US Army Corps of Engineers
New England District

Update Report for New Hampshire

Current as of August 31, 2004

696 Virginia Road, Concord, Massachusetts 01742-2751
Public Affairs Office, 978-318-8264
Home Page: http://www.nae.usace.army.mil/

Mission

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, stream bank 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.

Index

Navigation

COCHECO RIVER, DOVER (1st CD) - The city of Dover has requested maintenance dredging of the Cocheco River federal channel. Surveys indicate that about 75,000 cubic yards of material need to be dredged to return the 7-foot-deep, 30- to 75-foot-wide channel to authorized dimensions. Portions of the dredge material are heavily contaminated (including PAH's, chromium, zinc, and mercury). The dredge material will be disposed of in an upland Dredge Material Disposal Facility (DMDF) to be constructed by the City of Dover over an abandoned landfill on Dover City property. All approvals and waivers have been obtained and the City is nearing completion of the Dover DMDF. Since the plan is to route effluent from the DMDF through the City's water treatment facility, no Water Quality Certification is needed.

The City has designed the DMDF to include an additional 15,000 cubic yards of dredged material from proposed (non-Federal) dredging upstream of the Federal Navigation Project (Dover Landing and PSNH Dredging Project). The City has requested that the Corps include the Dover Landing (non-Federal) dredging effort into the Federal dredging contract. The City will be responsible to finance 100% of the non-Federal dredging effort. *The Corps of Engineers is expecting to award a dredging contract in September 2004.*

HAMPTON-SEABROOK HARBOR & BLACKWATER RIVER (1st CD) – In response to a request from the New Hampshire Division of Ports and Harbors (formerly the Port Authority), the New England District is investigating two potential modifications to the Federal navigation project for Hampton Harbor. The first, under the Continuing Authority of Section 107, is a state request to incorporate inner harbor channels and anchorage basins into the federal project, making them eligible for federally funded maintenance dredging. At present, the federal government is responsible for maintenance of the seaward arms of the two jetties at the harbor entrance and maintenance dredging of the channel seaward of the Route 1A bridge, with the state responsible for maintenance dredging of the inner harbor areas.

An August 2002 Initial Appraisal of Federal Interest showed that there are economic benefits for the Corps to continue this investigation into the feasibility phase. The State of New Hampshire agreed, and is willing to cost-share the feasibility. A Feasibility Cost Sharing Agreement was executed in October 2003 and the Corps has received the State funds. The start of this Feasibility Analysis under Section 107 is pending resolution of the second proposal in the harbor since both projects are linked.

The second proposal, under authority of Section 227 of the Water Resources Development Act of 1996, involves finding a solution to the erosion and channel cut at the mouth of the Blackwater River at the south end of the inner harbor in Seabrook. A new channel has eroded across the tidal bar, resulting in erosion of adjacent shorefront properties, loss of shellfish flats and deposition of shoal material in the Seabrook anchorage. This deposition of material into the Seabrook anchorage needs to be resolved/eliminated prior to moving ahead with the 107 Feasibility Analysis – otherwise, the economics section of the 107 analysis would fail.

All agreements, permits and approvals have been secured for the project. A construction contract award is pending (as the apparent low bidder's equipment and capabilities are being analyzed). We *hope to be in a position to* start construction in September 2004 and complete the work *by spring 2005.*

Flood Plain Management Services

NORTHERN MASSACHUSETTS/NEW HAMPSHIRE HURRICANE EVACUATION STUDY (2nd CD) - This study is being conducted under a federally funded program cosponsored by the Corps of Engineers and the Federal Emergency Management Agency. The objective of the program is to provide a technical data report and coastal flood mapping from which the state and local communities can develop/update preparedness plans for coastal storms. It will also allow state and local officials to identify evacuation areas and routes of evacuation for various coastal events. Inundation maps have been delivered to the state and affected communities. Finalization of evacuation maps await census 2000 data from the New Hampshire Office of State Planning. *Final census figures have been compiled and delivered to New Hampshire State and local Emergency Management officials.*

BASS BEACH (PHILBRICK POND) MARSH DRAINAGE BASIN (1st CD) – The North Hampton Planning Board requested the New England District (NAE) to conduct under the Flood Plain Management Services Program an investigation of the water drainage from the upland end of the Philbrick Pond Marsh. The New England District in cooperation with the Natural Resource Conservation Service will be performing a hydraulic model of the basin. Survey data has been initiated. Work efforts by New England District will commence upon completion of the hydraulic modeling efforts by NRCS.

