

EXETER PUBLIC WORKS DEPARTMENT

13 NEWFIELDS ROAD • EXETER, NH • 03833-4540 • (603) 773-6157 • FAX (603) 772-1355

www.exeternh.gov

March 27, 2019

Denny Dart, Manager
Water Technical Unit
Office of Environmental Stewardship
U.S. Environmental Protection Agency
5 Post Office Square, Suite 100
Boston, MA 02109-3912

**Re: NPDES Permit No. NH0100871
Administrative Consent Order Docket 13-010
Town of Exeter Nitrogen Control Plan September 2018
Response to EPA Letter dated February 22, 2019**

Dear Ms. Dart:

Please find the following responses to the comments in the letter received from EPA, dated February 22, 2019, regarding the Town's Nitrogen Control Plan submitted in September 2018. Agency comments are provided below with the Town's response in **bold** text.

Agency Comment #1: SW N Load: The agencies agree with and support Exeter's approach of using the nitrogen ("N") load export rates provided in Appendix F Attachment 3 of the NH MS4 permit for estimating stormwater ("SW") runoff N loads from impervious areas ("IA") and pervious area separately. These rates are consistent with the source loading rates included in the NH pollutant tracking and accounting pilot project ("PTAPP") tool. The PTAPP tool is designed to allow communities to track and calculate credible pollutant load reductions for a variety of SW and watershed management controls in a consistent manner.

Response #1: Agreed, no response required.

Agency Comment #2: Directly Connected Impervious Area ("DCIA") Estimates: It appears that the DCIA estimates are much lower than would be expected for some of the developed land uses given the reported total impervious areas ("TIA") and the methodology described in the report. The reported method for estimating DCIA uses %TIA and the Sutherland equations. However, applying this method does not clearly explain the low DCIA estimates presented in the SW summary tables. For example, by applying the Sutherland equations for "average" connectedness using information summarized in the reports yields notably different results. Table 1 (*table omitted for brevity*) below summarizes the differences between EPA calculated and reported DCIA results for Exeter for some of the more prominent developed land use types. EPA recognizes that the actual calculations performed for the analysis were performed on a subwatershed basis within the town, which would explain some differences. However, EPA conducted a similar comparative evaluation on a subwatershed basis and found similar discrepancies. Please clarify the reasons for these apparent discrepancies.

Response #2: There are differences between the EPA calculations and those included in the report which are likely due to Exeter breaking up the impervious area by land use and soil type. For each land use and soil type, including agriculture, forested and open space (in accordance with EPA guidance), DCIA was calculated where the percent impervious area was greater than 1 percent of the total area. We acknowledge that use of the Sutherland equations may result in differences in DCIA based on how the calculations were performed and based on what assumptions were used. Therefore, Exeter agrees with the Agency's approach to calculating DCIA moving forward as described in Comment #4. Refer to response #4 below for more information.

Agency Comment #3: DCIA Related: The agencies agree that it is reasonable to use the empirically derived Sutherland equations to calculate DCIA as part of the process for quantifying SW N loads town-wide in the N control plans. Also, the agencies acknowledge and accept that there is inherent uncertainty in estimating DCIA regardless of which Sutherland equations are applied. However, assuming all developed land use types are "average connected" may result in underestimates of DCIA for the higher intensity developed areas. Therefore, at this time, the agencies recommend that Exeter use the same approach of assigning the Sutherland level of IA connectedness as was used by NHDES in estimating DCIA for the NHDES Great Bay Nitrogen Non-Point Source Study ("GBNNPSS") and summarized in Table 3 of Appendix B to this study. In the GBNNPSS, some of the developed and types were designated to be "highly" connected. The consequences of significantly underestimating DCIA is that SW N loads will likely be underestimated and other non-WWTF sources may be overestimated.

Response #3: Noted. It is our understanding that NHDES and UNH are currently developing a revised methodology for calculating DCIA. Accordingly, we propose to update this information after that methodology has been finalized. See Comment #4 and Response #4.

