

Response to Public Comments on the Draft 2017 Filtration Avoidance Determination For the City of New York

Introduction

The New York State Department of Health (NYSDOH) has reviewed New York City's ("the City's") 2016 Long-Term Watershed Protection Plan (December 2016), assessed the City's compliance with the Revised 2007 Filtration Avoidance Determination (FAD), and solicited input from Watershed stakeholders. Based on these actions, NYSDOH has determined that filtration avoidance for the City's Catskill/Delaware System shall continue through the period 2017-2027.

On July 21, 2017, the draft 2017 FAD was released for public review. A 45-day period was provided for public comment on the draft. Notice of the availability of the FAD for review was made through NYSDOH press release, emails to key Watershed stakeholders, and posting to the NYSDOH website. The comment period ended on September 6, 2017.

This document summarizes the public comments received on the draft 2017 FAD from 39 municipalities, organizations, and individuals, along with responses from NYSDOH.

Responses to these comments are being provided in conjunction with the issuance of the Final 2017 FAD. This FAD includes several changes that have been made in response to comments received on the draft. Changes that have been included in the Final 2017 FAD are detailed below. The City will revise its 2016 Long-Term Watershed Protection Plan to reflect the requirements of the 2017 FAD.

Some due dates have been adjusted from when the draft FAD was issued, to more accurately represent the date of issuance for the Final 2017 FAD. Other differences between the draft and Final 2017 FAD are described below (addition ~~deletion~~):

1. On page 11, language was removed from a sentence to clarify that not all lands are marginally developable: "A workgroup will be convened to explore payment approaches or incentives that may be applied to purchasing streamside lands ~~and that incorporate the water quality benefits of protecting these marginally developable lands.~~"
2. On page 20, two report descriptions were added: "Submit 2021 Long-Term Watershed Protection Plan" with a due date of "12/15/2021" and "Submit 2026 Long-Term Watershed Protection Plan" with a due date of "12/15/2026".
3. On page 24, the activity box on page 24 regarding the Cluster System was revised to reflect the more appropriate threshold for these systems: "(ii) indicating that if the Study Phase determines that a cluster system(s) is not ~~feasible~~ or the most cost-effective wastewater solution for an area identified with septic system failures, then the consultant may recommend a more cost-effective solution (e.g., sewer extension or other wastewater management system)."
4. On page 24, the due date for the activity "Construct sewer extension projects in Shandaken (Pine Hill WWTP), Middletown (Margaretville WWTP)" was revised: "~~TBD (expected to be complete before FAD issued)~~ Completed".

5. On page 27, in Section 3.3, text was revised to reflect program progress since the draft FAD was released: “The Shandaken, Claryville, West Conesville, and Halcottsville projects ~~has~~ have received block grant approval and ~~is in~~ are eligible to start the Design Phase. The remainder ~~ing~~ of the MOA-identified communities (~~West Conesville, Claryville, Halcottsville, and New Kingston~~) are is currently in at least the Study Phase, ~~with the West Conesville project seeking approval of a block grant to proceed to the Design Phase.”~~
6. On page 28, the activity “Complete preliminary study for Halcottsville and New Kingston” was completed.
7. On page 28, the activity “Approve block grant for Halcottsville” was completed.
8. On page 28, estimated due dates were added to complete design for the following projects: Shandaken (9/30/2018); Claryville (10/31/2018); West Conesville (12/31/2018); Halcottsville (12/31/2018); and New Kingston (6/30/2019).
9. On page 28 estimated due dates were added to complete construction for the following projects: Shandaken (9/30/2020); Claryville (10/31/2020); West Conesville (12/31/2020); Halcottsville (12/31/2020); and New Kingston (6/30/2021).
10. On page 29, the due date for “Approve block grant for Shokan project” was revised: “Six months from date of completed Study Phase (estimated ~~6/30/2019~~).”
11. On page 28, the due date for “Complete design for Shokan” was revised: “One year from date of ~~Block Grant~~ town approval to enter Design Phase (estimated ~~6/30/2020~~ 12/31/2020).
12. On page 29, the due date for Complete construction for Shokan was revised: “Two years from date of completed Design Phase (estimated ~~6/30/2022~~ 12/31/2022).”
13. On page 35, in Section 4.2, text was revised: “This FAD requires that Anan additional \$3 million ~~has been~~ will be committed to support the SAP pilot.”
14. On page 35, in Section 4.2, text was revised to remove a constraint on the activities related to transitioning farms: “The City will continue to work with land trusts to explore and implement additional ways to enhance the efforts of the LAP. A focus for this FAD period will be to ~~look into~~ consider the feasibility of a program, in partnership with land trusts and stakeholders, that will protect the majority of each transitioning farms (for example, ~~agricultural land~~ a farm that is at risk of foreclosure or farms with retiring farmers) ~~with BMP investments~~. This program would seek to secure an agricultural a conservation easement on the majority of the farm and transition the farm to new operations consistent with a Whole Farm Plan.
15. On page 36, text was revised: “The City shall deposit \$23 million into a segregated account for land acquisition funds every two years starting in July 2018 through 2022.”
16. On page 38, the due date for “Amend agreement with CWC for the Local Consultation Funds Program to provide \$5,000 per municipality to review updated Town Level Assessments” was revised: “~~12/31/2017~~ 6/30/2018.”
17. On page 38, the due date for “Execute and register a contract or contract amendment with WAC to provide \$11 million in funding to continue the WAC Agricultural Easement program for the entire duration of the 2017 FAD” was revised: “~~Within 18 months from 2017 FAD issuance (estimated 3/31/2019~~ 3/31/2020).”
18. On page 39, the activity box for transitioning farms was revised: “Continue to work with stakeholders to explore the feasibility of a program that will protect the majority of each transitioning farms (agricultural land that is at risk of foreclosure or farms with retiring farmers) ~~with BMP investments~~. This program would seek to secure an agricultural a

conservation easement on the majority of the farm and ~~transition the farm to new operations consistent with a Whole Farm Plan.~~

19. On page 39, text was revised to reflect the appropriate due dates for two evaluation reports on the New York City-Funded Flood Buyout Program, which are required under the 2010 Water Supply Permit.
20. On page 40, text was revised to reflect the submission by the City of two written evaluations on the Forest Conservation Easement acquisition program and the Streamside Acquisition Program. These were submitted to NYSDEC based on the requirements of the 2010 Water Supply Permit.
21. On page 41, clarified a contract recipient: "If, in accordance with the City's 2010 WSP, a written determination is made by NYSDEC, in consultation with NYSDOH, the City, and other agencies or local governments, to authorize that a streamside acquisition program be continued and expanded beyond the Schoharie Reservoir Basin, execute and register a contract to make a minimum of \$8 million available to the Catskill Center to implement or continue to implement such a program for the remainder of the 2017 FAD."
22. On page 41, a due date for "Submit proposed approach for providing payments or incentives that might increase participation by landowners in SAP" was revised: "~~42 months from 2017 FAD issuance (estimated 9/30/2018~~ 3/31/2019)".
23. On page 43, the activity "Submit a modified solicitation plan or a statement that the City does not intend to modify the 2012-2022 Long-Term Land Acquisition Plan at this time" was completed.
24. On page 46, activity boxes were revised to clarify the details of work on BMP backlogs.
25. In Sections 4.6 and 4.7, due dates were added for the CSBI program based on the November 7, 2017 signing of the CREP-CSBI agreement with the City, WAC and the Delaware County SWCD.
26. On page 65, the activity "Update the Watershed Forest Management Plan" was completed.
27. On page 67, in Section 4.9, an activity was clarified: "Maintenance of DEP's EOH Stormwater Facilities."
28. On page 67, the due date for "Complete construction of two stormwater retrofit projects" was revised: "~~6~~ 9/30/2020".
29. On page 68, the due date for "EOH Stormwater Retrofit Grant Program" was revised: "~~48 months from 2017 FAD issuance (estimated 3/31/2019)~~ 9/30/2019".
30. On page 68, the due date for "EOH Community Wastewater Planning Assistance Grants" was revised: "~~48 months from 2017 FAD issuance (estimated 3/31/2019)~~ 12/31/2019".
31. On page 69, the due date to revise the contract with the Environmental Facilities Corporation (EFC) for the EOH Septic Repair Program (SRP) was revised: "~~Within 6 months from issuance of the 2017 FAD (estimated 3/31/2018)~~ 12/31/2018".
32. On page 72, in Section 4.10, the due date for "Complete Shaft 18 shoreline stabilization project" was revised: "~~12/31/2021~~ 12/31/2022."
33. The Revised 2007 FAD included a due date of June 30, 2017, for the City to submit a progress report on the development of a draft schedule for dredging at the Catskill Upper Effluent Chamber. That work has been delayed as the City evaluates options in relation to the construction of the connection between Kensico Reservoir and the Eastview UV site. Therefore, the 2017 FAD requires the City to annually report on the progress of plans to dredge at the Kensico Reservoir effluent chambers (page 72).

