

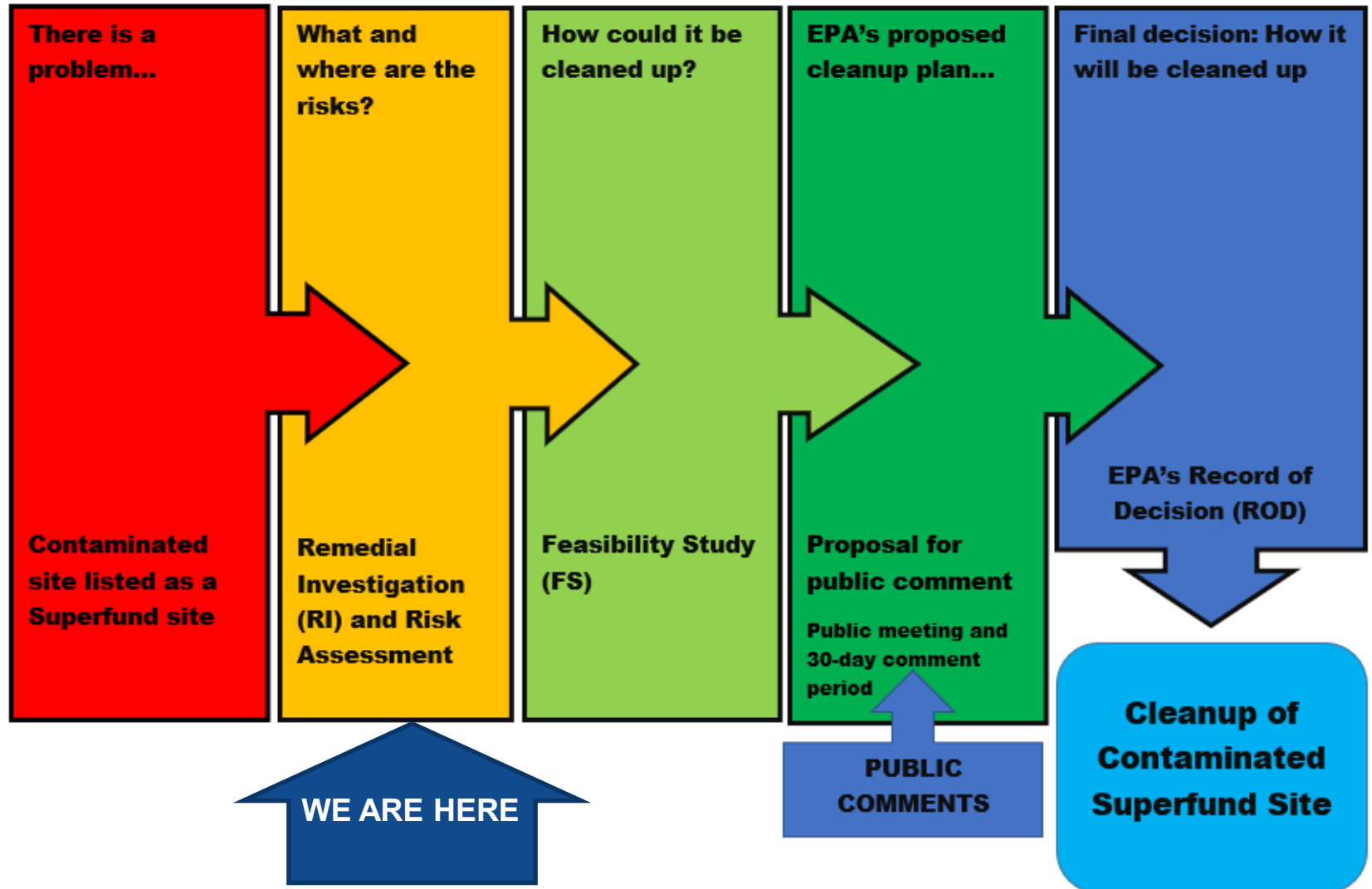


CAG-Requested Updates
Newtown Creek Superfund Site
Queens and Brooklyn
New York City
September 21, 2022

