

ADAPTIVE MANAGEMENT FRAMEWORK UPDATE

December 21, 2022

Town of Exeter, New Hampshire

INTRODUCTION

This Adaptive Management Framework (AMF) update describes the steps, activities, and measures that the Town of Exeter (Town) has taken to improve water quality from nonpoint sources into Great Bay from the town between October 1, 2021 and September 30, 2022 (Year 1). The initial AMF Proposal (Proposal) was submitted to USEPA on September 30, 2021.

The AMF is a living document that will be reviewed, updated, and modified (as needed) annually to reflect the current understanding of the Great Bay and the progress made by the Town and other relevant parties. The updates and modifications will be informed based upon the outcomes from implementing the efforts outlined in the Proposal and collaborating with the Municipal Alliance for Adaptive Management (MAAM), the other seacoast communities, and key stakeholders (PREP, NHDES, and USEPA). The Town believes that the collaborative approach will provide the most efficient and streamlined use of limited resources (time and money) and avoid unnecessary duplication of efforts.

SUMMARY OF PROGRESS

This summary of progress describes the steps, activities, and measures that the Town has taken to improve water quality from nonpoint sources into Great Bay from the town during Year 1. As outlined in the General Permit, this AMF is broken up into five areas (A through E):

- A. Ambient Water Quality Monitoring
- B. Track Reductions and Additions of Total Nitrogen
- C. Overall Source Reduction
- D. Load Based Threshold
- E. Completion of a total nitrogen TMDL

The Town's progress in Year 1 towards for each of these categories is outlined in the sections below. Additions or changes to the proposal are also reflected

A. AMBIENT WATER QUALITY MONITORING IN GREAT BAY

The Town provided funding and worked closely with PREP to support PREP's annual and long-term monitoring initiatives. The Town participated on PREP's Management Committee as well as served as a co-chair of the Piscataqua Regional Monitoring Collaborative.

The Town reviewed and provided comments on PREP's ambient water quality monitoring program to ensure that the monitoring program meets regulatory compliance needs of the Town.

The Town will continue to work with PREP to gather a better understanding of the direct outcomes from the monitoring program including annual raw data output, annual summary reports and long-term trend reports.

B. TRACK REDUCTIONS AND ADDITIONS OF TOTAL NITROGEN

The Town has been tracking reductions and additions of total nitrogen since 2014. In Year 1, the Town continued to track the implementation of nonpoint and point source efforts to reduce total nitrogen loads using the pollution tracking and accounting program (PTAP).

The Town will continue to estimate the reductions and additions of total nitrogen from both private and public developed projects using PTAP. The Town lost the employee responsible for implementation of the program this year and is trying to fill the position whose duties will continue PTAP implementation.

C. OVERALL SOURCE REDUCTION

Point Source Reduction Strategies

A variety of measures to reduce wastewater point source nitrogen will be evaluated as part of this AMF Proposal. The strategies evaluated and a description of how the Town will implement these strategies is summarized in **Table 1**.

Table 1. Proposed Point Source Reduction Strategies

STRATEGY	DESCRIPTION OF IMPLEMENTATION	SUMMARY OF PROGRESS
WWTF Optimization	The Town will continue to evaluate WWTF modification and process optimization techniques for additional reduction of total nitrogen from the WWTF effluent.	<p>The WWTF has been optimized to the extent feasible based on the design (5 mg/L TN).</p> <p>In Year 1, the monthly average TN concentration was 3.9 mg/L with an average TN load of 64 lbs/day.</p> <p>In Year 1, the September 2022 rolling seasonal average total nitrogen was 44 lbs/day. The Town has a rolling season average total nitrogen effluent limitation of 106 lbs/day.</p> <p>The Town has reduced their load by an additional 58%, when compared to their effluent limit.</p>
Inflow and Infiltration	<p>The Town will implement recommendations from the 2013 Phase III I/I Plan and 2017 CSO LTCP. Projects will include Westside Drive and Salem Street.</p> <p>The Town will continue to fund pipe and manhole rehabilitation projects aimed at reducing inflow and infiltration.</p>	<p>The Town has hired a consultant to update the Town's CSO LTCP. The update will incorporate the recent upgrades to the WWTF, including the CSO reductions associated with the upgrades. This is expected to be completed by Q1 of 2023.</p> <p>Westside Drive project is currently in the design phase. The design remedy will likely include separate drain line.</p> <p>On Salem Street, the Town is kicking off a private service replacement program which will ensure that sump pumps are not tied into the sewer.</p>
Sump Pump Redirection Program	The Town will revisit the Sump Pump Redirection Program and re-educate residents about the program and develop potential enforcement measures. The Town will evaluate if the program needs to be implemented in other areas of town.	<p>The Town is using the existing pamphlets developed as part of the Sump Pump Redirection Program to educate residents on Salem Street.</p> <p>The Town is currently in the process of creating an updated pamphlet about environmental concerns and contaminants associated with sump pumps.</p>
Septage Receiving	The Town will continue to receive septage from the town, Stratham, Newfields, Brentwood, East Kingston, and Kensington to assist with the denitrification process at the WWTF.	The Town received septage during Year 1; however, has shut down the program due to safety concerns for the foreseeable future.

