**Technical Assistance Services for Communities**
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**Technical Directive No.: 2.02 TD #4 Gowanus Canal Superfund Site**

# TASC Summary of Review of Gowanus Canal Remedial Investigation and Feasibility Study Reports October 1, 2012

## Introduction

This document summarizes a longer report that reviews the Gowanus Canal Remedial Investigation (RI) Report and Feasibility Study (FS) Report. EPA's Technical Assistance Services for Communities (TASC) program developed this document. Independent technical and environmental consultants implement the TASC program. The report's contents do not necessarily reflect the policies, actions or positions of EPA. TASC has provided this report to the Gowanus Canal Community Advisory Group (CAG) and other community members affected by the Gowanus Canal Superfund site.

## I. Site Background

The Gowanus Canal is located in Brooklyn, New York. Completed in 1869, the canal was once a major local transportation route. Manufactured gas plants, mills, tanneries and chemical plants operated along the canal. Today, the Gowanus Canal is one of the nation's most extensively contaminated water bodies. EPA added the canal to the Superfund National Priorities List (NPL) on March 2, 2010. The NPL is EPA's list of the most contaminated hazardous wastes sites in the United States. Figure 1 shows the Gowanus Canal as seen from the Union Street Bridge during a walking tour with CAG members.

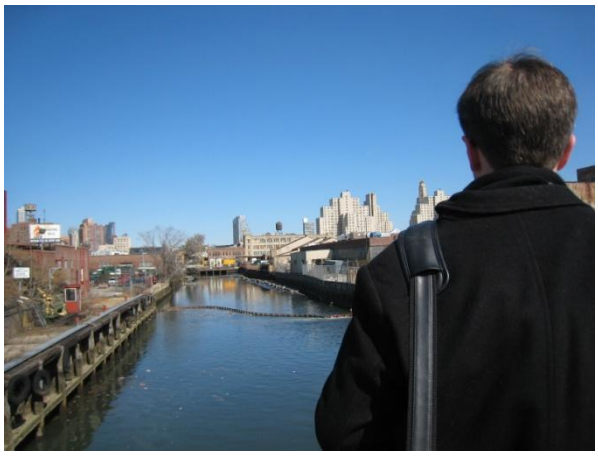

**Figure 1: Gowanus Canal from Union Street Bridge**


**Figure 2: The Superfund process (http://www.epa.gov/superfund/community/process.htm)**

## The Superfund Process

Superfund is the common name for the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). The program's name refers to the "super fund" of money that was set aside to clean up hazardous waste sites when it was established in 1980.

Figure 2 shows the Superfund process. It begins with a preliminary assessment and site inspection (PA/SI) and continues on to the NPL listing process. The RI/FS stage determines the nature and extent of contamination at a site and evaluates treatment technologies for the contamination. EPA then selects a remedy for cleaning up the site in a decision document called a Record of Decision (ROD). Leading up to the ROD, EPA selects a preferred remedy and presents this remedy in a document called

the Proposed Plan. EPA asks for public comments on the Proposed Plan before the ROD is completed.

After the ROD, detailed cleanup plans are developed and put in place during the remedial design/remedial action (RD/RA) stage, leading to the completion and monitoring of cleanup activities during the construction completion and post-construction completion stages. Once sites are fully protective of human health and the environment, EPA deletes them from the NPL. Sometimes, EPA continues to monitor Superfund sites. At these sites, some contamination may remain in place, protected and covered by clean soil, pavement or other material.

As described above, EPA listed the Gowanus Canal on the NPL in March 2010 following a request by New York State. The site's draft RI and FS reports came out in January 2011 and December 2011, respectively. Next steps include the Proposed Plan for the site's cleanup and the selection of the site's remedy in a ROD.

## II. Remedial Investigation and Feasibility Study (RI/FS) Summary

*Remedial Investigation (RI), January 2011*
Data collection is the purpose of the RI. The data help EPA characterize site conditions, determine the nature of the waste (contamination), assess risk to human health and the environment, and do tests to evaluate the potential performance and cost of treatment technologies. EPA publishes RI findings in an RI Report. The results of the RI Report for the Gowanus Canal show that contamination in canal sediments presents an unacceptable ecological and human health risk.

*Feasibility Study (FS), December 2011*
The purpose of the FS is to develop and evaluate cleanup options based on the findings of the RI. The FS Report discusses options for two distinct layers of sediments in the Gowanus Canal. The upper layer is referred to as "soft" sediment. This layer has built up in the canal since its construction. The lower layer consists of native sediments that were present before the canal's construction. For cleanup, EPA divided the Gowanus Canal into three remediation target areas (RTAs 1, 2 and 3). Figure 3 – Figure 2-2 in the FS Report – shows the RTAs. RTA 2 contains the sediment that is most contaminated.