34. On page 74, the text was corrected: "NYSDEC is lead agency for this review and ~~will be issuing~~issued the final scope of work for the EIS on March 22, 2017."
35. On page 74, in Section 4.11, text was added to clarify activities occurring under the NYSDEC Order on Consent: "Under the CO, ~~the~~ City is required to prepare a draft EIS (DEIS) and draft of the Final EIS (FEIS), which will analyze the potential environmental and socioeconomic impacts resulting from the proposed modifications."
36. On page 91, the due date for the City to issue Notice to Proceed on the Catskill/Delaware Filtration Plant Design was revised: "~~12/31/2017~~2/28/2018".
37. On pages 111-114, in Section 11, several due dates were revised to reflect the changes noted above.

NYSDOH Response to Comments

General FAD Comments

Comment: Several comments were received that supported NYC's Watershed Protection Programs, noting successes in protecting the drinking water supply of NYC, while benefitting watershed communities.

Response: NYSDOH acknowledges these comments.

Comment: Several comments were received that requested the FAD be finalized as soon as possible, as delays in this process will interfere with contracting between NYCDEP and its watershed partners.

Response: NYSDOH understands that delays in the FAD process can cause delays in partnership contracts, and works to minimize those delays when possible.

Comment: Several comments were received that requested a midterm, or 5-year, review of the 2017 FAD.

Response: The 2017 FAD includes ten-year commitments for all Watershed protection programs, unlike the 2007 FAD, which included a ten-year commitment for the Land Acquisition Program only, and five-year commitments for the other Watershed protection programs. While the 2017 FAD covers a 10-year period, several activities will take place during the period, which, depending on their nature and findings, may lead to modifications of the City's Long-Term Watershed Protection Plan, and therefore, modifications to the requirements of the 2017 FAD. This process was summarized in the draft 2017 FAD.

One of these activities is the Expert Panel Review of the City's Watershed protection programs, to be run by the National Academies of Science Engineering and Medicine (NASEM), under contract with the City. Key questions to be evaluated by the Expert Panel include:

- Are individual program elements (e.g., agriculture and stormwater best management practices, wastewater technologies, requirements for streamside buffers) based on the most relevant and up-to-date science?
- Are the City's water quality monitoring and modeling, as well as the performance monitoring of individual measures, adequate to assess the effectiveness of the overall watershed protection program? How might they be improved?
- Are operational controls adequate to protect water quality and comply with filtration avoidance determination requirements?
- How can the various watershed protection components (e.g. operational controls, regulatory programs and their enforcement, voluntary programs, and partnership programs) be better balanced to be more effective and sustainable?
- How might the watershed protection program evolve to account for future risks to the water supply, for example due to climate variability, invasive species, and regulatory trends?

The Final 2017 FAD requires the City to commence the Expert Panel review by January 31, 2018. A portion of the Expert Panel meeting schedule is open to the public, and the Expert Panel will accept public comments during its review. All comments received by NYSDOH during the 45-day public comment period on the draft 2017 FAD will be provided to the Expert Panel. It is anticipated that the Panel's report will be issued 33 months later, in October 2020.

Four months after the release of the report (anticipated late February 2021), the City, in cooperation with NYSDOH, will convene a meeting or meetings of Watershed stakeholders to present the Expert Panel's findings and solicit stakeholder input. Stakeholder input on the findings of the NASEM review and matters relevant to the FAD programs will be accepted during a 60-day comment period following the stakeholder meeting(s). The City, in consultation with regulators, will evaluate the Expert Panel findings, along with stakeholder input relevant to the FAD programs. NYSDOH will review the Expert Panel report, the March 2021 Watershed Protection Program Summary and Assessment Report, and stakeholder input. If NYSDOH, in consultation with USEPA, determines that changes to the Long-Term Watershed Protection Plan are warranted and necessary to ensure that filtration avoidance criteria continue to be met, NYSDOH will instruct the City to incorporate these changes into the 2021 Long-Term Watershed Protection Plan. The City will submit the 2021 Long-Term Watershed Protection Plan to NYSDOH by December 15, 2021. Concurrently, NYSDOH, in consultation with USEPA, will complete a FAD compliance assessment report, which is a comprehensive review of the City's performance in meeting the terms of the 2017 FAD. It is anticipated that this report will be issued in July 2021. Any revisions to the City's Long-Term Watershed Protection Plan will be incorporated into a draft Revised 2017 FAD, which will be made available for a 45-day public comment period. A final Revised 2017 FAD is scheduled to be issued in July 2022.

It is likely that some programs may be refined, due to completion of existing pilot studies and required reports issued by the City, as well as input from the Expert Panel. For example, required evaluations will be submitted related to the Watershed Agricultural Council's Forest Conservation Easement Program, the City-Funded Flood Buyout Program, the Streamside Acquisition Program, and the East-of-Hudson Septic Repair Program, among others.

The following changes were made to the 2017 FAD to better describe the timeline of events:

The text on page 8 of the 2017 FAD was modified to make clear the timeline of activities following the release of the Expert Panel report and the formal mid-term review:

"The 2017 FAD requires the City to commence the Expert Panel review by January 31, 2018. The Panel is anticipated to issue a report on its findings 33 months after it commences work (anticipated by October 31, 2020). Four months after the release of the report (anticipated late February 2021), the City, in cooperation with NYSDOH, will convene a meeting or meetings of Watershed stakeholders to present the Expert Panel's findings and solicit stakeholder input. Stakeholder input on the findings of the NASEM review and matters relevant to the FAD programs will be accepted during a 60-day comment period following

the stakeholder meeting(s). The City, in consultation with regulators, will evaluate the Expert Panel findings, along with stakeholder input relevant to the FAD programs. NYSDOH will review the Expert Panel report, the March 2021 Watershed Protection Program Summary and Assessment Report, and stakeholder input. If NYSDOH, in consultation with USEPA, determines if that changes to the Long-Term Watershed Protection Plan Watershed protection programs are warranted in order and necessary to help ensure that filtration avoidance criteria continue to be met, NYSDOH will instruct the City to incorporate these changes into the 2021 Long-Term Watershed Protection Plan. If the City, in consultation with regulators, determines that changes are warranted based on the Expert Panel report, the regulators' evaluation of those findings, stakeholder input, and the March 2021 FAD Summary and Assessment, ~~the~~ The City will submit a revised the 2021 Long-Term Watershed Protection Plan to NYSDOH six months following such determination (anticipated by December 15, 2021). Concurrently, NYSDOH, in consultation with USEPA, will complete a FAD compliance assessment report, which is a comprehensive review of the City's performance in meeting the terms of the 2017 FAD. It is anticipated that this report will be issued in July 2021. These Any revisions to the City's Long-Term Watershed Protection Plan will be incorporated into a draft Revised 2017 FAD, which will be made available for a 45-day public comment period. A final Revised 2017 FAD is scheduled to be issued in July 2022."

