



US Army Corps
of Engineers
New England District

Update Report for Rhode Island



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BUILDING STRONG[®]

696 Virginia Road, Concord, Massachusetts 01742-2751
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Mission

The missions of the New England District, U.S. Army Corps of Engineers 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, 171 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 510 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/; or on Facebook: [facebook.com/CorpsNewEngland](https://www.facebook.com/CorpsNewEngland); or on Twitter: twitter.com/corpsnewengland; or on Flickr: www.flickr.com/photos/corpsnewengland.

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Navigation

BLOCK ISLAND HARBOR OF REFUGE (2nd CD) – A \$3,445,000 contract to repair the east breakwater was awarded in the fall of 2014. The contractor did not complete the work and *the contract* was eventually terminated for default. The surety for that contractor hired a replacement contractor and work restarted in October 2016 and was completed by the spring of 2017.

CHARLESTOWN BREACHWAY & INLET, CHARLESTOWN (2nd CD) – Local officials requested Corps involvement to resolve growing concern for navigation safety through the breachway. The Initial Appraisal Report examined the removal of large boulders within and on the ocean side of the breachway, as well as dredging of the natural channel through the inlet and into Ninigret Pond. That report recommended proceeding with final design and National Environmental Policy Act (NEPA) documentation for a project to remove the boulder hazards in the inlet and its seaward approaches under Section 107 authority. In 2013, the project sponsor, Rhode Island Coastal Resources Management Council, informed the Corps that Rhode Island is pursuing FEMA funding sources to combine this project with damages caused by Super Storm Sandy in 2012. If this project is constructed under this separate program, the Corps will terminate this Section 107 project.

POINT JUDITH HARBOR OF REFUGE (2nd CD) – The Corps has received a request from the Rhode Island Coastal Resources Management Council (CRMC) to conduct a

feasibility study of potential channel improvements at Point Judith under the Section 107 continuing authority. The study will examine a proposal to widen and extend the Federal channel northeasterly along the north bulkhead at the Port of Galilee. A Feasibility Cost Share Agreement (FCSA) to share the study costs was executed with the local sponsor, the RI CRMC. The study is scheduled to be completed in 2018.

Several features of the Point Judith Harbor of Refuge project were damaged by Hurricane Sandy. Funds provided in the Disaster Relief Appropriations Act of 2013 have been used to make repairs to the East Jetty, the Camp Cronin parking area shoreline, and the East Shore Arm Breakwater *between 2015 and 2017*. A turnover ceremony for project completion was held on Nov. 6, 2017.

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 1,374,851 cubic yards were removed at a cost of \$15,492,858. We estimate that about 1,500,000 cubic yards need to be removed to return the project to its authorized dimensions. The District has completed sampling and testing and has determined that 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 most effective approach for disposal of the anticipated dredge sediments, which will most likely include

the development of additional 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.

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). Our study is exploring alternatives to restore fish passage around the Elizabeth Webbing Dam in Central Falls. We received funding in 2010 to begin the feasibility study and executed a feasibility cost sharing agreement in August 2011. We presented the evaluation of alternatives to stakeholders in September 2012. The DEM requested an expanded scope to evaluate fish passage alternatives at two downstream dams. We are working with partners to conduct a fish telemetry study below Main Street Dam. Data from the study will help engineers locate the best place to build a fish passage structure based on fish behavior, which will improve fish passage efficiency.

NARROW RIVER RESTORATION, NARRAGANSETT AND SOUTH KINGSTOWN (2nd CD) – The New England District initiated a feasibility study under the Section 206, Aquatic Ecosystem Restoration Program in March 2005. The study considered alternative plans to restore eelgrass, shellfish beds, salt marsh, and other habitats in the Narrow River. The Rhode Island Coastal Resources Management Council (CRMC) was the non-federal sponsor. The study team completed the baseline studies (bathymetric surveys, sediment mapping, shellfish and sediment sampling, shorebird surveys, a water quality summary, and hydraulic modeling) and a preliminary evaluation of restoration plans, which involved dredging and redistributing sediments to restore proper elevations and depths for salt marsh and eelgrass, and inlet dredging to improve flushing. CRMC decided not to move forward with the feasibility study. However, we resumed work on the study with The Nature Conservancy serving as the non-federal sponsor.

NATIONAL ESTUARY PROGRAM – The New England District has been requested to provide technical assistance to the implementation committee for the National Estuary Program's (NEP) Narragansett Bay Project (NBP). The NBP Comprehensive Conservation and Management Plan are complete. 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. Our activities include attendance at committee meetings on water resource planning and transfer of data to the NEP Geographic Information System for approval.

TEN MILE RIVER ECOSYSTEM RESTORATION (1st & 2nd CDs) – The Corps of Engineers, the Rhode Island Department of Environmental Management (RIDEM), the city of East Providence, and several other partners collaborated in the construction of Denil fish ladders at the three dams along the lower Ten Mile River in the city of East Providence. The fish species targeted for restoration include American shad and two species of river herring (alewives and blueback herring).

The Ten Mile River project consists of construction of Denil fish ladders at the lowest three dams (Omega Pond Dam, Hunt's Mill Dam, and the dam at Turner Reservoir) on the river. The three fishways allow anadromous alewives access to about 340 acres of spawning habitat and provide approximately three miles of riverine spawning habitat for blueback herring and American shad. These habitats will support a fish run of over 200,000 river herring. The fishways also are capable of passing about 25,000 shad. We completed construction of the last of the fishways at Omega Pond Dam in April 2015 and construction of all three dams is complete. The Corps and RIDEM will work to add eel passes to Omega Pond Dam and Turner Reservoir and modify a minor impediment to fish passage downstream of Hunts Mill Dam.