Streambank Protection

PARTRIDGE BROOK, WESTMORELAND, NH (2nd CD) — *The County of Cheshire, N.H. has requested the assistance of the Corps under its Section 14 Authority to evaluate, design and repair serious bank erosion at the intersection of the Connecticut River and Partridge Brook in Westmoreland, N.H. that was caused by a 2-day storm system in 2003. The County municipal wastewater treatment lagoon is located in this area and is in serious danger. Initial review of the new Flood Insurance Study for this region done by ENSR (currently in review) indicates that the wastewater treatment lagoon lies in the floodway. The Hydrology & Hydraulic Analysis and Environmental Assessment (EA) for the study phase are currently under way.*

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 at 37 sites have been completed in New Hampshire, including 26 where no cleanup work was found to be necessary. Of the 11 sites where work was needed, the following efforts are underway:

DESIGN – The Supplemental Remedial Investigation at the former **Grenier Air Force Station, Manchester Airport, Manchester (1st CD)** was completed and findings were discussed with the state. Further discussions are pending to determine final disposition of the site. Required work will be performed as funding and priorities allow. Work at **Fort Stark, Newcastle (1st CD),** will be scheduled when priorities allow.

REMEDIATION is complete for the **Mt. Washington Test Site (2nd CD),** the **Mt. Washington Equipment**

and Experimental Station (2nd CD), the Wright Air Development Facility, **Bartlett (2nd CD),** Icing Research Annex, **North Conway (2nd CD)**, Concord Point Radar Station, **Rye (1st CD),** Camp Langdon and Fort Constitution, **Newcastle (1st CD),** Fort Dearborn in **Rye (1st CD),** and at the Massabesic National Guard Training Range in **Auburn (1st CD)**.

Superfund

WORK FOR THE ENVIRONMENTAL PROTECTION AGENCY (SUPERFUND) - 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 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.

OTTATI & GOSS/GREAT LAKES CONTAINER CORPORATION SUPERFUND SITE, KINGSTON (1st CD) - The New England District completed the design of a remedial action project in September 2000 that included excavation and on-site thermal treatment of approximately 14,000 cubic yards of upland soil and off-site disposal of approximately 10,000 cubic yards of wetland sediment, both contaminated with PCBs (Polychlorinated Biphenyls) and VOCs (Volatile Organic Compounds). Treatment of the upland soil consisted of low temperature thermal desorption. The contractor began treatment of contaminated soil on Sept. 8, 2001 and completed the project in September 2002. A total of 73,300 tons of upland soil were treated and 9,752 tons of contaminated wetland sediment were hauled off site to the Turnkey Landfill in Rochester, NH.

FLETCHER'S PAINT WORKS AND STORAGE FACILITY SUPERFUND SITE, MILFORD (2nd CD) - The New England District completed an interim remedial action at the site during the winter/spring 2001. Our contractor, Roy F. Weston, mobilized in December 2000, performed asbestos and hazardous materials abatement of the 25,000-square-foot building, demolished the building, disposed of the debris at an approved facility, and placed an interim permeable cap over the site to minimize risk of exposure to the PCBs (Polychlorinated Biphenyls) in the site soils. The total cost of this interim action is about $850,000. Excavation and treatment of the soil will consist of low temperature thermal desorption. Completion of this work is being negotiated by EPA with the Potentially Responsible Party (PRP). New England District is providing oversight to design activities that are currently underway, including review of pre-design work plans and participating in meetings with the PRP.

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 New Hampshire.

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 its 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 15 active applications for regulated work in New Hampshire. During May, June and July 2004, 293 new applications were received. Final actions were taken on 190 applications, including three individual permits, 130 general permits, one not required, and nine denials. The balance at the end of July 2004 was 118 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. During the last quarter, 98 percent of all permits issued in New Hampshire were 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 New Hampshire PGP was reissued with minor changes on June 2, 2002, following a February 2002 Public Notice.

