



NATIONAL PRIORITY LIST (NPL) INFORMATION REQUEST

GOWANUS CANAL

BUTLER ST (BETWEEN BOND ST AND NEVINS ST)

BROOKLYN, NY 11231

EPA Facility Id: NYN000206222

ADDRESS CHANGE INFORMATION
Revised street: GOWANUS CANAL
Revised zip code: UNKNOWN

Gowanus Canal
New York
EPA ID#: NYN000206222
EPA REGION 2
Congressional District(s): 07
Kings County - End of 5th Street

NPL LISTING HISTORY
Proposed Date: 4/9/2009
Final Date: 3/4/2010

Background

The Gowanus Canal is a 100-foot wide, 1.8-mile long canal in the New York City (NYC) borough of Brooklyn, Kings County, New York. The Canal is bounded by several communities, including Park Slope, Cobble Hill, Carroll Gardens and Red Hook. The Canal empties into New York Harbor. The adjacent waterfront is primarily commercial and industrial, currently consisting of concrete plants, warehouses and parking lots.

The Gowanus Canal was built in the mid-1800s and was a major industrial transportation route. Manufactured gas plants (MGPs), paper mills, tanneries and chemical plants operated along the canal and discharged wastes into it.

In addition, contamination flows into the canal from combined sewer system overflows that carry sanitary waste from homes and rainwater and industrial pollutants from storm drains. As a result, the Gowanus Canal is one of the nation's most seriously contaminated water bodies. Canal sediment contain high levels of more than a dozen contaminants. Contaminants include including polycyclic aromatic hydrocarbons, polychlorinated biphenyls and heavy metals such as mercury, lead and copper.

What Has Been Done to Clean Up the Site?

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The Gowanus Canal is heavily contaminated, and EPA has the lead for cleaning up the actual canal. New York State is the lead for cleaning up the three former manufactured gas plants (MGPs) along the canal.

These plants, the former Fulton MGP site, the former Citizens Gas Works MGP site, and the former Metropolitan Gas Light Company MGP site, are sources of much of the polycyclic aromatic hydrocarbons contamination in the canal. National Grid is the potentially

responsible party (PRP) for the former MGP sites. PRPs are entities EPA determines may be legally responsible for a site's contamination.

EPA placed the site on the National Priorities List in March 2010. In coordination with New York City and National Grid, EPA identified the nature and extent of contamination in the canal, including finding ongoing sources of contamination, determining the physical and chemical characteristics of the canal that will influence the development, evaluating and selecting cleanup actions, and identifying appropriate cleanup methods for the canal. In addition, the study included an assessment of the risk that the contamination in the canal poses to people's health and the environment.

This work provided additional information to previous studies by the U.S. Army Corps of Engineers and National Grid. It included a bathymetric study to measure the depth of the canal and map underwater features. Other work included sampling site sediment, groundwater (by installing multiple wells), surface water, air, fish tissue, and the sewer outfalls. EPA also investigated approximately two hundred unpermitted pipes that discharged to the canal.

At the end of the investigation, EPA released a remedial investigation report to the public in February 2011. In December 2011, EPA publicly released the feasibility study that included cleanup alternatives to minimize risks from the canal.

EPA released a proposed cleanup plan in December 2012, that described the proposed cleanup plan for the site. In the plan, EPA recommended removing all the accumulated contaminated soft sediment from the bottom of the canal by dredging. These contaminants are the result of industrial and sewer discharges. The dredged areas would then be capped. EPA also recommended controls to prevent combined sewer overflows and other land-based sources of contamination from compromising the cleanup.

EPA finalized its cleanup plan as documented in a September 2013 Record of Decision (ROD). In the final plan, EPA divides the canal into three segments. The first segment runs from the top of the canal to 3rd Street. The second segment from 3rd Street to just south of the Hamilton Avenue Bridge. The third segment runs from the Hamilton Avenue Bridge to the mouth of the canal.

Under EPA oversight, contractors for the PRPs will dredge approximately 300,000 cubic yards of highly contaminated sediment from the first and second segments. About 281,000 cubic yards of contaminated sediment will be dredged from the third segment. Under the plan, contaminated material will be removed from the 1st Street turning basin and about 475 feet of the former basin will be restored. In addition, a portion of the 5th Street turning basin underneath the 3rd Avenue bridge and extending approximately 25 feet to the east of the bridge will be dredged and restored.

