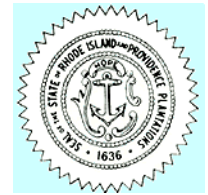


US Army Corps  
of Engineers  
New England District

# Update Report for Rhode Island



Current as of  
April 30, 2020

BUILDING STRONG<sup>®</sup>

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## Mission

The missions of the New England District (District), of the U.S. Army Corps of Engineers (Corps) include flood risk management protection, 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, 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 3,000 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, Mass. The other Corps of Engineers employees serve at Corps projects and offices throughout the region. For information on the New England District visit the website at: [www.nae.usace.army.mil/](http://www.nae.usace.army.mil/); or on Facebook: [facebook.com/CorpsNewEngland](https://www.facebook.com/CorpsNewEngland); or on Twitter: [twitter.com/corpsnewengland](https://twitter.com/corpsnewengland).

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## Navigation

### BLOCK ISLAND HARBOR OF REFUGE (2nd CD) –

The Corps is pursuing dredging of the federal anchorage and inner basin of the Federal Navigation Project (FNP). Sediment sampling and *testing have been completed. It has been determined that the sandy material to be dredged will be placed at the Crescent Beach Near-Shore placement site, and the finer grained material will be placed at the Rhode Island Disposal Site.*

*A portion of the material in the inner boat basin was found to be unsuitable for unconfined open water disposal, and will not be dredged as part of the pending dredging contract. After all environmental coordination with Federal and state resource agencies is completed, an Environmental Assessment (EA) will be completed and a dredging contract will be prepared and solicited. Funding for dredging of the FNP was included in Fiscal Year 19 appropriations.*

### POINT JUDITH HARBOR OF REFUGE (2nd CD) –

The Corps, in partnership with the Rhode Island Coastal Resources Management Council (CRMC), completed a draft feasibility report and environmental assessment of potential channel improvements at Point Judith under the Section 107 continuing authority.

The draft report recommended widening the 15-foot federal channel along the west Port of Galilee bulkhead by 50 feet to 200 feet, and extending the channel northeasterly along the north Galilee bulkhead. The draft report was released for public review on Sept. 19, 2018 and the review period

closed on Oct. 19, 2019. We received a commitment from the state of Rhode Island dated April 3, 2019 to sponsor the study moving forward into design and construction. The report *has been* finalized and *approved by* the North Atlantic Division office to execute a Project Partnership Agreement with the state.

### PROVIDENCE RIVER (1st & 2nd CDs) –

Shoaling has been identified in the 40-foot-deep main ship channel. Maintenance dredging was last performed between 2003 and 2005 when 3,821,000 cubic yards were removed from the federal channel. The District currently estimates that about 1,000,000 cubic yards need to be removed from the project to return the project to its authorized dimensions.

The District has completed sampling and testing and has determined that nearly all of the material is unsuitable for unconfined open water disposal at the Rhode Island Sound Disposal Site.

The District is developing a Dredged Material Management Plan (DMMP) to determine the least cost, environmentally acceptable approach for disposal of the anticipated dredge sediments, which will most likely include the development of additional Confined Aquatic Disposal (CAD) cells in the river.

The DMMP will address anticipated dredging needs over the next 20 years, to include federal, state, and private dredging needs in the Providence River.

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## Ecological Restoration/Watershed Projects

**LOWER BLACKSTONE RIVER (2nd CD)** – The Rhode Island Department of Environmental Management (DEM) requested assistance from the Corps to restore anadromous fish populations in the Blackstone River between Narragansett Bay and the Lonsdale area in Rhode Island. The Corps' work is part of an interagency plan that would provide access to over 200 acres of spawning and foraging habitat for anadromous fish (river herring and shad). The District's study is exploring alternatives to restore fish passage around the Elizabeth Webbing Dam in Central Falls. The District received funding in 2010 to begin the feasibility study and executed a feasibility cost sharing agreement in August 2011. The District presented the evaluation of alternatives to stakeholders in September 2012. The DEM requested an expanded scope to evaluate fish passage alternatives at Slater Mill Dam. A final draft of the feasibility study and environmental assessment is anticipated.

