

TOWN OF EXETER, NEW HAMPSHIRE
TOTAL NITROGEN CONTROL PLAN ANNUAL REPORT FOR 2018

1. BACKGROUND

This 2018 Total Nitrogen Control Plan Annual Report was prepared for the Town of Exeter, New Hampshire in order to comply with the requirements of AOC 13-010, Article IV.E. The AOC stipulates that the following items be addressed:

- The pounds of total nitrogen discharged from the WWTF during the previous calendar year (*refer to Section 2.1 of this annual report*).
- A description of the WWTF operational changes that were implemented during the previous calendar year (*refer to Section 2.2 of this annual report*).
- The status of the development of a total nitrogen NPS and storm water point source accounting system (*refer to Section 2.3 of this annual report*).
- The status of NPDES MS4 activities (*refer to Section 2.4 of this annual report*).
- The status of the development of the non-point source and stormwater point source Nitrogen Control Plan (*refer to Section 2.5 of this annual report*).
- A description and accounting of the activities conducted by the Town as part of its Nitrogen Control Plan (*refer to Section 2.6 of this annual report*); and
- A description of all activities within the Town during the previous year that affect nitrogen loading to the Great Bay Estuary. The annual report shall include sufficient information such that the nitrogen loading change to the watershed associated with these activities can be quantified upon development of the non-point source/point source storm water accounting system (*refer to Section 2.7 of this annual report*).

In addition, this report is intended to support the engineering evaluations that were completed in September 2018 (Nitrogen Control Plan) and the future evaluations due in December 2023 (Engineering Evaluation), including: documenting total nitrogen, dissolved oxygen, *chlorophyll a* and macroalgae concentration trends in the Squamscott River and downstream waters; documenting non-point source and stormwater point source reduction trends towards allocation targets; and documenting that appropriate mechanisms are in place to ensure continued progress.

2. SUMMARY OF AOC STIPULATED ITEMS

2.1. Total Pounds of Nitrogen Discharged from the WWTF in Previous Calendar Year

Attachment 1 summarizes the total pounds and total tons of nitrogen discharged from the WWTF for the calendar year as well as the annual average total nitrogen value measured at the Squamscott River “GRBCL” sampling location, located just downstream of Newfields WWTF at Chapman’s Landing and at the Squamscott River “GRBSQ” sampling location, located at the mouth of the Squamscott River. Note that the GRBCL data from 2017 and 2018 are not currently available from NHDES.

2.2. Operational Changes at the WWTF

There are no operational changes which can be made at a lagoon facility, such as Exeter’s, which would reduce the amount of nitrogen discharged. The existing WWTF

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and Main Pump Station are currently undergoing comprehensive upgrades to convey more flow to the WWTF and to treat to low effluent nitrogen levels.

In anticipation of major operational changes at the WWTF, the Town has been engaged in on-going planning, design and construction efforts for the full calendar year. Each is summarized below:

- The WWTF Upgrades (Contract No. 1)
 - Construction was approximately 79% completed through December 31, 2018. The project appears to be on-schedule for timely substantial completion of Interim Milestone No. 3 (items regarding to meet the AOC Interim Limits).

- The Forcemain Upgrades (Contract No. 2)
 - The 90% Bidding Documents were submitted to the Town, NHDES and EPA in December 2016. The Town and NHDOT had been in communication since that time regarding permanent ownership of the road and funding related to drainage improvements.
 - The design phase was restarted in Fall 2018 and revised 90% Bidding Documents were submitted to the Town, NHDES, EPA, NHDOT and Unutil on November 21, 2018. Comments were received from all parties and 100% Bidding Documents were finalized and advertised for bidding in January 2019. Bid Opening will occur in February 2019.

- The Main Pump Station Upgrades (Contract No. 3)
 - Construction was approximately 95% completed through December 31, 2018. The upgraded pump station is now on-line and operational. Substantial completion was granted in January 2019.

2.3. Development of Total Nitrogen NPS & Stormwater Point Source Accounting

2.3.1. PTAPP Participation

The Town of Exeter is actively participating in the Great Bay Pollution Tracking and Accounting Pilot Program (PTAPP), which is led by NHDES and EPA. The purpose of PTAPP is to enable coordination on nitrogen tracking and accounting for the Great Bay region. PTAPP is intended to make progress towards developing shared approaches and tools within the participant Great Bay communities. The multi-year implementation framework is briefly described in the following four phases of PTAPP. The PTAPP Implementation Framework is included as **Attachment 2**. A summary of the phases is provided below.

Phase 1: Outcomes, Benefits and Rationale for Moving Forward. Phase 1 was completed in October 2015. During Phase 1 participants identified three key benefits to justify moving forward to further develop and implement a regional approach for pollution tracking and accounting. The three key benefits were Cost

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Savings, Regulatory Compliance and Coordination with other Regional Efforts.

Phase 2: Pilot Tracking Program and Conceptual Planning for Accounting Methods. Phase 2 began in January 2016 and was completed in Spring 2017 with the roll-out of the pilot tracking web-based tool. The Tracking Program will include a Local Tracking Efforts path and a Regional Tracking Efforts path. The Accounting Methods will include the development of regional accounting methods to quantify existing loads and load reductions achieved through implementation of tracked NPS management activities. NHDES and UNH agreed to collaborate to develop the pilot program database and on-line user interface. NHDES and UNH agreed to serve as the host of the database and website for this effort.

Phase 3: Evaluate Pilot Tracking Program and Formalize Accounting Process. Phase 3 started in 2017 and was completed in February 2018 with the formal roll-out of the web-based tracking tool and reporting tool. Exeter committed to utilizing the web-based tool once it is completed and available for public use.

Phase 4 and Beyond: Implementation of Regional Tracking Program for Completing and Implementing Accounting System. Phase 4 began in Spring 2018 and will continue into 2019 and beyond. It is anticipated that technical and financial resources will be in place to implement the regional tracking program including additional communities. The process for developing accounting methods will also be implemented and will consist of utilizing published EPA translation values (where available and applicable) and developing translation value where none exist. UNH/NHDES implemented an expert panel process to develop translation values for buffers during 2018. UNH/NHDES expect to continue to utilize this process for other items in the future. UNH/NHDES announced at the November 2018 meeting that they have secured funding to continue the PTAPP process for the next few years.

2.4. Status of NPDES MS4 Activities

The Town submitted an MS4 Annual Report, which summarizes the activities undertaken during the permit year for compliance with permit conditions outlined in the 2003 Small MS4 General Permit (See Attachment 3). The MS4 Annual Report was submitted in April 2018 and was the last annual report under the previous Small MS4 General Permit. In addition to completing activities for compliance with the previous permit, the Town has performed various activities in preparation for compliance with the new 2017 NH Small MS4 General Permit, which became effective July 01, 2018. These activities include continued stormwater system mapping and evaluation efforts and adoption of updates to local stormwater regulations.

Additionally, Wright-Pierce was retained to assist in preparation and submittal of the

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Notice of Intent (NOI) for coverage under the 2017 NH Small MS4 General Permit, development of a written Stormwater Management Program (SWMP) and updating the existing Stormwater Pollution Prevention Plan (SWPPP) for the Department of Public Works (DPW) Facility for compliance with the 2017 NH Small MS4 General Permit.

2.5. Status of NPS and Stormwater Point Source Nitrogen Control Plan

The Town completed and submitted the Nitrogen Control Plan in September 2018 in accordance with the AOC. The Nitrogen Control Plan integrated and built upon the point source and non-point source content that was developed in the Wastewater Facilities Plan (WP, March 2015) and the WISE Report (Geosyntec, et.al., December 2015). The Nitrogen Control Plan implementation items are summarized in Section 2.5 below. The Town is securing funding through the annual appropriations process to continue with implementation items.

Other Nitrogen Control Plan related activities that the Town completed this year include:

- The Town conducted a Climate Open House in February 2018 which featured the efforts that the Conservation Commission, the Healthy Lawns Clean Water & the DPW do to help make Exeter a more resilient community. Educational posters used at the event are attached in **Attachment 5**.
- The Town hosted NOAA and NHFG in April 2018 on World Fish Migration Day for a Dam Site Tour and Pickpocket Fish Ladder tour. During the visit, the Town lead the group in a discussion on dam removal and fish ladder measures that aid in fish migration. A flyer for the event is attached in **Attachment 5**.
- The Town lead a boat paddle tour along the Squamscott River during National Estuaries Week in September 2018 that educated 12 residents about water quality and their connection to Great Bay through the Squamscott River and discussed stormwater pollution and the direct connection of paved areas to their rivers, streams and wetlands through storm drains. In addition, they discussed the importance of natural buffers, the wastewater treatment plant upgrades and why it is an important step for nitrogen removal and the health of Great Bay.
- The Town hosted a showing of Bob Glowacky's film "What We Have in Its Place: Dam Removal and River Revival" followed by a discussion panel featuring Barbara Rimkunis (Exeter Historical Society), Don Clement (Exeter Select Board) and Ted Diers (NHDES) in October during the NH Film Festival.
- The Natural Resource Planner partnered with teacher Bob Johnson in May and presented an educational program to 110 8th grade students. Over the course of two days, students learned about stormwater pollution, mapped the location and watershed around a natural and human impacted pond, developed theories about water quality and tested water samples from each for pH, DO, turbidity, and conductance. The Natural Resource Planner also presented this program at the NH Association of Conservation Commission's annual meeting in October.

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2.6. Description and Accounting of the Activities Conducted by the Town as part of its Nitrogen Control Plan

The Nitrogen Control Plan implementation items are described in Section 6 of the Nitrogen Control Plan and are outlined below.

