design of the buttress was completed in May 2004 and construction is underway. Work completed to date includes stripping tailing from the toe, regrading about 1/3 of the slope, installing about 1/2 of the toe drain system, and opening the borrow area. The remainder of the buttress placement is anticipated to occur in spring through fall 2004. Total cost is estimated to be \$4,200,000.*

Defense Environmental Restoration Program

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, including nine where no work was found to be necessary. Of the four sites where work was needed, remedial actions for the remaining four have been completed. They are formerly used facilities at **Burlington International Airport, Fort Ethan Allen in Burlington, and the St. Albans and Lyndonville Air Force stations.** Follow up investigations at the **St. Albans and Lyndonville Air Force stations** concluded that minor residual soil

contamination was present. A contract to perform remediation was awarded in March 2001 and work removal of contaminated soil has been completed. A Removal Action Completion report for St. Albans was completed in February 2003 and sent to the Vermont Department of Environmental Conservation (VTDEC) for review. VTDEC has reviewed the report and agreed to No Further Action for contaminated soil at the site, but requests additional groundwater sampling. We sampled groundwater on Sept. 4, 2003. We are currently reviewing groundwater results and preparing a groundwater summary report for submittal to the VTDEC which will review and decide future actions at the site. *Follow-up groundwater investigations are required at Lyndonville and are currently planned for FY05.*

Planning Assistance

Cost sharing (50/50) for the Section 22, Planning Assistance to States Program has presented challenges to the state 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.

Flood Plain Management

DAM BREACH ANALYSIS, LAKE CHAMPLAIN DRAINAGE AREA - The New York District in conjunction with the state of Vermont, has utilized the Flood Plain Management Program to conduct dam breach analyses throughout the Lake Champlain drainage area. Over the past decade, the district has prepared 28 such studies and currently is involved with three ongoing studies for the East Barre, Waterbury, and Wrightsville dams.

FIRST FLOOR ELEVATION SURVEYS LUDLOW, WATERBURY AND CHELSEA - The state of Vermont requested the New England District to conduct, under the Flood Plain Management Services program, an investigation of first floor flood elevations for Ludlow, Waterbury and Chelsea. The study involves performing a first floor elevation survey of structures located within the 100-year floodplain for designated areas within each

community. There is currently no FY-04 funding to start this project.

DAM BREACH ANALYSIS, LAKE NINEVAH, TYSON - The New England District has completed a dam breach analysis of the Lake Ninevah Dam in Tyson. The analysis was done at the request of the Vermont Agency of Natural Resources, Dam Safety Section. River cross-section surveys were completed by Clough Harbor. Storm and sunny-day failures were analyzed using DAMBRK software. Orthophoto based inundation maps were also developed and included with the final report, which was completed in November 2003. The next dam breach analysis is planned for the Minards Pond Dam in Rockingham, VT. There is currently no FY-04 funding to start this study.

Regulatory Activities

STATUS OF PROGRAM - Department of the Army permits are required from the Corps of Engineers under Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act. The Corps reviews permit applications for work affecting navigable waters under our Section 10 authority and the discharge of fill material into all waters, including inland wetlands, under Section 404. *At the end of April 2004, there were 60 active applications for regulated work in Vermont. During May, June and July 2004, 108 new applications were received. Final actions were taken on 65 applications, including two individual permits, 39 general permits, six not required, and no denials. The balance at the end of July 2004 was 103 active applications.*

PROGRAMMATIC GENERAL PERMIT - The New England District has comprehensive Programmatic General Permits (PGPs) in place in each of the six New England states covering work with minimal impact on the aquatic environment. Up to 98 percent of all permits issued in New England are PGPs. The PGPs are based on the state thresholds for most categories of environmental impacts, and applicants generally need only file with the state. The federal screening is virtually transparent to applicants, and the PGP approval is either included in the state approval letter or mailed simultaneously. Applications appropriately covered under the PGPs are generally approved in under 30 days. Applicants have commented favorably about the simplicity, predictability and efficiency of the PGPs. The Vermont General Permit (GP) was reissued on Oct. 15,

2002, with minor changes. The permit is available at www.nae.usace.army.mil. Click on "Vermont."

VERMONT AGENCY OF TRANSPORTATION ROUTE 78 RECONSTRUCTION – Preapplication consultation is ongoing for the reconstruction and widening, essentially on alignment, of about six miles of Vermont Route 78 between Swanton and Alburg. The existing highway passes through the Missisquoi National Wildlife Refuge. Route 78 is a major truck route from Interstate 89 in Vermont to Interstate 87 in New York.

Agreement has been reached among the Federal and State resource agencies as to the Least Environmentally Damaging Practicable Alternative. The application is not expected until mid-2004.