**NATIONAL ESTUARY PROGRAM** – The New England District is providing technical assistance in the implementation of the National Estuary Program (NEP), Narragansett Bay Project (NBP), Comprehensive Conservation and Management Plan. Goals of the NEP include identifying nationally significant estuaries that are threatened by pollution, development or overuse; promoting comprehensive planning for and conservation and management of these waters; encouraging the preparation of management plans; and enhancing the coordination of estuarine research. The District's activities include participation in meetings on water resource planning and data sharing.

**PLANNING ASSISTANCE TO STATES PROGRAM** – *For more information on Planning Assistance to States visit the website at: <https://www.nae.usace.army.mil/Missions/Public-Services/Planning-Assistance-to-States/>.*

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## Flood Plain Management Services/ Silver Jackets

Under the authority provided by Section 206 of the 1960 Flood Control Act (PL 86-645), as amended, the Corps of Engineers can provide the full range of technical services and planning guidance that is needed to support effective flood plain management. General technical assistance efforts under this program include determining: site-specific data on obstructions to flood flows, flood formation, and timing; flood depths, stages or floodwater velocities; the extent, duration, and frequency of flooding; information on natural and cultural flood plain resources; and flood loss potentials before and after the use of flood plain management measures. Types of studies that have been conducted under the flood plain management service (FPMS) program include: flood plain delineation/hazard, dam failure analyses, hurricane evacuation, flood warning, floodway, flood damage reduction, stormwater management, flood proofing, and inventories of flood prone structures.

**PAWTUXET RIVER FLOOD MAPPING** – Areas in

Cranston, Warwick and West Warwick, Rhode Island located along the Pawtuxet River were severely impacted by the spring 2010 floods. Historically, government officials, emergency responders and residents have not had the technology available to translate the flood elevation, depth and areal extent of flooding to points distant from a U.S. Geological Survey (USGS) stream gage. Incorporating data from this area into the USGS' web based Flood Inundation Mapper provides decision-makers and residents with a significant resource. The tool projects information based on the river stage at the USGS stream gage "Pawtuxet River at Cranston (01116500)" and covers stages from about 8-22 foot (50- to 0.2-percent chance flood) in 1 foot increments.

**STATE OF RHODE ISLAND (1st & 2nd CDs)** – The Rhode Island Silver Jackets team held their quarterly meeting on Oct. 25, 2019 and is preparing proposals for Flood Risk Management Projects.

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## Emergency Streambank Protection

*This program is used to assist communities in the stabilization of streambank/shoreline emergency erosion conditions which threaten important publicly used facilities. The Section 14 authority allows the Corps of Engineers to participate in the planning and construction of stream bank erosion control projects in situations where public facilities are threatened, in partnership with a local sponsor.*

*For more information on the Section 14 Emergency Streambank Protection program visit the website at: <https://www.nae.usace.army.mil/Missions/Public-Services/>*

*[Continuing-Authorities-Program/Section-14/](#)*

**URI NARRAGANSETT EROSION PROTECTION (2nd CD)** – Pier Road at the University of Rhode Island, Narragansett campus is at risk due to coastal storm erosion. This road provides access to the University's research pier. The New England District will conduct an initial appraisal of the problem and solutions to determine if there is a Federal interest in Emergency Streambank Protection at the site. The Federal Interest Determination will be completed in summer 2020.

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## General Investigations

**RHODE ISLAND COASTLINE COASTAL STORM RISK MANAGEMENT STUDY (1st & 2nd CDs)** – Hurricane Sandy and other recent coastal storms, as well as an increased concern with Climate Change and Sea Level Rise, have resulted in an increased desire to address coastal storm risk across the entire state of Rhode Island. A Coastal Storm Risk Management feasibility study has been initiated that encompasses the entire Rhode Island coastline from Point Judith to the Massachusetts state line. The Feasibility Study was initiated on March 29, 2019, and a list of alternatives was agreed to in July 2019. The study team *is working towards the TSP which was originally scheduled for May 2020. Due to a lack of Federal funding for this project in FY 2020 the TSP has been bumped back to a date that has yet to be determined, contingent upon when the project receives additional Federal funding.*