- Complete WWTF Upgrades: On-going, as described above.
- Complete Main Pump Station Upgrades: On-going, as described above.
- Complete Forcemain Upgrades: On-going, as described above.
- WWTF Operational Strategies: Pending completion of the WWTF Upgrades
- Implement Stormwater Control Measures: On-going through annual funding appropriations.
- Implement Leaf Litter and Organic Waste Collection Program: On-going
- Implement Shoreland Protection and Land Conservation: On-going
- Develop Preliminary Storm Drain Asset Management Plan: Will develop in 2019 to 2020.
- Removal of Great Dam: Completed in 2016.
- Implement Tracking and Accounting: Completed and on-going
- Implement Fertilizer Regulations: Completed; Town will evaluate whether further revisions are appropriate.
- Implement Site Plan and Subdivision Regulations: Completed in 2018, as described above.
- Monitor Water Quality: The Nitrogen Control Plan collected the available monitoring data in Appendix B. No new data is available from EPA or NHDES since the Nitrogen Control Plan was submitted. VRAP data was not collected in 2018.
- Review EPA Water Quality Monitoring Data: The EPA sampling data from 2018 is not yet available.
- Coordinate with NHDES/Watershed Allocation: Exeter will continue to coordinate with NHDES on this matter.
- Submit AOC Engineering Evaluation: This report is due in September 2024. No specific activity on this report was completed in 2018.

2.7. Description of activities conducted which affect nitrogen in the Great Bay Estuary

Numerous activities were conducted in Town which affects nitrogen in the Great Bay Estuary. The activities are described below and are organized by municipal department.

2.7.1. Coordination between Departments

As noted above, the Town is required to develop a total nitrogen tracking and accounting system as a part of the AOC. There are three departments that are responsible for managing, monitoring and/or approving activities which impact the total nitrogen load – either increasing or decreasing – to the Great Bay Estuary. The Planning Department is primarily responsible for new developments (e.g., buildings, private roads, etc.), the Building Department is primarily responsible for monitoring the status of construction of development (e.g., housing, commercial, etc.) and the Public Works Department is primarily responsible for public infrastructure (e.g., WWTF, public roads, sewers, storm

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drains, etc.). Over the past year, the Town has made progress in identifying areas of responsibility for the three departments and in identifying coordination procedures between departments. The table below summarizes the results of the initial discussions regarding the responsibility for tracking.

Status of “Primary Areas of Responsibility Tracking”

| Public Works Department | Planning and Building Departments |
|---|---|
| WWTF activities and upgrades | New and modified septic systems |
| Changes in Infiltration/Inflow | New and modified private WWTFs |
| Changes in impervious cover (public) | New connections to the sewer system |
| Changes in stormwater BMPs (public) | Changes in stormwater BMPs (private) |
| Changes in turf management (public) | Changes in turf management (private) |
| Changes in ordinances (e.g., stormwater) | Changes in ordinances (e.g., zoning) |
| Maintenance and mapping of infrastructure | Conversion of existing landscape |
| Facilities Planning | Changes in impervious cover (development) |
| Industrial Pre-treatment program | |
| Grease trap program | |

2.7.2. Planning and Building Departments

The Building Department issued a total of 17 Certificates of Occupancy for parcels which had development/re-development. Only 3 of these parcels resulted in impact to total nitrogen. In summary, these parcels resulted in approximately 10,504 square feet of new impervious area and 1 new sewer connection. Of the 3 parcels with new impervious area, none included a Best Management Practice (BMP) such as a rain garden or roof runoff infiltration system. The Building Department also issued approval for the construction of 1 new septic system and the reconstruction of 7 septic systems. The Nitrogen Tracking Summary is included as **Attachment 4**. Numerous projects were submitted through the PTAPP web-based tool in 2018; however, none of the projects were issued certificates of occupancy in 2018. Therefore, no PTAPP development reports are included in this TN Annual Report.

In addition, the Building Department enacted regulation that will require all projects that are submitted to the Exeter Planning Board to include a BMP Operations & Maintenance manual to the Exeter Department of Public Works (DPW). The DPW will start tracking private CB cleanings and street sweeping.

The Planning and Building Departments hosted a Spring Rain Barrel event. Rain barrels were available for residents to purchase (9 sold in 2018). All rain barrels were distributed with Healthy Lawns Clean Water Magnet which has five easy steps for water-quality friendly lawn care. A sample of the magnet is attached in **Attachment 5**.

The Town enacted changes to its Site Plan and Subdivision Regulations in April 2018. These changes require developers to implement low impact design techniques and storm

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water best management practices optimized for nitrogen removal for new development and redevelopment projects.

2.7.3. Department of Public Works

The Department of Public Works conducted the following efforts in 2018:

- Continued outreach and education through the following efforts are included in **Attachment 5**.
 - “Think Blue Exeter” program website.
 - “Sump Pump Removal Program” – A letter was distributed to members of the town that gave 5 years warning for when all sump pumps must be removed. This program is still on going.
 - “Septic Smart” program informative display in town offices and pamphlets.
 - “What’s Flushable?” NHDES program pamphlets.
- Continued their “Pet Waste” initiative through the continued upkeep of pet waste stations. There are 19 pet waste stations available throughout the Town for use by the public (see **Attachment 6**).
- Inspected 50 Town grease traps for condition and compliance.
- Removed one roof leader from a town restaurant.
- Hired two new full-time Operators at the updated WWTF for a total of 4 Operators.
- Continued street sweeping and catch basin cleaning programs. Approximately 1,400 miles of streets were swept and a total of 561 catch basins were cleaned.
- Installed 144 linear feet of stormwater infiltration trenching on Lincoln Street.
- Replaced 1,065 linear feet of sewer main on Lincoln, Tremont, and Daniel Street.
- Installed 1,028 linear feet of new 12-inch sewer main and provided service stubs to 2 properties currently on septic systems.
- Approximately 48,609 linear feet of sanitary sewer were jetted and 21,879 linear feet of sanitary sewer were televised. No root control was done in 2018.
- 714 linear feet of 15” and 18” pipe and one manhole were identified as needing rehabilitation for I/I. The pipe and the manhole will be rehabilitated in early 2019.
- Added one street (Memorial Lane) to their High Maintenance Jetting Plan.
- The Director of Public Works presented on “Exeter Resiliency Initiatives” at the 2018 NH Coastal Climate Summit at the Great Bay National Estuarine Research Reserve (GBNERR) on June 20, 2018.
- The Director of Public Works participated in Piscataqua Region Estuarine Partnership (PREP) Management Committee quarterly meetings on March 29, 2018 at the Portsmouth Library, on June 12, 2018 at the Kittery Town Office, and on September 18, 2018 at GBNERR in Greenland.
- The Director of Public Works participated in the PREP 2020 Comprehensive Conservation and Management Plan (CCMP) steering committee.
- Three Operators obtained varying levels of WWTF Operator Licenses (One Level 1, one Level 2 and one Level 4).

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- Three Operators obtained varying levels of Collection Licenses (One Level 2 and two Level 4).
- One public works employee earned their NASCO certification.
- One Operator obtained a Lab Procedures certification.
- In addition to the certifications listed above, all public works employees and Operators enrolled in classes and were awarded certifications to stay up to date with their licenses.
- 6 public works personnel were awarded Culvert Maintainer Certifications
- All Highway Department snow plow drivers received their “Green Pro Snow Certification”.
- Prior to first snow fall, all salt spreaders were calibrated.
- All catch basins/drains to the Squamscott River were stenciled or verified stenciled “Drains to River”.
- Each Town resident was permitted to have up to twelve bags of leaves picked up for free in the Spring and Fall of 2018, and they were able to drop leaves off at the Exeter transfer station. The leaves were composted, and residents are allowed to use the compost for lawn/garden fertilization.
- Each Town resident was permitted to have one Christmas Tree picked up for free in the Winter of 2018.
- PTAPP Reports for all Public Works activities are included as **Attachment 7**.
- Completed a grant study with Waterstone Engineering on the Nutrient Control Strategies in the Lincoln Street subwatershed. The cover, table of contents, and executive summary of this report are included in **Attachment 8**.

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LIST OF ATTACHMENTS

- Attachment 1: Exeter WWTF Annual Total Nitrogen Load Table
- Attachment 2: PTAPP Implementation Framework
- Attachment 3: MS4 Annual Report
- Attachment 4: 2018 Nitrogen Tracking Summary
- Attachment 5: Education & Outreach Flyers
- Attachment 6: Pet Waste Station Location Map
- Attachment 7: PTAPP Reports for Public Works Activities
- Attachment 8: Lincoln Street Subwatershed Nutrient Control Strategies Report

