



State of New Jersey

PHIL MURPHY
Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Mail Code – 401-02B
Water Pollution Management Element
Bureau of Surface Water Permitting
P.O. Box 420 – 401 E State St
Trenton, NJ 08625-0420
Phone: (609) 292-4860 / Fax: (609) 984-7938

CATHERINE R. McCABE
Commissioner

SHEILA OLIVER
Lt. Governor

September 25, 2019

Frederick Margron, Town Engineer
City of Paterson
111 Broadway
Paterson, NJ 07505

Re: Review of Development and Evaluation of Alternatives Report
City of Paterson, NJPDES Permit No. NJ0108880

Dear Mr. Margron:

Thank you for your submission of the “Development and Evaluation of Alternatives for Long Term Control Planning for Combined Sewer Systems – Regional Report” dated July 1, 2019 as submitted to the New Jersey Department of Environmental Protection (the Department or NJDEP) which contains the “Development and Evaluation of Alternatives Report” (hereafter “the report”) for the City of Paterson. The regional report was submitted in a timely manner and was prepared in response to Part IV.D.3.v of the above referenced NJPDES permit. The regional report is part of the development of the Long-Term Control Plan (LTCP) submittal requirements, of which the next deliverable is due on June 1, 2020.

The “Development and Evaluation of Alternatives for Long Term Control Planning for Combined Sewer Systems – Regional Report” includes individual reports developed by PVSC and each of its 8 member combined sewer municipalities as Appendices, where Appendix I is specific to the City of Paterson. This subject letter serves to provide a response to the “Development and Evaluation of Alternatives Report” specific to the City of Paterson (Appendix I) where a response to the overall regional report is provided under separate cover.

The overall objective of the Development and Evaluation of Alternatives Report is to develop and evaluate a range of CSO control alternatives that meet the requirements of the Federal CSO Control Policy Section II.C.4, N.J.A.C. 7:14A-11, Appendix C, and the USEPA Combined Sewer Overflows Guidance for Long-Term Control Plan (EPA 832-B-95-002). Such evaluation shall include a range of CSO control alternatives for eliminating, reducing, or treating CSO discharge events. This subject report builds on other previously submitted LTCP reports referenced in Part IV.D.3.b of the NJPDES permit, which includes an approved hydrologic, hydraulic and water quality model and other information in the June 2018 “System Characterization Report” (approved by the Department on April 12, 2019); the June 2018 “Public Participation Process Report” (approved by the Department on March 29, 2019); the June 30, 2018 “NJCSO Group Compliance Monitoring Program Report” (approved by the Department on March 1, 2019); and the June 2018 “Identification of Sensitive Areas Report” (approved by the Department on April 8, 2019).

As per Part IV.G.4.e.i – vii of the above referenced NJPDES permits, the Development and Evaluation of Alternatives for the LTCP shall include, but not be limited to, an evaluation of the following CSO control alternatives:

- i. Green infrastructure.
- ii. Increased storage capacity in the collection system.
- iii. Sewage Treatment Plant (STP) expansion and/or storage at the plant while maintaining compliance with all permit limits.
- iv. Inflow and Infiltration (I/I) reduction to meet the definition of non-excessive infiltration and non-excessive inflow as defined in N.J.A.C. 7:14A-1.2 in the entire collection system that conveys flows to the treatment works.
- v. Sewer separation.
- vi. Treatment of the CSO discharge.
- vii. CSO related bypass of the secondary treatment portion of the STP in accordance with N.J.A.C. 7:14A-11.12 Appendix C, II C.7.

The Department finds that the report includes an analysis of a range of CSO control alternatives as identified in the NJPDES permit as well as inclusion of several control programs. A general overview of the information provided for the CSO control alternatives, as provided in response to Part IV.G.4.e, can be summarized below where the Department's comments follow:

- As discussed in Section C - Screening of CSO Control Technologies on page 17, the City of Paterson intends to factor in **green infrastructure (GI)** as an early alternative to reduce CSO discharges prior to considering grey infrastructure investments. Information is included regarding the siting of potential GI projects, as well as maps of property type classifications and city owned parcels. The City has opted to include implementation of GI as one of the early Alternatives towards achieving 85% capture (which is incorporated into Alternative 3).
- This report evaluates **in-line storage** in conjunction with other technologies in order to meet overflows reduction objectives. Page 18 of the report states that there are five locations (CSO 001, 005, 016, and 026) where existing upstream sewers are larger than 24 inches in diameter and potentially have available volume for storage to meet at least one of the overflow objectives (0, 4, 8, 12, 20 overflows). In all other cases, the CSO frequency target is either already attained, or in-line storage would not be sufficient to provide the required storage. Furthermore, as stated on page 23, additional conveyance pipelines would be designed to capture combined sewer flow during wet weather and then redirected to a regional tank or tunnel for storing which is factored into the costs and sizing for Alternatives 4-9.