**RHODE ISLAND FLOOD DAMAGE REDUCTION STUDIES (1st & 2nd CDs)** – March 2010 storms in Rhode Island resulted in significant riverine flooding of homes, businesses, roads and wastewater treatment facilities. After the 2010 storm events, the Corps received funding through the 2010 Supplemental Appropriations Act (P.L. 111-212) to conduct reconnaissance investigations in the Pawtuxet, Woonasquatucket and Pawcatuck River watersheds. The Reconnaissance Reports for the Pawtuxet and Woonasquatucket Rivers were approved in August 2012 and the Pawcatuck River Report was approved in May 2012. The reports recommend moving to the feasibility study phase.

Subsequently, the Disaster Relief Appropriations Act of

2013 (P.L. 113-2) authorized the Secretary of the Army to complete ongoing flood and storm damage reduction studies, at full federal expense, in areas that were impacted by Hurricane Sandy in the North Atlantic Division of the U.S. Army Corps of Engineers, which includes the Pawcatuck River Watershed. Two new feasibility studies were initiated: one that addresses flood damage along the river and one that addresses coastal storm damage. A cost-sharing agreement was executed between the Corps and the town of Westerly for the flood risk management (FRM) feasibility study. A similar agreement was signed for the coastal storm risk management (CSRM) feasibility study between the Corps and the Rhode Island Coastal Resources Management Council.

The FRM study found that there was an opportunity to conduct non-structural (elevation and floodproofing) on some structures in several towns but that the work should be further investigated under Section 205 of the Continuing Authorities Program. There has been no sponsor identified at this point to move forward with a Section 205 investigation. The FRM feasibility has subsequently been terminated.

The CSRM study also resulted in a recommendation to implement non-structural projects on about 300 properties spread across the coastal flood plain of Westerly, Charlestown, South Kingstown and Narragansett. The final report was approved by the Chief of Engineers on Dec. 19, 2018. A Design Agreement was executed between the Corps and RI CRMC, the project sponsor, in October 2019 to begin the design phase of the work, which is scheduled to begin.

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## Hurricane and Storm Damage Reduction Projects

Section 103 of the 1962 River and Harbor Act authorizes the Corps of Engineers to study, design, and construct small coastal storm damage reduction projects in partnership with non-federal government agencies, such as cities, counties, special authorities, or units of state government. The maximum federal cost for planning, design, and construction of any one project is \$10,000,000. Each project

must be economically justified, environmentally sound, and technically feasible. Hurricane and storm damage reduction projects are not limited to any particular type of improvement. Beach nourishment (structural) and flood proofing (non-structural) are examples of storm damage reduction projects constructed using the Section 103 authority.

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## Interagency and International Support

**SUPPORT TO THE U.S. DEPARTMENT OF VETERANS AFFAIRS** – The New England District has teamed up with a sister federal agency in an effort to improve the care Soldiers are receiving at military hospitals. The U.S. Department of Veterans Affairs (VA) and the Corps of Engineers entered into an interagency agreement in 2001 for the goods and services the 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 Corps in New England and NAE is now supporting the VA with services at several facilities in New England. In Rhode Island, NAE and the VA held a ribbon cutting ceremony for the \$18.8 million new Specialties Clinic and Behavioral Health Addition at the VA Providence Hospital in Providence in July 2012. The goal of the new addition is to better meet the mental health and specialty needs of Veterans.



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## Regulatory Program

Department of the Army permits are required from the 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 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 is provided at <https://www.nae.usace.army.mil/Missions/Regulatory/Permits-Issued/>. Relevant environmental documents are available upon written request.

For details on Corps jurisdiction of wetlands and whether a permit is required for your work contact the Corps' New

England District Regulatory Division at 978-318-8338 or 978-318-8335 or by email to [cenae-r@usace.army.mil](mailto:cenae-r@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 authorize work with no more than minimal adverse effect on the aquatic environment. Up to 98 percent of all permits issued in New England are RGPs. Work eligible under the RGPs is generally approved in less than 60 days. The Rhode Island RGP is available at: <https://www.nae.usace.army.mil/Missions/Regulatory/State-General-Permits/>.