NASHUA CIRCUMFERENTIAL HIGHWAY (2nd CD) - The Corps of Engineers has announced the intent to begin a Supplemental Environmental Impact Statement (SEIS) to study and document the impacts of building the northern segment (i.e., a partial build). The SEIS will be added to the Final Environmental Impact Statement as part of the environmental study and permitting process. A notice of intent has been published, and public scoping sessions have been held. A public hearing will be held in early December 2004 when the Draft SEIS is complete.

INTERSTATE ROUTE 93, SALEM TO MANCHESTER (1st CD) - In the spring of 2000, the New Hampshire Department of Transportation (NH DOT) restarted discussions with presentations of segments of the proposed upgrade project. *Congress* brought together the stakeholders to discuss streamlining the regulatory/ project development process in accordance with provisions of federal legislation called TEA-21. The Corps has committed to meeting the state and Federal Highway Administration (FHWA) schedule for a permit decision. The Corps District Engineer serves on the Board of Directors of *the* task force to streamline this project. This task force last met on April 26, 2002, in Manchester. Board members failed to reach agreement on the mitigation package that the DOT proposed for the federal wetland permit. NHDOT continues to discuss additional mitigation measures with other state and federal agencies pursuant to its broader National Environmental Policy Act (NEPA) responsibilities. This additional mitigation would be developed with the assistance of FHWA. NHDOT and FHWA are continuing to develop the agreed upon alternatives for display in the Draft Environmental Impact Statement (DEIS). The DEIS was released in October 2002. The Corps issued a joint public notice with the Federal Highway Administration and a joint public hearing was held on Nov. 12 and Nov. 14 in Salem and Manchester. The Final Environmental Impact Statement (FEIS) *was issued* in May 2004. The Record of Decision would be made in *October 2004 after the water quality certificate is issued and a permit decision also would be made in October 2004.*

Special Studies

GULF OF MAINE INITIATIVE - The New England District is a member of the Gulf of Maine working group, providing this joint U.S./Canadian committee with water resource planning expertise. Corps staffers provide technical assistance in areas relating to our missions. Opportunities for Corps participation in ecosystem restoration are being continually considered.

COASTAL AMERICA - The New England District serves as chair of the Northeast Regional Implementation Team for the national Coastal America program. This interagency committee is investigating potential habitat restoration, non-point source control, and contaminated sediment projects throughout the northeast, with emphasis on habitat restoration and, in particular, restoration of tidally-constricted salt marshes and restoration of anadromous fisheries corridors. The team continues to coordinate its efforts within New Hampshire to identify potential projects.

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 main stem 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 mean time, The Nature Conservancy has expressed an interest in expanding the scope of the reconnaissance study to include the West

(VT) and Ashuelot (NH) rivers. Approval to expand the reconnaissance study has been obtained and the work is currently underway.

Other Current Activities

MERRIMACK RIVER WATERSHED STUDIES (SECTION 729) (1st & 2nd CDs) - Over the past several decades, significant improvements have been realized in the overall quality of the Merrimack River due to federal, state, local community, and private investment in water pollution control facilities. However, there are water quality concerns that still require significant investigation and remediation beyond that which individual communities can address.

Communities along the Merrimack River in Massachusetts and southern New Hampshire are undertaking planning efforts that could result in as much as $500 million in combined sewer overflow (CSO) control projects. In addition, future stormwater and total maximum daily load (TMDL) regulations may result in additional responsibilities. Contributions from non-point source pollution to the Merrimack have not been estimated and could be a major contributor to much of the water pollution problems in the river. The local communities are concerned that pollution control requirements are being mandated by state and federal regulatory agencies without a clear understanding of the pollution sources and the water quality and ecosystem benefits to be achieved basin wide.