Attachment 1
2018 Exeter Annual TN Load Table

| EXETER WWTF - TOTAL ANNUAL NITROGEN LOAD TO SQUAMSCOTT RIVER | | | | | | | | | | | | | | | GRBCL | GRBSQ |
|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------------|-----------------|
| WWTF EFFLUENT - TOTAL ANNUAL NITROGEN LOAD | | | | | | | | | | | | | | | Squamscott R. | Squamscott R. |
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Load | Load | TN Conc. | TN Conc. |
| | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/mn) | (lbs/yr) | (tons/yr) | (mg/l) | (mg/l) |
| Days per month | 31 | 28 | 31 | 30 | 31 | 30 | 31 | 31 | 30 | 31 | 30 | 31 | | | NHDES | NERRS |
| Past Years | | | | | | | | | | | | | | | | |
| 2003-2008 | - | - | - | - | - | - | - | - | - | - | - | - | 85,400 | 42.7 | 0.77 | - |
| 2009-2011 | - | - | - | - | - | - | - | - | - | - | - | - | 83,600 | 41.8 | 0.71 | - |
| 2012 | 8,457 | 7,830 | 9,303 | 8,151 | 11,590 | 7,633 | 4,338 | 2,235 | 2,312 | 6,349 | 6,222 | 11,745 | 86,164 | 43.1 | 0.83 | 0.26 |
| 2013 | 10,700 | 9,082 | 13,913 | 8,681 | 9,029 | 12,500 | 10,852 | 7,165 | 3,971 | 5,203 | 8,611 | 11,270 | 110,976 | 55.5 | 0.82 | 0.39 |
| 2014 | 10,198 | 8,321 | 9,439 | 6,754 | 6,643 | 6,803 | 6,680 | 8,014 | 4,565 | 5,037 | 10,906 | 12,981 | 96,342 | 48.2 | 0.68 | 0.37 |
| 2015 | 10,441 | 8,630 | 13,638 | 12,249 | 7,454 | 12,009 | 10,911 | 9,024 | 6,667 | 6,980 | 6,644 | 8,713 | 113,359 | 56.7 | 0.88 | 0.35 |
| 2016 | 10,751 | 10,554 | 11,538 | 8,765 | 8,714 | 6,858 | 9,769 | 6,856 | 2,645 | 6,070 | 9,799 | 13,340 | 105,658 | 52.8 | 0.74 | 0.37 |
| 2017 | 15,725 | 11,922 | 10,346 | 13,973 | 12,885 | 11,578 | 12,042 | 10,431 | 7,350 | 10,082 | 11,141 | 10,989 | 138,465 | 69.2 | Data Not Avail. | 0.54 |
| 2018 | 15,401 | 11,972 | 12,855 | 13,344 | 8,780 | 9,659 | 10,252 | 5,786 | 5,647 | 8,217 | 12,241 | 9,572 | 123,725 | 61.9 | Data Not Avail. | Data Not Avail. |
| Previous Year (2016) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | |
| Monthly Avg Flow (mgd) | 1.72 | 1.84 | 1.99 | 1.69 | 1.36 | 1.21 | 1.12 | 1.11 | 1.08 | 1.22 | 1.32 | 1.45 | - | - | | |
| Avg TN Conc. on Sample Day (mg/l) | 23.8 | 25.0 | 21.4 | 20.8 | 24.6 | 22.5 | 33.3 | 24.0 | 9.8 | 20.0 | 28.8 | 36.5 | - | - | | |
| Avg TN Load on Sample Day (lb/d) | 352 | 370 | 389 | 291 | 283 | 230 | 319 | 220 | 88 | 188 | 336 | 419 | - | - | | |
| Load - Flow Basis | 10,590 | 10,748 | 11,017 | 8,800 | 8,655 | 6,816 | 9,648 | 6,892 | 2,650 | 6,312 | 9,517 | 13,691 | - | - | | |
| Load - Load Basis | 10,912 | 10,360 | 12,059 | 8,730 | 8,773 | 6,900 | 9,889 | 6,820 | 2,640 | 5,828 | 10,080 | 12,989 | - | - | | |
| Load - Average | 10,751 | 10,554 | 11,538 | 8,765 | 8,714 | 6,858 | 9,769 | 6,856 | 2,645 | 6,070 | 9,799 | 13,340 | 105,658 | 52.8 | | |
| Previous Year (2017) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | |
| Monthly Avg Flow (mgd) | 1.94 | 1.87 | 2.13 | 3.06 | 2.59 | 2 | 1.64 | 1.46 | 1.36 | 1.05 | 1.24 | 1.24 | - | - | | |
| Avg TN Conc. on Sample Day (mg/l) | 32.4 | 26.5 | 21.8 | 17.8 | 19.4 | 23.3 | 29.0 | 27.0 | 21.5 | 37.6 | 33.8 | 34.5 | - | - | | |
| Avg TN Load on Sample Day (lb/d) | 490 | 438 | 280 | 477 | 412 | 383 | 380 | 344 | 246 | 321 | 393 | 352 | - | - | | |
| Load - Flow Basis | 16,261 | 11,579 | 12,012 | 13,636 | 12,998 | 11,666 | 12,304 | 10,198 | 7,320 | 10,213 | 10,493 | 11,067 | - | - | | |
| Load - Load Basis | 15,190 | 12,264 | 8,680 | 14,310 | 12,772 | 11,490 | 11,780 | 10,664 | 7,380 | 9,951 | 11,790 | 10,912 | - | - | | |
| Load - Average | 15,725 | 11,922 | 10,346 | 13,973 | 12,885 | 11,578 | 12,042 | 10,431 | 7,350 | 10,082 | 11,141 | 10,989 | 138,465 | 69.2 | | |
| Current Year (2018) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | | | |
| Monthly Avg Flow (mgd) | 1.72 | 1.99 | 2.26 | 2.45 | 1.72 | 1.31 | 1.43 | 1.87 | 1.73 | 1.84 | 3.29 | 2.31 | - | - | | |
| Avg TN Conc. on Sample Day (mg/l) | 34.6 | 25.0 | 22.5 | 21.5 | 19.4 | 27.8 | 26.6 | 12.0 | 12.5 | 17.2 | 15.3 | 15.8 | - | - | | |
| Avg TN Load on Sample Day (lb/d) | 497 | 440 | 405 | 450 | 288 | 340 | 344 | 186 | 196 | 266 | 396 | 313 | - | - | | |
| Load - Flow Basis | 15,395 | 11,625 | 13,155 | 13,187 | 8,632 | 9,117 | 9,840 | 5,805 | 5,414 | 8,187 | 12,602 | 9,442 | - | - | | |
| Load - Load Basis | 15,407 | 12,320 | 12,555 | 13,500 | 8,928 | 10,200 | 10,664 | 5,766 | 5,880 | 8,246 | 11,880 | 9,703 | - | - | | |
| Load - Average | 15,401 | 11,972 | 12,855 | 13,344 | 8,780 | 9,659 | 10,252 | 5,786 | 5,647 | 8,217 | 12,241 | 9,572 | 123,725 | 61.9 | | |

NOTES:

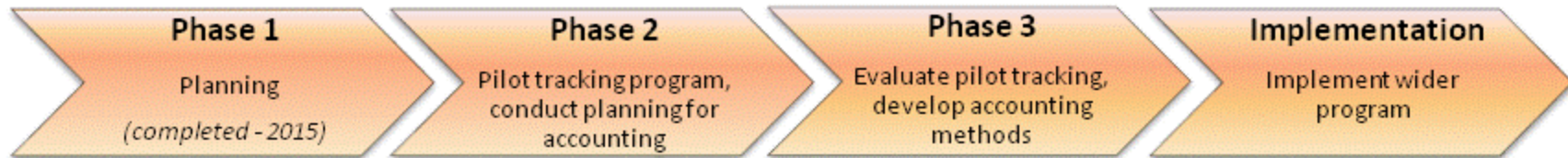
1. Red font indicates data from effluent composite sampler, TN measured directly. Multiple sampling days are averaged (2013 data to present)
2. Per the 2009 NHDES document, "Numeric Nutrient Criteria for the Great Bay Estuary," for days with multiple samples, the highest Squamscott River TN value was utilized.
3. Monthly Avg Flow is taken from Town Monthly MORs from the average of column "EFF Total" (Column H)
4. Avg TN Load on Sample Day calculated by calculating the load on each sample day and taking the average of the sample days (TN EFF mg/L * Flow EFF Total (MGD) * 8.345 lb/gal.
5. Sample location is identified as GRBCL, located just downstream of the Newfields Wastewater Treatment Facility.

SOURCES:

1. 2003-2011 WWTF TN Loading values are from the 2012 Environmental Data Report (PREP).
2. The 2003-2013 Squamscott River TN Concentration values are derived from the UNH Jackson Estuarine Laboratory Tidal Water Quality Monitoring Program.
3. The 2014 Squamscott River TN Concentration value was derived from the UNH Tidal Water Quality Monitoring Program and samples were taken at the Chapmans Landing on the Squamscott River.
4. The 2015 Squamscott River TN Concentration values are derived from the 2015 Great Bay Watershed Quality Monitoring Program.
5. GRBSQ TN is the average of the "NH4 plus NO2/NO3" monthly grab samples collected through the NERRS program.

Attachment 2
PTAPP Implementation Framework

Great Bay Pollution Tracking and Accounting Pilot Project Implementation Framework



| | | | |
|---|--|---|---|
| <ul style="list-style-type: none"> • Developed shared definition of tracking and accounting • Identified activities for tracking (Tracking Matrix) • Established regional dialogue and process • Identified key program drivers, needs, and barriers • Developed conceptual framework and costs for implementation | <ul style="list-style-type: none"> • Create Memorandum of Understanding • Develop and test "beta" regional tracking database; use Tracking Matrix as foundation • Work with municipalities, GRANIT, RPCs, UNHSC, DES, PREP, GBNERR, etc. to input data and refine tracking methods • Identify accounting process to quantify load reductions for tracked activities • Develop business plan • Continue work group meetings | <ul style="list-style-type: none"> • Refine database based on partner input - what worked and what didn't • Identify technical and financial resources to implement tracking beyond pilot communities • Implement process to develop accounting methods • Develop framework for broader implementation and identify funding and key roles/providers • Continue business plan development • Continue work group meetings | <ul style="list-style-type: none"> • Implement tracking with additional communities • Continue process to develop accounting methods to quantify load reductions for tracked activities • Identify and implement tools and financial resources as program evolves • Convene advisory committee to aid in program assessment and development • Provide progress reports to partners |
|---|--|---|---|



Attachment 3
2018 MS4 Annual Report

Municipality/Organization: Town of Exeter, NH

EPA NPDES Permit Number: NHR041007

Annual Report Number & Reporting Period: Year 15
April 1, 2017 – March 31, 2018

**NPDES PII Small MS4 General Permit
Annual Report
(Due: May 1, 2018)**

Part I. General Information


Contact Person: Jennifer Mates, P.E. **Title:** Assistant Town Engineer

Telephone #: (603) 418-6431 **Email:** jmates@exeternh.gov

Mailing Address: 13 Newfields Rd, Exeter, NH 03833

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: 

Printed Name: Russell Dean

Title: Town Manager

Date:

NPDES General Permit - Small Municipal Separate Storm Sewer Systems (MS4s)

Permit #NHR041007 Town of Exeter, NH

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Part II. Self-Assessment

The Town of Exeter has completed the required self-assessment and has determined that our municipality is in compliance with all permit conditions, with the possible exception of the following provisions:

Part 1 C. Discharges to Water Quality Impaired Waters

1. The permittee must determine whether stormwater discharges from any part of the MS4 contribute; either directly or indirectly, to a 303(d) listed water body.
2. The stormwater management program must include a section describing how the program will control the discharge of the pollutants of concern and ensure that the discharges will not cause an instream exceedance of the water quality standards. This discussion must specifically identify control measures and BMPs that will collectively control the discharge of the pollutant(s) of concern. Pollutant(s) of concern refers to the pollutant identified as causing the impairment.