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## Defense Environmental Restoration Program (DERP)

This is a congressionally directed program (PL 98-212) that emphasizes the identification, investigation and prompt cleanup of hazardous and toxic waste; unexploded ordnance; buildings and other structures and debris at current and former military facilities. A total of 85 formerly used defense sites (FUDS) have been identified in Rhode Island. Site and project eligibility investigations at all sites are now complete, including 53 where no work was found to be necessary. Of the 32 sites where work was needed, the following efforts are underway:

### **QUONSET POINT, DAVISVILLE and NORTH KINGSTOWN (2nd CD):**

**Aqua Tank Farm** – Test results from monitoring wells at the site indicate that concentrations of all groundwater contaminants comply with the ground water quality standards that are recommended by Rhode Island Department of Environmental Management (DEM) with the exception of Light Non-Aqueous Phase Liquid (LNAPL). Soil and LNAPL removal operations were completed in March 2010. DEM approved the corrective action closure report for the removal operations and provided CENAE a No Further Action letter, dated April 12, 2011. The remediation building and monitoring wells were decommissioned in summer 2012. A project close out was completed for this project in January 2013.

**Blue Beach Site** – Sampling for TCE in 19 wells was conducted in June 2009. CENAE contracted with an A-E firm in second quarter FY10 to develop a conceptual site model (CSM) and remedial investigation/feasibility study (RI/FS) work plan for the Blue Beach site and associated Red Maple Swamp to address the TCE and metals contamination. CENAE retained an A-E firm to execute the RI/FS workplan and complete the client draft RI/FS, which was completed in winter 2017; however, due to data gaps in the investigation, additional work is required which resulted in additional field

work in 2018 and a completion of the RI/FS.

**Camp Avenue Dump Site** – The New England District is continuing the long-term monitoring of soil cover (surface inspection) following its installation in the spring of 1998.

**Charlestown (2nd CD) Naval Auxiliary Landing Field (CNALF)** – A remedial action was completed in July 2008 to remove and dispose of petroleum contaminated soil. Wells also were installed as part of a Long Term Monitoring Program. The Corps completed 2 years of quarterly groundwater sampling from October 2008 through September 2010. The Draft Two Year Long Term Monitoring Report was submitted to RIDEM in January 2012. The Corps received the state's comments on the report in September 2012 and addressed all comments. The document will be finalized.

**Electric Boat, PRP site** – USACE is currently involved in settlement negotiations with Electric Boat.

**Gould Island** – Former Naval activities on Gould Island resulted in contamination which remained after the southern part of the island was transferred to the state of Rhode Island for use as a wildlife refuge. Rounds of investigation into the nature and extent of contamination began in November 2017 and continued through April 2018, with a goal of completing a Remedial Investigation (RI) report.

From January through March 2019, 989 cubic yards of debris was removed from the island in order to allow access to the bunker area and boiler house foundation for follow-on HTRW sampling. A single 1,500 gallon UST was removed from near the center of the island.

Results of the 2017-2018 investigation indicated data gaps preventing a RI report completion, necessitating additional investigative efforts. In August 2019, USACE

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awarded to an architecture and engineering (A-E) firm to perform this additional investigation. USACE worked with the contractor to finalize plans for the investigation, which was conducted over a three-week period during March of 2020. Results of the field program, which are expected to be available by early-summer 2020, will be reviewed to determine if they provide sufficient information to allow for the completion of the remedial investigation report and its associated comprehensive human health and ecological risk assessment.