In 2002 the Corps began a comprehensive watershed study to identify the number and range of water quality issues, ecosystem problems and opportunities along sections of the Merrimack River. The Section 729 comprehensive watershed study requires a 50 percent federal/50 percent nonfederal cost-sharing. The non-Federal sponsors for the study are the cities of Manchester and Nashua, New Hampshire, and Lowell and Lawrence, Massachusetts, and the Greater Lawrence Sanitary District in Massachusetts. Phase I of the Merrimack River Assessment is estimated to cost $2 million. Activities in 2005 will include completion of water quality sampling and analysis and simulations of river water quality and pollutant loading with computer models of the river.

COMBINED SEWER OVERFLOW, LEBANON (2nd CD) – On June 12, 2000, the U.S. Environmental Protection Agency issued a final Administrative Order to the city of Lebanon for violations under Section 301 of the National Pollutant Discharge Elimination System. The Order requires Lebanon to eliminate six combined sewer overflows (CSOs) by 2008 and a seventh CSO by 2012. The order states that discharges from the city's CSOs are degrading the water quality in the Mascoma and Connecticut rivers. The city is required to separate the sewer line from storm water lines and eliminate discharges containing sewage to surface waters. Current city estimates place the project cost at $34 million.

The 1999 Water Resources Development Act authorized the Secretary of the Army $8 million for a project to eliminate or control combined sewer overflows in the city of Lebanon. Funds of $5.25 million for the Corps efforts have been appropriated to date. They include $1.5 million in the fiscal year 2001 Energy and Water Appropriations Act, $2.0 million in the fiscal year 2002 Energy and Water Appropriations Act, $1.0 million in the fiscal year 2003 Energy and Water Appropriations Act and $0.75 million in the fiscal year 2004 Energy and Water Appropriations Act. The City of Lebanon awarded Contract number 1 to Moulton Construction, Inc., from West Lebanon, NH, in June 2001 and performed construction management. The construction contract was completed in November 2002. NAE awarded Contract number 2 on July 29, 2002 to Paragon Construction, Inc., from Orford, N.H and is performing construction management. Construction began during mid-September 2002 with completion scheduled for Sept. 15, 2004. The Corps of Engineers, at the request of the City of Lebanon, advertised and opened bids for Contract Number 3 on May 20, 2004. *Bids were deemed excessive and rejected. The current plan is to re-advertise in November 2004 so that construction can begin in the spring of 2005.* New England District will perform construction management for this contract.

COMBINED SEWER OVERFLOW, NASHUA (2nd CD) – On July 21, 2003, the U.S. Environmental Protection Agency issued a final Administrative Order to the City of Nashua for violations under Section 301 of the National Pollutant Discharge Elimination System. The Order superseded the original April 16, 1999 EPA Order in its entirety and requires Nashua to implement the 2003 Long Term Water Quality and Infrastructure Control Plan (LTCP) developed by the City dated January 2003 as amended June 4, 2003. The LTCP proposed an alternative plan to comply with the EPA Order that maximizes the use of the existing infrastructure to retain combined sewer overflow in the collection system prior to

conveyance to the Nashua Wastewater Treatment Facility. The EPA Order states that discharges from the City's nine CSOs and Wastewater Treatment Facility are degrading the water quality in the Merrimack and Nashua Rivers. Violation of the Order may subject the City to injunctive relief and/or penalties. Current city estimates place the project cost at $53 million.

The 1999 Water Resources Development Act authorized the Secretary of the Army $20 million for a project to eliminate or control combined sewer overflows in the city of Nashua. Funds of $850,000 for the Corps efforts have been appropriated to date. They include $100,000 in the fiscal year 2003 Energy and Water Development Appropriations Act and $750,000 in the fiscal year 2004 Energy and Water Development Appropriations Act. Initial project discussions have begun and will culminate in the execution of a Project Cooperation Agreement scheduled for the winter of 2004. It is anticipated that New England District will issue and award construction contracts as requested beginning in 2006 and perform construction management services for the City of Nashua.

AQUATIC ECOSYSTEM RESTORATION, OSGOOD POND, MILFORD (2nd CD)- The community of Milford requested that the Corps investigate the potential for an aquatic ecosystem restoration project at Osgood Pond. The Corps is conducting this project under authority of the Aquatic Ecosystem Restoration Program, Section 206 of the Water Resources Development Act. The study site is a 24-acre degraded freshwater pond, a result of sedimentation, including siltation and decayed vegetation build-up, which occurred over several decades. The average depth of the pond has been reduced to two to three feet. Average sediment depth in the pond is about five feet while some areas have 10 feet of accumulated sediment.