The Exeter wastewater treatment facility (WWTF) permit imposed stringent discharge limits on nitrogen. The permit requires: development of total nitrogen non-point source (NPS) and point source accounting system; a nitrogen control plan be developed by 2018; a description and accounting of the activities by the town as part of its nitrogen control plan; and description of activities conducted which affect nitrogen in these rivers.

The town participated in a Water Integration for the Squamscott and Exeter Rivers (WISE) study over the past several years, which addresses some of the issues required by the WWTF permit. Officials from the Towns of Exeter, Stratham, and Newfields worked with a team from Geosyntec Consultants, the University of New Hampshire (UNH), Rockingham Planning Commission, Consensus Building Institute and the Great Bay National Estuarine Research Reserve to develop the study.

Information presented in the final WISE report (December 2015) continues to be used to develop water quality improvement strategies for the largest urbanized watershed in the town. An NH Department of Environmental Services (NHDES) 319 Nonpoint Source Grant (319 Grant) was awarded to Waterstone Engineering to evaluate the Lincoln Street watershed. The recommendations for water quality improvements developed by Waterstone were incorporated into the design of the Lincoln Street improvement project which will begin construction in 2018. A second 319 Grant was awarded to Waterstone and sponsored by the Rockingham Planning Commission. The focus of this grant was on climate adaptation and developing policies to improve infrastructure resiliency.

The town is also participating in the Great Bay Pollution Tracking and Accounting Pilot Program (PTAPP) coordinated by NHDES. The purpose of PTAPP is to enable coordination on nitrogen tracking and accounting for the Great Bay region. The Town developed an accounting worksheet to track land use, which was incorporated into the PTAPP program. The Town and other stakeholders worked with the PTAPP program to refine the web-based tracking and accounting program which was made public in February 2018. The Planning Department now requires that all Planning Board applicants complete the PTAPP worksheet as part of the conditions of final approval for all Planning Board approvals.

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The Town retained Wright-Pierce, Inc. to evaluate the Stormwater Management Program, Town Ordinances, Town Regulations, and IDDE program and provide recommendations to meet the 2017 MS4 permit. Several memoranda were prepared which identified recommended actions for short- and long-term stormwater program improvements. The Town also worked with Wright-Pierce to develop a presentation that compared the 2003 permit requirements to the 2017 permit requirements and the WWTF permit requirements, which was made to the Select Board in April 2017.

The Town Site Plan and Subdivision regulations were reviewed for compliance with the 2017 MS4 permit requirements. A draft of recommended modifications to the regulations was prepared and presented to the Planning Board (PB) in December 2017. In April 2018, the PB will begin the public hearing process required to adopt the revised regulations.

The Exeter River had an impounded reach within the town that is listed on the 2012 303(d) list of impaired waters. The dam was removed in the summer of 2016 and the river was restored to fully support designated uses of Aquatic Life Use support and Primary Contact Recreation. Additionally, without the impoundment, the river will be free of water quality impediments to fish migration and will be allowed to return to a state of geomorphic equilibrium. Ultimately, the river within Exeter will have dissolved oxygen concentrations sufficient for maintaining aquatic life and chlorophyll a, and bacteria concentrations that do not pose a risk for primary contact recreation. A monitoring plan was developed with the NH Fish and Game (NHFG), NH Department of Environmental Services (NHDES), and National Oceanic and Atmospheric Administration (NOAA) that will monitor river conditions and fish passage until 2022.

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NPDES General Permit - Small Municipal Separate Storm Sewer Systems (MS4s)

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PUBLIC EDUCATION & OUTREACH

BMP #1 DISPLAY AT ALEWIFE FESTIVAL

The festival no longer takes place.

ADDITION

A Community Open House to discuss climate change, adaptation, and resiliency was held on February 6, 2018. The program was hosted by the Town and the NH Setting Sail Project (NH Coastal Risks and Hazards Commission). The Healthy Lawns Clean Waters (HLCW) initiative had a display at the event to educate people about the use of fertilizers in the Great Bay watershed.

BMP #2 STENCIL STORM DRAINS

All catch basins in town were stenciled or touched up with the message “Attention – Drains to Local Waterway” as needed.

BMP #3 STORMWATER VIDEO ON LOCAL PUBLIC STATION

No videos were played on the local public station; however, the Town has the following educational videos on the town website: “Stormwater Rubber Duck” PSA; “Devil Duck Lawn Care” PSA; “Rain Storm” Radio Ad; and, “Car Wash” Radio Ad.

The Conservation Commission and River Advisory Committee meetings provide information regarding the local stormwater program and are televised. The stormwater education program “Think Blue Exeter” is a subcommittee of the River Study Committee, so their activities are presented during these televised meetings. Also, the Select Board and Planning Board televised meetings included presentations about the 2017 MS4 Phase II permit. (attachment)

BMP #4 DISPLAY AT TOWN BUILDING

Permanent educational signs: 1. Rain garden located next to library; 2. Stream buffer at a popular local park. Both of these locations are adjacent to the Squamscott/Exeter Rivers and highlight how rain garden and stream buffer functions can improve water quality. Both signs were replaced in 2017 due to deterioration of the signs. (attachment)

During the month of September, a “Smart Septic” display was located at the town office, along with handouts. The display addressed proper septic system construction and maintenance. (attachment)

ADDITIONS

Town Website and Facebook pages –

- Think Blue Exeter – general stormwater education, water quality in Exeter’s streams & rivers, simple changes to reduce stormwater pollution. (attachment)

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- Drug Take-Back Day – Exeter Police Department participates in National Drug Take-Back Day, which allows residents to drop off household and prescription drugs at the police department to prevent improper disposal.
- Drug Drop-Off Box – Exeter Police Department – The Exeter Police Department has taken a step further to help protect our waterways by providing a safe, sustainable and secure method to dispose of unwanted and/or expired household and prescription medications by installing a secure container in the lobby of the Police Department. (attachment)
- Household Hazardous Waste Collection Day – Exeter continues to host the once per year collection of household hazardous waste. The collection is coordinated by the Rockingham Planning Commission and includes Exeter and six other communities. (attachment)
- Announcements for Spring 2017 and Fall 2017 leaf collection, and January 2018 Christmas tree pickup. Each Town resident was permitted to have twelve bags of leaves picked up for free in the spring and fall 2017. The leaves were distributed to a compost pile and residents are allowed to use the compost. (attachment)

Newspaper Articles –

- Announcements for Spring 2017 and Fall 2017 leaf collection and January 2018 Christmas tree pickup.
- Announcements for Household Hazardous Waste Collection Day and Drug Take-Back Day.

PUBLIC PARTICIPATION

BMP #5 PUBLIC NOTICE

Completed 1st year

BMP #6 REVIEW NEED FOR STORMWATER COMMITTEE

No additional review for a stormwater committee has been done.

The HLCW initiative presents information on activities at various meetings and public events, many of which are televised and open to the public. The HLCW received the Sustainable Communities Award from the Gulf of Maine Council on the Marine Environment in June 2017 for their work on creating and implementing a zoning ordinance to regulate the use of fertilizers. (attachment)

BMP #7 STENCIL STORM DRAINS

All catchbasins in town were stenciled with the message “Attention – Drains to Local Waterway” by town employees and the stencils are repainted as needed.

ADDITIONS

- Exeter Rain Barrel Program – Exeter Conservation Commission offered reduced rates on rain barrels during the month of May 2017 (8 sold in 2017) (attachment)
- Volunteer River Assessment Program (VRAP), which monitored 9 sites on the Exeter River and Little River, between February and September (4 to 6 times each). The Exeter Conservation Commission and

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Town staff conduct the annual sampling for dissolved oxygen, conductance, pH, turbidity, and temperature. This is a part of the NHDES state-wide river monitoring program. (attachment)

- Exeter-Squamscott River Local Advisory Committee (ESRLAC) – the committee is made up of volunteers representing the twelve communities in the Exeter-Squamscott River watershed. Work by ESRLAC included discussions with municipalities and state and federal agencies about water quality in the river and its impact on water quality in Great Bay, the review of development proposals along the river corridor, and assisting with stormwater management projects. (attachment)

ILLCIT DISCHARGE DETECTION AND ELIMINATION

BMP #8 SURVEY OUTFALLS

The Town has been performing field investigations and GPS mapping to update the stormwater GIS maps. This includes the location, material, inverts, and other critical information

BMP #9 MAP/UPDATE OUTFALLS

As part of the field investigations to update the stormwater GIS maps, inspection reports are completed for each outfall, which includes photos and condition assessment. The Town has been The inspection forms and photos for each of these outfalls are on record with the Town in paper and electronic formats.

BMP #10 ORDINANCE TO PROHIBIT NON-STORMWATER DISCHARGES

Existing Storm Drainage Ordinance prevents illegal discharges to the drainage system, with fines. The ordinance has been reviewed and did not require modification for compliance with the 2017 MS4 permit.

BMP #11 CREATE EDUCATION FOR BUSINESSES

“Think Blue Exeter” – General Stormwater Education.