The original sediment in portions of the middle and upper segments of the canal is contaminated with coal tar. A solidifying material, such as cement, will be mixed with the sediment to bind the contaminants and form a five-foot solid layer that will prevent mobile liquid tar from moving upwards into the water. These stabilized areas will then be covered with a multiple layer cap. This multilayer cap will prevent contaminants that are dissolved in the groundwater underneath the solid layer and move through the pores of that layer, from entering the canal water and, therefore, it would reduce the potential for the spread of contamination.

The cap has several layers. The first layer is an "active" layer made of a type of clay that will remove contamination that could move up into the canal from the lower layers of contaminated native sediment. The second layer is another active layer made of granular activated carbon that also acts as a sponge and removes chemicals dissolved in the water moving upwards from the native sediment. An "isolation" layer of sand is placed on top of the active layers in order to keep these layers in place. Finally, an "armor" layer of heavy mats of concrete is put on top to prevent erosion of the underlying layers by boat traffic and canal currents. Clean sand will be placed on top of the "armor" layer to fill in the space between stones. The clean sand will create the bottom of the canal and help restore the canal bottom as a habitat.

This cleanup plan relies on the control of upland sources of contamination to the canal. This includes cleaning up the three former MGP sites adjacent to the canal: Carroll Gardens/Public Place (formerly known as "Citizens Gas Works"), former Metropolitan MGP, and former Fulton Municipal Works MGP (Fulton MGP). EPA's cleanup plan also calls for constructing two combined sewer overflow retention tanks in the upper and middle canal to prevent contaminated solids being discharged during sewer overflows from contaminating the canal.

The cost of the cleanup is currently estimated to be more than a billion dollars.

Implementing the Dredging Cleanup

EPA issued an Unilateral Administrative Order (UAO) in 2014 to National Grid and more than 30 other potentially responsible parties collectively called the "PRP Group." National Grid is the company that acquired the legal liability for three former manufactured gas plant (MGP) sites. The UAO required the PRP Group to design the cleanup action for the canal.

To prepare for the cleanup work, National Grid conducted test dredging and capping in the 4th Street turning basin to provide information necessary to complete the full-scale dredging and capping design for the upper canal from Butler Street to 3rd Street. National Grid began a marine debris removal test in October 2016. The work was completed in November 2016. The test dredging began in October 2017 and was completed in June 2018. The test capping which followed, was completed in October 2018.

National Grid finished constructing the Fulton former MGP cutoff wall (to prevent coal tar migration to the canal) in fall 2020.

New York City completed its design of the Turning Basin 1 excavation and restoration in June 2019 and expects to begin the work in 2023.

The PRP Group's canal dredging and capping design for the upper portion of the canal (RTA1) began in November 2020.

In September 2020, EPA and the PRP Group started the design of RTA2, the middle section of the Gowanus Canal.

CSO Cleanup

EPA issued another UAO in 2014 to New York City that required the city to design the combined sewer overflow (CSO) retention tanks and to coordinate with the PRP Group. The UAO also required New York City to identify preferred sites for the two CSO tanks. New York City's preferred location for the larger CSO is on privately-owned land located on the Fulton MGP across the street from the Thomas Greene Park and immediately adjacent to the canal.

The proposed location for the two CSO tanks generated extensive discussion between New York City, New York State Department of Environmental Conservation (NYSDEC), and EPA. EPA accepted New York City's preferred location with several conditions. These conditions, including designing the tank, required New York City to enter into a legal agreement, called an Administrative Order on Consent (AOC), in which a violator agrees to pay for and take action to correct violations.

EPA issued an Administrative Order on Consent (AOC) in 2016 after a public comment period. As a part of the final agreement, New York City waived its ability to challenge EPA's requirements in the cleanup plan when building the two CSO tanks.

New York City plans to construct a building called a headhouse that will house controls for the larger CSO retention tank. The headhouse will be constructed at the historic Gowanus Station Building. There has been significant public interest in retaining the building. EPA signed a Memorandum of Agreement in February 2019 with the State Historic Preservation Office (SHPO). The memorandum calls for the deconstruction of the Gowanus Station Building and reuse of these materials in the façade of the new

headhouse building. The city has completed acquisition of the private properties at the location of the larger tank, and demolition is ongoing to prepare for the tank construction. This demolition has included the preservation of key architectural elements of the historic Gowanus Station Building, as required by EPA and SHPO.

The design of the larger tank is almost complete. Design work for the smaller tank is in process. EPA has directed New York City to provide the detailed technical basis, as required by EPA's administrative orders, for the city's recent statements that an additional year is required to complete construction of each of the CSO tanks.