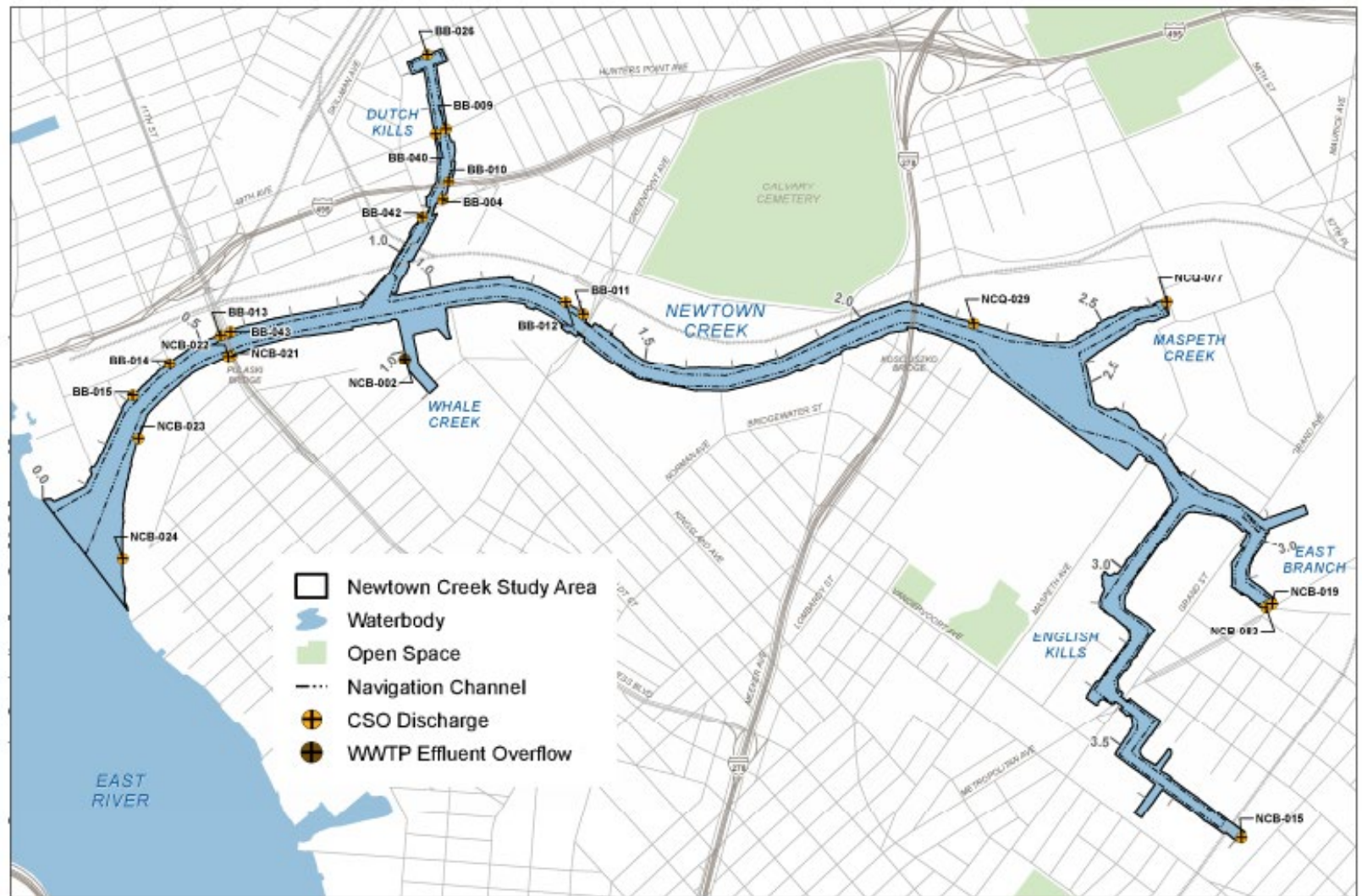
Overview of Superfund Timeline

- Update on estimated cleanup timeline
- Estimates for completing
 - Remedial Investigation/Feasibility Study (RI/FS) of the entire Newtown Creek (Operable Unit 1, or OU1)
 - East Branch Focused Feasibility Study (FFS) and potential expedited action
 - Record of Decision (ROD) and final cleanup plan for the entire Newtown Creek (OU1)