Text was also added on pages 15 and 16 to reflect the modified language above:

"The 2017 FAD supersedes the Revised 2007 FAD and will be effective until a further determination is made, currently scheduled for July 2027. Looking ahead, NYSDOH, in consultation with USEPA, will commence a mid-term review of the City's compliance with the terms of the 2017 FAD, and issue a compliance assessment report on this review by July 31, 2021. By December 15, 2021, the City will submit the 2021 Long-Term Watershed Protection Plan to NYSDOH for review, which will address the findings of the compliance assessment report and incorporate any FAD program changes required by NYSDOH. These changes will then be incorporated into a draft Revised 2017 FAD, with a final Revised 2017 FAD scheduled for issuance in July 2022. ~~to the~~ To transition from the Revised 2017 FAD into the 2027 FAD, NYSDOH expects that the City will undertake a comprehensive evaluation of its Watershed protection program to be completed by March 31, 2026. NYSDOH will conduct a FAD compliance review, and issue a compliance assessment report on this review by July 31, 2026. This report will assist the City in its development of a new Long-Term Watershed Protection Plan due on December 15, 2026. The 2026 Long-Term Watershed Protection Plan will serve as the principal reference for the next FAD reissuance, scheduled for July 2027. The dates above are tentative and may be re-evaluated by NYSDOH at a later date as necessary."

Comment: The 2017 FAD should include the environmental, economic, and community issues related to releases of water from the Ashokan Reservoir to the Lower Esopus Creek, including the Marbletown recreation area.

Response: Releasing water from the Ashokan Reservoir to the Lower Esopus Creek is associated with the City's Catalum SPDES Permit, and is not regulated by NYSDOH under the FAD. The NYSDEC Catalum Order on Consent issued October 4, 2013, requires the City to conduct an Environmental Impact Statement (EIS) analyzing the proposed modification of releases from the Ashokan Reservoir to the Lower Esopus Creek, which is outside of the NYC Watershed. The EIS will evaluate the potential for significant adverse environmental impacts to occur from implementation of the turbidity control measures proposed to be incorporated into the Catalum SPDES Permit, as well as from the postponement of dredging of alum floc in the Kensico Reservoir. The EIS includes socioeconomic and community issues. The Final Scope for the Modification of the Catalum SPDES Permit was released in March 2017.

Comment: The impacts to the Lower Esopus Creek from Ashokan Reservoir releases must be evaluated in an environmental impact statement. NYSDOH is urged to require evaluation and appropriate modification of FAD-required turbidity control mechanisms in the 2017 FAD, incorporating all information that has become available regarding their consequences.

Response: As noted above, the City is currently involved in the process of completing the Environmental Impact Statement (EIS) for the Lower Esopus Creek in compliance with the Catalum Order on Consent issued by NYSDEC. The EIS will evaluate the potential for significant adverse environmental impacts to occur from implementation of the turbidity control measures proposed to be incorporated into the Catalum SPDES Permit, as well as from the postponement of dredging of alum floc in the Kensico Reservoir. If, based on the outcome of that process, changes to the City's turbidity control measures are needed, NYSDOH will evaluate whether changes to the 2017 FAD, specifically Section 4.11 (Catskill Turbidity Control Program) are warranted.

Comment: The FAD should prohibit major releases from the Ashokan Reservoir to the Lower Esopus.

Response: Releases to the Lower Esopus from the Ashokan Reservoir are not regulated by NYSDOH under the FAD. Releases are governed by the Interim Release Protocol, jointly developed by the City and NYSDEC. The Order on Consent issued by NYSDEC includes modifications of the operating protocol for the Ashokan Reservoir, including both release and spill events. These modifications consider the potential environmental impacts, economic benefits, flood mitigation in the areas downstream of the reservoir, or to mitigate impacts of turbidity diverted to Kensico.

Comment: The filtration waiver for NYC should end, to protect the health and safety of NYC residents. NYSDOH should require NYC to build a filtration plant, and once it is complete, end the filtration avoidance.

Response: The City currently meets all requirements for filtration avoidance, including the objective water quality criteria, set by the USEPA in 40 CFR § 141.71 and the NYSDOH under the State Sanitary Code, 10 NYCRR § 5-1.30. There is no evidence to support a denial of filtration avoidance.

Comment: While the NYSDOH has set firm milestones and deadlines for some programs, other programs have no set deadlines, such as the NASEM expert panel review. Some programs have unenforceable deadlines at the end of the FAD period, such as revegetation under the

Riparian Buffer Protection Program. Others have goals or deadlines that are adjustable dependent on completion of prior milestones. Reasonable, certain, deadline dates must be set, assisting DEP to move through its contracting processes, set expectations for all stakeholders, and protect water quality and local communities. These timetables (with mechanisms available to the State to secure timely implementation) and funding commitments should be included in appendices to the 2017 FAD.

Response: All programs are continuously reviewed by NYSDOH to ensure the City complies with the terms of the FAD. In some cases, firm deadlines can be detrimental to the collaborative nature of the City's programs. Implementation can be affected by situations outside of the City's control, including the goals put in place for programs run by City partners, or project phases that require some form of local approval before a project can move forward. NYSDOH has set reasonable deadlines where they would expedite program implementation, benefit water quality, and protect public health.

Comment: The Final 2017 FAD should specify that the City will share 50% of the costs of construction of the new Arkville facility, up to a certain amount, so that construction can proceed and DEP employees can move into that office space.

Response: NYSDOH supports efforts by DEP to improve coordination with Watershed partners and responsiveness to the Watershed communities, including the establishment of DEP office space co-located with CWC in Arkville. However, mandating construction funding for the Arkville facility is outside the scope of the FAD.

Comment: The Croton water treatment plant must be equipped with backup power before the Delaware Aqueduct (Rondout-West Branch Tunnel) is taken out of service, because the City will not be able to meet normal demand of 1000 MGD.

Response: The City is currently constructing a bypass tunnel around a leaking section of the Rondout-West Branch Tunnel (RWBT), which is part of the City's Delaware System. During the expected 6- to 8-month shutdown of the RWBT in 2022, it is projected that the average demand from the City will be approximately 1000 million gallons per day (MGD). This demand is projected to be met with water from the Catskill System (up to 660 MGD) and the Croton System, via the Croton Filter Plant (up to 290 MGD) and diversions of water from the Cross River Reservoir (140 MGD) and the Croton Falls Reservoir (60 MGD). Combined, these sources could provide up to 1150 MGD.

The Croton Filter Plant is fed by four electric service feeders rated at 13.2 kilovolts. If any one of those service feeders or service equipment was unavailable, the Plant could still operate at its capacity of 290 MGD. If two service feeders or service equipment were out, the Plant could still operate at 144 MGD.

In the event of a total power loss at the Croton plant during the Delaware Aqueduct shutdown, the City will have the ability to maximize water withdrawals from its remaining sources to meet demand over short periods of time. Under the FAD, the City is required to submit a report to NYSDOH, one year prior to the start of the RWBT shutdown, which will document the City's operations plan during the shutdown.

Comment: The proposed transfer of unfiltered Croton water at Croton Falls and Cross River for the Delaware Aqueduct repair does not meet the criteria for use during an emergency. This transfer should only be allowed after the Croton water treatment plant is equipped with backup power.

Response: The introduction of Croton Falls or Cross River source water into the Catskill/Delaware water supply is allowed, with written approval from NYSDOH, for emergencies and to maintain system dependability in the event some or all the normal Catskill/Delaware water supply becomes unavailable. As a condition of that approval, the City must demonstrate continuing, substantial compliance with the Watershed protection program elements being implemented in the Croton Falls and Cross River watersheds that are contained in the FAD. The City would also be required to follow an approved water quality monitoring plan to ensure that the Croton Falls or Cross River source water meets acceptable water quality standards. This monitoring would begin at least two weeks prior to the activation of pump station operations at either reservoir. In addition, waterfowl management efforts on the reservoir would also be initiated as needed.

2. SWTR Filtration Avoidance Criteria Requirements

There were no comments received on this program.

3. ENVIRONMENTAL INFRASTRUCTURE PROGRAMS

3.1 Septic and Sewer Programs

Comment: Providing financial assistance to ensure septic systems are properly operating and maintained is valuable and important to homeowners, businesses, and the environment. But we are concerned that including in this effort a commitment to support design and construction of new sewer connections to wastewater treatment plants will be counter-productive. More connections to wastewater treatment plants begets increased development which causes increased stormwater runoff and water pollution problems. This aspect of the FAD should either be removed or there should be a specific limitation that ensures the new connections will do no more than support the home or business that it is intended to connect.