A pamphlet describing proper deicing chemical (salt) use during winter maintenance operations was created. This will be distributed to businesses with parking lots and snow removal contractors.

BMP #12 HOTLINE

Police Dispatch and Exeter Department of Public Works

BMP #13 SAMPLE SUSPECT OUTFALLS

No outfall sampling was performed during this reporting period. The Town has been collecting outfall information for the entire storm drain system and is beginning to prioritize outfalls for sampling as required by the 2017 MS4 permit.

BMP #14 TEST SUSPECT CONNECTIONS

Infiltration/inflow investigations were performed in several locations throughout town, including manhole inspections, dye testing, smoke testing, building inspections and flow evaluations. Approximately 23,000 linear feet of stormwater lines were cleaned and inspected via CCTV camera on Garfield Street, Lincoln Street, School

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Street, Union Street, and Washington Street. No illicit connections were identified during these investigations; however many of the pipes and structures were identified as being in poor condition. The condition assessment will be used to develop future capital improvement projects.

BMP #15 CORRECT ILLICIT CONNECTIONS

No corrective actions were taken to remove illicit connections to the stormwater collection pipelines.

ADDITIONS

- The Town maintains 19 “pet waste station” (bags and disposal container) located around Town. A map showing the location of the waste stations and the town walking/hiking trails is posted on the Town website.

CONSTRUCTION SITE RUNOFF CONTROL

BMP #16 UPDATE SITE REGULATION

Completed – The Town has reviewed the stormwater regulations and has proposed updates for compliance with the 2017 MS4 permit. It is anticipated that the Planning Board will review and adopt the updates in 2018.

BMP #17 SITE PLAN REVIEW FOR ALL CONSTRUCTION PROJECTS GREATER THAN 1 ACRE

The Technical Review Committee (TRC) reviews all development greater than 1 acre, with a focus on construction and post-construction erosion controls and stormwater Best Management Practices (BMPs).

BMP #18 SITE INSPECTIONS

Projects are inspected throughout construction for all development greater than one acre to monitor stormwater management and erosion controls.

BMP #19 DEVELOP AND IMPLEMENT CONSTRUCTION SITE INFORMATION AND REPORTING PROGRAM

Town construction projects are posted on the town website and social media sites with contact information.

An emergency contact list for all privately owned construction projects is updated regularly and distributed to emergency response personnel.

POST CONSTRUCTION RUNOFF CONTROL

BMP #20 IMPLEMENT SITE APPROPRIATE NON-STRUCTURAL, STRUCTURAL, INFILTRATION, AND VEGETATIVE PRACTICES

BMPs are in place as per Planning Board approved plans. Six (6) of the development/redevelopment projects reviewed by the Planning Board in 2017 included at least one Best Management Practice (BMP) such as a rain garden or tree box filter.

ADDITION

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Stormwater BMP's are being incorporated into town projects. Three water quality filters and an infiltration system were included in the design of the Lincoln Street reconstruction project which is scheduled for construction in 2018.

BMP #21 DEVELOP AND IMPLEMENT LONG TERM OPERATION AND MAINTENANCE PROGRAM FOR BMPs

Maintenance Plans are implemented during planning and construction process for developments that require Planning Board approval. In 2016, the Planning Board started to require annual Inspection and Maintenance reports be submitted annually for all new developments. The reports will be submitted to DPW for review and the Planning Department will assist on any enforcement actions that may be required.

ADDITIONS

- Stormwater inspections were performed at several private developments with deficiencies identified.

POLLUTION PREVENTION AND MUNICIPAL GOOD HOUSEKEEPING

BMP #22 CREATE POLLUTION PREVENTION & GOOD HOUSEKEEPING PROGRAM FOR MUNICIPAL EMPLOYEES

The following training was completed within the last year:

- Several of the highway department employees hold NH-DES solid waste certification and train annually for best management practices to operate the transfer station.
- All town Highway Department employees involved in snow plowing were trained on equipment calibration, attended UNH T2 Green SnowPro training course, and received NHDES Salt Applicator Certification.
- The Town Clerk's office handed out 1,500 rolls of dog waste bags and dispensers to residents when they purchased their dog licenses.

The Exeter DPW Director is a member of the WISE program and the Exeter Town Engineer and Assistant Town Engineer are members of the PTAPP program.

The Town is a member of the Seacoast Stormwater Coalition and the Town Engineer attends regular meetings.

BMP #23 SWEEP STREETS

All Town streets were swept at least twice (once in spring and once in fall). The streets located within the downtown area were swept bi-weekly during the warm months of the year. In 2015, new tracking equipment was installed on the street sweeper to track the number of miles swept. A total of 3,155 miles were swept in 2017. (attachment)

BMP #24 INSPECT CATCH BASINS

A total of 550 catch basins were documented with individual inspection forms that are connected to the Town's GIS database.

BMP #25 CLEAN CATCH BASINS

A total of 550 catch basins were cleaned in 2017.

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LIST OF ATTACHMENTS

1. Exeter Community Open House flyer (BMP #1)
2. Exeter Select Board MS4 presentation (BMP #3)
3. Rain Garden sign (BMP #3)
4. Norris Brook Buffer sign (BMP #3)
5. Septic Week announcement (BMP #4)
6. Think Blue (BMP #4)
7. Police Department Drug Drop-off (BMP #4)
8. Household Hazardous Waste Day announcement (BMP #4)
9. Spring leaf pickup (BMP#4)
10. Fall leaf pickup (BMP#4)
11. Rain barrel sale announcement (BMP #7)
12. Conservation Commission VRAP volunteer flyer (BMP #7)
13. VRAP data summary (BMP #7)
14. ESRLAC annual report (BMP #7)
15. Street sweeping announcement (BMP #4, #23)

TOWN OF EXETER COMMUNITY OPEN HOUSE

Climate Change, Adaptation & Resilience



SPONSORED BY THE TOWN OF EXETER, NH
AND THE SETTING SAIL PROJECT

Join town staff and civic groups for an open house featuring initiatives in the Town of Exeter that address climate change and how the community might adapt to create a more resilient and sustainable future.

Wander through interactive exhibits to learn about the many exciting activities happening in your community. Discover how you can participate and be a climate champion!

Tuesday, Feb. 6, 2018

4:30–7:30pm

Town Hall, 10 Front St.

Light refreshments will be served.

2017
Master Plan

Exeter Rises

Selectmen's
2017
Proclamation
to support the
Paris Climate
Accord

Healthy
Lawns &
Clean Water
Committee

Climate
Risk in the
Seacoast
Flood
Assessment

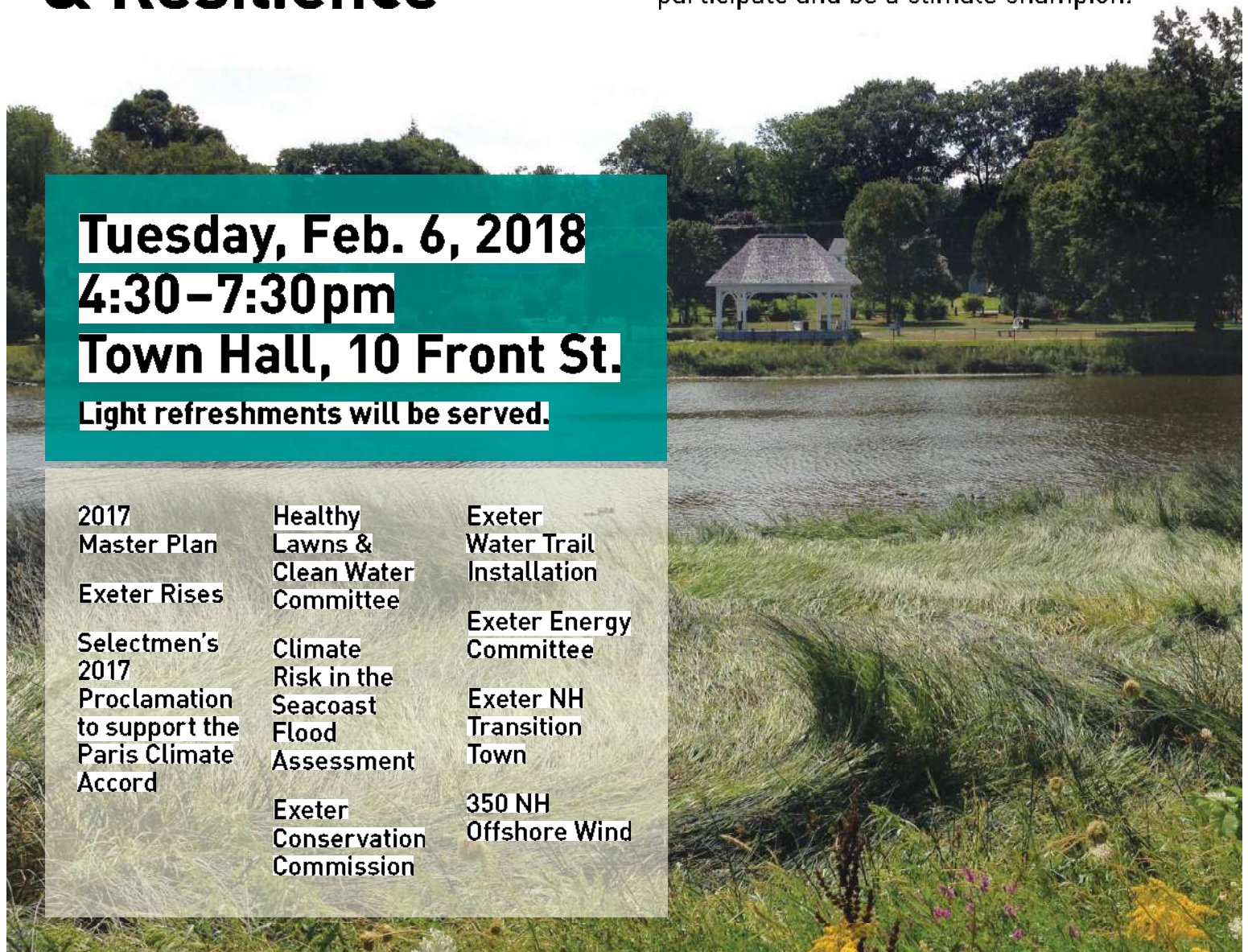
Exeter
Conservation
Commission

Exeter
Water Trail
Installation

Exeter Energy
Committee

Exeter NH
Transition
Town

350 NH
Offshore Wind



Be a climate champion!

