March 9, 2012

Gary E. Kline, P.E.
NYSDEC
625 Broadway
Albany, NY 12233-3506

Keith Mahoney, P.E.
DEP Bureau of Wastewater Treatment
96-05 Horace Harding Expressway
Flushing, NY 11373

Re: Riverkeeper, Inc. Comments on the Newtown Creek Waterbody/Watershed Facility Plan

Dear Mr. Kline and Mr. Mahoney,

Please accept the following comments on behalf of Riverkeeper, Inc. ("Riverkeeper") on the draft Waterbody/Watershed Facility Plan for Newtown Creek ("Plan"). While Riverkeeper[1] fully supports New York City's efforts to integrate the use of Green Infrastructure ("GI") into its long term planning to reduce water pollution from combined sewer overflows citywide ("CSO"), we have significant concerns about the Plan, including the following;

- The Plan completely fails to adequately assess the potential public health risk of expanding the aeration system throughout the Creek, which could resuspend and disseminate bacterial contamination from the Creek water and sediment into the surrounding air, exposing recreational boaters and operators of commercial marine traffic to bacterial contaminants through direct exposure and inhalation.
- The Plan's proposal to only reduce CSO volumes into the Creek by 14% is inadequate because it does not comply with the EPA's CSO Control Policy, and will not significantly improve water quality or the ecology of the Creek.
- The Plan's proposal to expand the existing aeration system as the primary method of meeting state and federal water quality standards is inadequate because it fails to

[1] Riverkeeper is a member-supported watchdog organization dedicated to defending the Hudson River and its tributaries and protecting the drinking water supply of nine million New York City and Hudson Valley residents. For more than 44 years Riverkeeper has been New York's clean water advocate, helping to establish globally recognized standards for waterway and watershed protection and serving as the model for the growing Waterkeeper movement that includes nearly 200 Keeper programs across the country and around the globe. For more information on Riverkeeper, go to www.riverkeeper.org, last accessed March 9, 2012.

consider all reasonable alternatives, such as increased investment in GI, habitat restoration in the Creek's tributaries and additional grey infrastructure upgrades.

- The Plan is only designed to meet water quality standards for the Creek's current classification as Class SD waters, despite the fact the current "existing use" of the Creek for recreational boating is well-established. The established use of the Creek for recreational boating requires DEC to commit to upgrading the water quality classification to Class I, suitable for secondary contact recreation.

Riverkeeper hereby requests that the Department of Environmental Conservation ("DEC") and New York City Department of Environmental Protection ("DEP") conduct a comprehensive air sampling study on the existing aeration system on the English Kill to determine the extent to which bacterial contamination from the water table or sediments in the Creek is being "aerosolized" into the surrounding air by the aeration system, and whether that represents a public health threat to people recreating or working on the Creek, or living and working in proximity to it. This study should be conducted and its results shared with the public for public comment prior to determining whether to expand the aeration system as described in the Plan.

The following are Riverkeeper's detailed comments on the draft Plan.

The Plan completely fails to adequately assess the potential public health risk of expanding the aeration system throughout the Creek, which could resuspend and disseminate bacterial contamination from the Creek water and sediment into the surrounding air, exposing recreational boaters and operators of commercial marine traffic to bacterial contaminants through direct exposure and inhalation.

In the draft Plan, DEP has proposed Alternative 3 as its preferred approach to attaining compliance with Class SD water quality standards. Plan at 8-1. One of the core elements of Alternative 3 is the expansion of the Aeration system which is currently installed in the Upper English Kills, referred to as the "Phase I Aeration." Plan at 5-18. The following is the Plan's description of the expanded aeration system.

> Modeling also projects that to be successful the system would need to be deployed throughout a majority of the waterbody, including the shipping channels. Such an enhanced aeration system will require multiple blower buildings and a vast network of aeration piping. Information from the pilot study will be used during detailed facility planning and design of Enhanced Zone II Aeration to determine the number of blower facilities, system sizing requirements, and any necessary upgrades to the Zone I facility currently being constructed. Aeration will first be implemented in Lower English Kills, followed by East Branch and portions of Newtown Creek. The final aeration project under the Enhanced Zone II Aeration program will be installed in Dutch Kills and additional portions of Newtown Creek. The estimated cost of Enhanced Zone II Aeration is $115.3 million in June 2011 dollars.[2]

[2] Plan at 8.3-8.4. *See* also Section 7.3.3.