Superfund Process



Study Area



Review of Remedial Investigation/Feasibility Study Process

- ◆ The primary goals of the Remedial Investigation include:
 - Defining the nature and extent of contamination in site media
 - Reporting and evaluating data collected during the RI
 - Developing a Conceptual Site Model (CSM) integrating RI data
 - Includes human health and ecological risk assessments
 - Identifying any gaps in the RI data
 - Providing a basis for developing cleanup alternatives in the Feasibility Study
 - Support development of Feasibility Study

Review of Remedial Investigation/Feasibility Study Process (cont'd)

- ◆ The primary goals of the Remedial Investigation include:
 - Determining Remedial Action Objectives and Preliminary Remediation Goals for a site
 - Developing cleanup alternatives based on information from the remedial investigation, including the nature and extent of contamination, the risk assessments and the conceptual site model
 - Conducting a formal evaluation and comparison of cleanup alternatives

The RI and FS together form the basis for the Proposed Plan and ROD

Remedial Investigation (RI)-Related Task Status

- 2012 to 2015 – majority of RI field work conducted
- Additional data collection conducted after the bulk of the RI work
- June 2017 – Baseline Human Health Risk Assessment approved
- November 2018 – Baseline Ecological Risk Assessment
- Remedial Investigation Report – nearing completion
 - Final approval expected in late 2022/early 2023
- Modeling
 - Independent peer review conducted 2019 to 2020
 - Hydrodynamic and sediment transport models nearing final approval
- 2017 to 2019 – additional data collection conducted
 - focus on NAPL and ebullition
- 2015 and 2017 – full Contaminated Sediment Technical Advisory Group (CSTAG) briefings held
 - Several informal briefings held since then

Feasibility Study-Related Task Status

- September 2022 – initiate field work for Lateral Groundwater Study
- Additional sampling – sediment, surface water, ongoing sources, etc.
- Modeling
 - Contaminant Fate and Transport model being developed as part of Remedial Investigation process
 - Additional independent peer review currently anticipated
- Development of Feasibility Study report is underway
 - Contaminants of Concern have been determined
 - Remedial Action Objectives and Preliminary Remediation Goals are being discussed
 - An approach to considering ongoing inputs is being developed
 - Draft cleanup alternatives are being developed

Operable Unit 1 Projected Schedule

- Complete EPA-led lateral groundwater sampling program – 2024
- Complete NCG-led supplemental sampling program – 2024
- Draft Feasibility Study Report – submittal planned 2025
- Complete modeling framework – 2026
- Revised Draft Feasibility Study Report – 2026
- Proposed Plan
 - CSTAG/NRRRB review will be required prior to release
 - Release – 2027
 - Comment period – 2027
- Record of Decision
 - Release 2028

* All dates contingent upon quality of reports submitted and upon achievement of prior dates

Projected Post-Record of Decision Schedule for OU1

- Develop enforcement Instrument for Potentially Responsible Party Implementation of Remedial Design and Remedial Action – 1 year
 - CERCLA requires a Judicial Consent Decree for Remedial Action Settlement (and a Consent Decree is usually used for both Remedial Design and Remedial Action).
 - EPA may consider Administrative Order (by Consent or Unilateral) for Remedial Design in appropriate situations
- Complete Remedial Design – 3 to 5 years
- Implement cleanup – 6 to 8 years

Tentative Path Forward for Expedited Action

- Develop Focused Feasibility Study – 2023/2024
- CSTAG Review – 2024
- Proposed Plan – 2024
- Record of Decision – 2024/2025
 - Approximately 3 years before projected OU1 ROD
- Develop enforcement instrument to conduct Remedial Design and Remedial Action -- 2026
- Remedial Design – 1 to 2 years, complete 2027 to 2028
- Cleanup Action – 1 to 3 years, complete around 2030

* All dates are tentative and contingent upon achievement of prior dates

Questions

Climate Change and the Conceptual Site Model

CAG Question: How does the Conceptual Site Model account for sea-level rise, shorelines, groundwater, etc.?

- Consideration of climate change and flood risk management into the Superfund decision making processes is supported by current EPA policy and guidance
- Impacts from climate change are taken into account throughout the Superfund process, particularly during
 - development and evaluation of cleanup alternatives
 - design of cleanups
 - five-year reviews
- While some potential impacts are clear, determining all potential impacts of climate change is complicated.