STRATEGY	DESCRIPTION OF IMPLEMENTATION	SUMMARY OF PROGRESS
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Nonpoint Source Reduction Strategies

A variety of measure to reduce nonpoint source (stormwater and groundwater) nitrogen will be evaluated as part of this AMF Proposal. The strategies evaluated, the targeted land use/source, and a description of how the Town will implement these strategies is summarized in **Table 2**.

Table 2. Proposed Non-point Source Reduction Strategies

STRATEGY	TARGET LAND USE/SOURCE	DESCRIPTION OF IMPLEMENTATION	SUMMARY OF PROGRESS
Fertilizer and Turf Management Program	Pervious Developed Land	The Town will develop and implement a fertilizer outreach and education program targeted at reducing the application of fertilizer and using turf management best practices. The Town will apply this outreach program to both Town staff and departments as well as to the public. The Town will develop education materials as well as conduct workshops for the public.	<p>The Town applied for and received grant funding to assist with making updates to the Town’s existing Healthy Lawns – Clean Water Initiative Program. The goal of the program is to educate residents and to reduce the use and application of fertilizer on lawns.</p> <p>Updates to the program will include:</p> <ul style="list-style-type: none"> - Brochure for property owners on how they can reduce nutrient loads on their property including a pledge to have soil sampled prior to fertilizer application, how to read a fertilizer bag, how to calibrate a spreader, ways to reduce irrigation and conserve rainwater on-site, and opt for native plantings that can withstand drought, heat, and soil conditions. - Yard sign for property owners to display in their yards once they’ve made the Healthy Lawns pledge. - Review of Town regulations to determine locations where updates could be made to promote the program goals. - Demonstration at the Alewife Festival in May 2023 <p>The Town will quantify the participating properties and track and account for potential fertilizer load reductions from residential land use.</p>
Post-Construction Regulations	Impervious	<p>The Town recently updated their Site Plan and Subdivision regulations to incorporate post-construction stormwater controls optimized for the removal of nitrogen. All private development stormwater projects that require a Site Plan or Subdivisions approval will be required to reduce total nitrogen by 60%.</p> <p>The Town will ensure during the Site Plan and Subdivision Review process that applicants are meeting the regulatory requirements. The</p>	<p>The Town continues to have a third-party consultant review Site Plan and Subdivision applications to ensure they are meeting the required 60% reduction in total nitrogen.</p> <p>The Town requires applicants to track and account for implementation of post-construction stormwater BMPs on private development using PTAP.</p> <p>The Town will consider changes to the Site Plan and Subdivision regulations that would</p>