DEP staff also provided some information regarding the expansion of the aeration system at a public meeting on February 22, 2012. In that presentation, DEP explained that it conducted air quality monitoring for Hydrogen sulfide, VOCs and benzene, and detected only initial spikes in hydrogen sulfide when the system first started up, which apparently dissipated.[3] Several members of the public at the meeting asked if DEP had conducted air sampling for bacterial pathogens, and DEP answered that they did not believe so, but were unsure. DEP did not provide any information suggesting that such air sampling had taken place, and the Plan does not include any information describing air sampling for pathogens.

Riverkeeper is extremely concerned that DEP has not adequately studied the air quality impacts of the aeration system or the potential for the aerosolizing of sewage related bacteria and other contaminants into the surrounding air. This could present a public health risk to boaters on the Creek as well as people living and working in areas adjacent or in the nearby vicinity of the Creek while the aeration system is running.

Recent work has shown that local surface waters are a dominant source for aerosol particles, including viable bacterial aerosols, in the near-shore environment (Dueker et al. 2011; Dueker et al. 2012).[4] Aerosol particles are emitted from surface waters when bubbles rising through the water column burst at the surface, projecting microscopic particles that include bacteria into the air (Monahan et al. 1983; Blanchard 1989; de Leeuw et al. 2000; Aller et al. 2005). These bubbles preferentially scavenge bacteria from the water column as they rise to the surface, resulting in the release of bacteria-concentrated droplets to the air (Blanchard and Syzdek 1978; Blanchard et al. 1981; Blanchard and Syzdek 1982; Aller et al. 2005). Bubbles can occur in water as a result of wind-wave interactions, tidal movement, industrial and recreational boating, and mechanical aeration. The NYDEP English Kills aeration facility employs diffused aeration through fine bubble diffusers, a technology borrowed from wastewater treatment plants (Licata 2001). Fine diffusion creates small bubbles (0.5 – 2 mm) in the water column, which are known to release up to 10x more aerosol particles when they burst than bubbles greater than 3 mm (Blanchard and Syzdek 1988).

Many studies have confirmed aerosolization of viable pathogenic bacteria and endotoxins from aeration conducted in sewage treatment plants using this technology (Smit et al. 2005; Fracchia et al. 2006; Haas et al. 2010). Because Newtown Creek often sustains high levels of sewage-associated bacteria in surface waters[5], the aerosolization of bacteria from this waterway may have an unintended, and as yet unevaluated, impact on public health. Despite its SD classification, recreational activity does occur along the waterway, including people visiting city

[3] See Slide 15 from the DEP'S public meeting presentation on February 22, 2012. The entire presentation is appended to Riverkeeper's comments as Attachment A.

[4] Riverkeeper's comments describing our concerns about public health risks posed by the aeration system were drafted after consultation with our partners in our water quality sampling program, researchers from Columbia University/Lamont Doherty Earth Institute. For more information on Riverkeeper's program, go to http://www.riverkeeper.org/water-quality/locations/

[5] See Riverkeeper's Water Quality Sampling webpage for Newtown Creek, at http://www.riverkeeper.org/water-quality/locations/nyc-hudson-bergen/newtown-creek-dutch-kills/, or http://www.riverkeeper.org/water-quality/locations/nyc-hudson-bergen/newtown-creek-metropolitan-ave-bridge/, last accessed March 9, 2012.

parks along its shores, and kayaking/canoeing, which brings them into close proximity to surface waters and aerosols created from them.