The current shallowness of the pond is conducive to extensive and dense summer time growth of aquatic weeds. The goal of the project is to restore both open water areas and shallow areas to provide habitat for fish and waterfowl.

The town provided a letter of support for the project in January 2001. Fisheries sampling occurred in August 2001. In October, sediments were tested for heavy metals and pollutants, and results showed chemical levels below State limits for contaminants. A hydraulic analysis conducted by the Corps concluded that draining and excavating the pond is not a viable option.

The Corps is investigating hydraulic dredging options for areas ranging from five to 15 acres of restored open water habitat while providing wetlands and shallow water habitats. Additionally, the Corps is investigating options for disposing of the dredged materials on town-owned lands, including using some of the dredged organic material to restore wetlands and riparian areas in abandoned quarried lands in the watershed upstream of Osgood Pond.

The Corps prepared a draft Environmental Assessment with the proposed action to hydraulically dredge approximately 15 acres of Osgood Pond. On Aug. 24, 2004, the Corps released a public notice of its proposed restoration plan, with a public comment period through Sept. 23, 2004. The draft Environmental Assessment is available for public review at the Milford Town Hall and the Wadleigh Memorial Public Library in Milford.

AQUATIC ECOSYSTEM RESTORATION, MILL POND, NASHUA (2nd CD) – The City of Nashua requested that the Corps begin a study to restore the aquatic ecosystem of the Mill Pond and canal in Mine Falls Park. The Corps is conducting this project under authority of the Aquatic Ecosystem Restoration Program, Section 206 of the Water Resources Development Act.

The objective of the study is to restore the fish and wildlife habitat associated with the pond and canal system. The canal starts at the Mine Falls historic gatehouse, circa 1888, where water is diverted from the Nashua River. The gatehouse is in need of repair to regulate water flows into the canal and pond. The canal system extends about two miles from the gatehouse, ending in an industrial/mill complex where the canal water drops through conduits through the complex and back into Nashua River. The canal system includes a 20-acre pond called Mill Pond.

The Preliminary Restoration Plan for this project was approved and funded at the end of 2001 and the study began in January 2002. In April 2002, sediments in the pond and canal were sampled, tested, and analyzed. Additional sediment sampling was performed in the fall of 2002. Geotechnical testing and analysis were also conducted. The hydrology of Nashua River and flows available at the gatehouse to the canal, along with the condition of the gatehouse, were examined in the spring and summer of 2003 to determine if greater water quantities can be released into the pond and canal. Formulation and analysis of alternative actions and public release of a draft Environmental Assessment are scheduled for 2004.

AQUATIC ECOSYSTEM RESTORATION, WISWALL DAM, DURHAM (1st CD) – The New Hampshire Fish and Game Department requested that the Corps investigate two alternatives for fish passage at Wiswall Dam: removing the dam, or constructing a fish passage facility over or around the dam. The Corps is conducting this project under authority of the Aquatic Ecosystem Restoration Program, Section 206 of the Water Resources Development Act.

Either fish-passage alternative would enable anadromous fish access to an additional 45 miles of river reach beyond that currently available. The Corps estimated that it would cost approximately $250,000 to complete planning, preliminary design and analysis of the alternatives. Total project costs, including construction costs, were estimated at approximately $800,000. These costs will be revised as the alternatives are further developed and a proposed action is selected. Analysis efforts were initiated in October 2001, including a survey of the dam and the Wiswall Road Bridge. Sediments deposited behind the dam were sampled and tested in January 2002 and results showed chemical levels below State limits for contaminants. A public meeting and coordinated site visit in February 2002 produced many comments. Issues include the effects of the alternatives on recreation and the town of Durham's supplemental water supply from Lamprey River.

In April 2002, the Corps collected data on water depths and sediment distribution in the impoundment area behind Wiswall Dam to determine river characteristics and stabilization or construction requirements if the dam were removed. A hydraulic analysis was conducted to investigate effects of the alternatives on river flows and channel configurations. Maps were developed to depict how the river would look if the dam were removed.