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		<p>Town currently uses a third-party consulting firm to review applications and provide the Town and applicants specific comments regarding the stormwater post-construction requirements.</p> <p>The Town will track and account for the implementation of post-construction stormwater BMPs on private development.</p>	<p>require private development projects to demonstrate that the total nitrogen in the post-development condition does not exceed the pre-development condition from both stormwater and other non-point sources (i.e., septic systems).</p>
Land Use Regulation Review	Impervious	<p>The Town will review current land use regulations and explore changes that will result in less nitrogen loading into the environment. These strategies may include, but not limited to, providing incentives for redeveloping existing parcels, requiring advanced septic systems in areas not serviced by municipal sewer, and increasing the required nutrient removal rates by stormwater BMPs.</p> <p>The Town will review current land use regulations to determine barriers to low impact develop in street design, parking lot guidelines and green infrastructure best management practices.</p>	<p>The Town hired a consultant to review current land use regulations to determine what land uses pay for the services provided through taxes and user fees. The outcome of the study will be a recommendation for changes to zoning ordinances that would discourage development outside of the water and sewer user areas. The regulations would encourage infill and redevelopment and would result in a drastic decrease future impervious cover. Regulations also for consideration are requiring advanced septic systems if you develop outside of the water/sewer district. These zoning amendments may be voted on as early as the March 2023 town warrant article.</p> <p>The Town also reviewed the current land use regulations and found no barriers to the implementation of low impact development in street design or parking lots.</p>
Pet Waste Station Program	Pervious Developed Land Impervious	<p>Continue to implement Pet Waste Station Program by supplying pet waste bags and removing pet waste from disposal containers.</p>	<p>The Town continued implementation of the Pet Waste Station Program by supplying pet waste bags and removing pet waste from disposal containers.</p> <p>In Year 2, the Town will begin tracking the number of bags collected from each receptacle. The number of bags collected will be weighed and recorded at the end of each collection day.</p>
Infrastructure Maintenance Program	Impervious	<p>The Town will develop and implement a program detailing the activities and procedures to maintain storm drainage infrastructure in a timely manner. The program will include routine inspections, cleaning, and maintenance of catch basins to maintain 50% free-storage capacity in the catch basin sump.</p> <p>The Town will continue to operate and maintain a vacuum truck and clean catch basins.</p>	<p>The Town continued implementation of the catch basin cleaning program. The Town is continuing to collect asset information as well as detailing the depth of sediment in each catch basins. The Town will use this information to optimize their catch basin cleaning but targeting those that fill up with sediment more frequently than others. The Town will begin to determine the source of the sediment and make efforts to reduce source load. In January 2023, the Town will start street sweeping route optimization with</p>

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			a focus on heavy source load areas based on catch basin cleaning data.
Catch Basin Replacement Program	Impervious	<p>The Town will develop a program to replace catch basins in the Town with sumps that are less than the recommended 3-foot sump to provide water quality pretreatment. The Town has a significant number of catch basins in the town with inadequate sumps.</p> <p>This program would provide additional sediment storage capacity in these catch basins and allow the Town to effectively remove sediment prior to discharging to the receiving water.</p> <p>The Town anticipates replacing on average 25 catch basins per year, during the General Permit term.</p>	<p>The Town purchased 7 catch basins with adequate sumps before the end of 2022. The Town plans to replace 14 catch basins with insufficient sumps in 2023.</p> <p>As part of road reconstruction on Salem and Park Streets, approximately 37 catch basins with insufficient sumps were replaced. The Westside Drive project replaced 3 catch basins with insufficient sumps.</p>
Organic Waste and Leaf Litter Collection Program	Developed Pervious Impervious	<p>The Town will gather, remove, and properly disposal of landscaping wastes, organic debris, and leaf litter from impervious roadways and parking lots. The gathering and removal will occur immediately after any landscaping activities.</p> <p>The Town will dispose of these materials at the Town Transfer Station.</p>	<p>The Town continued to gather, remove, and properly dispose of landscaping wastes, organic debris, and leaf litter from impervious roadways and parking lots. Additionally, the Town continues street sweeping efforts in the fall to collect leaf litter than falls into the roadways, preventing it from getting into the storm drain network.</p> <p>The Town will continue these efforts in Year 2.</p>
Enhanced Street/Pavement Cleaning Program	Impervious	<p>The Town will continue implementing its enhanced sweeping program to clean all curbed impervious cover (i.e., directly connected impervious cover) and parking lots, at least two times per year (spring and fall), with targeted weekly sweeping in the downtown area and monthly sweeping of parking lots.</p> <p>The Town will use a high-efficiency, regenerative air-vacuum sweeper to implement the program.</p>	<p>The Town continues to implement its enhanced street sweeping program to clean all curbed impervious cover in Town.</p> <p>In January 2023, the Town will start street sweeping route optimization with a focus on heavy source load areas based on catch basin cleaning data.</p> <p>The Town will continue these efforts in Year 2.</p>
Septic System Program	Septic	<p>The Town will investigate the feasibility of an incentive-based private septic system replacement/upgrade program. The Town anticipates developing a loan forgiveness program, where private property owners could borrow the cost difference between a traditional system and an advanced treatment system for targeted nitrogen removal.</p> <p>As part of the program, the Town will develop a map of locations of current septic systems within 250 feet of a receiving water. The Town</p>	<p>The Town applied for and received grant funding to assist with investigating the feasibility of an incentive-based private septic system replacement/upgrade program.</p> <p>The investigation will include:</p> <ul style="list-style-type: none"> - Identification of septic systems users within the Town and mapping the locations of these systems. - Development of a suitability criteria for potential retrofit locations