In March 2021, EPA issued another UAO that requires the city to implement the CSO controls contained in the ROD in order to significantly reduce overall contaminated solid discharges to the canal. This UAO also notes that the CSO cleanup implementation has been delayed due to substantial noncompliance by the city. EPA is seeking to resolve this noncompliance with the city.

Uplands Cleanup

EPA entered into an AOC with National Grid in May 2018, which required National Grid to construct a barrier wall to prevent the spread of coal tar into the canal from the Fulton MGP site, investigate MGP-related contamination, and design the cleanup of the Fulton MGP site. It also included designing and constructing a temporary swimming pool that will operate while the Thomas Greene Park (located on the Fulton MGP) is closed during cleanup.

Carroll Gardens/Public Place, the former Metropolitan MGP, and the Fulton MGP are being cleaned up under state orders and are not included in the EPA AOC discussed above. EPA and the state have held extensive discussions since 2021 regarding the cleanup at Public Place.

What Is the Current Site Status?

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Under EPA oversight, PRP contractors began the initial phase of dredging in the main channel of the Gowanus Canal north of the 3rd Street Bridge in November 2020. An excavator mounted on a platform barge removed approximately 35,000 cubic yards of contaminated sediment from the bottom of the canal. The dredged material was loaded onto small barges and transported down the canal to a staging area at Smith and Huntington Streets. At the staging area, water was removed from the sediment, treated, and pumped back into the canal. The dewatered sediment was then transferred onto a larger barge and transported to an off-site facility. The sediment was processed so that it can be used beneficially as landfill cover. Portions of the sediment that contained high levels of tar contamination were thermally treated, followed by processing to allow for beneficial use. The initial phase of dredging was completed late spring 2021.

Starting in late October 2021, contractors began solidifying portions of the original bottom (or native soil) of the northern stretch of the canal using a process called in-situ stabilization (ISS). This process involves adding a concrete mix into the native soil using drilling equipment mounted on barges. Most of the contaminated soft sediment (sediment on top of the native sediment) was removed during the initial dredging, but a layer of soft sediment was left in place as a protective layer to prevent tar from moving up into the canal during the ISS operation. ISS was completed in August 2022 and the remaining layer of soft sediment is currently being removed. A cap will be installed, starting in early 2023. The solidified portions of the native sediment, along with the protective layer and cap, will prevent contamination from the native sediment and contaminants dissolved in the groundwater from moving into the water of the canal.

Cleanup Activities

Operable Units

OU ID	Name	Decision Document in the Decision Document	Cleanup Technologies Selected
00	SITEWIDE	Not applicable	
01	CANAL SEDIMENTS	Record of Decision September 27, 2013	Cap (amended, insitu) Cap (insitu) Cap (sand, subaqueous with sediment) Disposal (offsite) Drainage/Erosion Control (other, NOS) Dredging Excavation Institutional Controls Monitoring (surface water) Recycling (offsite) Revegetation Solidification/Stabilization (exsitu, offsite) Solidification/Stabilization (insitu) Thermal Desorption (exsitu, offsite)

Cleanup Progress

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Site Milestones

Milestone	Date(s)
Initial Assessment Completed	Not Yet Achieved
Proposed to the National Priorities List	04/09/2009
Finalized on the National Priorities List	03/04/2010
Remedial Investigation Started	07/21/2009
Final Remedy Selected	09/27/2013
Remedial Action Started	07/21/2020
Final Remedial Action Started	Estimated Dec 2024 - Feb 2025
Construction Completed	Not Yet Achieved
Deleted from National Priorities List	Not Yet Achieved
Most Recent Five-Year Review	Not Yet Achieved
Site Ready for Reuse and Redevelopment	Not Yet Achieved

Cleanup Schedule by Operable Unit

Milestone	Start Date	Completion Date
OU 00 - SITEWIDE Unilateral Administrative Order (EPA Performed) Removal	Estimated Jun-Aug 2016	05/28/2010
Five-Year Review		Estimated Aug-Oct 2025