The dam creates an impoundment that is a water storage facility in Durham, N.H. This factor was found to increase the costs for the dam removal option substantially, due to high-cost water storage facilities that would be needed to replace the impoundment. Due to these economic impacts, the dam-removal alternative may not be supportable, so analysis was expanded in late 2002 to include various designs for a nature-like bypass channel around Wiswall Dam that could provide benefits similar to those of dam removal. The bypass channel is being designed to accommodate migration of large numbers and species of anadromous fish and provide benefits to resident fish and other river-dependent species. The study was extended into 2003 to include the nature-like bypass channel alternative, with a draft Environmental Assessment being prepared for public release scheduled in 2004.

Flood Control Dams, Recreation and Natural Resources Management

The New England District has constructed and now operates and maintains seven flood control dams in New Hampshire. All are located in the 2nd Congressional District, and information on each is provided below. In addition, the Corps of Engineers is responsible for the conservation of natural resources held in public trust at civil works water resources projects. Recreation areas at the 31 flood control 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.

BLACKWATER DAM on the Blackwater River in Webster and Salisbury was completed in 1941 at a cost of $1.3 million. The 1,150-foot-long, 75-foot-high dam has a reservoir storage capacity of 14.9 billion gallons of water and has prevented damages of almost $20 million to date. Recreational opportunities at Blackwater include hiking, biking, boating, fishing, hunting and snowmobiling with several thousand people visiting the reservoir area each year.

A contract has been awarded and work has started on concrete repairs to the dam. A periodic inspection of the project was performed in October 2002 to assess the overall condition of the now 63-year-old structure.

Situated **on Nubanusit Brook in Peterborough, EDWARD MacDOWELL LAKE** was completed in 1950 at a cost of $2 million. The 1,100-foot-long, 67-foot-high earthfill dam can impound a lake with a capacity of four billion gallons of water and has prevented damages of about $8 million to date. Over 30,000 visitors annually enjoy the picnic areas, swimming areas, hiking trails, boating, fishing, hunting and snowmobiling available at Edward MacDowell Lake.

Edward MacDowell Lake has experienced an active recreation season with continuing visitation and interest

in our facilities. Summer staff have provided two, one week long Junior Ranger sessions for youngsters and interactive weekend programs for our visitors. Maintenance at the project has continued over the summer including painting of the park office, construction of a stairway from our primary picnic shelter to the parking lot, repair of the retaining wall at the swimming beach, installation of baby changing stations in the park restrooms, and trail improvements including installing pet waste stations.

Construction of **FRANKLIN FALLS DAM in Franklin** was completed in October 1943 at a cost of $7.9 million. Situated on the Pemigewasset River in the town of Franklin, the 1,740-foot-long, 140-foot-high dam impounds a permanent pool of 440 acres with a maximum depth of about seven feet. The flood storage area of the project totals 2,800 acres and can store up to 50.2 billion gallons of water for flood control purposes. The project has prevented damages amounting to more than $69 million to date. Additionally, over 100,000 visitors annually enjoy the recreational facilities at Franklin Falls, including designated hiking and snowmobiling trails, picnicking, fishing, boating, wildlife viewing, and hunting. Regular maintenance continues on the 60-year-old structure. Concrete repairs to the dam's intake and trash rack painting contracts are complete. Project staff inspected local protection projects throughout Maine and New Hampshire in the fall of 2002.

The **HOPKINTON-EVERETT LAKES** Flood Control Project is a two-dam system of flood protection for the Merrimack Valley. **Hopkinton Dam, on the Contoocook River in Hopkinton**, is 790-feet-long and 76-feet-high and can impound a 3,700-acre lake. Nearby **Everett Dam, on the Piscataquog River in Weare**, is 2,000-feet-long and 115-feet-high and can impound a 2,900-acre lake. The lakes have a combined storage capacity of 51 billion gallons of water and are linked by a canal, which allows water to be diverted between the two pools. Construction of the dual facility was completed in 1962 at a cost of $21.4 million. During the 1987 flood this combined project utilized 95 percent of its storage capacity and prevented $24.5 million in damages. Since the construction in 1962, the two dams are credited with preventing over $63 million in damages. In addition, excellent recreational opportunities are available on project lands, including picnicking, swimming, boating, fishing, hunting and snowmobiling. An estimated 270,000 visitors come to the Hopkinton-Everett project annually.