In addition to field work, the New England District in partnership with state and local government and the residents of Jamestown established a Restoration Advisory Board (RAB). The most recent RAB activities have included a USACE-supported, RAB-sponsored informational tour of the Gould Island site, held on Aug. 15, 2019, and RAB meeting, held on Sept. 26, 2019. The island tour, which was attended by RAB members, federal, state, and local officials, as well as members of the local media, provided the interested parties an overview of historic remedial investigation activities and provided context for future planned activities. The historic and planned remedial investigation activities were presented in great detail at the September RAB meeting. *At the September meeting, the next RAB meeting was tentatively scheduled for May 2020. The timing and format of this spring 2020 RAB meeting is currently under discussion, as COVID-19 concerns are expected to preclude the convening of an in-person public meeting.*

**Kiefer Park** – A free-floating product recovery system was installed at this site. This system has not been effective in removing Light Non-Aqueous Phase Liquid (LNAPL) at the site. We contracted with an A-E firm in second quarter 2010 to complete an LNAPL Mass, Mobility and Recoverability assessment for the Kiefer Park property. Field work was completed in late fall 2010 and the final LNAPL management plan was completed in spring 2011, the results of which determined that LNAPL at the project is not mobile. The Corps retained an A-E firm to complete a validation of the project's existing 1997 RIDEM approved human health and ecological risk assessment as well as a site closure documentation under Rhode Island Remediation Regulations, which was completed in late 2017. Environmental land use restrictions (ELURs) have been prepared and submitted to property owners for filing with the town. The site will be transitioned to long term monitoring (LTM) via RIDEM interim letter of compliance (ILOC). The ILOC is anticipated to be completed, with LTM commencing.

**Newport Naval Base (NETC Melville) in Newport (1st CD)** – Melville North Area of Concern (AOC) #1 is located in the central portion of the site and is currently utilized as a boat marina by Hinckley Yachts. The District completed the removal of a large underground vault-like structure with surrounding PCB and oil-contaminated soils in September 2002. Additional investigation was required and a Site Investigation Report (SIR) was prepared and approved by the state (RIDEM). The report's selected remedy included

the removal of a smaller underground concrete vault (along with associated petroleum contaminated soil from within the buried vault), implementation of post-remedial action groundwater sampling program, and the use of petroleum absorbent tubular socks to remove product from the product recovery wells. The small vault removal was completed in the summer of 2010. Subsequent action at the site includes well monitoring and product removal. The long-term monitoring and product removal from the wells will continue annually.

**NIKE PR-58 site** – The New England District installed additional wells and various other sampling locations during the summer/fall 2009 and spring 2010 to identify the horizontal and vertical extents of the chlorinated volatile organic compound plume associated with the NIKE PR-58 site. Data collected was used to complete a Draft Remedial Investigation (RI) Report for the site. The RI had several data gaps that were required to be filled, prior to finalizing the report. CENAE decided that these data gaps needed to be completed prior to issuing a final RI for the site. CENAE has contracted with an AE firm to conduct field activities to fill data gaps identified in the Draft RI and complete a combined RI and Feasibility Study for the project. Additionally, CENAE conducted a second sub-slab soil vapor investigation at the town of North Kingstown DPW facility, located immediately south of the PR-58 property. Results of this investigation found that impacts to the Facility from vapor intrusion are below actionable levels, therefore CENAE will continue to monitor groundwater beneath the facility (as a part of the larger FUDS project monitoring network) to identify any trends that may indicate future impacts to the facility. Additional RI/FS field efforts were completed in 2013, 2014, and 2015, the results of which were used to complete a CERCLA-compliant RI/FS for the project in summer 2016. The Proposed Plan was finalized in April 2018 with the UU/UE option selected as the remedial alternative. The Decision Document is slated to be finalized.

**Nike PR-79, Foster (2nd CD)** – Annual supply well sampling continues at the four active water supply wells impacted by the contaminant of concern (COC), TCE, at levels, above the RIDEM standard for GA (Groundwater A rating) aquifers. USACE installed and is maintaining carbon filters to remove the TCE on all impacted water supply wells as a protective measure for local residents. A supply well monitoring and carbon filter inspection event was held in fall 2017. Additionally, USACE contracted the U.S. Army Public Health Command (USAPHC) to complete a drinking water well survey of additional residential drinking water wells in the area of NIKE PR-79. The drinking water well survey consisted of the identification of approximately 70 residential and/or commercial drinking water wells, potentially impacted by the COC from NIKE PR-79. CENAE requested permission from each property owner to sample their well for volatile organic compounds (VOCs); 13 property owners responded, all of which granted permission to have their wells sampled. Sampling efforts were completed in summer 2010 and results were provided to the homeowners and RIDEM in late summer 2010. COCs were not detected at concentrations in excess of applicable regulatory standards. In December 2018/January 2019, during the annual

sampling at the four active water supply wells, the USACE self-implemented residential groundwater samples at an additional 12 drinking water wells generally located downgradient of the Site. Based on laboratory analytical results COCs were not detected at concentrations in excess of applicable regulatory standards. A contract was awarded in June 2019 to the A-E firm, AECOM, to prepare a RI Work Plan for a remedial investigation which they are scheduled to complete in early 2020.