Riverkeeper staffers have also experienced the localized effects of the aeration system, during boat patrols and water sampling trips that included traveling in a small boat to the Upper English Kills to obtain water samples and patrol for pollution. Over the past two years, John Lipscomb, Riverkeeper's boat captain, and Phillip Musegaas, Riverkeeper's Hudson River Program Director, both encountered elevated levels of noxious odors and visual evidence of a fine mist on the surface of the Creek while the aeration system is running. After encountering these conditions, Mr. Lipscomb chose to wear a respirator on subsequent patrols of the Upper English Kills. Mr. Musegaas' trips were less frequent, but he encountered the same conditions. Both Mr. Lipscomb and Mr. Musegaas are concerned about the potential health effects of being in proximity to this area while the aeration system is in operation.

While recreational boat traffic into the Upper English Kills is infrequent, DEP's Plan for Newtown Creek proposes to install the aeration system throughout the Creek, including the shipping channels. Plan at 8-3. If this plan is implemented, it will be difficult if not impossible for recreational boaters, operators of commercial marine traffic, and nearby workers and local residents to avoid being exposed to the effects of the aeration system. During the summer season when the aeration system will ostensibly be in operation, public attendance at waterfront parks on the Creek also increases, potentially exposing additional members of the public to aerosolized bacteria.[6] The general public and commercial marine traffic operators should not have to be concerned that their presence on the Creek could expose them to illness-inducing bacterial pathogens. Before determining whether to expand the existing aeration system to additional areas of the Creek, DEP and DEC must ensure that the aeration does not represent an additional health risk to the public. For that reason, and as stated above, Riverkeeper requests that DEP conduct an air sampling study that comprehensively assesses the risk of bacteria from the Creek sediment and/or water table being "aerosolized" by the aeration system, thereby distributing bacterial pollutants into the air column above the Creek and in the immediate vicinity.

The following photos, taken in September and October 2010, provide graphic evidence of the extent of pollution in the Upper English Kills, and some of the conditions present when the aeration system is running. Of particular note is the photo showing the foam buildup on the surface of the water from the aeration system.

[6] The Newtown Creek Nature Walk and Manhattan Avenue parks in Greenpoint both provide waterfront access to the public. For more information on these parks, go to http://www.nyc.gov/html/dep/pdf/newtown_creek_nature_walk_flyer.pdf, and http://www.nycgovparks.org/sub_things_to_do/facilities/kayak/

Bubblers in Upper English Kill

Foam created by bubblers

Water quality in English Kill

Water quality in Upper English Kill

Dead rat, English Kill

Bottom sediments in Newtown Creek

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The Plan's proposal to only reduce CSO volumes into the Creek by 14% is inadequate because it does not comply with the EPA's CSO Control Policy, and will not significantly improve water quality or the ecology of the Creek.

Newtown Creek suffers from the combined effects of decades of industrial pollution that contaminated the Creek's sediments and billions of gallons of untreated sewage and stormwater being diverted into the Creek through CSO discharges. Since 2006, Riverkeeper has been conducting water sampling in Newtown Creek and the waters around New York City, testing for Enterococcus bacteria, a widely used indicator of human sewage pathogens.[7] As shown on the attached table, our sampling in New York City shows that during dry weather, water quality at our sampling locations was within acceptable EPA limits 94% of the time.[8] In wet weather, samples exceeded EPA's safe limit 30% of the time, and were high enough to be of concern

[7] A full description of Riverkeeper's water sampling program can be found at http://www.riverkeeper.org/campaigns/stop-polluters/sewage-contamination/, last accessed March 9, 2012.

[8] Attachment B, Excerpt from *How is the Water? Sewage Contamination in the Hudson River Estuary? Findings from Riverkeeper's Water Quality Study, 2006-10*, accessible at http://www.riverkeeper.org/campaigns/stop-polluters/sewage-contamination/

another 15% of the time.[9] This data strongly suggests that wet weather events that trigger CSOs are the major contributor to CSO pollution in the waters around New York City, including Newtown Creek.