OU 01 - CANAL SEDIMENTS

Administrative Order of Consent (EPA Performed)		04/29/2010
Administrative Order of Consent (EPA Performed)		08/16/2013
Administrative Order of Consent (EPA Performed)		06/11/2014
Administrative Order of Consent (EPA Performed)		08/07/2014
Administrative Order of Consent (EPA Performed)		07/07/2015
Administrative Order of Consent (EPA Performed)		06/09/2016
Administrative Order of Consent (EPA Performed)		11/17/2016
Administrative Order of Consent (EPA Performed)		03/27/2017
Administrative Order of Consent (EPA Performed)		05/11/2017
Administrative Order of Consent (EPA Performed)		06/26/2017
Administrative Order of Consent (EPA Performed)		05/24/2018
Administrative Order of Consent (EPA Performed)		09/27/2018
Administrative Order of Consent (EPA Performed)		08/02/2019
Administrative Order of Consent (EPA Performed)		08/23/2019
Administrative Order of Consent (EPA Performed)		02/12/2020
Administrative Order of Consent (EPA Performed)		02/21/2020
Administrative Order of Consent (EPA Performed)		04/09/2020
Administrative Order of Consent (EPA Performed)		07/24/2020
Administrative Order of Consent (EPA Performed)		05/17/2021
Administrative Order of Consent (EPA Performed)		07/01/2021
Administrative Order of Consent (EPA Performed)		09/16/2021
Unilateral Administrative Order (EPA Performed)		03/20/2014
Unilateral Administrative Order (EPA Performed)		06/23/2014
Unilateral Administrative Order (EPA Performed)		04/11/2019
Unilateral Administrative Order (EPA Performed)		01/28/2020
Unilateral Administrative Order (EPA Performed)		03/29/2021
Removal (PRP Performed, EPA Oversight)	09/26/2013	03/16/2015
Removal (PRP Performed, EPA Oversight)	06/11/2014	Estimated Jun-Aug 2016
Removal (PRP Performed, EPA Oversight)	08/07/2014	Estimated Jun-Aug 2016
Removal (PRP Performed, EPA Oversight)	07/09/2015	Estimated Oct-Dec 2018
Removal (PRP Performed, EPA Oversight)	03/27/2017	08/14/2019
Removal (PRP Performed, EPA Oversight)	05/11/2017	Estimated Sep-Nov 2018
Removal (PRP Performed, EPA Oversight)	06/26/2017	Estimated Oct-Dec 2020
Removal (PRP Performed, EPA Oversight)	11/17/2017	08/14/2018
Removal (PRP Performed, EPA Oversight)	05/24/2018	Estimated Sep-Nov 2020
Removal (PRP Performed, EPA Oversight)	09/27/2018	Estimated Sep-Nov 2020
Removal (PRP Performed, EPA Oversight)	04/11/2019	Estimated Jan-Mar 2021
Removal (PRP Performed, EPA Oversight)	08/23/2019	09/14/2020
Removal (PRP Performed, EPA Oversight)	02/12/2020	09/23/2021
Removal (PRP Performed, EPA Oversight)	02/21/2020	09/23/2021
Removal (PRP Performed, EPA Oversight)	04/09/2020	09/23/2021
Removal (PRP Performed, EPA Oversight)	07/24/2020	Estimated Jul-Sep 2022
Removal	Estimated	Estimated
	Dec 2020-Feb 2021	Sep-Nov 2021
Removal (PRP Performed, EPA Oversight)	05/17/2021	09/28/2022
Removal (PRP Performed, EPA Oversight)	07/01/2021	Estimated Jul-Sep 2023

Removal	Estimated	Estimated
	Sep-Nov 2021	Sep-Nov 2022
Combined Remedial Investigation/Feasibility Study (EPA Performed)	07/21/2009	09/27/2013
Record of Decision (EPA Performed)		09/27/2013
Remedial Design (PRP Performed, EPA Oversight)	04/21/2014	Estimated Sep-Nov 2024
Remedial Design (EPA Performed)	06/23/2014	Estimated Jun-Aug 2023*
Remedial Design (PRP Performed, EPA Oversight)	06/23/2014*	Estimated Dec 2024-Feb 2025
Remedial Action (PRP Performed, EPA Oversight)	07/21/2020	
Remedial Action	Estimated Dec 2024-Feb 2025	

*NOTE: This date may not reflect the actual start or actual completion of the milestone. Either the lead for this activity changed, the project was phased, or the project did not fit the normal definitions of activities tracked in this table.