Response: Some areas of the West of Hudson Watershed contain soils that are not adequate to support a properly-functioning septic system. Connecting these properties to modern wastewater treatment plants through the Sewer Extension Program protects water quality by reducing the number of failing or potentially failing septic systems in the West of Hudson Watershed. In addition, the City's Watershed Rules and Regulations, along with local laws and zoning regulations, guide residential and commercial development and address areas where stormwater may be an issue.

3.2 New Sewage Treatment Infrastructure Program

There were no comments received on this program

3.3 Community Wastewater Management Program

Comment: The final 2017 FAD should include a directive for expedited funding by the City for construction of the Shokan community wastewater facility, while identifying any other behind schedule infrastructure projects and setting schedules for project completion.

Response: The City and CWC are developing the funding agreement for the Shokan engineering study to allow that work to proceed as soon as possible. On October 3, 2017, the CWC Board of Directors approved entering into an agreement with an engineering firm to propose a preliminary service area for a potential wastewater project in the Hamlet of Shokan, in the Town of Olive.

Comment: The Community Wastewater Management Program does not seem to have the rigorous oversight and inspection program of watershed sewer discharges as that described in FAD Section 6.2 Wastewater Treatment Plant Compliance and Inspection. Why not better regulate, inspect, and report on these community-based subsurface wastewater disposal systems?

Response: Systems that are built under the Community Wastewater Management Program (CWMP) are subject to the same regulatory standards that apply to similar systems that are not built pursuant to the CWMP. There are several different types of systems that have been constructed under CWMP. For example, larger wastewater treatment plants are subject to four inspections by the City every year, as well as one inspection by NYSDEC. These systems must be run by a licensed operator, and they have sampling and reporting requirements under a State Pollution Discharge Elimination System (SPDES) permit.

Community subsurface sewage treatment systems (SSTs) are subject to NYSDEC regulatory oversight, which includes sampling and reporting requirements under a SPDES permit. Those systems are also overseen by their municipal operator. Individual septic systems are inspected by town officials at a frequency determined by the municipality. Systems that serve restaurants and camps have oversight by NYSDOH. The City's involvement consists of review, approval, and construction oversight of SSTs within septic maintenance districts, based on Section 18-38 of the City's Watershed Rule and Regulations.

3.4 Wastewater Treatment Plant Upgrade Program

There were no comments received on this program.

3.5 Stormwater Programs

Comment: The highest priority for stormwater projects should be those that address stormwater volume, as volume reduction provides the highest water quality benefits while it also helps address flooding, erosion, and other stream and community impacts.

Response: NYSDOH agrees that stormwater projects that address the volume of runoff can protect water quality, as well as address flooding and control erosion, along with providing other beneficial stream and community impacts.

4. PROTECTION AND REMEDIATION PROGRAMS

4.1 Waterfowl Management Program

There were no comments received on this program.

4.2 Land Acquisition Program

Comment: The requirement that the City deposit an additional \$69 million in a segregated account over six years for land acquisition is not justified. A need for additional funds has not been demonstrated, nor has it been shown that the established account does not provide sufficient funds to allow a reasonable continuation of the Land Acquisition Program (LAP), at least until the National Academies report is complete.

Response: This funding amount was estimated based upon past LAP acquisitions and costs, and is intended to allow the LAP to continue programmatically while reviews are taking place in order to prevent a program gap. Future funding for LAP is contingent upon reissuance of the City's Water Supply Permit in 2025.

Comment: We are encouraged to see the DEP will allot \$69.3 million for land acquisition over the next six years and that the Health Department will convene budget discussions annually with the EPA, NYSDEC and DEP to consider whether additional money may become necessary. We understand that these new monies will be in addition to the monies currently in the Land Acquisition Program account(s) and we recommend that the Health Department clarify the language to so indicate.

Response: Language at the second paragraph on page 36 of the FAD states "The City shall deposit \$23 million into a segregated account for land acquisition funds every two years through 2022." The first Activity Box under LAP supplies the three dates for adding this amount.

Comment: The additional \$3 million provided by DEP for the Streamside Acquisition Program (SAP) to keep it running through 2020 will help it remain viable and show its potential benefit to the entire Watershed. It is understood that this funding is separate from the traditional Land Acquisition Program funding, and accordingly recommend that the Health Department clarify in the FAD language that this funding, as well as that for Floodplain buyouts, and WAC farm and forest easements, is in addition to land acquisition.

Response: The comment is correct that funding for the Streamside Acquisition Program, City-funded Flood Buyouts, and Watershed Agricultural Council farm and forest easements all have separate funding streams outside of the core Land Acquisition Program. The following language was added on page 36 to clarify this point:

“Continue to work with and support partners to secure properties and CEs pursuant to the applicable programs (i.e., the NYCFFBO Program, the Agricultural and Forest Easement Programs, and the SAP, which are funded outside the traditional land acquisition segregated account) and related requirements.

Comment: Concern was expressed that the Streamside Acquisition Program will run through 2020, but will only be evaluated at the end of that period. To prevent unnecessary interruptions, it is recommended that the review date be moved to 2019, well in advance of the program’s end date. The pilot project end date should be extended to 2022. Expansion to at least two other basins could begin by 2020, if the evaluation supports.

Response: Based on the requirements of the 2010 Water Supply Permit, the City submitted an evaluation of the Streamside Acquisition Program (SAP) to NYSDEC, as a deliverable under the terms of the 2010 Water Supply Permit. NYSDOH will maintain a requirement for the City to report on the status of the SAP in 2020.

NYSDOH agrees that the pilot project end date should be extended to 2022. The 2017 FAD reflects these changes as follows.

On pages 40 and 62, the text has been revised: “Submit to NYSDOH, USEPA, and NYSDEC a written evaluation of the SAP, including recommendations for improvements to the program a status report on the SAP”.

On pages 40 and 62, an activity and due date were revised as follows: “The City shall execute and register a contract or contract amendment to make an additional \$3 million available to the Catskill Center to continue to implement the SAP through at least 2020/2022.” Due Date: “~~Within 18 months of the 2017 FAD issuance (estimated 3/31/2019)~~6/30/2019.”

Comment: The regulators are urged to require the SAP pilot program to continue to be implemented through 2022, instead of 2020, to allow the use of the additional \$3 million for the pilot program. In addition, the FAD should require \$12 million, rather than \$8 million, be committed to the SAP should the program be continued after the pilot. All dates associated with the SAP must account for the 18-24 month contracting process with the City to be feasible. This includes the SAP evaluation, which should be due December 15, 2019, instead of 2020, to avoid the end of the contract period.

Response: The FAD includes an annual budget meeting between NYSDOH, USEPA, NYSDEC, and the City in which the funding for each program is reviewed. Should that review determine that additional funds are required for the continuation of any program, NYSDOH will direct the City to provide those funds.

Based on the requirements of the 2010 Water Supply Permit, the City submitted an evaluation of the SAP to NYSDEC, as a deliverable under the terms of the 2010 Water Supply Permit. NYSDOH will maintain a requirement for the City to report on the status of the SAP in 2020.

On pages 40 and 62, an activity and due date were revised as follows: “The City shall execute and register a contract or contract amendment to make an additional \$3 million available to the Catskill Center to continue to implement the SAP through at least

~~2020~~2022.” Due Date: ~~“Within 18 months of the 2017 FAD issuance (estimated 3/31/2019/6/30/2019).”~~

Comment: Comments were received regarding the timing of the working group which will research methods and propose an approach for providing payments or incentives that may increase landowner participation in SAP, with some in favor of delaying the workgroup and others in favor of expediting it.

Response: The draft 2017 FAD contained a due date of September 30, 2018 for the City to submit a proposed approach to provide payment or incentives to increase participation in SAP. This date has been changed in the 2017 FAD to accommodate the time needed to convene the appropriate stakeholders.

On page 41 of the 2017 FAD, the due date for “Submit to NYSDOH, USEPA, and NYSDEC for review and NYSDOH approval a proposed approach to provide payment or incentives to increase participation in SAP. If a WSP modification is required to implement this new approach, submit a request to NYSDEC to modify the WSP” was revised to ~~“Within 12 months from 2017 FAD issuance (estimated 9/30/2018 3/31/2019).”~~

Comment: If a Water Supply Permit modification is required for changes to the Streamside Acquisition Program working group on payments or incentives, there should be a timeline that the City will follow to move that process along.