This project was funded, in part, by NOAA's Office for Coastal Management under the Coastal Zone Management Act in conjunction with the New Hampshire Department of Environmental Services Coastal Program.



NPDES NH Small MS4 Permit Town of Exeter

**Overview of New Hampshire Small Municipal
Separate Storm Sewer System (MS4)
Permit Requirements**



WRIGHT-PIERCE 
Engineering a Better Environment

Presented by: Lyndsay Butler, PE

Agenda

- NPDES Introduction
- NPDES NH Small MS4 Permit
 - What is MS4? (stormwater collection & conveyance systems)
 - Regulated Areas
 - Comparison of Permit Requirements (2003 to 2017)
 - Threatened or Impaired Water Bodies
- NPDES Wastewater Permit and AOC
- Implementation Timeline

Founder's Park Rain Garden

WHY A RAIN GARDEN? By keeping rain -or stormwater in the natural water cycle a rain garden is a positive response to the growing urban problem of storm water runoff. The built environment can remove rainfall from the water cycle in ways that disrupts our ecosystem. The Founder's Park Rain garden demonstrates how a rain garden functions to improve water quality and return it to the groundwater.

SURFACES such as roofs and roadways are "impervious" to water-- that is do not directly allow for the filtration of water back to earth. With big rainfall events stormwater runoff can overwhelm municipal sewer systems and cause sewage overflows. Untreated sewage moves into storm sewers and then directly to streams, rivers, laes and oceans. Today, many communities including the Twn of Exeter are facing considerable costs for rebuilding sewage treatment plants due to not only the pressure of new development, but also from the additional volumes of stormwater caused by impervious surfaces. Impervious surfaces also contribute to water pollution. Water that movees over impervious surfaces can deliver pollutants from cars, trucks and other sources to our natural water systems and drinking water.

AS A NATURAL VEGETATED FILTER a rain garden can help by "treating" the stormwater it collects. Plants naturally "clean-u[" many of the pollutants found in stormwater in their growing process by utilizing nitrates and other substances. Microorganisms in the soil mix "feed" on some pollutatnts. The sandy soil mix filters out other substances present in the stormwater that cloud water and are known as Total Suspended Solids. These cleansing processes work together to improve the quality of the stormwater and keep it in the natural water cycle.

THE FOUNDER'S PARK RAIN GARDEN captures running off from Chestnut Street that would otherwise enter into a catch basin and release directly into the Exeter River. Over the course of a year, this small rain garden can help to treat nearly 34,000 gallons of water before returning the water to the groundwater. Important design elements of the garden:
 Stones check the speed of stormwater as it enters our rain garden to help limit erosion; A frame which precludes mosquitos; An overflow pipe to the lawn area prevents flooding of the pathway and parking area in an unusually large storm event; Predominately native, pathway and parking area in an unusually large storm event; Predominately native, selected plants are more likely to prevail through the demanding regimen of periodic flooding and drought and invite wildlife such as songbirds and butterflies

THE FUTURE With time, the plantings will mature and raise the quantities of water and pollutants treated while also increasing the scale and diversity of the garden's wildlife habitat. Silt may collect on the bottom of the stream bed and refuse may clog the overflow valve requiring occasional removal. Little other maintenance is required.

HOW CAN YOU? Sponsor or install a rain garden of your own. For more information on the use of rain gardens in preserving water quality, please refer to Ironwood design group's website: www.fewood.com. Visit the suppliers that generously donated to our garden for the purchase of compost, native plants and other materials that benefit our natural ecosystem.



Volunteer students from Exeter High School prepare the soil for the slopes of the rain garden and install the shrubs and perennials



The Exeter Department of Public Works prepares the rain garden under the design and direction of Ironwood design group. Boulders slow water as it enters the garden off the steep hill of Chestnut Street. A special compost mix quickly infiltrates the stormwater back into the groundwater table.



Images of the first rain after the curb cut and installation of the rain garden. Stormwater flowing down Chestnut Street is diverted to the rain garden. Before, stormwater flowed to a nearby catch basin and discharged untreated, directly into the Exeter River.



This project was made possible by generous donations and volunteers. Ironwood design group: Design and oversight of installations by volunteers. Stonepost Nursery and Churchill's Garden Center: Perennials and shrubs. Stratham ircle Nursery: Red Maple. Seacoast Farms Compost Products: Compost soil mix.



WATER QUALITY BUFFER at Norris Brook, Swasey Parkway

Trees, shrubs and other plants along the banks of streams, rivers, and wetlands play an important role in the health of waterways.

These vegetated areas (buffers) stabilize banks, moderate temperatures, and filter pollutants such as fertilizers and pesticides.

In 2004, the Town of Exeter along with our many partners identified below, worked with volunteers to replant a buffer along this section of Norris Brook. These plants provide an attractive landscape, create habitat for birds and pollinators, and serve an important role in keeping our river healthy.

By planting this buffer and reducing mowing adjacent to Norris Brook we contribute to improved water quality in the brook, the tidal Squamscott River into which the brook flows, and ultimately to Great Bay, the Squamscott's final destination.



JOE-PYE-WEED



BLUE LUPINS



TALL BONESET



WINTERBERRY

Plants used in the buffer:

These are just a sample of the plants chosen to enhance this buffer. For this project, annual and perennial plant species were selected with the goal to provide year round color and interest. With the diversity of plants available, plant selection can easily be tailored to meet site conditions and property owner's individual goals. If you are considering planting a buffer along a watercourse, the Town or the State Department of Environmental Services can provide a list of species to help guide your selection.

SPONSORED BY



New Hampshire
Coastal Program



EXETER-
SQUAMSCOTT RIVER
LOCAL ADVISORY
COMMITTEE





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Exeter, NH Public Works

September 24, 2017 · 🌐

Today wraps up [Septic Smart](#) week!

Remember: It's important to apply these tips if you're on a private [septic](#) or town sewer!

Top 10 Ways to Be a Good Septic Owner

- ✓ Have your system inspected every three years by a qualified professional or according to your state/ local health department's recommendations
- ✓ Have your septic tank pumped, when necessary, generally every three to five years
- ✓ Avoid pouring harsh products (e.g., oils, grease, chemicals, paint, medications) down the drain
- ✓ Discard non-degradable products in the trash (e.g., floss, disposable wipes, cat litter) instead of flushing them
- ✓ Keep cars and heavy vehicles parked away from the drainfield and tank
- ✓ Follow the system manufacturer's directions when using septic tank cleaners and additives
- ✓ Repair leaks and use water efficient fixtures to avoid overloading the system
- ✓ Maintain plants and vegetation near the system to ensure roots do not block drains
- ✓ Use soaps and detergents that are low-suds, biodegradable, and low- or phosphate-free
- ✓ Prevent system freezing during cold weather by inspecting and insulating vulnerable system parts (e.g., the inspection pipe and soil treatment area)

For more SepticSmart tips, visit www.epa.gov/septicmart

septicmart
EPA-932-F-16-016 | July 2016



Like



Comment



Share

Think Blue Exeter



[1]

As rain and snow-melt, also known as stormwater, flows across streets, parking lots, and other surfaces it collects dirt, debris, and chemicals carrying them directly to our rivers and streams. This polluted run-off is called Stormwater Pollution. Our habits play a major role in this type of pollution.

Click the Homeowners category below to learn ways you can help reduce Stormwater Pollution because...**CLEAN WATER STARTS WITH YOU!!!**

What is Stormwater Pollution?

As stormwater (or rain and snow-melt) flows across buildings, streets, parking lots, and other surfaces it collects dirt, debris, and chemicals and carries them directly to our rivers and streams. Collectively, these surfaces which do not allow water to penetrate are called impervious surfaces. The polluted run-off that flows across them and into our streams is called Stormwater Pollution.

What's the Water Quality Status of Exeter's Streams and Rivers?

As a result of water testing, NH Department of Environmental Services has designated the majority of Exeter's streams and rivers as "impaired" for one or more uses. This means the water contains pollutants which can be harmful to aquatic life, fish consumption, or humans during either direct or indirect contact.

To view how widespread this designation is, click [HERE](#) ^[2] _[2] to view Exeter's "impaired rivers". As you look at this map remember, **BLUE** means the water course meets standards, **RED** means it does not. With the majority of Exeter's waterways in red on this map, you may be starting to understand the purpose of the THINK BLUE program.

How Can You Help?

Our habits play a major role in this type of pollution. To find out what simple changes you can make to reduce the amount of pollutants entering our rivers, explore the links below and be sure to check out our "Ducky Ads" at the bottom of the page. You may have seen or heard them on Channel 98 or WXEX.