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 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 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 event, 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

General Investigations

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 event, 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.

storm damage. A cost-sharing agreement was executed between USACE and the town of Westerly for the flood risk management (FRM) feasibility study. A similar agreement was signed for the coastal storm risk management (CSR) feasibility study between USACE 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.

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.

The CSR 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. A final report has been sent to the Corps' North Atlantic Division office for review and approval prior to being sent to HQ USACE for final approval.

Two new feasibility studies *were initiated*: one that addresses flood damage along the river and one that addresses coastal

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 \$5,000,000. 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 floodproofing (non-structural) are examples of storm damage reduction projects constructed using the Section 103 authority.

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.

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 www.nae.usace.army.mil/Missions/Regulatory/PermitsIssued.aspx. 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 or visit the website at: www.nae.usace.army.mil/Missions/Regulatory.aspx.

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: www.nae.usace.army.mil/Portals/74/docs/regulatory/StateGeneralPermits/RIGP.pdf.

The New England District issued the statewide Rhode Island General Permits, pursuant to 33 CFR Part 325.S(c) (I) for minimal impact projects. The RI GPs replace the prior statewide Rhode Island General Permit, which expired on Feb. 22, 2017, with a series of multiple GPs covering activity-specific categories. These GPs became effective on March 3, 2017 and will continue the expedited review process for activities subject to Corps jurisdiction under Section 404 of the Clean Water Act, Section 10 of the Rivers and Harbors Act of 1899, and Section 103 of the Marine Protection, Research and Sanctuaries Act, located in waters of the U.S., including navigable waters, within boundaries of the state

of Rhode Island and lands located within the boundaries of the Narragansett Land Claim Settlement Area.

General Permits are used as a way to streamline state and Federal regulatory programs. The New England District has already had success with streamlining these programs with the use of GPs throughout New England. These GPs are designed to authorize activities covered under the Nationwide Permit (NWP) program and the prior RI GP.

Some of the major changes from the previous GP include:

- 1) The new RI GPs are organized into 21 activity-specific General Permits (Appendix A). This was intended to satisfy the requirements of Section 404(e) of the Clean Water Act, which allows the Corps to issue general permits for activities that are similar in nature and will cause only minimal individual and cumulative adverse environmental effects. Identifying specific activities allows the Corps to adequately assess cumulative impacts of permitted activities, as well as fully assess impacts on threatened and endangered species. Appendix A also combines non-tidal and tidal waters and wetlands in one table instead of the previous GP's Inland Waters and Navigable (Coastal) Waters tables.
- 2) Updated general conditions according to current state and Federal law and policies.

The new RI GPs' category names have changed from Category 1 to Self-Verification (SV) and from Category 2 to Pre-Construction Notification (PCN) to be consistent with the NWP program. The 2017 RI GPs supersede the previous RI GP which expired on Feb. 22, 2017. Activities authorized by the previous GP but had not commenced or were not under contract to commence by Feb. 22, 2017 will need to apply for a new authorization under the new RI GPs. Conversely, activities authorized by the previous RI GP that have either commenced or are under contract to commence will have an additional year from the expiration date of Feb. 22, 2017 to complete the work.

The public notice, with more specifics and a copy of the issued Rhode Island GPs, can be viewed on the Corps website at www.nae.usace.army.mil/Missions/Regulatory/PublicNotices.aspx.

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 will result in additional field work in early-to-mid 2018 and completed RI/FS in late 2018/early 2019.

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.

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 NAPL at the project is not mobile. NAE 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 by mid-2018, with LTM commencing at the beginning of calendar year 2019.*

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 summer 2013, the results of which were used to complete a CERCLA-compliant RI/FS for the project in summer 2015. The Proposed Plan and Decision Document are slated to be completed in 4th quarter FY17 and 2nd quarter FY18, respectively.

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 2013. 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. *A contract was awarded in March 2016 to the A-E firm, The Johnson Company, to prepare a RI Work Plan for a remedial investigation, slated to be awarded in 3rd quarter FY 2018.*

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:

Work for the U.S. Environmental Protection Agency (EPA)

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

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 within the banks of the Providence River. Day-to-day management of the barrier falls under the Cape Cod Canal Field 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 three 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

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.

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.

and again since its construction in 1966. In calendar year 2013, the Corps staff operated the barrier for flood control on 4 occasions during coastal storms. 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 westerly 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. Two 10- to 15-foot high 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.

A pumping station and cooling water canal are integral parts of the project. During a tidal/flood situation, the pumping

station's five large pumps can discharge the floodwaters of the 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: overhaul of river pump #5, river pump #2, river pump #3 and river pump #1, new circuit breakers and electro-mechanical upgrades to high voltage switchgear in the pump station, a new roof for the main part of the pump station, installation of modern water level monitoring and communication equipment, rehab of sluice gate operating equipment, and the replacement of the high voltage incoming power supply lines to the pump station.

Ongoing major maintenance projects include: an overhaul to river Pump #4. This contract was awarded in June 2016. A contract to remove lead-based paint and repaint the three tainter gates was awarded to Southern Road and Bridge on Sept. 29, 2016 for \$2,375,000. A contract to complete concrete repairs to the pumphouse and monoliths was awarded on Feb. 17, 2017 to New England Building and Bridge Company, Inc., from Providence, RI, for \$240,902.

A \$41,000 contract to replace the roof over the controls portion of the pumphouse was awarded in April 2017 to Vedant Construction.

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 at 508-278-2511.

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.