Annual supply well sampling occurred in December 2019. Currently the EMCX is reviewing the QAPP and RIWP. We anticipate mailing a fact sheet for the Site to local property owners for the purpose of evaluating public interest in a local meeting with the NAE and RIDEM in winter 2020. Implementation of RI fieldwork is anticipated for spring 2020.

In the past number of years, dating back to the program's start in the mid-1980s, remediation contracts have been completed at the following locations:

#### First District

Army Reserve Center, **Lincoln**  
Nike Site, **Bristol**

Fort Adams, **Newport**  
Beavertail Point Naval Communications Station, **Jamestown**  
Prudence and Rose Islands, **Portsmouth and Newport**  
Fort Church, **Little Compton**  
Fort Wetherill, **Newport**  
Sachuest Point, **Newport**  
Rose Island, **Newport**  
Fort Wetherill, **Jamestown**  
Fort Getty, **Jamestown**  
Prospect Hill Fire Control Station, **Jamestown**  
Camp Avenue Dump Site, **Davisville**,  
Hull Cove Fire Control Station, **Jamestown**

#### Second District

T.F. Green Airport, **Warwick**  
Nike Site PR-79, **Foster**  
Devil's Foot Road, **Quonset Point**  
**Quonset Point** NAS, Nike PR-58  
Nike Site, **Coventry**  
Building, pier and pool demolition, **North Kingstown**

In addition, several remediation projects have been completed at **Quonset Point Naval Air Station (2nd CD)** and **Charlestown (2nd CD)**. These efforts included the removal of a total of 124 tanks, ranging in size from 1,000 to 25,000 gallons, cleaning and grouting of three miles of pipeline and removal of 20 transformers.

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## Work for U.S. Environmental Protection Agency

**SUPERFUND ASSISTANCE** – The New England District is the Corps of Engineers' total support agency for the U.S. Environmental Protection Agency's (EPA) Region I (New England) program for those federal-lead projects assigned to the Corps by EPA. This includes responsibility for design, construction execution, and some operation and

maintenance of remediation projects. In addition, the District is providing technical assistance upon request to Region I for other federal-lead projects assigned by EPA to private firms, as well as for some potential responsible party (PRP) remediation under Superfund.

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## Operating Flood Risk Management Projects

The New England District provides flood risk management project benefits at two projects it operates in the state of Rhode Island. Information on each of the projects is provided below.

#### **FOX POINT HURRICANE BARRIER (1st & 2nd CDs) –**

The New England District took over the operations and maintenance (O&M) of the Fox Point Hurricane Barrier in Providence, R.I., from the city of Providence as of Feb. 1, 2010 due to congressional legislation. The Corps is responsible for project features located within the banks of the Providence River that includes a Pump station with over 3 million gallons per minute capacity, three large Tainter Gates, two Sluice Gates and a 700-foot-long concrete dam. Management of the barrier falls under the Cape Cod Canal Project Office in Buzzards Bay, Mass. O&M responsibility remains with the city of Providence for project features located outside the river banks such as dikes that flank each side of the barrier and for the five vehicular street gates and five sewer gates that comprise the rest of the project.

The hurricane barrier provides critical flood protection to the state capital and has prevented loss of life and property time and again since its construction in 1966. The hurricane barrier provides protection against tidal flooding from hurricanes and other storms to approximately 280 acres of downtown Providence. The protected area includes the commercial and industrial center, transportation facilities, public utilities and many homes.