We need more people to THINK BLUE because **CLEAN WATER STARTS WITH YOU!!!**








[3]

Think Blue: About Us ^[3]^[4]Think Blue: Homeowners ^[4]^[5]Think Blue: Kids Page ^[5]

Click any thumbnail image to view a slideshow

^[6]^[7]**Supporting Documents**

-  [Stormwater Rubber Duck PSA](#) ^[8] (587 KB)
-  [Devil Ducky Lawncare PSA](#) ^[9] (4 MB)
-  [Rainstorm Radio Ad](#) ^[10] (1 MB)
-  [Car Wash Radio Ad](#) ^[11] (896 KB)
-  [Healthy Lawns Clean Water - Lawn Care](#) ^[12] (66 MB)

Source URL: <http://exeternh.gov/bcc/think-blue-exeter>

Links:

- [1] http://exeternh.gov/sites/default/files/styles/gallery500/public/imageattachments/bcc/page/11641/thinkblueexeter_web.gif?itok=H67__eRE
- [2] http://www3.epa.gov/region1/npdes/stormwater/nh/305bMaps/Exeter_NH.pdf
- [3] <http://exeternh.gov/bcc/think-blue-about-us>
- [4] <http://exeternh.gov/bcc/think-blue-homeowners>
- [5] <http://exeternh.gov/bcc/think-blue-kids-page>
- [6] http://exeternh.gov/sites/default/files/styles/gallery500/public/imageattachments/bcc/page/11641/runoffreturns_small.gif?itok=Rf4wvByq
- [7] http://exeternh.gov/sites/default/files/styles/gallery500/public/imageattachments/bcc/page/11641/thinkblue_cleanwater_.gif?itok=UiiL7VWs
- [8] http://exeternh.gov/sites/default/files/fileattachments/boards_committees_and_commissions/page/11641/thinkblueexeter_psa.wmv
- [9] http://exeternh.gov/sites/default/files/fileattachments/boards_committees_and_commissions/page/11641/thinkbluelawncare_final.wmv
- [10] http://exeternh.gov/sites/default/files/fileattachments/boards_committees_and_commissions/page/11641/rainstorm_exeter.mp3
- [11] http://exeternh.gov/sites/default/files/fileattachments/boards_committees_and_commissions/page/11641/carwash_exeter.mp3
- [12] http://exeternh.gov/sites/default/files/fileattachments/boards_committees_and_commissions/page/11641/exeter_healthy_lawns_clean_water_duckman_2016_psa.wmv

Published on *Town of Exeter New Hampshire Official Website* (<http://exeternh.gov>)

Drug Drop-Off Box



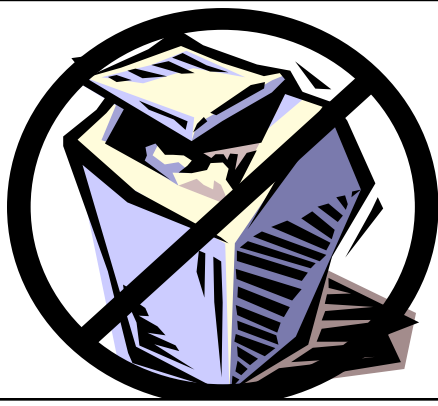
[1]

The Exeter Police Department has taken a step further to help keep harmful, unused medications out of the hands of children as well as out of the environment. Open Source Research shows that every day 2,500 kids abuse prescription drugs for the first time. Seventy percent of people who abuse prescription pain relievers say they got them from friends or relatives.

Currently, many unwanted or expired household and prescription medications are improperly disposed of. The harmful methods being used include flushing the drugs down toilets or putting them into the garbage. Both of these methods have damaging effects on our environment and contaminate our water supply. Therefore, The Exeter Police saw the need for a unit that would provide a source for proper disposal of unwanted or expired household and prescription medications, and placed a secured container in the lobby of the Police Department.

The Exeter Police Department's MedReturn Drug Collection Unit provides a safe, sustainable and secure method to dispose of unwanted or expired household medicines or prescription medication. There has been a great response from the Exeter community during our Drug Take Back events that have been coordinated with the D.E.A. The Exeter Police is committed to continuing to offer these services as well as now providing a 24hr 7 day a week- no questions asked-disposal option.

Source URL: <http://exeternh.gov/police/drug-drop-box>



Hazardous Waste in *Your* Home??

Hazardous Waste is not just an industrial problem.
Many household products contain hazardous
chemicals. We are all hazardous waste generators!

2017 HOUSEHOLD HAZARDOUS WASTE COLLECTION EXETER, STRATHAM, NEWFIELDS, EAST KINGSTON, EPPING, SEABROOK & SOUTH HAMPTON

SATURDAY, OCTOBER 21, 2017

8:00 am—1:00 pm

Exeter Public Works Garage, Newfields Road (Route 85), Exeter

**FROM THE
YARD**

Pesticides
Insect Sprays
Rodent Killers
Pool Chemicals
Muriatic Acid
No-Pest Strips
Lead sinkers, flashing
Creosote

**FROM THE
GARAGE**

Motor Oil
Auto Batteries
Antifreeze
Brake Fluid
Wax & Polish
Engine Degreasers
Carburetor Cleaner
Asbestos (wetted and double bagged)

**FROM THE
HOUSE**

Rechargeable Batteries
Drain & Oven Cleaners
Furniture Polish
Metal Polish
Fluorescent Light bulbs
Photo Chemicals
Mercury Thermometers
Fire Extinguishers

**FROM THE
WORKBENCH**

Rust Remover
Wood Preservatives
Paint Thinners
Oil Based Paints
Solvents
Degreasers
Mercury

LIMIT PER HOUSEHOLD: 10 GALLONS or Equivalent

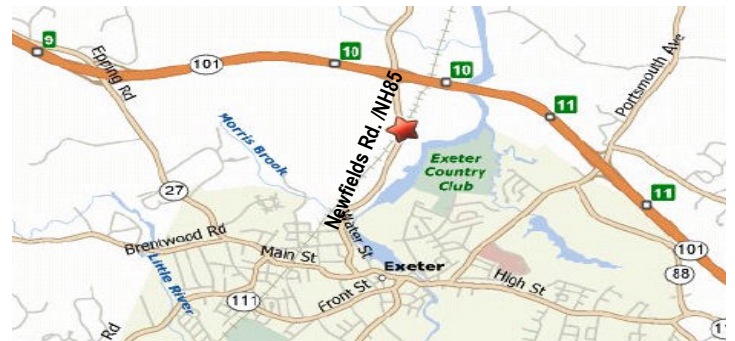
LATEX Paint and Alkaline Batteries not Accepted (not hazardous)

NOTE: Electronic Recycling will not be held at HHW day.

IMPORTANT NOTE:

The following wastes **cannot be accepted**:
Gas Cylinders, Explosive Materials, Ammunition,
Radioactive Materials, Infectious and Biological
Wastes, Prescription Medicines/Syringes,
Esters, and Unknown Materials.

Please don't bring them!



**COLLECTION IS FOR EXETER, STRATHAM, NEWFIELDS, EAST KINGSTON,
EPPING, SEABROOK & SOUTH HAMPTON RESIDENTS ONLY**

Sponsored by the Towns of Exeter, Stratham, Newfields, East Kingston, Epping, Seabrook & South Hampton.
Organized by Rockingham Planning Commission—778-0885.

For more information: Exeter: 778-0591; Stratham: 772-4741; Newfields: 772-5070;
East Kingston: 642-8406; Epping: 679-5441; Seabrook: 474-9771; and South Hampton: 394-7696

*** **A DONATION OF \$5 PER HOUSEHOLD IS REQUESTED TO HELP OFFSET COSTS.** ***

PLEASE

WE WILL NOT BE COLLECTING ELECTRONICS AT THE 2017 HOUSEHOLD HAZARDOUS WASTE

TIPS ON TOXICS

PURCHASE

- ⇒ **Read the label.** Look for the words “non-toxic” and compare products;
- ⇒ **Use non-toxic alternatives.** Many times a general household cleaner is just as effective as a specialized product;
- ⇒ **Buy only what you need;**
- ⇒ **Buy products with child-proof packaging;**
- ⇒ **Buy non-aerosol products.** Aerosols produce a fine mist which, when breathed, can settle deep in the lungs. Chemicals are then quickly absorbed into the bloodstream. Aerosol cans can explode if stored near heat or flame.

USE

- ⇒ **Use products in a well ventilated room and avoid breathing fumes.** Take breaks and work outside whenever possible;
 - ⇒ **Wear protective clothing;**
 - ⇒ **NEVER mix products.** Combining ammonia and chlorine bleach produces deadly chlorine fumes. Mixing chemicals can even cause explosions;
 - ⇒ **Use only the recommended amount.** Twice as much is not twice as good and may be twice as toxic.
- IF PREGNANT, avoid exposure to toxics;**
- ⇒ **In case of poisoning call Poison Control at (1-800-562-8236).**

STORAGE

- ⇒ **Store in a safe place.** Keep all toxics away from children;
- ⇒ **Close containers securely.** Some products like gasoline, oil-based paint & thinner can evaporate & pollute the air where they are stored.
- ⇒ **Keep all products in their original containers.**

DISPOSAL

- ⇒ **Use up a product to there is nothing left to dispose;** — the simplest of all disposal solutions!
- ⇒ **Donate leftover paints and other products to a service organization.** Make sure the product is securely packaged and well labeled;
- ⇒ **Take motor oil to a recycling center in your area.** Some service stations accept used motor oil; many Towns do at their public works garages, including Exeter and Stratham;
- ⇒ **Never pour harmful chemicals down the drain or on the ground.** These chemicals include pesticides, paints, preservatives, automotive products, home hobby chemicals and cleaning fluids;
- ⇒ **Take your household toxics to the household hazardous waste collection.** Individuals can take left-over chemicals to a central collection point and the chemicals are disposed of at licensed treatment and disposal facilities;
- ⇒ **Take advantage of New Statewide programs for LEAD SINKER AND NiCd BATTERY ⇒ disposal — available year round.** For the location of disposal sites in the area contact the NHDES or the Rockingham Planning Commission at the numbers shown below.