In order to improve overall water quality in Newtown Creek, it stands to reason that reducing wet weather CSO events should be DEP's priority. However, the Plan suggests that DEP is focused almost entirely on complying with existing water quality standards for the Creek, rather than investing in long term solutions that will improve water quality and the Creek's ecological balance. Newtown Creek is currently designated a Class A water by the State of New York, the lowest water quality classification in New York State. Plan at ES-4. Class A waters are only suitable for fish survival, and as a result, the only enforceable standard for Class A is dissolved oxygen. *Id.* There is no enforceable standard for pathogens for Class SD waters.

The draft Plan would reduce CSO pollution only 14%, from the baseline of app. 1.25 billion gallons per year to app. 1 billion gallons per year. According to Table ES-3, alternatives that would obtain higher CSO reductions would require significant financial investment by DEP, with slight increases in CSO reductions. Plan at ES-6. The Plan is consistent with the terms of the 2011 draft Administrative Consent Order ("ACO") between DEC and DEP, which has not been finalized but includes initiatives to integrate GI into DEP's long term plans to reduce CSO pollution. The DEP is currently still subject to a 2005 ACO with DEC.

According to a "Technical Memo" that accompanied the public release of the draft ACO, total CSO volume into the Creek will actually increase from 1.124 billion gallons a year, under the 2005 ACO projected reductions, to 1.260 billion gallons a year under the proposed 2011 ACO terms, which match what is contained in the draft Newtown Creek WWFP.[10] This is a net increase of 136 million gallons of CSO volume per year, and reflects DEP's proposal to defer or eliminate grey infrastructure projects that were required in the 2005 ACO or otherwise committed to by DEP, prior to the agreement reflected in the 2011 draft ACO.

This net increase in CSO volume into Newtown Creek is not consistent with the EPA's CSO Control Policy, which requires, under the "Demonstration approach", that "the program will provide the maximum pollution reduction benefits reasonably attainable."[11] This language makes it clear that the CSO Control Policy does not merely require compliance with existing water quality standards, as DEP is proposing in this Plan. Rather, it requires an analysis of what reasonably attainable measures can be taken to provide maximum reductions in pollution. DEP has not adequately shown in this Plan how a 14% reduction in CSO volume will comply with the CSO Control Policy, it has only demonstrated how the Plan will comply with existing water quality standards for a Class SD water. This is insufficient, and should be reexamined by DEP prior to finalizing its Plan.

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[9] *Id.*

[10] October 19, 2011 Letter from Vincent Sapienza, DEP, to Joe DiMura, NYSDEC, *Re: Comparison of the 2005/2008 CSO Order versus 2011 Modified CSO Order,* included here as Attachment C.

[11] See EPA website on CSO Control Policy, at http://cfpub.epa.gov/npdes/cso/cpolicy.cfm, last accessed March 9, 2012.

The Plan's proposal to expand the existing aeration system as the primary method of meeting state and federal water quality standards is inadequate because it fails to consider all reasonable alternatives, such as increased investment in GI, habitat restoration in the Creek's and additional grey infrastructure upgrades.

In terms of grey infrastructure improvements, the Plan only proposes to install two bending weirs at a cost of $26.2 million. Plan at 8-2. According to Riverkeeper's review, the Plan does not estimate specifically how much CSO reduction will result from the installation of the bending weirs, and it does not clearly explain whether DEP assessed the cost-effectiveness of installing additional bending weirs to obtain further reductions in CSO overflows from additional CSO outfalls on the Creek. During the February 22, 2012 meeting held by DEP on the Plan, several members of the public asked whether DEP had considered additional locations for installing bending weirs, and the DEP representative did not provide a clear answer.

The Plan should include a complete description of the analysis done by DEP to determine that there are not additional locations where bending weirs could be cost-effectively installed, thereby providing additional CSO reductions.

The Plan also does not discuss any consideration of alternatives to the aeration proposal for improving water quality in the Creek. In particular, DEP has not considered the use of constructed wetlands, bioremediation, or additional investments in GI in the Newtown Creek sewershed as alternatives, or a combination of alternatives to the expanded aeration system. Given the fact that the expanded aeration system will cost an estimated $115 million and will only operate approximately four months per year, Riverkeeper strongly urges DEP to conduct additional alternatives analyses that consider other approaches to improving both the levels of dissolved oxygen and the overall ecological health of the Creek. Investing in constructed wetlands, bioremediation and additional GI can have significant ancillary benefits, such as increased biodiversity, filtering of pollutants, and can generally "green" urban areas surrounding the Creek that are currently dominated by impervious surfaces.