Offline storage is evaluated in a four-region grouping of CSO outfalls – Northern, Eastern, Western, and Exterior groups in the City of Paterson, which is shown in Figure 6 of Appendix E. Regarding potential sites for storage tanks, priority was given to land that was already city-owned in order to minimize land acquisition costs. Private properties closer to the outfall structures were then considered, especially those where lots were mostly vacant or otherwise abandoned. Appendix F further details siting of potential greywater storage. As stated in in-line storage, additional pipelines will be required as part of Alternatives 4-9 for greywater storage.

- The City of Paterson has chosen not to further evaluate **STP expansion** and/or storage at the plant and CSO related bypass. Page 19 of the report explains that since the City is at the northernmost (upstream) end of the PVSC CSS, its only connection to the PVSC Treatment Plant is by way of the PVSC-owned interceptor main, which connects multiple PVSC Districts moving downstream towards the plant.

- The City of Paterson has chosen not to pursue the alternative technology of **I/I reduction**. Page 17 of the report states that the citywide level of I/I of 7.5 MGD, or 50 gallons per capita based on the projected 2050 population, does not meet the threshold for excessive infiltration of 120 gallons per capita.
- **Sewer separation** projects have been ongoing in many parts of the City of Paterson since the early 2000s, specifically outfalls 028 and 029, which is included in the baseline scenario. Furthermore, partial sewer separation has been undertaken since 2006 in the drainage areas serving outfalls 002, 014, 015, 021, and 024. Additionally, outfall 023 is a potential site for future sewer separation. A total of 1,058.7 acres has already been separated or will be separated in the near future. Alternative 1 includes the baseline model and sewer separation projects completed since 2006. Alternative 2 expands on Alternative 1 to include the planned sewer separation for outfall 023.
- **Treatment of the CSO discharge** is evaluated both on its own and in conjunction with storage in Alternatives 4-8. Page 20 of the report states that treatment of CSO discharge with peracetic acid (PAA) is to be utilized where available land near outfall structures is limited, or when required storage volume exceeds the maximum size of a potential regional storage tank. The four-region grouping of storage tanks is also used for treatment facilities.

Specific Comments

Comment 1

In Section A (Introduction), the report includes a description of the City's combined sewer system areas as well as information regarding a number of completed and future projects. Please supplement this section with a table to show any active and inactive outfalls, and associated regulators. In addition, please provide information regarding dates for any outfall elimination, consolidation, sewer relief construction and sewer separation.

Comment 2

As per Part IV.G.2 of the NJPDES CSO permit, public participation shall actively involve the affected public throughout each of the three steps of the LTCP process including the Development and Evaluation of Alternatives phase. The Department acknowledges that a listing of meetings and agendas for the CSO Supplemental Team, as well as a discussion of other public outreach, is included in your Public Participation Process Report dated June 2018. Input from a local community group, Paterson SMART (Stormwater Management Resource Training) did provide comments and suggestions in a letter dated August 30, 2019 as signed by Sue Levine, Facilitator of Paterson SMART. These comments express an interest in the continued implementation of CSO alternatives and in providing input on behalf of the city residents. Paterson SMART also provides input on locations of street and basement flooding in its letter.

Moving forward, public participation is a required element of the 'Selection and Implementation of Alternatives' for the LTCP. Continued public participation must be provided to garner public input regarding CSO control alternatives where a description of such activities must be included in the LTCP. The discussion should include a description of the public participation activities that occurred during the development of these reports, the feedback opportunities provided, and how feedback was considered. It is also recommended that members of the CSO Supplemental Team and Paterson SMART be provided a copy of the LTCP in advance of the June 1, 2020 due date to the Department.

Comment 3

The NJPDES permit requires that the permittee select either the Presumption or Demonstration Approach as defined in the Federal CSO Control Policy as well as in the NJPDES permit. Throughout the Report and particularly in Section D.1 (Development and Evaluation of Alternatives), two of the alternatives for the Presumption Approach, namely the attainment of 85% percent capture and 4 overflows or less, are referenced as part of the design objectives. While this information is included, neither the Presumption of Demonstration Approach have been specifically selected within the report. While this comment does not necessitate a response at this time, a final selection is required to be made in the ‘Selection and Implementation of Alternatives’ report as part of the LTCP submission due on June 1, 2020. Note that if the Presumption Approach is selected, the percent capture equation utilized to calculate any baseline and other percent capture values for each hydraulically connected system must be included for report completeness.

Comment 4

The Department acknowledges that hydraulically connected system is defined within the notes and definitions in Part IV of the NJPDES permit as “The entire collection system that conveys flows to one Sewage Treatment Plan (STP)...” The definition of hydraulically connected system allows the permittee to “segment a larger hydraulically connected system into a series of smaller inter-connected systems.” Please provide a justification for the segmentation of the City of Paterson as a hydraulically connected system, particularly as it relates to percent capture or number of overflows. See also **Comment 3** above regarding the evaluation of percent capture.

