



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region 1  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

**CERTIFIED MAIL - RETURN RECEIPT REQUESTED**

**FEB 22 2019**

Mr. Russell Dean  
Town Manager  
10 Front Street  
Exeter, NH 03833

Re: **NPDES Permit No. NH0100871**  
**Administrative Consent Order Docket No. 13-010**  
**Town of Exeter Nitrogen Control Plan September 2018**

Dear Mr. Dean:

EPA received the *Town of Exeter Nitrogen Control Plan* prepared by Wright-Pierce and Horsley Witten Group ("NCP") and submitted on Exeter's behalf as required by Paragraph IV.D.4 of Administrative Consent Order Docket No. 13-010 ("AOC" or "Order"). EPA and New Hampshire Department of Environmental Services ("NHDES") have reviewed and discussed the NCP and the agencies' comments are as follows:

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.
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 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.

Land Use Type	Exeter TIA, acres	Exeter TA, acres	%TIA	%DCIA = $0.1 * (\%TIA)^{1.5}$	Exeter DCIA, acres (%DCIA*TA)	reported DCIA for Exeter, acres	Diff
Com., Services, and Inst.	259	445	58	44	196	122	38%
Ind. and Com. Complexes	32	46	70	58	27	18	33%
Industrial	48	102	47	32	33	21	36%
Residential	391	2392	16	7	167	29	82%
Transportation	355	693	51	37	256	156	39%
<b>Totals</b>	<b>1085</b>	<b>3678</b>	<b>29</b>	<b>n/a</b>	<b>679</b>	<b>346</b>	<b>48%</b>

\* TIA and TA information taken from Tables 1 and 3 from Appendix C to the Exeter N Control Plan.

- 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 land 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.

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.
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.
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 re-evaluate 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.
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.

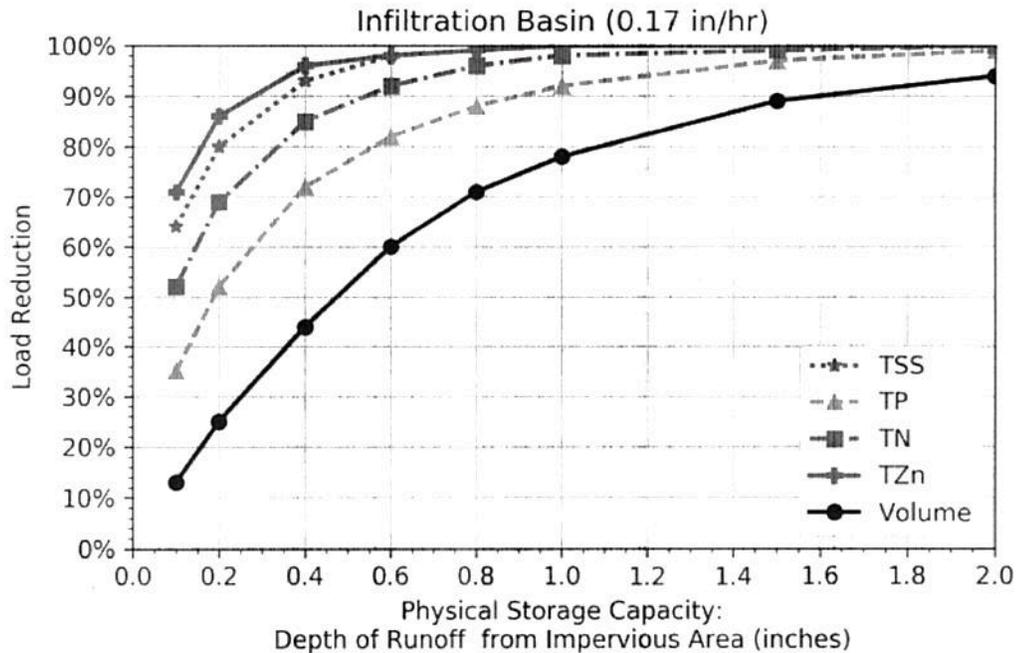
The agencies recommend that Exeter consider information and recommendations that were developed for Exeter in the 2015 WATER INTEGRATION FOR SQUAMSCOTT EXETER ("WISE") Preliminary Integrated Plan found here:

<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-permit-nomographs.pdf>



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.

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.

Please respond to the agencies' comments in writing by April 15, 2019. If you have technical questions on the NCP comments provided, feel free to contact Mark Voorhees at (617) 918-1537 or [voorhees.mark@epa.gov](mailto:voorhees.mark@epa.gov). For questions related to compliance with the Order, contact Joy Hilton at (617) 918-1877 or have your attorney contact Jeffrey Kopf at (617) 918-1796.

Sincerely,



Denny Dart, Manager  
Water Technical Unit  
Office of Environmental Stewardship

ec: Jennifer Perry, Director of Public Works, Exeter  
Paul Vlasich, Town Engineer  
Ted Diers, NHDES  
Sally Soule, NHDES  
Tracy L. Wood, NHDES  
Stergios Spanos, NHDES  
Teresa Ptak, NHDES  
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