Agency Comment #4: Future estimates of DCIA and SW N Load: For watershed N accounting to be informative and track progress, it will be important that all Great Bay communities use a consistent methodology to quantify source loads and their delivery to Great Bay. NHDES recently announced their intention to develop a methodology for quantifying N source loads and their delivery to Great Bay. This project will begin in 2019 and is expected to provide all Great Bay communities and their consultants with a consistent methodology for calculating SW N loads delivered to Great Bay, which will be an important component for calculating overall reductions accomplished by the community. Therefore, Exeter should coordinate with NHDES prior to developing future estimates of N loads to ensure that the most appropriate methodology is used for quantifying loads.

Response #4: Prior to revising the estimates of DCIA or SW N Load, Exeter will coordinate with NHDES to ensure that the most appropriate methodology is being used to quantify the loads. To better understand how these estimates and methodology are being developed and will affect Exeter, Exeter would like to participate in the development of this methodology (e.g., attend work group meetings with NHDES and UNH). It is our understanding that the methodology is anticipated to be available for Great Bay communities by the end of 2019.

Agency Comment #5: Exeter SW/NPS Management: The agencies commend Exeter on adopting numerous measures to address N loading including more stringent municipal ordinances to increase SW N load reductions associated with new projects and redevelopment projects

(including measures to ensure long-term operation and maintenance ("O&M") is carried out on structural controls). Based on past trends, please provide an estimate of the typical amount of existing impervious cover that may be addressed through the new SW management requirements on future redevelopment projects that may occur during the next 5, 10 or 20-year period.

Response #5: Based on historic changes in impervious cover presented in the Total Nitrogen Annual Reports, and using a linear extrapolation, Exeter anticipates that approximately 2 acres of existing impervious cover will be managed in the next 5 years, 5 acres in the next 10-years and 10 acres in the next 20-years. It is difficult to assess whether a linear extrapolation is appropriate; however, it is possible that the rate of change may improve over time based on the changes made to the Site Plan and Subdivision Regulations in April 2018. Exeter will continue to track changes of impervious cover and continue to report these changes in the Total Nitrogen Annual Reports, as required by the AOC.

Agency Comment #6: Exeter SW Management: The agencies concur with Exeter's N source controls including fertilizer control, leaf litter management, street cleaning and drainage system O&M as valuable early steps for reducing SW/NPS associated N loads. The agencies are aware that recent research indicates that some of these practices (e.g., leaf litter, and targeted street cleaning) may yield notably higher reductions than previously estimated for the existing credits. Currently, efforts are underway within Vermont to reevaluate and refine these credits based on ongoing research. Also, there is considerable interest among the other New England state environmental agencies including NHDES to refine these credits as well. If credits are adjusted at some point in the future, then the community will have the opportunity to update credits resulting from this work. It is recommended that Exeter continue to work within the PTAPP process to update and refine N load reduction credits associated with nonstructural SW Best Management Practices implementation.

Response #6: Exeter plans to continue work with the PTAP process and will update and refine N load reduction credits associated with non-structural SW Best Management Practices should more refined estimates become available.

Agency Comment #7: Exeter SW Management - Structural Retrofit Projects: Exeter should update section 6.2.1 and Table 6-1 with planned structural controls that will lead to N reduction in stormwater. The current plan is vague and does not indicate Exeter's planned level of effort to investigate and implement stormwater retrofit controls to achieve tangible N reductions during the next 5 years. At a minimum, Exeter should provide a stormwater control retrofit plan that: (1) specifies details of a town-wide investigation of municipal properties for potential retrofit opportunities; and (2) identifies either a N reduction target to be achieved or a target amount of existing impervious cover area to be treated by stormwater retrofit controls for N reduction in the next 5 years.

The agencies recommend that Exeter consider information and recommendations that were developed for Exeter in the 2015 WATER INTEGRATION FOR SQUAMSCOTT EXETER ("WISE") Preliminary Integrated Plan found here: <https://www.des.nh.gov/organization/divisions/water/wmb/was/documents/squamscott-exeter-wise-integrated-plan.pdf>. This report contains a recommended least cost mix of nutrient management measures selected from the optimization model. Specific land use area targets.

nitrogen control measures and capture depths are also included in this analysis. This information should provide a sufficient basis for Exeter to define the major elements of a 5-year retrofit program.

Exeter should consider the use of small capacity green infrastructure SW control measures ("GI SCM") as part of its evaluation for potential retrofit opportunities at municipally-owned properties. Small capacity GI SCMs can be highly effective at reducing stormwater runoff volumes and N loads from developed areas. Also, small capacity GI SCMs can be more readily installed in developed areas than larger conventionally sized SCMs and as a result, their use will substantially increase Exeter's opportunities for achieving stormwater N reductions and potentially at much lower cost.