Comment 5

In accordance with the Federal CSO Control Policy, the assessment of system-wide CSO control alternatives is required to be based on an “average” or “typical” rainfall year. As stated within the May 2018 report entitled “Typical Hydrological Year Report”, 2004 was selected as the typical hydrological year. While a long term precipitation data set (i.e. greater than 30 years) was considered as part of this analysis, a more recent period was used in the ultimate selection of 2004 in order to consider local climate change. While use of the year 2004 does consider climate change, please be sure to consider resiliency requirements in the design of any infrastructure (e.g., storage and satellite treatment). Specifically, in accordance with the provisions of Executive Order 11988, the USEPA and the New Jersey Water Bank require that funded infrastructure be located outside of floodplains or elevated above the 500-year flood elevation. Where such avoidance is not possible, the following hierarchy of protective measures has been established:

1. Elevation of critical infrastructure above the 500-year floodplain;
2. Flood-proofing of structures and critical infrastructure;
3. Flood-proofing of system components.

While this comment does not necessitate a response at this time, these protective measures should be a consideration in the LTCP.

Comment 6

In Section C.2.1 (Green Infrastructure), Section D.1.1 (Implementability), and Section D.1.2 (Siting), Green Infrastructure is discussed. In the ‘Implementability’ section beginning on page 22, the report states that the target GI implementation rate is established at 2.5% of the impervious cover in the combined sewer drainage area within Paterson, based on the “top-down” GI modeling results. Subsequently, a “bottom-

down” approach was undertaken to characterize different land use types and identify potential properties within the combined sewer system. Appendix G of the report contains figures to illustrate this screening process. On page 24 of the report, it was determined that GI can be implemented on approximately 50 out or 160 acres in the city’s combined drainage areas (excluding areas with any level of sewer separation).

As GI implementation continues to be assessed any percentage must be equated to a reduction in CSO volume, frequency and duration in order to attain these targets and show any changes from the baseline. The inclusion of this quantitative metric for GI is needed in order to establish that any volumetric credit is given towards overall CSO reduction goals. Please describe how you derived the acreage values referenced in order to quantify the volumetric decrease in CSO flow from GI measures.

Comment 7

Inline storage (pipelines and tunnels) and offline storage (tanks) are discussed in Section C.5 (Storage) and more detailed discussion is provided in Appendix F (Sizing of Potential Greywater Storage). Siting information has been included through a detailed description of the land parcel and a map of the area for storage tanks. Please supplement this section with additional discussion as to whether or not these areas could sustain the needed volume of the estimated tank sizes referenced in Appendix F. If storage is being considered at any available properties near the outfalls, please describe whether any potential storage tanks would be surface or subsurface and, if subsurface, whether consideration has been given to any amenities such as parks, parking lots or GI. In addition, please confirm as to whether or not this stored flow would be sent PVSC, whether PVSC could accept stored tank flow, or if there are any conveyance limitations that would prevent such.

It is stated on page 23 of the report, that the previous 2007 Schoor DePalma study references a grouping of outfalls into four regions for CSO storage and/or treatment. Appendix E includes a figure to demonstrate this regional grouping method. Please provide discussion and justification if a regional grouping is being considered.

Comment 8

There is limited discussion within the report in Section C.6 (STP Expansion or Storage at the Plant) regarding the required evaluation of the alternatives concerning STP Expansion and no discussion of CSO-related bypass. The Department acknowledges that the City of Paterson does not own/operate the PVSC treatment plant; however, documentation of coordination between the two parties is essential in order to evaluate whether or not this is a viable alternative. For example, is there adequate conveyance capacity to divert additional CSO flow to PVSC? Has there been discussion with PVSC about the acceptance of these flows? Please clarify.

Comment 9

While cost analyses are provided within the report, particularly in Section D.2 (Preliminary Control Program Alternatives), please note that the Department is not commenting on any cost analysis at this time and will defer its comments until the LTCP submission. This includes any conclusions regarding the selection of any preliminary CSO control alternatives, present value calculations, and the cost range of any CSO control alternatives.

Please incorporate these changes to the report and submit a revised version of the regional report to the Department no later than 60 days from the date of this letter. Thank you for your continued cooperation.

Sincerely,



Dwayne Kobesky
CSO Team Leader
Bureau of Surface Water Permitting

C: Marzooq Alebus, Bureau of Surface Water Permitting
Josie Castaldo, Bureau of Surface Water Permitting
Teresa Guloy, Bureau of Surface Water Permitting
Susan Rosenwinkel, Bureau of Surface Water Permitting

Distribution List:

Bridget M. McKenna, Chief Operating Officer
Passaic Valley Sewage Commissioners
600 Wilson Avenue
Newark, NJ 07105

Kareem Adeem, Assistant Director of Public Works
City of Newark
239 Central Avenue
Newark, NJ 07102

Brigite Goncalves, Chief Financial Officer
Borough of East Newark
34 Sherman Avenue
East Newark, NJ 07029

Rocco Russomanno, Town Engineer
Town of Harrison
318 Harrison Avenue
Harrison, NJ 07029

Tim Boyle, Superintendent
City of Bayonne
610 Avenue C, Room 11
Bayonne, NJ 07002

Robert J. Smith, Town Administrator
Town of Kearny
402 Kearny Avenue
Kearny, NJ 07032

Richard Haytas, Senior Engineer
Jersey City Municipal Utilities Authority
555 Route 440
Jersey City, NJ 07305

Frank Pestana, Executive Director
North Bergen Municipal Utilities Authority
6200 Tonnelle Avenue
North Bergen, NJ 07047