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		<p>will incorporate outreach and education to the property owners in these areas and make them aware of this program. The Town will also conduct outreach during the Site Plan and Subdivision review process for new development or redevelopment projects.</p> <p>Following development of the program, the Town will evaluate next steps for implementation of the program.</p>	<ul style="list-style-type: none"> - Literature review of advanced septic system technologies targeted at removal of nitrogen - Regulation review to determine potential amendments to allow for the use of advanced septic systems - Funding mechanism - Incentive program framework <p>The Town will prepare a feasibility study report at the end of the investigation which will be completed in 2023.</p>
Stormwater Structural BMP Construction	Impervious	<p>The Town will continue to investigate conceptual BMPs identified as part of the Lincoln Street subwatershed studies. The Town will implement the structural stormwater BMP in the Winter Street/Front Street area. Following the construction of this project, the Town will evaluate the process for selection, design, and construction of additional structural stormwater BMPs and determine next steps based on lessons learned.</p> <p>The Town will also evaluate capital improvement projects and identify locations where stormwater retrofits could be implemented to improve water quality from Town-owned impervious cover.</p>	<p>The Town is currently in the design phase for the Winter Street/Front Street stormwater BMP.</p> <p>As part of the Salem/Park Street project, one 1 media box filter was installed and a second will be installed before the end of 2022. The media filters will treat stormwater from existing impervious cover.</p> <p>The Town applied for a stormwater planning grant for the Water Street reconstruction project to identify and design stormwater BMPs.</p> <p>The Town will continue to evaluate capital improvement projects and identify locations where stormwater retrofits could be implemented to treat existing impervious cover in Year 2.</p>
Evaluate Town-Owned and Right-of-Way Properties for Stormwater Structural BMP Sites	Impervious	<p>The Town will conduct a town-wide assessment, like the one conducted in the Lincoln Street subwatershed, for implementation of structural stormwater BMPs to reduce the frequency, volume, and pollutant loads of stormwater discharges.</p> <p>The Town will develop a town-wide plan that identifies conceptual BMP locations and designs for retrofitting existing impervious cover. The Town may use this plan to systematically retrofit and treat existing impervious cover.</p>	<p>The Town applied for and received grant funding to assist with conducting a town-wide assessment to identify potential locations for stormwater BMP retrofits to treat existing impervious cover.</p> <p>The Town will location and prepare conceptual design for up to ten stormwater BMP.</p> <p>The Town will use this plan to systematically retrofit and treat existing impervious cover.</p>
Atmospheric Deposition	Pervious Impervious	The Town will work with USEPA and NHDES to understand how levels of nitrogen from atmospheric deposition are changing over time.	The Town has not made any progress on discussions with USEPA or NHDES on atmospheric deposition.

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		The Town will account for changes in the atmospheric load as part of the tracking and accounting framework on an annual basis (or as data becomes available).	

D. LOAD-BASED THRESHOLD

The Town has allocated funds for an independent consultant to attend collaborative meetings to discuss the development of a load-based threshold. Town will review monitoring initiatives; implement nonpoint and point source projects targeted at reducing total nitrogen in the Great Bay; track and account implementation efforts; and revise this AMF Plan to ensure that the efforts the Town is taking will have the greatest benefit to water quality. The Town is committed to working with MAAM, USEPA, NHDES, PREP, and watershed stakeholders to ensure that the science and recommended next steps for continued improvement in water quality of the Great Bay and its tributaries are understood.

E. COMPLETION OF TMDL

The Town has allocated funds for an independent consultant to attend collaborative meetings to discuss the develop of a timeline for completion of a TMDL or an alternative approach. Town will review monitoring initiatives; implement nonpoint and point source projects targeted at reducing total nitrogen in the Great Bay; track and account implementation efforts; and revise this AMF Plan to ensure that the efforts the Town is taking will have the greatest benefit to water quality. The Town is committed to working with MAAM, USEPA, NHDES, PREP, and watershed stakeholders to ensure that the science and recommended next steps for continued improvement in water quality of the Great Bay and its tributaries are understood.