AGRICULTURAL CONVERSIONS – We are investigating numerous unauthorized conversions of wetland to cropland in Franklin, Orleans and Addison Counties. The unauthorized activities range from an acre or less to 40+ acres in size. Two Franklin County cases were referred to the U.S. Attorney for legal action. Settlement has been reached, consent decrees filed in Federal Court, civil penalties paid, and restoration is substantially completed on both cases. An after-the-fact permit was issued in December 2003 for the retention of 2.2 acres of wetland conversion on one of these cases. The EPA is handling the enforcement action on a third case, assisted by the New England District Vermont Project Office. The Corps and EPA have reached a

settlement agreement on a fourth case which involves the unauthorized conversion of about 42 acres of wetland to cropland. Restoration of about 32 acres has commenced, and a permit was issued for the retention of the remaining 10 acres of conversion in June 2004. A permit has been issued for the retention of about 5.3 acres of conversion in Cabot. Negotiations are underway for restoration/ATF authorization on cases in Orleans and Addison counties. Investigation is ongoing on a large multi-parcel case in Orleans County. The Corps and USDA Natural Resources Conservation Service have sponsored or participated in several outreach/educational meetings to assist Vermont farmers in understanding the permit requirements. The Corps continues to provide one-on-one help to farmers applying for permits. The Corps has also met with the Farm Service Agency State Committee and with various County Committees to explain permit requirements for agricultural projects.

BURLINGTON INTERNATIONAL AIRPORT – An application has been received but is incomplete for the Burlington International Airport's proposed "South End Development Project." As proposed, this project would impact about 8.3 acres of wetland adjacent to Muddy and Potash Brooks in South Burlington, Vermont. The Public Notice is expected in late summer 2004. Concurrence

has been reached among the Federal and State resource agencies that the applicant's Alternative 4 layout has the potential to be the Least Environmentally Damaging Practicable Alternative. Concurrence has also been reached on a mitigation site.

RUTLAND RAILYARD – Preapplication consultation is ongoing for the Vermont Agency of Transportation's proposed relocation of the Rutland Railyard in Rutland. The Federal Highway Administration will be preparing an Environmental Impact Statement for the project. The Corps is a cooperating agency. The Draft EIS is scheduled for late summer/fall 2004.

POMAINVILLE WETLAND RESERVE PROGRAM PROJECT – Preapplication consultation is ongoing for the "Babe" Pomainville Wetland Reserve Program (WRP) project in Pittsford. This project will involve the preservation of 356 acres of former agricultural lands that are a mix of upland and wetland under the USDA's WRP. The parcel includes more than one mile of Otter Creek shoreline. Work within Corps jurisdiction will involve wetland restoration by the installation of ditch plugs, berms, and other features. An application has been received, but is incomplete. A Public Notice is expected in late summer 2004.

Dam Safety Assurance Program

WATERBURY DAM, WATERBURY - The Waterbury Dam, built by the Civilian Conservation Corps during the 1930s under U.S. Army Corps of Engineers supervision, was constructed on and over a natural gorge of the Little River about two miles from its confluence with the Winooski River. The dam is operated and maintained by the state of Vermont. The dam was constructed of compacted earthfill with a clay core, covered with two feet of rock riprap, and it provides flood control benefits for the Little and Winooski river basins during major rainfall events. The 860-acre Waterbury Reservoir and surrounding lands is a popular recreation area. The project also includes a hydropower facility operated by Green Mountain Power. Borings conducted at the dam in the mid-1980s by the Corps of Engineers revealed less compacted areas and voids in that portion of the dam which rests on and over the Little River gorge. This situation allows seepage of water through the dam, causing piping, boils and internal erosion problems.

The New England District is assisting the New York District in studying seepage problems at Waterbury Dam. As part of that effort, a Dam Safety Report and an

Environmental Assessment were completed and approved by Corps of Engineers headquarters in January 2001. Subsurface exploratory work to assist in evaluating repair alternatives was completed in December 2000. A number of alternatives were evaluated, including doing nothing; removing the entire dam structure; building an entirely new dam; implementing partial corrective measures, such as reducing water levels and adding impervious blankets or filters; and rehabilitation to include installing cutoff walls, reconstructing the entire gorge section and building a multistage filter shaft in the gorge area. The recommended plan, the installation of the filter shaft, was modified during the Value Engineering Study in April 2001. The modified plan will install the filters and cut-off wall through drilling instead of open excavation. FY 2001 funds of \$2 million were used to initiate plans and specifications, cultural and environmental resources investigation and continue subsurface work.