Response: Any modifications to the City’s 2010 Water Supply Permit must be undertaken by NYSDEC.

Comment: If additional funding for SAP is needed, it should come from the core LAP, not another source.

Response: The FAD includes an annual budget meeting between NYSDOH and the City in which the funding for each program is reviewed. Should that review determine that additional funds are required for the continuation of any program, NYSDOH will direct the City to provide those funds. In the case of SAP, if needed, additional funds will be drawn from the core LAP account.

Comment: The East of Hudson (EOH) FAD basins are the most sensitive in the City’s water supply system due to their proximity to the distribution system. We recommend that EOH basins become the primary target for land acquisition and other conservation measures. According to our calculations (from DEP data) there are 7.6 miles of un-buffered stream front within the Kensico, West Branch/Boyd’s Corner and Cross River and Croton Falls basins. Therefore, a voluntary program to plant buffers on the unvegetated buffer acres may prove beneficial. DEP should be required to consider the potential viability of such a program.

Response: The FAD requires the City to continue to support the Croton Trees for Tribes program in the Kensico, West Branch, and Boyd’s Corner Reservoir basins, with a goal of completing six planting projects per year. The FAD also requires the City to submit a report evaluating the need, opportunities, and options for enhancing riparian buffer protection efforts in the Kensico and East of Hudson FAD Basins.

Comment: The Final 2017 FAD should include requirements for the City to consult with NYSDEC in preparing the riparian buffer action report for Kensico basin/EOH and set a timetable for implementation of recommended measures.

Response: The 2017 FAD requires the City to submit a report that evaluates the need, opportunities, and options for enhancing riparian buffers protection efforts in Kensico and the East of Hudson FAD basins by September 30, 2018. NYSDOH will await the submission of that report before determining if a timetable for implementation is necessary.

Comment: The Flood Buy-out program should be expanded and include requirements for additional stakeholder meetings and timetables for advancing 10 – 20 willing buyer/willing seller buyouts each year. A requirement should be included for stakeholders to work together to identify suitable areas in each watershed county for relocations.

Response: A workgroup is currently engaged in identifying potential suitable areas for relocations, as described on page 41 of 2017 FAD. A progress report is due on June 30, 2018. As the City-Funded Flood Buyout Program is voluntary, and available in only those towns that have opted into the program, including a FAD requirement for advancing a certain number of transactions is not appropriate.

Comment: It should be clarified that the City will facilitate the NYC-funded Flood Buyout program only in those towns that have opted into the program, by category and when there is a referral, not solicit under that program.

Response: Comment noted. The text on page 42 was clarified as follows:

“Continue to implement a NYCFFBO program pursuant to the 2010 WSP, as amended, and agreements with local stakeholders. Properties may be eligible for the Program based on municipal concurrence, referral, expected flood mitigation, and water quality benefits derived.”

Comment: The current practice of soliciting any potential developable land should be changed, as it impacts community viability and the finances of watershed municipalities. Between the limited amount of land remaining and the Watershed Rules and Regulations that would mitigate any potential development, an approach targeted toward more sensitive lands is reasonable and credible. The build out analysis currently underway will indicate no serious threat to water quality protection from the remaining developable acres.

Response: If warranted, based on the Town Level Assessments and information provided by local municipalities, the City will modify the 2012-2022 Long-Term Land Acquisition Plan, which could include changes in the solicitation practices.

Comment: With less than 6% of the remaining land in the Town of Walton suitable for development, further land acquisition threatens the economic viability of the community. The Town calls for a permanent moratorium on the land acquisition program in the town and recommends that those funds instead be dedicated to flood mitigation initiatives.

Response: If warranted, based on the Town Level Assessments and information provided by local municipalities, the City will modify the 2012-2022 Long-Term Land Acquisition Plan, which could include changes in the solicitation practices.

Comment: While it is understood why the City is proposing to stop or reduce solicitations in some communities for land acquisition until assessments are concluded and resulting conclusions reached, it is vitally important that in all communities the Streamside Acquisition Program and the City-Funded Flood Buyout Program continue unabated. It is also important that the City continue to respond to, and if appropriate from a water and land conservation perspective to accept, incoming solicitations initiated by landowners.

Response: No activities in the SAP nor in the City-Funded Flood Buyout Program are affected by the reduction or cessation of solicitations in the core LAP during the evaluation of Town Level Assessments. The reduction or cessation of solicitations does not affect solicitations that are initiated by landowners.

Comment: Land purchased from willing sellers through the Land Acquisition Program should be assessed and purchased at the fair market valuation, especially those easements that may be purchased on agricultural land. Easement purchases not only help to protect vital land for water filtration, but can also be an economic boost for farmers to reinvest in their business.

Response: NYSDOH acknowledges the comment. Paragraph 61 of the 1997 MOA defines fair market value for the City's Land Acquisition Program. Under the City's Land Acquisition Program, land and easements from willing sellers are appraised at fair market value by independent, certified appraisal companies commissioned by the City. The City's offers are based strictly on the results of these appraisals. A landowner may also present their own appraisal, which then must be considered by the City's appraiser. Only under very limited circumstances (mortgage or tax foreclosure, legal judgment) can the City acquire land at below fair market value.

Comment: FAD decision makers should look less at how much land the LAP is acquiring and more on the type and location of critical land. Protecting lands around the watershed is important, and adding to the natural features criteria in 2010 helped focus the LAP on more sensitive land, but more targeted acquisitions in riparian, floodplain areas and less on upland areas is still needed. Focusing the LAP on these sensitive areas would complement flood mitigation efforts and can minimize the concern local communities have with respect to the LAP taking too much land off the market.

Response: NYSDOH encourages the City to target land acquisitions on the areas that most directly affect water quality, including wetlands, riparian corridors, and floodplains. As noted by the City in the *Long-Term Land Acquisition Plan: 2012-2022* a specific goal of the program is to "develop land parcel selection procedures to maximize the water quality benefit of acquisitions."

Comment: The work group that will convene to assess opportunities to use City-owned land to support relocation projects is important and should be prioritized. Including City-owned land in the search for feasible parcels outside the floodplain is sound planning and would allow the potential for land already purchased by the City to be swapped with the vulnerable floodplain parcel, especially if the parcel out of the floodplain is proximate to infrastructure and has good access to utilities.

Response: NYSDOH acknowledges the comment.

4.3 Land Management Program

Comment: Several comments were received that requested the FAD require NYC DEP to open watershed lands to mountain biking. A request was made to develop a pilot program between NYCDEP and local mountain biking groups to develop conditions under which mountain biking would be allowed on NYCDEP to connect existing or planned trail networks.

Response: NYSDOH supports the recreational use of protected land in the Catskill/Delaware Watershed where such use does not threaten to have an adverse impact on NYC water quality. Paragraph 72 of the 1997 Memorandum of Agreement included mountain bicycling as a recreational activity not likely to be allowed on City land. The City has opened over 130,000 acres of watershed lands to other recreational opportunities, where it can be demonstrated that recreational use will not harm water quality.

Comment: It is important that land acquired in Greene County under the SAP be assessed for recreational opportunities and that the City work with the appropriate municipality and/or organization responsible for implementing outdoor recreation projects.

Response: Comment noted. The City has opened over 130,000 acres of watershed lands to other recreational opportunities, where it can be demonstrated that recreational use will not harm water quality. NYSDOH expects the City to continue this practice.

4.4 Watershed Agricultural Program

Comment: The Conservation Reserve Enhancement Program has protected over 2,000 acres of environmentally sensitive riparian buffer lands on watershed farms. However, under this federal program easements on farms extend for only 10-15 year terms. Conservation easements may or may not be re-enrolled. To prevent these lands being brought back into production, to eventually degrade water quality, DOH and NYC should implement mechanisms to make these easement programs permanent and protective of water quality in perpetuity.

Response: The Conservation Reserve Enhancement Program (CREP) is a voluntary federal program administered by the Farm Service Agency branch of the United States Department of Agriculture. Terms of agreement are generally 10-15 years. At the end of a CREP agreement, farmers working with WAC whole farm planners are given the options of not renewing the agreement, renewing the agreement for 10-15 years, or entering into a conservation easement. It is important to note that the final decision is made by the farmer, and neither NYSDOH nor the City would seek to impose a permanent easement on a farm.

