

Lower Duwamish Superfund Sediment Cleanup Feasibility Study

Issues to Remember

Consider these questions when reviewing the Lower Duwamish Waterway Superfund Cleanup Feasibility Study.

1. Is it worth spending more money and suffering higher short-term risk to permanently remove more contamination from the waterway?

Points to consider:

To achieve the greatest reduction in risk as quickly as possible, cleanup activities must target the waterway's most contaminated areas in the cleanup's first years. The cleanup approach should reflect lessons from other cleanups, especially those highlighted by the National Academy of Sciences and other independent, scientific peer reviews of sediment sites throughout the country.

The cleanup must meet all cleanup goals in the most cost-effective manner possible to ensure availability of funds for other needed environmental actions in the region. The added economic and social costs of the most extensive dredging options to achieve the cleanup goals appear to outweigh benefits gained from permanent removal.

The maximum dredging option would remove an estimated volume of 2,600,000 cubic yards of sediments – nearly 90 times more than the U.S. Army Corps of Engineers has dredged for channel maintenance in the waterway over the last 10 years. Maximum dredging options require 20-30 years of construction, with associated impacts to the community (e.g., noise, dust, air quality, carbon footprint, transport of dredged materials, etc.).

The longer dredging lasts, the longer health risks are raised. Dredging releases PCBs back into the environment and spreads a thin layer of contaminated sediments around the site. Dredging may increase human health risks to seafood consumers due to increased contaminant concentrations (primarily PCBs) in fish tissue from dredging.

Therefore, the additional cost and potential disadvantages of more dredging outweigh its benefits.

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2. Is higher uncertainty acceptable if it results in potential cost savings to reach the same level of protection?

Points to consider:

The cleanup should be carried out in a well-designed sequence of phased actions. It must allow for adjustments based on further assessment of sediment quality and risks, and the effectiveness of source control measures developed while the cleanup progresses.

3. How do we balance the wish to remediate sediment as soon as possible with remaining uncertainties regarding source control?

Points to consider:

At the end of the cleanup, the waterway will remain at risk from contaminants such as PCBs, PAHs and phthalates commonly found in the Duwamish watershed and throughout the urban environment.

As a result, source control in the Duwamish will be an ongoing strategy requiring broad actions and affecting multiple parties over the long term. How much additional source control will be needed, and the responsibilities for developing and managing programs to implement it must be addressed.

Regardless of the selected remedy, monitoring will be required for many years to evaluate if the cleanup goals are being met and recontamination is adequately handled.

4. How do we balance these cleanup costs with the broader need to clean up Puget Sound?

Points to consider:

The amount of public funding spent to achieve cleanup goals is a critical question for regulators to consider. King County will have to commit hundreds of millions of dollars in public funds to finance projects that represent a major portion of the Regional Wastewater Services Plan (RWSP). The cost of the Lower Duwamish cleanup will directly affect the public funding available for other environmental protection efforts around Puget Sound.

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King County

Department of
Natural Resources and Parks
Wastewater Treatment Division

LOWER DUWAMISH WATERWAY SUPERFUND CLEANUP

Spring 2009

To protect public health and the environment, King County's Wastewater Treatment Division and its predecessor Metro have worked for more than 40 years to restore the Lower Duwamish Waterway. Despite serving as Seattle's primary industrial waterway for nearly a century, the Lower Duwamish is cleaner now than it has been in generations due in large part to King County's continuing commitment to cleaning up the waterway.

King County/Metro has invested more than \$250 million to date to restore water quality, improve sediment quality, reduce combined sewer overflows (CSOs), restore habitat and control pollution sources affecting the Lower Duwamish. The county's efforts produced the following benefits to the waterway:

Restored Water Quality

- Nearly 27 billion gallons of untreated sewage and industrial process water that flowed straight into the waterway each year prior to 1958 is now conveyed to King County wastewater treatment plants for treatment.
- Bacteria levels from sewage decreased by a factor of 100.
- Dissolved oxygen levels increased by a factor of 10.
- The waterway can now support aerobic life.

Improved Sediment Quality

- King County voluntarily committed to help clean up sediment at two locations in the Lower Duwamish prior to the 2001 Superfund listing:
 - Norfolk CSO - completed 1999
 - Diagonal/Duwamish CSO - completed 2004
- Seven of the most contaminated acres of river bed have been cleaned up.
- More than 65,000 cubic yards of contaminated sediment were removed.
- In 2004, King County committed to help clean up sediment at Slip 4. Source control work in preparation for the dredge is currently underway.

Reduced CSOs

- King County began working to reduce CSOs in the Duwamish more than 20 years ago – well before the Superfund listing.
- King County projects decreased Duwamish CSO volumes from 832 million gallons in 1990 to about 78 million gallons in 2007.
- Five of the 10 Lower Duwamish CSO outfalls were controlled by 2007.
- King County will invest roughly \$75 million to control the remaining five Lower Duwamish CSOs by 2027.

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Reduced CSOs (continued)

- Stormwater tunnels store 1.4 million gallons of stormwater during heavy rains, reducing overflows into the Duwamish.
- Sewer separations and drainage improvements reduced stormwater flow from the largest storm drain in the Lower Duwamish by 67 percent.

New Habitat

- King County helped restore 25 acres of fish and wildlife habitat.
- 1,900 feet of riparian buffered stream was established on Hamm Creek.
- Intertidal habitat was restored at Turning Basin #3.
- Pocket beaches were created at Terminal 117 and Slip 4.

Pollution Prevention

- King County's Industrial Waste Program controls the amount of contaminants entering the wastewater stream from businesses.
- The Household Hazardous Waste Disposal Program reduces the amount of toxic chemicals from consumer products entering the wastewater system – the first such program in the country.
- The Local Hazardous Waste Program helps small businesses handle and properly dispose of hazardous materials to keep these materials out of the wastewater and stormwater systems.
- King County and two dozen other local jurisdictions maintain a trouble call network to respond to and control events that affect water quality.
- King County's environmental laboratory has collected and analyzed over 2,000 samples in the past 10 years to identify the type and level of pollutants in the water, sediment, air, and tissues -- including samples from six of the combined sewer overflow (CSO) locations in the waterway.