The environmental and cultural investigation work are being performed by New England District. FY 2002 funds of \$4 million were appropriated to complete the plans and

specifications, negotiate the Project Cooperation Agreement and initiate construction. The Addendum to the Dam Safety Assurance Report, outlining the modified plan, was completed in January 2002. The final plans and specifications were completed by Baltimore District in February 2002. The Vermont Department of Environmental Conservation received the permit to perform the repairs from the Vermont Public Service Board in March 2002. The Project Cooperation Agreement was executed on May 20, 2002. The

construction contract was awarded May 31, 2002 to RAITO, Inc., San Leandro, CA. Construction was initiated on July 15, 2002. *Construction is continuing at the site. For the current year, funds totaling \$6 million were appropriated. The FY 2004 appropriation bill also directed the Corps to design and construct repairs to the spillway structure, which is deteriorated due to an alkali aggregate reaction. Completion of construction of the project is scheduled for 2005 subject to the availability of final funds in 2005.*

Interagency and International Support

WORK FOR THE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT - The Corps of Engineers has entered into an interagency agreement with the Department of Housing and Urban Development. In accordance with the agreement the Corps performs

physical inspections, contract administration reviews, drawings and specifications reviews, and final inspections for Housing Authorities located throughout Vermont.

Special Studies

AQUATIC PLANT CONTROL PROGRAM - Authorized by the River and Harbor Act of 1958, the Aquatic Plant Control Program for Lake Champlain provides for the control and eradication of aquatic plants in navigable waters, tributary streams, connecting channels and other allied waters in the interest of navigation, flood control, drainage, agriculture, fish and wildlife conservation, public health, and related purposes. Approximately 1,615 acres of aquatic plants, water chestnuts and Eurasian water-milfoil infest the Lake Champlain Basin. Unharvested 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. Funds (\$385,000) were allocated to the New York District in FY 2004 to continue conducting similar cost-shared (50-50) planning and control operations work within the Lake Champlain Basin. *A PCA for this work was executed in May 2004 and the harvesting program will be completed in September 2004.*

against such risk. These activities are to be cost shared 35 percent by nonfederal interests. The dams identified are: East Barre Dam in Barre Town; Wrightsville Dam in Middlesex-Montpelier; Lake Sadawga Dam in Whitingham; Dufresne Pond Dam in Manchester; Knapp Brook Site 1 Dam in Cavendish; Lake Bomoseen Dam in Castleton; Little Hosmer Dam in Crafsbury; Colby Pond Dam in Plymouth; Silver Lake Dam in Barnard; and, Gale Meadows Dam in Londonderry. A project cost sharing agreement was executed on Nov. 4, 2002 between the Corps and the Vermont Agency of Natural Resources. Funds were received on Dec. 13, 2002.

Utilizing New York District's existing contracting mechanism, New England District awarded (Aug. 6, 2003) Dubois & King, Inc. to perform the evaluation of Lake Sadawga and Dufresne Pond at their proposal price of \$120,480.

VERMONT DAMS - Section 543 of the Water Resources Development Act of 2000 authorizes the Secretary of the Army to remediate various dams in Vermont. Specifically, the authorizing language calls for a study to evaluate the structural integrity and need for modification or removal of 10 dams in the state. The Act directs that a design analysis, plans and specifications, and cost estimates be provided to the nonfederal interest. Should the Secretary determine that any of the dams present an imminent and substantial risk to public safety, the Act authorizes the Secretary to carry out measures to prevent or mitigate

Last fall, D&K performed site surveys at Lake Sadawga and Dufresne Pond. In February 2004, draft H&H analysis reports were submitted and an internal review was performed. In the spring 2004, D&K performed subsurface explorations at Lake Sadawga and Dufresne Pond. The Remediation Assessment Reports for both dams have been received and the Corps is currently reviewing these documents.

An Interim Design Meeting was held on June 22, 2004. The purpose of the meeting was to discuss the previous draft reports and to gain a consensus on the feasible rehabilitation measures and possibly additional

concepts for each dam. The draft Assessment Reports for Lake Sadawga and Dufresne are scheduled for Sept. 15. Internally, team members will be conducting technical reviews.

The Corps has executed a modification valued at \$23,113 to D&K's contract to include the assessment of the Lake Bomoseen Option. The contract completion date has been extended to Nov. 15, 2004.