Health & Environment

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Contaminant List

Contaminant Name	Contaminated Media	Area of Site Found (Operable Unit)	CAS #
BENZO(B)FLUORANTHENE	Sediment	CANAL SEDIMENTS (01)	205-99-2
BENZO(K)FLUORANTHENE	Sediment	CANAL SEDIMENTS (01)	207-08-9
BENZO[A]ANTHRACENE	Sediment	CANAL SEDIMENTS (01)	56-55-3
BENZO[A]PYRENE	Sediment	CANAL SEDIMENTS (01)	50-32-8
COPPER	Sediment	CANAL SEDIMENTS (01)	7440-50-8
DIBENZO(A,H)ANTHRACENE	Sediment	CANAL SEDIMENTS (01)	53-70-3
INDENO(1,2,3-CD)PYRENE	Sediment	CANAL SEDIMENTS (01)	193-39-5
LEAD	Sediment	CANAL SEDIMENTS (01)	7439-92-1
POLYCHLORINATED BIPHENYLS (PCBs)	Sediment	CANAL SEDIMENTS (01)	1336-36-3
POLYCYCLIC AROMATIC HYDROCARBONS (PAHS)	Sediment	CANAL SEDIMENTS (01)	130498-29-2

Site Contacts

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 The following data is archived data from the date listed at the bottom:

Site Description

The Gowanus Canal is a 100-foot wide, 1.8-mile long canal located in the New York City borough of Brooklyn, Kings County,

New York. Connected to Gowanus Bay in Upper New York Bay, the canal borders several residential neighborhoods including Gowanus, Park Slope, Cobble Hill, Carroll Gardens, and Red Hook. The adjacent waterfront is primarily commercial and industrial, currently consisting of concrete plants, warehouses, and parking lots. There are five east-west bridge crossings over the canal, located at Union Street, Carroll Street, Third Street, Ninth Street, and Hamilton Avenue. The Gowanus Expressway and the IND Culver Line of the New York City Subway, an aboveground section of the original Independent Subway System, pass overhead.

The Gowanus Canal was built to allow access for industrial needs by bulkheading and dredging a tidal creek and wetland that had previously been fished for oysters. After its completion in the 1860s, the canal quickly became one of the nation's busiest industrial waterways, home to heavy industry including gas works (i.e., manufactured gas plants), coal yards, cement makers, soap makers, tanneries, paint and ink factories, machine shops, chemical plants, and oil refineries. It was also the repository of untreated industrial wastes, raw sewage, and surface water runoff for decades, causing it to become one of New York's most polluted waterways. Although much of the industrial activity along the canal has stopped, high contaminant levels remain in the sediments. Despite the ongoing pollution problems, some city dwellers currently use the Gowanus Canal for recreational purposes, such as canoeing and diving, while others catch fish for consumption.

The canal is part of the New York-New Jersey Estuary, which the EPA has designated an Estuary of National Significance.

Threat and Contaminants

Numerous sampling events have shown the sediments in the Gowanus Canal to be contaminated with a variety of pollutants, including polycyclic aromatic hydrocarbons (PAHs), volatile organic contaminants (VOCs), polychlorinated biphenyls (PCBs), pesticides, and metals. PAH concentrations were found to be as high as 45,000 milligrams per kilogram (4.5%) and the contamination was found to traverse the entire length of the canal. Many of the detected contaminants are known carcinogens. The contaminated sediments pose an immediate risk to the fishery located just downstream of the canal in Gowanus Bay. This fishery is well documented, and fish caught there are used as food.

Cleanup Approach

The site will be addressed in one stage—a long-term remedial phase focusing on the cleanup of the entire site.

Response Action Status:

The Canal has been heavily contaminated throughout its existence. No environmental remediation has been undertaken to date.

PRP-performed efforts are currently underway, under New York State authorities, at three former Manufactured Gas Plants (MGPs) located along the Gowanus Canal, which are believed to be sources of much of the Polyaromatic hydrocarbon (PAH) contamination in the canal--the former Fulton MGP site; Former Citizens Gas Works MGP site (a.k.a. Carroll Gardens/Public Place); and former Metropolitan Gas Light Company MGP site. National Grid is the PRP for the MGP sites.

In April 2009, the EPA proposed to put the Gowanus Canal on the National Priorities List (NPL). While the community and many elected officials supported the listing, the City of New York and some development interests did not. New York City proposed an alternate approach which would have depended heavily on the assumption of long-term Congressional funding to Corps of Engineers (COE). After consulting extensively with the many stakeholders who expressed interest in the future of the Gowanus Canal and the surrounding area, the EPA determined that a Superfund designation was the best path to a clean up of this heavily contaminated and long neglected urban waterway. The site was listed on the NPL on March 4, 2010.