Comment: It is extremely important that adequate funds and educational resources are made available to farmers in the NYC Watershed so they can efficiently and effectively install best management practices (BMPs).

Response: Comment noted. NYSDOH meets annually with the City to discuss amounts spent, appropriated, and planned for each of the FAD programs, including those associated with farm BMPs.

Comment: NYSDOH, NYSDEC, USEPA, and NYCDEP are encouraged to provide for a higher percent implementation for BMPs. With over \$20 million in unimplemented BMPs, the local interests of farmers and all efforts put forth on farms to reduce the risk of potential pollutant loading and the protection of the water supply are not being met. A funding cushion of greater than 60% is suggested. This could provide a cushion for potential cost overruns, backlogged BMPs that need redesign, and the flexibility to exceed that minimum of 50% rather than be limited by it.

Response: NYSDOH acknowledges that there is a backlog of unimplemented BMP's that have been identified through whole farm planning. The Watershed Agricultural Council and Soil and Water Conservation Districts have over 20 years of experience in prioritizing the implementation of BMPs based on potential water quality impacts. The current proposal is intended to reduce the backlog of new priority BMPs and to address BMPs needing repair or replacement. NYSDOH expects that together with other initiatives such as CREP, Precision Feed Management Plan, the Nutrient Management Credit Program, and ongoing updates to nutrient management plans on 90% of all active farms, water quality goals will be maintained.

Comment: The involvement of the Watershed Agricultural Council and the local Soil and Water Districts is important to meeting the goals set in the FAD.

Response: Comment noted.

Comment: While Farm Transition is a noble idea, it can be very complicated. The need for such a program is not well-defined. The options available in a farm transition program should extend beyond the proposed idea of a conservation easement as the sole instrument to assist the distressed farmer. This raises questions like the definition of "distressed farmer," who will make that determination, and how will it be made? If a farmer is seeking assistance, there are already several options available to them including the services of the New York State FarmNet Program at Cornell. Only farms with BMPs should be eligible. If WAC is instrumental in this program, their role should be limited to farms with BMPs and the offer of a conservation easement where desired by a farmer, as farms with BMPs, along with the threat of development was their original rationale for developing a new program.

Response: NYSDOH acknowledges that farm transition can be a complicated matter. The comment highlights some of the potential difficulties that may be encountered during the process, as well some of the potential solutions in terms of farm services offered by the New York FarmNet Program at Cornell University. The City is committed to working with local stakeholders to explore the potential options for protecting agricultural land that is at risk of foreclosure or farms with retiring farmers. The 2017 FAD requires the City to continue to work with stakeholders on farm transition. The City is also required to submit a report to NYSDOH on the findings of this workgroup by June 30, 2018 (see page 39 of the 2017 FAD).

4.5 Watershed Forestry Program

There were no comments received on this program.

4.6 Stream Management Program

Comment: It would be helpful that the design and implementation of the 24 stream projects be clarified further, so that each Stream Program Basin can plan appropriately to meet their deliverables.

Response: Outside of the Ashokan basin, the FAD does not define the number of stream projects that must be completed in each basin. Projects are proposed to the NYSDOH by the City, and, if appropriate, approved to be counted under the required number of stream projects. This allows the City the flexibility to engage in projects that best meet the priority of protecting water quality, as the appropriate locations for these projects may change based on stream conditions or storm events.

Comment: The restoration of 100-foot forested buffers should be a clearly articulated goal of every stream restoration project to the greatest degree possible. The work of the Stroud Water Research Center makes clear that 100-foot forested buffers not only prevent water pollution resulting from overland flows, but it also ensures a healthy ecological stream community that removes pollution from the water column.

Response: While the majority of stream restoration projects take place in the stream itself, where applicable, the City works to establish riparian plantings within the confines of the project area, subject to local landowner agreements. All planting plans are developed with the goal of ensuring the future riparian stability of the project area.

Comment: A work group to develop a coordinated plan for in-stream and riparian emergency recovery is a proactive measure. That work group should include other interests responsible for emergency flood response including highway departments, contractors, and organizations such as Trout Unlimited to encourage a broad base of input, encourage buy-in and coordinate actions.

Response: Comment noted. NYSDEC will be convening the workgroup with Watershed stakeholders to develop a coordinated plan for in-stream and riparian emergency recovery activities that may become necessary following flooding events.

Comment: Regarding the program for expedited approval of riparian and stream activity after a flood, in the past in NYS, we have seen such expedited approval programs misused to inflict incredible damage on stream and riparian corridors. Rather than truncating reviews, the agencies should redirect financial and staffing resources to allow for the standard reviews to happen more quickly in the wake of a flood.

Response: Comment noted. NYSDEC will be convening the workgroup with Watershed stakeholders to develop a coordinated plan for in-stream and riparian emergency recovery activities that may become necessary following flooding events.

Comment: The FAD should clarify the source of City funding for sewer extensions that are part of relocation projects, specifically as it relates to the Local Flood Hazard Mitigation Program. Work to include City-owned land to support relocation projects should be prioritized

Response: Comment noted. Sewer extensions that are part of relocation projects will be funded through CWC's Local Flood Hazard Mitigation Program.

Comment: The establishment of a partnership between CSBI and CREP to implement CREP on fallow agricultural lands is strongly supported. However, such protection is temporary, while SAP offers permanent protection of riparian buffers. Therefore, the regulators are urged to specify that should the CSBI-CREP program partnership and/or the SAP expand its geographic scope, opportunities to collaborate with the SAP should also be pursued.

Response: NYSDOH agrees that these are complementary protection measures. However, as both the CSBI-CREP partnership and the SAP are pilot programs, NYSDOH considers it premature to specify conditions for future collaborations between those programs. The 2017 FAD requires the City to submit several deliverables to NYSDOH during the course of the CSBI-CREP partnership pilot, including metrics for evaluation of the CSBI-CREP partnership, a progress report, and recommendations for the establishment of a permanent program.

Comment: The current flood management program in the East Branch of the Delaware River Watershed with its adverse effect on the Pepacton Reservoir is inadequate. While projects to stabilize stream banks are appropriate, the expansion of floodplains is counterproductive, the LFA program is not viable. The goal should be to minimize land area exposed to flooding and maintain that area in the best interest of pollution minimization and flood mitigation. Current Watershed practice does neither.

Response: NYSDOH agrees that flood management programs should address sources of pollution and the mechanisms that transport pollutants to reservoirs. Projects that stabilize stream banks can limit sediment pollution to reservoirs and reduce the number of trees collapsing into streams during floods, creating debris jams that increase upstream water surface elevations. Flood commissions, through their LFAs, are addressing the role of problematic wood that exacerbates flooding. LFAs include recommendations to increase bridge spans to improve conveyance of both flood flows and the wood they carry, to mitigate flooding in population centers. LFAs also recommend the reconnection of a stream or river to its floodplain in areas upstream of population centers to slow the velocity of water and reduce water elevations throughout the population center. Both recommendations can mitigate damage to structures and personal property, while reducing the quantity of pollutants transported to reservoirs. Following floods, the City's Stream Management Program helps communities remove problematic wood accumulations using an emergency stream intervention protocol. As part of the Delaware Watershed Stream Corridor Management Program, the City is working with the Delaware County Soil and Water Conservation District and the Delaware County Department of Public Works to develop a protocol for municipalities to manage woody debris in stream systems. Grant funding is also available through the Catskill Watershed Corporation to support a diverse array of flood hazard mitigation projects, floodplain management training, opportunities to achieve and maintain status as Certified Floodplain Managers, and enrollment in the Community Rating System to achieve reduced flood insurance premiums.

4.7 Riparian Buffer Protection Program

There were no comments received on this program.

4.8 Ecosystem Protection Program

Comment: The Watershed Forest Management Plan and the Invasive Species Management Strategy do not adequately address potential impacts from multiple invasive pests, specifically the Hemlock Woolly Adelgid (HWA). New York State, through a partnership with Cornell University and a number of stakeholders is working to raise and release *Laricobus* beetles, an effective biocontrol against HWA. The FAD should direct the NYCDEP to support this effort to ensure its success and match NYS funding.