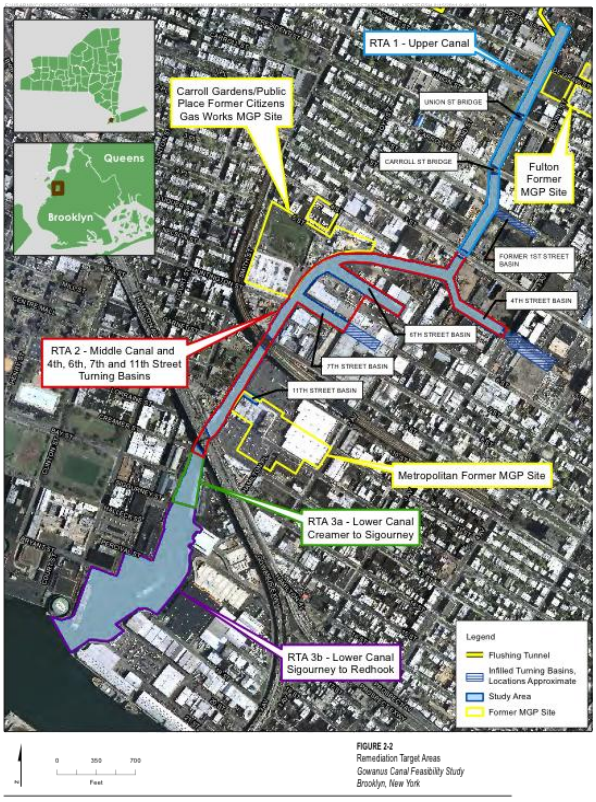


**Figure 3: Remediation target areas for the Gowanus Canal cleanup**

The Gowanus FS Report describes seven alternatives for cleaning up the site. The alternatives range from no action, a required option for every FS, to dredging the entire soft sediment column, solidifying the top 3-5 feet of native sediment in targeted areas, and capping the sediment with an armor layer, isolation layer and oil-absorbing treatment layer (See Figure 4). The armor layer would consist of one-and-a-half feet of stone to protect lower layers from erosion. Sand covers the armor layer to support organisms. The isolation layer would consist of a fill layer of a half-foot of gravel and a half-foot of sand. The treatment layer would consist of a layer of clay that attracts oils that reduce the movement of oily contaminants from below the canal into the canal. The alternatives also include variations on depth of dredging for the different RTAs and including or excluding the treatment layer. The exact design of the layers, as well the plan for dredging soil will be determined during the RD/RA stage when detailed cleanup plans are developed.

***Cleanup Alternatives***

The FS Report describes seven cleanup alternatives for the site.

| | |
|---|---|
| **Alternative 1** | **No Action (a required option for every FS)** |
| Alternative 2 | Dredge soft sediment to a specified elevation in RTAs 1 and 3 and remove all of the soft sediment in RTA 2.<br>Cap with isolation layer and armor layer. |
| Alternative 3 | Dredge soft sediment to a specified elevation, in RTAs 1 and 3 and remove all of the soft sediment in RTA 2.<br>Cap with oleophilic (oil-absorbing) treatment layer, isolation layer and armor layer. |
| Alternative 4 | Dredge entire soft sediment column in RTAs 1, 2 and 3.<br>Cap with isolation layer and armor layer. |
| **Alternative 5** | **Dredge entire soft sediment column in RTAs 1, 2 and 3.**<br>**Cap with oleophilic (oil-absorbing) treatment layer, isolation layer and armor layer.** |
| Alternative 6 | Dredge entire soft sediment column in RTAs 1, 2 and 3.<br>Solidify top 3-5 feet of native sediment in targeted areas.<br>Cap with isolation layer and armor layer. |
| **Alternative 7** | **Dredge entire soft sediment column.**<br>**Solidify top 3-5 feet of native sediment in targeted areas.**<br>**Cap with oleophilic (oil-absorbing) treatment layer, isolation layer and armor layer.** |

EPA kept cleanup alternatives 1, 5 and 7 for further consideration, shown in bold above.

Consideration of cleanup alternative 1 is required because it provides a baseline for measuring the performance of alternatives 5 and 7.

Cleanup alternatives 5 and 7 are similar. All soft sediments in the canal will be removed. Then, a three-layer cap of clay, sand and gravel will be placed over the native sediments in the canal. The only significant difference between cleanup alternatives 5 and 7 is that Alternative 7 includes treatment to solidify the top 3 to 5 feet of native sediment in areas where oily substances are present. This treatment, if chosen, will help prevent the oily substances from getting into the canal water after the cleanup is finished. See Figure 4.

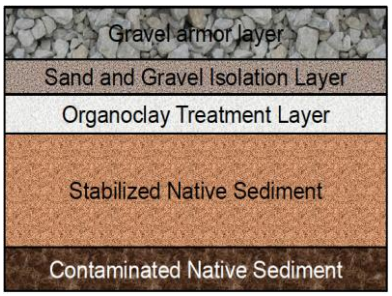


**Figure 4: Cap configuration for Alternative 7**

**For More Information**

The RI Report is available on EPA's website:
http://www.epa.gov/region2/superfund/npl/gowanus/ri_docs.html

The FS Report is available on EPA's website:
http://www.epa.gov/region2/superfund/npl/gowanus/fs_docs.html

Additional site documents available on EPA's website are located here:
http://www.epa.gov/region2/superfund/npl/gowanus/additionaldocs.html

TASC program:
http://www.epa.gov/superfund/community/tasc/index.htm