General Overview of Climate Resilience Planning, Tools and Techniques

- June 20, 2021 – EPA Directive Number 9355.1-120 regarding the “Consideration of Climate Resilience in the Superfund Cleanup Process”
 - Recommends approaches for considering climate resilience throughout the cleanup selection and implementation process.
 - Affirms EPA has broad authority to carry out response actions to protect human health and the environment and in doing so, may consider potential impacts of extreme weather events and changing climate conditions at Superfund sites to ensure the long-term integrity of response actions.
 - Explains how the existing Superfund process supports the inclusion of climate-related concerns.
- Climate Resilience Technical Fact Sheet: Contaminated Sediment Sites

Resilience Framework



Key Terminology

- **Adaptation:** Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities.
- **Adaptive Capacity:** The ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities or to cope with the consequences.
- **Resilience:** A capability to anticipate, prepare for, respond to and recover from significant multi-hazard threats with minimum damage to social well-being, the economy and the environment.
- **Sensitivity:** the degree to which a system is affected, either adversely or beneficially, by climate variability or change. The change may be direct or indirect.
- **Vulnerability:** The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity and its adaptive capacity.

Assessment of Cleanup Vulnerability

- Climate change exposure assessment – identifies particular hazards of concern, such as:
 - Scour of a sediment cap or underlying sediment due to factors such as increased surface water flow velocity, turbulence caused by intense storms, sustained freeze conditions
 - Influx of stormwater runoff due to prolonged/intense rainfall
 - Increased interaction with groundwater due to more frequent heavy rainfalls (or decreased interaction with groundwater due to sustained drought conditions)
 - A change in the freshwater-saltwater boundary due to sea-level rise
- In addition to site-specific data, several resources exist to assess potential hazards at a site (USACE, NOAA, USGS, etc.)
- Climate change sensitivity assessment – evaluates the likelihood for the climate change hazard of concern to reduce the effectiveness of a cleanup plan.

Example: Potential Vulnerabilities

- Submerged components of the cleanup plan, for example
 - Geotextile layer and armor of an in-situ cap
 - Active layer in cap
 - Sheet pile walls
- Upland components of the cleanup plan
 - Containment area for storing sediment during dredging
- Site operations and infrastructure, for example
 - Temporary construction facilities
 - Dewatering/treatment facilities
 - Access roads
- Potential disruptions can include
 - Physical damage
 - Power interruption
 - Reduced access

Evaluation of Potential Climate Resilience Measures

- Results of vulnerability assessment can be used to develop a strategy for increasing cleanup resilience.
 - Identify hazards
 - Prioritize resilience measures
- Examples of Climate Resilience Measures
 - Armor enhancement for in-situ caps
 - Enhanced monitoring plans – incorporating additional subsurface parameters and sampling devices to gauge potential for resuspension of sediment under more extreme weather/climate change scenarios
 - Armor enhancement on banks/floodplains
 - Use of constructed wetlands and/or plantings to provide a buffer to impacts of climate change and that are tolerant of future scenarios
 - Use of flood control measures
- Other considerations include existence of navigation channels, anticipated longevity of potential measures, critical equipment needs, etc.

Assurance of Adaptive Capacity

- Implementing new or modified measures to increase climate resilience of the system or site operations and infrastructure
- Establishing plans for periodically reassessing the system and site vulnerabilities, to determine if additional capacity is needed as cleanup progress and climate conditions change
- Developing a robust Conceptual Site Model during the RI/FS stage and updating it frequently
- Tools
 - Monitoring Plans
 - Five Year Reviews
 - Optimization Plans
- An iterative and flexible process

Thank You!

- ◆ For further information, please contact:
 - Caroline Kwan, Remedial Project Manager, 212-637-4275 or kwan.caroline@epa.gov
 - Mark Schmidt, Remedial Project Manager, 212-637-3886 or schmidt.mark@epa.gov
 - Rupika Ketu, Remedial Project Manager, 212-637-3258 or ketu.rupika@epa.gov
 - Natalie Loney, Community Involvement Coordinator, 212-637-3639 or loney.natalie@epa.gov

- ◆ Or visit EPA's Site Profile Page for Newtown Creek at

www.epa.gov/superfund/newtown-creek