CONNECTICUT RIVER ECOSYSTEM RESTORATION STUDY – Authority to conduct an ecosystem restoration study along the Connecticut River in New Hampshire and Vermont is provided through a resolution adopted by the Committee on Environment and Public Works of the United States Senate on May 23, 2001. FY02 appropriations provided the Corps with funds to initiate the investigation, which was done in

February 2002. The reconnaissance study was completed in August 2002 with the assistance of the Connecticut River Joint Commissions, the Vermont Department of Environmental Conservation, the New Hampshire Department of Environmental Services, the U.S. Fish and Wildlife Service, and the Natural Resources Conservation Service. The reconnaissance report identified several ecosystem restoration opportunities along the mainstem of the Connecticut River. At this time, the Connecticut River Joint Commissions is unable to obtain their share of the feasibility study funds so further efforts to finalize this study scope and execute a cost sharing agreement have been suspended. In the meantime, The Nature Conservancy has expressed an interest in expanding the scope of study to the West (VT) and Ashuelot rivers (NH). Approval to expand the scope of the reconnaissance report has been provided and the work is currently underway.

Operating Flood Control Projects & Natural Resource Management

The New England District has constructed, operates and maintains five flood control dams in Vermont. In addition to flood control activities, the Corps also manages the natural resources at these projects for multiple uses such as recreation and wildlife management. Information on each is provided below.

The Corps of Engineers is responsible for the conservation of natural resources held in public trust at civil works water resources projects. In some areas, management is delegated to the states for specific purposes, e.g., campgrounds, wildlife management and forestry. The Corps also works with state and local officials and the public to ensure that the Corps projects meet their recreation and natural resources needs.

MASTER PLAN UPDATES - The New England District is updating master plans for **Ball Mountain** and **Townshend** lakes. Drafts of these documents are being developed.

Updated master plans were completed in February 2004 for the **North Springfield Lake** and **Union Village Dam** projects. These studies assessed the natural and manmade resources of the project, determined regional needs and desires, and developed an overall land and water management plan for each project.

BALL MOUNTAIN LAKE on the West River in Jamaica was constructed at a 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 percent of its storage capacity and prevented damages of \$18.3 million. Since it was placed in operation in 1961, it has prevented damages of \$97 million. The reservoir area offers fine 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 RV campers; some sites have hookups and others have lean-to shelters for rent. Ball Mountain welcomes over 130,000 visitors each year.

NORTH HARTLAND LAKE on the Ottauquechee River in Hartland was completed in 1961 at a 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 nearly \$80.5 million. More than 377,000 visitors annually enjoy picnicking, swimming, fishing, hunting, hiking, and snowmobiling available at the 1,467-acre North Hartland reservation. The New England District and the state of Vermont are partners in the management 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. The New England District operates a large day-use area on the shore of North

Hartland Lake with a developed beach area, picnic facilities and trails.

The process of designing and constructing the Quechee Gorge Visitor Center is progressing. The Corps has selected the final design. The project is the result of many years of work by the Town of Hartford and other organizations. This group has been instrumental in developing the Quechee Gorge Master Plan and securing \$1.25 million for implementation from the Public Lands Highway Discretionary Program. The Quechee Gorge Visitor Center is being built on Corps property by the Town of Hartford and will be donated to the Corps and operated by the Quechee Chamber of Commerce under a cooperative agreement with the Corps.

The Visitor Center is designed to provide the public with information about the local area, including the natural and cultural history of the gorge. Additionally, the public will be able to gather information on other attractions in the state. The Corps will maintain an interpretive display in the center, will have volunteers help staff the center and plans to make available a computer system that will allow the public to access our webpage.

NORTH SPRINGFIELD LAKE on the Black River in North Springfield was completed in 1960 at a 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. More than \$84.4 million in flood damages have been prevented by North Springfield Dam. Picnicking, swimming, hiking, hunting, fishing, and snowmobiling are enjoyed at the 1,372 acres of land and water by more than 10,000 visitors each year.

TOWNSHEND LAKE 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 10.8 billion gallons of water. During the 1987 floods, the dam utilized 100 percent of its storage capacity and prevented damages of \$14.2 million. Since it was placed in operation in 1961, it has prevented damages of \$62.5 million. The reservoir area offers fine recreational opportunities, including swimming, picnicking, fishing, hunting, canoeing, boating and nature study and annually attracts nearly 29,000 visitors. Townshend Lake, in conjunction with Ball Mountain Lake, provides scheduled white water releases in the spring and fall. Over 800 canoeists, kayakers and rafters take advantage of each event.

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 million dam was completed in 1950, and since that time the facility has prevented damages of more than \$30.3 million. More than 19,000 visitors annually enjoy the picnicking, swimming, hiking, fishing, hunting and snowmobiling available on Union Village's 991 acres of land and water.

In addition, the Corps' New York District designed three dams in the Lake Champlain drainage area during the mid-1930s. 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 New York District, and all are operated and maintained by the State of Vermont.