As indicated below, small capacity infiltration systems are highly effective at capturing both pollutants including N and runoff volumes. For example, infiltration systems (e.g., shallow basins, trenches and swales) with relatively small storage capacities ranging from 0.1 to 0.4 inches depth of runoff from the contributing impervious cover are estimated to achieve cumulative (i.e., all runoff events) reductions in average annual: (1) N loads of 50% to 85% (7 pounds N/year to 13 pounds N/year per impervious acre); and (2) runoff volumes of 12% to 44% (120,000 gallons/year to 440,000 gallons/year per impervious acre) . Cumulative performance estimates for numerous SCMs are included in the NH MS4 permit (Attachment 3 to Appendix F) and can also be found at the following web address with associated unit cost information: <https://www3.epa.gov/region1/npdes/stormwater/assets/pdfs/ms4-permitnomographs.pdf>

Response #7: The Town is in the midst of a significant financial investment that will result in the single largest nitrogen load reduction in the Squamscott River/Exeter River watershed. The Town will develop an inventory and priority ranking of town-owned properties and existing infrastructure that could be retrofitted with BMPs designed to reduce the frequency, volume and pollutant loads of stormwater discharges through the mitigation of impervious area in accordance with the schedule provided in the MS4 General Permit (i.e., Year 4). The material included in Section 6.2.1 and Table 6-1 are consistent with this timeframe. In the interim, Exeter will also consider the use of small capacity infiltration systems when retrofitting town-owned properties in the future. Exeter understands that as part of the PTAP process, an accounting matrix is being developed to quantify the expected N reduction from stormwater BMPs, like small capacity infiltration systems. Exeter will continue to participate in the PTAP process and use the tool to quantify potential N load reductions from implementation of stormwater BMPs on town-owned properties.

Agency Comment #8: Exeter SW Management: The agencies encourage Exeter to develop and begin implementing long-term strategies to opportunistically incorporate GI SCM retrofits as part of conducting near-term and long-term urban renewal projects, municipal roadway projects and drainage system work going forward. The costs associated with opportunistically implementing effective GI SCMs as part of other project work can significantly reduce costs for achieving N reduction as exemplified in the Berry Brook watershed in Dover, New Hampshire. In this vein, the agencies recommend that Exeter consider expanding its scope for developing a storm drain asset management plan to also include a systematic assessment of

potential opportunities for installing low-tech, simple to maintain, and small capacity GI SCMs within the boundaries of municipal properties including public rights of way.


Response #8: The Storm Water Asset Management Plan (SW AMP) is intended to provide a framework to maintain sustainable storm drainage infrastructure and is focused on age, condition and sizing of existing infrastructure. Existing town-owned green infrastructure will be included in the SW AMP. The SW AMP will result in a schedule of projects to upgrade storm drain infrastructure over time. The Town will evaluate those projects for BMP retrofits as noted above. See response to agency comment #7.

Agency Comment #9: Exeter Tracking and Accounting of SW and NPS Associated N Load Reductions: EPA and NHDES commend Exeter for actively participating on the PTAPP process and adopting the PTAPP tool for use in tracking and accounting of N Load reductions from Exeter activities.

Response #9: No response required.

Should you have any questions or wish to discuss any aspect of this response, please feel free to contact me, Ed Leonard at (207) 523-1411 or Renee Bourdeau at (603) 658-1660 x107.

Sincerely,



Jennifer R. Perry
Public Works Director

ec: Russell Dean, Town Manager, Exeter
Paul Vlasich, Town Engineer, Exeter
Ted Diers, NHDES
Sally Soule, NHDES
Tracy Wood, NHDES
Stergios Spanos, NHDES
Teresa Ptak, NHDES
Joy Hilton, EPA
Kenneth Moraff, EPA
Jackie LeClerc, EPA
Thelma Murphy, EPA
Ellen Weitzler, EPA
Mark Voorhees, EPA
Suzanne Warner, EPA
Newton Tedder, EPA
Dan Arsenault, EPA
Michael Cobb, EPA
Edward Leonard, Wright-Pierce
Renee Bourdeau, Horsley-Witten