



## Memo

To: David Kallander, DPH  
From: Syed Bokhari  
CC: Stacy Pappano & Ivonne Hall  
Date: March 9, 2023  
Re: Environmental Impact Evaluation for Greater New Haven's Sewer Overflow  
Long Term Control Plan

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Thank you for your comments in the March 29<sup>th</sup>, 2021 dated memorandum about the Environmental Impact Evaluation (EIE) for the Greater New Haven Water Pollution Control Facility Combined Sewer Overflow Long-Term Control Plan. Please see below responses to your comments.

**Comment #1: I would like to see included a discussion of how the separation of stormwater and sewer will improve water quality at swimming beaches.**

**Response #1:**

**WATER QUALITY DISCUSSION**

The EIE includes a discussion of how the separation of stormwater and sewer will improve water quality at swimming beaches. Here are excerpts from pages 10 and 17 of the EIE.

When a CSO occurs, combined sewage discharges to surface waters. Potential negative impacts of CSOs on environmental and public health stems primarily from bacteria and pathogens in the combined sewage from domestic wastewater and stormwater sources. According to the 2014 Integrated Water Quality Report produced by DEEP, water quality within the West River below Columbus Avenue, Mill River below Lake Whitney, and the Quinnipiac River and New Haven Harbor demonstrate impairment to some or all their designated uses. These include aquatic habitat impairment due to issues such as low dissolved oxygen levels, eutrophication, presence of oil and grease, shellfish impacts from high fecal coliform bacteria levels, and impairment to recreation due to the presence of enterococcus bacteria. Both fecal coliform and enterococcus bacteria are indicators of contamination with feces from humans or other warm-blooded animals.

These impairments are attributable primarily to nonpoint source runoff associated with land use. The West River Watershed Management Plan Technical Memorandum #1 (Fuss and O'Neill, 2015) used a watershed treatment model developed by the Center for Watershed Protection to estimate existing pollutant loads for the West River watershed. The model estimated that 43% of fecal coliform loading to the West River is attributable to nonpoint source runoff, particularly

from high and medium density residential areas. Illicit connections were the next highest contributor at 29% of the modeled FC load, and CSOs accounted for the remaining 19%.

Similarly, for the Mill River, where fecal indicator bacteria are the primary cause of water quality impairments, nonpoint source runoff accounts for approximately 72% of the modeled existing annual bacteria load to the Mill River, estimated illicit connections account for approximately 21%, and CSOs account for approximately 7% of the relative composition of annual fecal indicator bacteria loads to the Mill River (Fuss & O'Neill, 2018).

The 2014 Integrated Water Quality Report (2014 IWQR) produced by DEEP identifies which uses are impaired for reaches of waterbodies and in many cases the potential sources of impairment (Table 2). Additionally, the Connecticut Statewide Total Maximum Daily Load (TMDL) for Bacterial Impaired Waters (DEEP, 2012) and associated Watershed Specific Appendices for the Mill, West, and Quinnipiac Rivers and New Haven Harbor also consider sources of impairment specifically for bacteria. According to the 2014 IWQR appendix for the New Haven Estuary, CSOs may be contributing bacteria to New Haven Harbor and are a likely source of bacterial contamination to the impaired segment of the New Haven Estuary, which includes the mouth of the Quinnipiac, Mill, and West Rivers in New Haven and West Haven. The appendix for the Mill River identifies CSOs downstream of the impaired segment as potential contributors to future bacterial impairments of downstream segments.

For a more detailed discussion of how the separation of stormwater and sewer will improve water quality at swimming beaches the EIE contains links to the 2014 Integrated Water Quality Report, the 2012 Total Maximum Daily Load Analysis, the 2018 Mill River Watershed Based Plan, and the 2015 West River Watershed Management Plan.

**Comment #2: The EIE does not clearly examine if new pipelines for stormwater and sewer will be constructed when they are separated. This leaves the question of will the existing infrastructure be abandoned in place or if the existing infrastructure will be re-used for stormwater or sewers? If the existing infrastructure is to be re-used, the report does not address how existing infrastructure will be maintained. The Mill River spill in July 2020 was a result of a collapse of a 30-inch diameter sewer pipe. This raises the concern that the existing infrastructure is in need of maintenance and repairs. The maintenance and repair discussion should be included in the EIE.**

**Response #2:**

**SEWER SEPARATION, MAINTENANCE AND REPAIR DISCUSSION**

The EIE also includes a discussion of how the separation of stormwater and sewers is accomplished and the maintenance and repair of existing infrastructure. Here are excerpts from pages 2, 13 and 28 of the EIE.