The EPA, in conjunction with New York City and National Grid, performed supplemental field work to characterize the nature and extent of contamination in the Canal, determine the human health and ecological risks from exposure to

contamination in the canal, identify the sources of contamination to the Canal, including ongoing sources of contamination that need to be addressed so that a sustainable remedy can be developed and implemented, and determine the physical and chemical characteristics of the Canal that will influence the development, evaluation, and selection of cleanup alternatives. This work, which supplemented previous studies that have been carried out by the COE and National Grid, included a bathymetric (underwater depth) study, sediment sampling, monitoring well installation, groundwater, surface water, air, sediment, and fish tissue sampling, sewer system sampling, and an investigation of hundreds of pipes that lead to the Canal. A remedial investigation (RI) report was released to the public on February 2, 2011 and a public meeting was held on February 23, 2011 to discuss the results of the study. A feasibility study (FS) was initiated in spring 2011 to develop and evaluate remedial alternatives for mitigating human and ecological risk in canal. The FS report was released to the public on December 30, 2011. An informational public meeting was held on January 24, 2012; nearly 200 people were in attendance.

On December 27, 2012, the EPA released a Proposed Plan describing its proposed remedy for the site. The Proposed Plan recommends removing all of the contaminated sediment that has accumulated as a result of industrial and sewer discharges from the bottom of the canal by dredging. The dredged areas would then be capped. The EPA also recommends controls to prevent combined sewer overflows and other land-based sources of contamination from compromising the cleanup. On January 23, 2013 and January 24, 2013, the EPA conducted public meetings at Public School 58 (the Carroll School) and the Joseph Miccio Community Center, respectively, to present the Proposed Plan for the site, including the preferred remedy, and respond to questions and comments from the approximately 200 attendees at the January 23, 2012 meeting and 100 attendees at the January 24, 2012 meeting. Follow up meetings were held with the Citizens' Advisory Group on February 11, 2013 and the Red Hook community on February 13, 2013 to discuss in more detail the specifics of the Proposed Plan and to answer additional questions from the community. The public comment period concluded on April 27, 2013. The EPA selected a remedy for the site on September 27, 2013. The remedy includes dredging of contaminated sediments, capping residual contamination and source controls, including combined sewer overflow retention tanks.

A number of potentially responsible parties, including New York City and National Grid, are performing the design of the selected remedy under unilateral administrative orders.

Site Facts:

As the canal bisects heavily populated communities, there has been broad support to remedy the contamination of the waterway. Mayor Bloomberg highlighted environmental concerns about the Canal in his environmental blueprint, "PlaNYC 2030." There is intense public interest in the Canal and the cleanup plan. A Community Advisory Group has been formed with over 55 members representing a wide range of stakeholders including residents, environmental groups, business groups and developers.

Notice and information request letters were sent to more than 20 parties, including New York City and National Grid.

Cleanup Progress

Contaminated soils have been removed from the former Metropolitan Gas Light Company MGP site. Investigatory work is currently underway at the former Citizens Gas Works MGP site. The New York State Department of Environmental Conservation released a Proposed Remedial Action Plan identifying its preferred remedy for former Fulton MGP site on April 3, 2015. A public meeting was held on April 16, 2015. The document is currently under review by the public. The primary components of the preferred remedy are the construction of a sealed wall along the western shoreline of the Gowanus Canal and the removal of any coal tar that accumulates behind it. Excavation of contamination at the site would occur as the properties are redeveloped.

The City built a "Flushing Tunnel" in 1911 to replace the stagnant water in the canal with fresh, oxygen-rich water that

would improve water quality. The tunnel worked until the 1960s, when mechanical failure caused it to shut down and the canal became polluted and stagnant again. The Flushing Tunnel operated until the mid-1960s, when it fell into disrepair. The Flushing Tunnel was rehabilitated and reactivated in 1999 by the New York City Department of Environmental Protection (NYCDEP). In 2010, the Flushing Tunnel was shut down by NYCDEP to perform facility improvements. This effort includes the installation of more efficient pumping systems, which will increase the volume of water by approximately 40 percent under a peak design flow. Completion of the effort is anticipated by September 2014. The reconstruction of the Gowanus Wastewater Pump Station, which began in February 2010, will increase the pumping capacity to deliver sewage to the Red Hook wastewater treatment plant. All of these ongoing improvements are projected to decrease the overall discharge to the entire canal by approximately 34 percent.

Site Repositories

EPA Region 2 Superfund Records Center, 290 Broadway, 18th Floor, New York, NY 10007-1866

Carroll Gardens Library, 396 Clinton St., Brooklyn, NY 11231 Red Hook Library, 7 Wolcott St., Brooklyn, NY 11231

April 29, 2015