Response: NYSDOH supports the City's comprehensive approach to invasive species prevention, detection, management, and mitigation. The City actively coordinates with the Lower Hudson Partnership for Regional Invasive Species Management (PRISM) and the Catskill Regional Invasive Species Program (CRISP). The City is also member of the NYS Invasive Species Advisory Committee, and has coordinated with NYSDEC Invasive Species Unit staff.

Regarding HWA, the City supports the New York State Hemlock Initiative, and has been working with Cornell University and NYSDEC to conduct surveys and facilitate the release of new biocontrol insects on City lands. The City coordinated with Cornell to find suitable release sites for, and assisted with the release of, the silver fly, a biological control agent. The City has also proposed using the Neversink Ballfields site as an area for rearing biological control insects.

Comment: The FAD should explicitly direct the NYC DEP to support HWA control and other efforts to heighten the chances of invasive species eradication within the Watershed.

Response: The 2017 FAD directs the City to implement the Invasive Species Management Strategy (issued in December 2016), which includes efforts directed toward HWA. The strategy emphasizes BMPs to prevent invasive species introduction, early detection and rapid response to identify incipient infestations while it is still feasible to eradicate or minimize spread and impact, and management efforts directed toward Japanese knotweed, Emerald Ash Borer, *Hydrilla*, giant hogweed, Eurasian water milfoil, curly-leaf pondweed, *Didymosphenia geminate*, water chestnut, zebra mussels, Japanese barberry, Oriental bittersweet, multiflora rose, and garlic mustard. The strategy includes a communication plan to raise awareness among watershed stakeholders and within DEP of invasive species impacts and prevention. In addition, the City's Rules for the Recreational Use of Water Supply Lands and Waters (Chapter 16, Title 15, Rules of the City of New York) include restrictions on fishing bait, bait disposal, and equipment, as well as the requirement to steam clean angler and recreational boats used on City property.

The City continues to partner with other organizations to address invasive species. For example, the City participated in a study of hemlock health conducted by The Nature Conservancy, and in 2016, staff from the State University of New York at Oneonta's Biological Field Station completed a comprehensive survey of aquatic invasive species in the City's five terminal reservoirs (Rondout, Ashokan, West Branch, New Croton, and Kensico).

4.9 East of Hudson Nonpoint Source Pollution Control

Comment: Stormwater is a significant water quality problem in the NYC watershed. DEP approvals should require that planned stormwater controls achieve no net increase in phosphorus discharges compared to pre-development levels. Basic information on stormwater quality and quantity should be obtained and utilized in continuous flow models to support no net increase in phosphorus during stormwater permitting.

Response: Stormwater in the City's Watershed is regulated by NYSDEC and by the City's Watershed Rules and Regulations. NYSDOH will provide this and all other comments submitted during the 45-day comment period for the draft 2017 FAD, will be provided to the NASEM Expert Panel for consideration in its evaluation of the City's Watershed Protection Program.

Comment: DEP regulations provide for combinations of stormwater treatment controls utilizing different pollutant removal pathways in series under certain circumstances. These treatment series practices are effective and should be implemented in more development sites in the Watershed. Developers should be required to treat off-site stormwater within the Watershed to offset the increased loading from on-site development if no net increase cannot be met.

Response: NYSDOH agrees that, in some cases, stormwater controls in series may be a useful treatment practice. The City has agreed to work with NYSDEC, through changes to NYSDEC's Stormwater Management Design Manual, to further evaluate additional circumstances under which the use of treatment practices in series may be appropriate. NYSDOH will provide this and all other comments submitted during the 45-day comment period for the draft 2017 FAD to the NASEM Expert Panel for consideration in its evaluation of the City's Watershed Protection Program.

Comment: In some stormwater controls (bioretention, grass filter, grass swale) the effluent concentration of phosphorus may increase over that of the influent. This has been attributed to stormwater coming into contact with compost and other unstable organic materials, fertilized landscaped surfaces, and even soils that have high natural phosphorus concentrations. Stormwater controls should be modified so that they do not increase phosphorus concentrations. Increases in phosphorus concentrations need to be offset by increased infiltration of runoff volume.

Response: NYSDOH agrees that stormwater controls in phosphorus-restricted basins should not be a source of phosphorus and organic matter. The City has agreed to work with NYSDEC, through changes to NYSDEC's Stormwater Management Design Manual, to evaluate potential changes to stormwater control best management practices that would address the issue of increased phosphorus in stormwater control effluent concentrations. NYSDOH will provide this and all other comments submitted during the 45-day comment period for the draft 2017 FAD to the NASEM Expert Panel for consideration in its evaluation of the City's Watershed Protection Program.

Comment: The FAD should provide for periodic updating of total phosphorus loading regulations or guidance criteria to reflect up-to-date published performance information.

Response: The appropriate mechanism for addressing these concerns is the Stormwater Management Design Manual, which is under the jurisdiction of NYSDEC.

Comment: It is not possible to treat snowmelt to reduce the chloride and sodium, so management practices that minimize their use, careful movement of snow around a site, and diversion of snowmelt away from infiltration devices should be incorporated into revised DEP permit requirements.

Response: The City has agreed to work with NYSDEC, through changes to NYSDEC's Stormwater Design Manual, to evaluate how site management practices could address the potential concern of snowmelt and stormwater infiltration practices. NYSDOH will provide this and all other comments submitted during the 45-day comment period for the draft 2017 FAD to the NASEM Expert Panel for consideration in its evaluation of the City's Watershed Protection Program.

Comment: Although the City makes land available for the stormwater retrofit program, the City requires a Land Use Permit (LUP) for each project built on City land. It has waived the LUP fee to date, but it has required a costly Maintenance Bond for each project. City lands in the East of Hudson (EOH) Watershed are well protected by the maintenance requirement of the MS4 permit and the reciprocal Operations and Maintenance agreement in place among the EOH Watershed Corporation member municipalities. To better implement the FAD requirements, we ask that the City be required to waive the LUP fee and maintenance bond requirement for any stormwater retrofit built by the EOH Watershed Corporation or its members pursuant to the MS4 regional plan approved by NYSDEC.

Response: NYSDOH acknowledges the comment. The City and the EOH Watershed Corporation are cooperatively exploring options that will ensure appropriate long-term maintenance of stormwater practices constructed pursuant to the MS4 program, while not imposing undue financial burdens on MS4 communities. NYSDOH supports the efforts between the City and the EOH Watershed Corporation to reach an agreement on this issue.

Comment: The areas surrounding Lake Waccabuc, Lake Truesdale, and Lake Kitchawan are all in the Town of Lewisboro and in the Cross River Reservoir Basin. The communities with poorly functioning septic systems tend to have limited financial resources. Real progress will require that the funds are provided for both the design and the resulting work.

Response: NYSDOH understands the impact poorly functioning septic systems can have on the biological and chemical characteristics of the waterbodies in the NYC Watershed, including the FAD basin watershed areas stated in the comment. That is why the 2017 FAD requires the City to contract with the Environmental Facilities Corporation to provide funding to support the repair, replacement, or connection to a wastewater treatment plant, for at least 35 residential septic systems per year in the four East of Hudson FAD basins (West Branch, Boyds Corners, Cross River, and Croton Falls), and the Lake Gleneida basin. The 2017 FAD also requires the City to: expand the program to allow eligibility of septic systems located within basins upstream or hydrologically connected to the Croton Falls Reservoir; provide technical assistance to support other East of Hudson septic management programs; look at ways to enhance program participation, and assess if the City's program is appropriate to meet the demand from eligible communities. Furthermore, the EOH Community Wastewater

Planning Assistance Grants will provide \$3 million for preliminary planning for community wastewater solutions for areas in the EOH FAD basins where poorly functioning individual septic systems have the potential to impact water quality.

4.10 Kensico Water Quality Control Program

No comments were received on this program.

4.11 Catskill Turbidity Control

Comment: The City is studying the feasibility of a “high-level outlet” at the Gilboa Dam. We request that the Health Department impose a milestone deadline in the 2017 FAD for a draft feasibility study, as well as a 60-day period for the public to review and comment on the draft plans. Use of an outfall would modify reservoir operations, local fishermen, scientists, and private engineers should be provided a chance to weigh in.