A no-action alternative was not pursued because it does not meet the project purpose and need. When a CSO occurs, bacteria in the sewage may impact the suitability of the local waterways for designated uses, such as fishing, swimming, and wading. Reducing CSOs to a 2-year, 6-hour

design storm level of control will decrease the potential of CSO discharge to receiving waterbodies, in accordance with Consent Order WC5509.

Taken collectively and applied appropriately, a program which includes sewer separation, green infrastructure, maximizing in-system storage and conveyance, upgrades to pump station and treatment plant capacities, and CSO storage tanks will address the project purpose and need. As a result, this approach is the preferred alternative.

Sewer separation typically involves constructing a new storm drain parallel to the existing combined sewer and connecting stormwater to one and sewage to the other, creating a non-interconnected sanitary and storm sewer system. After segregation, the dedicated sanitary sewer system is tributary to the wastewater treatment facility for treatment and disinfection prior to discharge while the storm sewer system discharges directly to local receiving waters. Under the approach of GNHWPCA, existing combined sewers become the sanitary sewers, and new storm sewers are built. After separation, stormwater inflow will no longer take up capacity in sanitary sewer pipelines or the wastewater treatment facility, allowing a larger amount of combined flows to be treated.

Technical Memorandum #13, Design Development Report (CH2M HILL, July 2000) examined five alternatives: 1) City-Wide Sewer Separation, 2) City-Wide Sewer Separation Plus Limited Storage, 3) City-Wide Sewer Separation and Rehabilitation of Old Sewers, 4) Optimized Underground Storage, and 5) Maximized Underground Storage. CH2M HILL's analysis concluded that sewer separation provides a permanent solution that reduces combined sewer area and may provide some increased urban amenity improvement as part of the required roadwork, but has a high capital cost, does not resolve water quality concerns associated with stormwater itself, and is disruptive during construction. Therefore, selective use of sewer separation in the areas where it can be most useful was deemed advisable.

The GNHWPCA and the City of New Haven have been actively involved in a long-term program to reduce CSO overflows. A facility plan, which evaluated controls required to convey, treat, or store overflows associated with a 10-year storm (a storm with a 10 percent chance of occurring in any given year) was completed in 1981 and updated in 1988. At the time, the parties concluded that sewer separation was the most cost-effective method of meeting the evaluation criteria. By 1997, the city had separated approximately 35 percent - or a length of 50 miles – of its combined sewers.

Over time, regulatory requirements and technological changes led the GNHWPCA and the City of New Haven to reevaluate the approach of focusing primarily on sewer separation. In 1997, the City of New Haven entered into an agreement with the CH2M HILL to prepare a long-term plan for addressing CSOs consistent with guidance provided by the United States Environmental Protection Agency (USEPA) within the 1994 CSO Control Policy. The 1994 CSO policy established the Nine Minimum Control (NMC) measures, which are CSO-reducing measures that do not require significant engineering studies or major construction to complete. Applying the NMC approach, the GNHWPCA established goals; developed a system model, monitoring plan, and hydraulic characterization; evaluated CSO control alternatives; and developed a

comprehensive plan to reach identified goals. These improvements were designed to be implemented in a phased approach.

GNHWPCA has been committed to open communication and involvement with the community throughout the study. The public has been kept informed via the "Sewer Works" newsletter and the utility's website, which has highlighted the CSO control program and provides all past CSOLTCP updates, CSO Annual Progress Reports, and slideshows on the LTCP and CSOs and Green Infrastructure.

One example of GNHWPCA's efforts to involve the community in the CSOLTCP are public information meetings about the CSOLTCP. Two were held in New Haven on December 14, 2016, and February 14, 2017. These meetings provided background on CSOs in New Haven, explained the project elements and project schedule, and provided time for public comments, questions, and answers throughout. The presentations from these meetings are available to the public on the GNHWPCA website.

DEEP is acting as the state agency for this EIE and has been consulted and informed throughout the CSO Long-Term Control study process. DEEP is supportive of the recommended plan and schedule of actions as contained in the CSO LTCP prepared for the GNHWPCA dated December 2016, revised March 2018. Also, since plans change over time, DEEP requires that GNHWPCA submit an update to the CSO LTCP every five years. The most recent CSO LTCP Update was submitted to DEEP on November 28, 2022.

For a more detailed discussion of how the maintenance and repair of existing infrastructure is performed, the EIE contains links to the 2016 CSO LTCP, including Appendix A – Nine Minimum Controls, the 2015 NPDES Permit, and the GNHWPCA website.