The hurricane barrier is a 700-foot-long concrete structure, 25 feet high, that extends across the Providence River. The structure contains three tainter gate openings that prevent the entry of floodwaters from the bay when closed and permit flow from two rivers out to the bay and passage of small vessels when open. Each gate is 40 feet high and 40 feet wide. Earthfill dikes with stone slope protection flank each side of the barrier. The eastern dike is 780 feet long and the western dike is 1,400 feet long.

During coastal storms and hurricanes, the pumping station's five large pumps can discharge the floodwaters of the

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Providence River through the barrier into the bay. Two gated openings in the pumping station, each 10 feet high and 15 feet wide, admit water into the cooling water canal used by a power plant, located immediately behind the barrier.

The Corps has completed several major maintenance projects since taking over O&M responsibilities. Completed maintenance work includes: rehabilitation of all five large River Pumps, new circuit breakers and electro-mechanical upgrades to high voltage switchgear in the pump station, new roofs for the Pump station, installation of modern water level monitoring and communication equipment, rehabilitation of sluice gate operating equipment, replacement of the high voltage incoming power supply lines to the pump station, painting and rehab of the Tainter Gates and concrete repairs.

The design for a project to replace the two transformers that step up the incoming electrical power supply to the voltage needed for the operation of the River Pumps is underway. These transformers and associated switchgear are original to the Barrier.

**WOONSOCKET FLOOD DAMAGE REDUCTION PROJECT (1st & 2nd CDs)** – The New England District took over operation and maintenance of the Woonsocket Flood Damage Reduction Project in Woonsocket, RI, in January 2009 in accordance with Section 2875 of the National Defense Authorization Act for Fiscal Year 2008. The project was transferred from the city of Woonsocket to the Corps. The Corps assumed operation and maintenance activities in July 2009 upon receipt of funding. Woonsocket is managed by the West Hill Dam Project Office staff, located in Uxbridge, Mass. For more information call 508-278-2511 or visit the website at <https://www.nae.usace.army.mil/Missions/Civil-Works/Flood-Risk-Management/Rhode-Island/Woonsocket/>.

The Woonsocket Flood Damage Reduction project protects industrial and commercial establishments and densely populated residential areas from flood flows on the Blackstone, Peters and Mill Rivers. It was constructed in response to flood damage that occurred due to heavy rains in August 1955 that caused \$22 million in damage. The

project was constructed in two phases: construction of the Upper Woonsocket section along the Blackstone River was completed in 1960 at a cost of \$5.4 million, and construction of the Lower Woonsocket section along the Blackstone River and two of its tributaries, the Mill River and Peters River, was completed in 1967 at a cost of \$8.3 million.

The Upper Woonsocket section consists of the following features: (a) 8,300 feet of channel improvement (b) replacement of the old Woonsocket Falls Dam with a new dam, (c) the Singleton Street pumping station, (d) four levees/dikes totaling about 1,200 linear feet, and (e) a 308-foot-long concrete floodwall. The Lower Woonsocket section consists of two independent units: (a) the Social District Unit consisting of six levees/dikes totaling about 5,000 linear feet, three concrete floodwalls totaling about 2,000 linear feet, two pressure conduits totaling about 2,200 linear feet, and the Social District pumping station; (b) the Hamlet District Unit consisting of three levees/dikes totaling about 2,800 linear feet, a 115-foot-long concrete floodwall, and the Hamlet District pumping station.

The Corps has completed several major maintenance projects since taking over O&M responsibilities. Completed maintenance work includes: overhaul of tainter gates, lead paint removal/repainting and electro-mechanical upgrades for the gate controls at Woonsocket Falls Dam; new roofs, windows, masonry repairs, new fuel delivery system and electrical upgrades at all three pumping stations; and installation of modern water level monitoring and communication equipment, throughout the project. Levee and dike vegetation removal and repairs were completed most recently.

The Corps and FEMA are working together to ensure that flood hazard maps clearly reflect the flood protection capabilities of the levees, and that the maps accurately represent the flood risks posed to those protected areas. The Woonsocket project was decertified under the National Flood Insurance Program (NFIP) administered by the Federal Emergency Management Agency (FEMA) in May 2007 because the agency determined the project no longer provides protection from the base flood level.