Response: NYSDOH notes that the comment refers to activities that take place outside the scope of the FAD, and fall under the authority of NYSDEC. The 2011 NYSDEC permit that allowed the City to repair the Gilboa Dam at the Schoharie Reservoir also required the City to study the potential for a conservation release from the reservoir to the Schoharie Creek. That study, which was submitted to NYSDEC in 2014, found that a release could be accomplished while still maintaining system reliability. Following discussions between NYCDEP and NYSDEC, and based on public input received at the semi-annual public meetings held by NYCDEP as required by the Shandaken SPDES Permit, it was determined that the best option for meeting the requirement would be through the use of a High Level Outlet in the Gilboa Dam. This would allow for a release which would not significantly affect the cold water storage volume used for releases through the Shandaken Tunnel to the Esopus Creek, which are required by a separate NYSDEC permit. Twice per year, NYCDEP holds the required public meetings to report on its activities related to the Shandaken SPDES permit, and at these meetings, updates are provided on construction projects at the Schoharie Reservoir, including progress on the High Level Outlet.

Comment: The City should lower the Ashokan Reservoir to 80% of capacity during historic flood months. This would allow the Ashokan Reservoir to capture all rain and snow melt and thus stop flooding and damage in the Lower Esopus Creek. The City should keep the Ashokan capacity at 90% the other 8 months of the year to collect any sudden rain events.

Response: NYSDOH notes that the comment refers to activities that are outside the scope of the FAD. To support the City’s water supply needs, it is important that the Ashokan Reservoir is full on or around June 1 of every year. The Ashokan Reservoir has a Conditional Seasonal Storage Objective (CSSO) rule curve. Use of a CSSO is consistent with best management practices for water supply reservoirs. As part of the Interim Ashokan Release Protocol developed by the City and NYSDEC, the City committed to maintaining reservoir levels at the CSSO, to the maximum extent possible without impact on water supply reliability. The goal is to maintain a ten percent void in the reservoir from October 14 to March 15 to help mitigate flooding events.

Comment: Action is required to stabilize many of the unpaved mountain roads in the watershed. Many have eroding surfaces and ditches that add thousands of tons of sediment to the reservoirs every year. A pilot program should be started to more fully evaluate and remediate this problem.

Response: NYSDOH agrees that eroding surfaces and poorly-performing roadside ditches can, in some cases, add to the sediment load or receiving water bodies. As part of the City's Stream Management Program, annual meetings are held with watershed partners to develop Action Plans that guide the implementation of each reservoir basin's individual program. One area of recent focus has been roadside ditch maintenance. For example, under the Schoharie Watershed Action Plan, one of the tasks completed in 2016 was to develop, design, and implement a highway ditch stabilization workshop for local highway superintendents. Another part of that plan includes Greene County Soil and Water Conservation District partnering with county highway departments on the use of the District's hydroseeder and power mulcher.

4.12 Sand and Salt Storage

No comments were received on this program.

5. WATERSHED MONITORING, MODELING, AND GIS PROGRAM

5.1 Watershed Monitoring Program

No comments were received on this program.

5.2 Multi-Tiered Water Quality Modeling Program

Comment: The Final 2017 FAD should outline steps that the City should be taking to analyze the impacts of climate change on water quality and the City's ability to satisfy filtration avoidance criteria in the wake of global warming.

Response: The City will continue to develop future climate scenarios that are based on global climate model (GCM) predictions (from sources identified by the Intergovernmental Panel on Climate Change), using a range of future scenarios. Previously, the City developed such scenarios using the change factor method applied to Coupled Model Intercomparison Project Phase 3 (CMIP3) predictions of future climate. The City is currently developing improved methods for downscaling GCM predictions to the NYC Watershed. These methods include stochastic weather generators, statistical downscaling, and hybrid approaches. The City will also investigate the use of Multivariate Adaptive Constructed Analogs (MACA) Datasets, which are baseline and future climate predictions that have been downscaled for the NYC Watershed by MACA consortium members. This work will produce a range of predictions of future climate that can be used as inputs to the City's watershed, reservoir, and system operations models.

The three watershed models the City uses (GWLF, SWAT, RHESSys) have the capability to simulate the impact of watershed protection efforts. Based on future climate scenarios described above, these predictions will then be fed into the City's reservoir hydrodynamic/water quality models to evaluate the individual and combined impacts of watershed protection and climate change. The City will also use the Operations Support Tool to evaluate the impact of climate change on reservoir operations. Detailed descriptions of the modeling applications can be found in the City's Watershed Modeling Annual Reports.

5.3 Geographic Information Systems

No comments were received on this program.

6. REGULATORY PROGRAMS

6.1 Watershed Rules and Regulations

Comment: There is no deadline for the formal promulgation of the changes to the Watershed Rules and Regulations. The requirement that the City submit a timeline for adoption within two months of the final 2017 FAD issuance is weak and open-ended. The 2017 FAD should include a specific deadline of June 1, 2018 for the adoption of the regulations.

Response: All changes to NYC's Watershed Rules and Regulations must undergo processes defined by the City Administrative Procedures Act (CAPA) prior to being adopted. The text on page 87 was revised to include submission of the Watershed Rules and Regulations changes to NYSDOH, in addition to the City submitting a timeline for completion: "~~Develop and s~~Submit a timeline for completing the proposed changes to the WR&Rs and a timeline for completing the rulemaking process." The due date was also revised: "~~2 months from 2017 FAD issuance (estimated 11/30/17~~ 2/28/2018". The report description on page 88 was also revised: "Submit the proposed changes to the WR&Rs and a timeline for completing proposed changes to the WR&Rs the rulemaking process."

6.2 Wastewater Treatment Plant Compliance and Inspection Program

No comments were received on this program.

7. Catskill/Delaware Filtration Plant Design

Comment: The 2017 FAD should require the DEP to advance the Preliminary Design to Final Design to meet the FAD's requirement for filtration in 18 months. Any new design approach should result in a new Final Design, or revisions to the existing one. An independent engineer should review the existing design for the filtration plant and provide recommendations. They should also provide an estimate of the filtration plant's cost since this is the cost that the FAD is trying to avoid.

Response: The 2017 FAD requires the City to contract for a comprehensive review of filtration methods and technologies, resulting in the development of a new conceptual design for a Catskill/Delaware filtration facility or facilities. This process will take advantage of advances in water treatment technology that have occurred over the 25 years since the original filtration design documents were produced. NYSDOH expects that this process will include independent review from water treatment experts. The City's progress on the filtration design, including bench-scale studies and project cost estimates, will be documented annually in the FAD Annual Report. The City has advertised the Request for Proposals, and is required to issue Notice to Proceed by December 31, 2017.

8. In-City Programs

8.1 Waterborne Disease Risk Assessment Program

Comment: Because of Legionnaires' Disease (LD) outbreaks in NYC, including the Bronx in 2015 and the Upper East Side in 2017, it is recommended that NYC take more proactive steps to monitor and, as necessary, control *Legionella* growth in the biofilm of the public water distribution system. By incorporating policies and actions promoting water distribution system upgrades, a notification system for utility water delivery disruptions, and effective building water management programs, sporadic cases and outbreaks of LD in NYC can be significantly reduced.

Response: The objective criteria that must be met for filtration avoidance are found in the 1989 Surface Water Treatment Rule, which states that a surface water source must achieve a minimum of 99.9% (3-log) removal and/or inactivation of *Giardia* cysts, and a minimum of 99.99% (4-log) removal and/or inactivation of viruses. These guidelines were based on *Giardia* and viruses because this level of treatment will also provide protection from heterotrophic plate count (HPC) bacteria and *Legionella*, as required in the Safe Drinking Water Act amendments.

8.2 Cross Connection Control Program

There were no comments received on this program.

9. Administration

Comment: One comment supported the requirement that the City assign at least 40 NYCDEP staff to a new office in Arkville to enhance effective collaboration with watershed stakeholders.

Response: NYSDOH acknowledges the comment.

10. Education and Outreach

There were no comments received on this section.

11. Reporting

There were no comments received on this section.