The recently completed Brownfields Opportunity Area study of Newtown Creek includes a discussion of the potential for developing these measures in and around the Creek, and should be considered by DEP before finalizing the Plan.[12]

The Plan is only designed to meet water quality standards for the Creek's current classification as Class SD waters, despite the fact the current "existing use" of the Creek for recreational boating is well-established. The established use of the Creek for recreational boating requires DEC to commit to upgrading the water quality classification to Class I, suitable for secondary contact recreation.

Despite the fact that Newtown Creek suffers from the lowest water quality classification by New York State, the Creek is actively used for waterborne recreation and waterfront access by a wide range of recreational users. There is continuing and growing interest in expanding both waterfront access, where possible, and water access for human powered boat launches.

[12] *Newtown Creek Brownfields Opportunity Area*, Presentation for March 6, 2012 Public Meeting, included here as Attachment D.

However, because of the Class SD classification, DEP is not required to comply with water quality standards related to pathogen levels in the Creek. Riverkeeper's sampling data for the Creek shows that the water column is frequently polluted with unsafe levels of sewage pathogens after rain events, when the CSOs discharge untreated sewage and stormwater into the Creek.[13] While many boaters are aware of the link between rain events and CSO pollution, the fact remains that recreational boaters in New York City should be able to recreate in the city's waterways without concern for their health from sewage pollution. Riverkeeper strongly urges DEP to formally consider strengthening the water use classification of Newtown Creek to at least Class I, which would support secondary contact recreation. As part of its public participation process pursuant to development of the Long Term Control Plan for Newtown Creek, DEP should initiate a public process for soliciting and compiling recreational use information for the Creek, as the first step in upgrading protection of this waterway.

The following boat clubs and other organizations that use the Creek for waterborne recreation. This includes the North Brooklyn boathouse, which is slated to be built over the next 3-4 years. In the meantime, Broadway Stages, a local business, has offered temporary space for recreational boat storage adjacent to the Creek until the Boathouse is completed. This community supports recreational use of the Creek and will support a real effort by DEP to improve water quality and protect public health for recreational boaters.

North Brooklyn Boat Club www.northbrooklynboatclub.org

Long Island City Boathouse ("LICCB") http://www.licboathouse.org/

LICCB canoe trip on Newtown Creek:
https://picasaweb.google.com/mainyo72/NewtownCreek2009#

LICCB trip plus Dutch Kills:
https://picasaweb.google.com/mainyo72/NewtownCreek#

New York City Watertrail http://nycwatertrail.org/index.html

The Plan states that DEP will need at least ten years of post-construction monitoring before it can undertake review of was and consider development of Use Attainability Analyses.

This is inconsistent with DEP's stated policy of developing UAAs and considering revisions to water quality standards, if needed, concurrent with the development of the LTCP. The LTCP for Newtown Creek is required to be submitted to DEC in 2017, well before post construction monitoring will be complete according to the Plan.
Riverkeeper hereby requests information on DEP's position regarding the timing of WQS review, UAA development and the completion of the LTCP for Newtown Creek, in order to

[13] See Riverkeeper's online water sampling data for the Creek, accessible at http://www.riverkeeper.org/water-quality/locations/nyc-hudson-bergen/newtown-creek-dutch-kills/ and http://www.riverkeeper.org/water-quality/locations/nyc-hudson-bergen/newtown-creek-metropolitan-ave-bridge/. The sample data shows frequent exceedances of sewage related pathogens following rain events.

clarify the apparent inconsistency between the statement in the Plan regarding ten years of PCM, and prior statements by DEP staff that suggested otherwise.

Riverkeeper appreciates the opportunity to comment on the Newtown Creek WWFP, and looks forward to participating in the process of developing the Long Term Control Plan for this unique and vital waterway.

Respectfully,

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