Hopkinton Everett Lakes has experienced another good recreational season. Summer staff have welcomed visitors into the renovated Ranger Station at Elm Brook Park, presented interpretive programs to visitors, and hosted a successful, one-week long, Junior Ranger program for area children. Project staff have worked through the summer on ongoing maintenance, natural resource management projects, installation of new gate position indicators at Everett Dam, installation of security systems at the dams, and improvement of the project's road closure system to meet state and federal requirements and provide greater safety to area drivers during times of flood control operations. In addition, park staff have increased patrolling of the project property for the protection of resources and the safety of our visitors.

OTTER BROOK LAKE on Otter Brook in Keene was completed in 1958 at a cost of $4.3 million. The 133-foot-high, 1,288-foot-long dam can impound a reservoir with a storage capacity of 5.7 billion gallons of water. During the 1987 flood, this dam utilized 100 percent of its storage capacity and prevented $3.6 million in damages. Since the construction in 1958, the dam has prevented flood damages of $27.5 million. More than 39,000 visitors annually enjoy the swimming, picnicking, boating, fishing and hunting available at the 458-acre facility.

New England District recently completed a study and report addressing hydraulic design deficiencies at Otter Brook as a result of a revision to meteorological criteria used to design the project's spillway. The study was conducted under the Corps of Engineers Dam Safety Assurance Program, ER1110-2-1155. The spillway at Otter Brook discharges flood flows in excess of reservoir storage capacity and was designed sufficiently at the time of construction to pass flows from a design storm based upon the National Weather Service (NWS) determination of Probable Maximum Precipitation (PMP). Since the construction of Otter Brook in the late 1950s, the criteria used by the NWS to determine the PMP has been revised several times resulting in greater rainfall totals. As a consequence, the spillway at Otter Brook was recently determined to be under-designed to accommodate the design storm resulting from the latest PMP. Such an event could conceivably result in the spillway capacity being exceeded, resulting in overtopping of the dam and possibly dam failure. The study/report investigated remedial measures to resolve the deficiency. The Dam Safety Assurance Program provides for modifications of completed Corps of Engineers dams when deemed necessary for safety purposes due to hydrologic changes in state of the art design. The recommended plan is for construction of a new concrete spillway weir using mechanical fuse plugs designed to fail prior to exceeding

discharge capacity. The failure of the fuse plugs would lower spillway crest elevation, increasing spillway capacity sufficiently to discharge the PMF without overtopping of the dam. The report has recently been submitted to North Atlantic Division for approval. Construction could begin as early as 2005 with favorable report approval and funding.

SURRY MOUNTAIN LAKE on the Ashuelot River in Surry, just north of Keene, was completed in 1941 at a cost of $2.8 million. The 1,800-foot-long, 86-foot-high dam has a reservoir storage capacity of 10.6 billion gallons of water. During the 1987 flood, this dam also utilized 100 percent of its storage capacity and prevented $8 million in damages. Since construction in 1941, the dam has prevented damages estimated at $61 million. In addition to its flood control benefits, Surry Mountain Lake also provides recreational opportunities, such as fishing, swimming, and boating to 52,000 visitors annually. Restrooms, drinking water, and picnic shelters are also available.

The U.S. Army Corps of Engineers at Surry Mountain Lake and TNC (The Nature Conservancy) are now involved in a partnership titled the Sustainable Rivers Project. The project is designed to improve flow regimes, helping to protect the endangered dwarf wedgemussel and the overall health of the Ashuelot River.

A new cross-country ski trail is now in operation at Surry Mountain Lake. The 2-mile loop meanders through open agriculture fields and tall timber. The trail is maintained at 8 feet wide in the open flats and 4-6 feet wide in the wooded areas. Grooming is done on Mondays and Fridays.