FOR MORE INFORMATION CALL...

| | |
|-------------------------------------|----------------|
| NH Poison Control — | 1-800-562-8236 |
| NH Dept of Environmental Services — | 271-2047 |
| Rockingham County/UNH Coop. Ext.— | 679-5616 |
| Rockingham Planning Commission — | 778-0885 |

WHEN MAKING PURCHASES, AVOID PRODUCTS CONTAINING:
Benzene, Toluene, Naphthalene, Trichloroethylene, Tetrachloroethylene,
Methylene Chloride, Carbon Tetrachloride

Spring Leaf Pick-up



[1]

Curbside spring leaf pick-up will be May 1st - 5th 2017 on your regular pick-up day.

Northside Carting will pick-up leaves curbside twice each year (1 spring and 1 fall date). Bags must be biodegradable paper bags and placed curbside by 7 a.m. on your rubbish collection day (12 bag limit per residence). Bags are available to purchase at local hardware or grocery stores. In addition, leaves can be taken directly to the Transfer Station (no permit required) during hours of operation.

Leaves brought to the Transfer Station or collected curbside are composted. Compost is available to residents free of charge. For availability contact Public Works!

Source URL: <http://exeternh.gov/publicworks/spring-leaf-pick-1>

Links:

[1]
http://exeternh.gov/sites/default/files/styles/gallery500/public/imageattachments/publicworks/page/34591/leaf_and_rake.jpg?itok=4ZkVLef7

Published on *Town of Exeter New Hampshire Official Website* (<http://exeternh.gov>)

Fall Leaf Pick-up



[1]

Curbside fall leaf pick-up will be November 27th - December 1st on your regular pick-up day.

Waste Management picks-up leaves curbside twice each year (1 spring and 1 fall date). Bags must be biodegradable paper bags and placed curbside by 7 a.m. on your rubbish collection day (12 bag limit per residence). Bags are available to purchase at local hardware or grocery stores. In addition, leaves can be taken directly to the Transfer Station (no permit required) during hours of operation.

Leaves brought to the Transfer Station or collected curbside are composted. Compost is available to residents free of charge.

Source URL: <http://exeternh.gov/publicworks/fall-leaf-pick-0>

Links:

[1] http://exeternh.gov/sites/default/files/styles/gallery500/public/imageattachments/publicworks/page/40551/img_7835.jpg?itok=sikHKpTm

2017 Spring Rain Barrel Sale



The Exeter Conservation Commission and Exeter Healthy Lawns Clean Water Committee is pleased to announce our partnership with The Great American Rain Barrel Company. We are offering Exeter residents an opportunity to purchase rain barrels through our Exeter Community Program.

Orders must be placed by **May 6th** and will be distributed on **May 13th 9am-12am** at the Department of Public Works. For more information and to place your order click the link below and select Community Programs, Exeter NH

<https://www.greatamericanrainbarrel.com/> ^[1]

Source URL: <http://exeternh.gov/bcc-cc/2017-spring-rain-barrel-sale>

Links:

[1] <https://www.greatamericanrainbarrel.com/>



Exeter Conservation Commission


2017 Volunteer River Assessment Program (VRAP) Water Testing

Come learn about the health of our local rivers while collecting important water quality data in the Town of Exeter. Each year the Town participates in the New Hampshire Department of Environmental Services river monitoring program which evaluates water quality throughout NH.

We meet every Wednesday at 8:30 am in the municipal parking lot behind the Town Office building. We have also added one Saturday per month this year. From there we travel to different sites throughout town and sample water by lowering a bucket down from bridges. There is no need to enter the river itself. We are usually back at the parking lot by 11 at the latest and sooner as people become accustomed to the methods.

Training and equipment provided. If you have any questions, contact Kristen Murphy at kmurphy@exeternh.gov or (603) 418-6452.

Created by: KM Kristen Murphy ✉

| Date (mm/dd/yyyy EDT) | Location | Available Slot |  Calendar View |
|------------------------------------|-----------------|----------------|---|
| 06/14/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 06/21/2017 (Wed. 8:30am - 11:00am) | 10 Front St | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 06/24/2017 (Sat. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 06/28/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 07/05/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 07/12/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 07/19/2017 (Wed. 8:30am - 11:00am) | 10 Front St | Volunteer 1 | Sign Up <input type="checkbox"/> |

[Submit and Sign Up](#)

| | | | |
|---|------------------------|--------------------|---|
| 07/22/2017 (Sat. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 07/26/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 08/09/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 08/16/2017 (Wed. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |
| 08/26/2017 (Sat. 8:30am - 11:00am) | 10 Front Street | Volunteer 1 | Sign Up <input type="checkbox"/> |
| | | Volunteer 2 | Sign Up <input type="checkbox"/> |

Submit and Sign Up

2017 EXETER RIVER WATERSHED VRAP DATA



Measurements not meeting New Hampshire surface water quality standards

Measurements not meeting NHDES quality assurance/quality control standards

^A Specific conductance > 835 $\mu\text{S}/\text{cm}$ indicate exceedance of chronic chloride standard of 230 mg/L

^B Chronic water quality standard

^C Calculated using 1/2 of the 0.25 mg/L detection limit of TKN (0.125 mg/L)

15-EXT, Exeter River, Haigh Road, Exeter - NHDES Trend Station

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) | Chloride (mg/L) | <i>E. coli</i> (CTS/100mL) | <i>E. coli</i> Geometric Mean |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|------------------|----------------------------|-------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}$ ^A | NA | 230 ^B | >406 | <126 |
| 02/14/2017 | 14:15 | 15.28 | 104.5 | 6.12 | 0.54 | 248.1 | 0.0 | 48.0 | | |
| 06/22/2017 | 14:30 | 8.25 | 94.4 | 7.02 | 1.28 | 239.2 | 22.1 | 50.0 | 40 | |
| 07/20/2017 | 13:15 | 6.49 | 78.8 | 6.79 | 2.04 | 260.9 | 25.0 | 62.8 | 70 | |
| 08/17/2017 | 14:00 | 7.24 | 82.2 | 6.55 | 1.13 | 285.4 | 21.6 | 69.2 | 80 | 61 |
| 09/13/2017 | 11:50 | 8.65 | 90.6 | 6.81 | | 237.7 | 17.6 | | | |
| 09/25/2017 | 11:00 | 7.15 | 78.3 | 6.68 | | 260.4 | 19.7 | | | |

| Date | Time of Sample | Total Phosphorus (mg/L) | Total Kjeldahl Nitrogen (mg/L) | Nitrite (NO ₂)+ Nitrate(NO ₃) (mg/L) | Total Nitrogen (mg/L) |
|------------|----------------|-------------------------|--------------------------------|--|-----------------------|
| Standard | NA | Narrative | Narrative | Narrative | Narrative |
| 02/14/2017 | 14:15 | 0.015 | 0.31 | 0.19 | 0.50 |
| 06/22/2017 | 14:30 | 0.028 | 0.52 | 0.17 | 0.69 |
| 07/20/2017 | 13:15 | 0.021 | 0.52 | 0.26 | 0.78 |
| 08/17/2017 | 14:00 | 0.015 | 0.27 | 0.21 | 0.48 |

14-EXT, Exeter River, Pickpocket Dam/Cross Road Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/23/2017 | 9:00 | 7.84 | 91.1 | 6.72 | 2.14 | 217.4 | 22.7 |
| 07/05/2017 | 8:48 | 7.83 | 91.9 | 6.65 | 2.03 | 216.3 | 23.4 |
| 07/26/2017 | 8:53 | 8.34 | 92.7 | 6.74 | 2.13 | 240.7 | 20.6 |
| 08/29/2017 | 9:38 | 8.41 | 89.9 | 6.37 | 1.86 | 231.7 | 18.7 |

13-EXT, Exeter River, Kingston Road (Route 111) Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/23/2017 | 9:26 | 7.44 | 87.4 | 6.45 | 1.80 | 215.2 | 23.5 |
| 07/05/2017 | 9:06 | 7.39 | 86.2 | 6.67 | 1.92 | 219.9 | 23.0 |
| 07/26/2017 | 9:12 | 8.00 | 88.3 | 6.43 | 1.63 | 239.9 | 20.2 |
| 08/29/2017 | 9:56 | 8.01 | 84.9 | 6.54 | 1.52 | 235.3 | 18.3 |

12A-EXT, Exeter River, Linden Street Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/23/2017 | 9:52 | 6.90 | 79.4 | 6.38 | 2.42 | 216.3 | 22.3 |
| 07/05/2017 | 9:28 | 6.99 | 80.5 | 6.57 | 3.81 | 218.4 | 22.4 |
| 07/26/2017 | 9:35 | 7.44 | 81.8 | 6.39 | 3.25 | 246.7 | 19.9 |
| 08/29/2017 | 10:11 | 8.26 | 87.2 | 6.52 | 2.25 | 242.4 | 18.1 |

12-EXT, Exeter River, Court Street/Route 108 Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/23/2017 | 10:20 | 6.34 | 73.4 | 6.52 | 2.95 | 213.0 | 22.7 |
| 07/05/2017 | 9:42 | 6.76 | 78.8 | 6.41 | 5.30 | 232.0 | 23.1 |
| 07/26/2017 | 10:04 | 7.53 | 83.0 | 6.59 | 3.40 | 242.7 | 20.0 |
| 08/29/2017 | 10:41 | 7.51 | 79.5 | 6.47 | 2.93 | 242.3 | 18.2 |

05-LTE, Little River, Garrison Road Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/14/2017 | 9:00 | 6.70 | 76.1 | 6.52 | 2.47 | 206.3 | 21.8 |
| 06/28/2017 | 8:50 | 6.83 | 72.8 | 6.71 | 4.19 | 245.5 | 17.7 |
| 07/19/2017 | 8:50 | 7.00 | 81.4 | 6.65 | 1.98 | 244.7 | 22.9 |
| 08/29/2017 | 11:01 | 8.95 | 92.5 | 6.85 | 1.08 | 258.3 | 17.0 |

02-LTE, Little River, Linden Street Bridge, Exeter

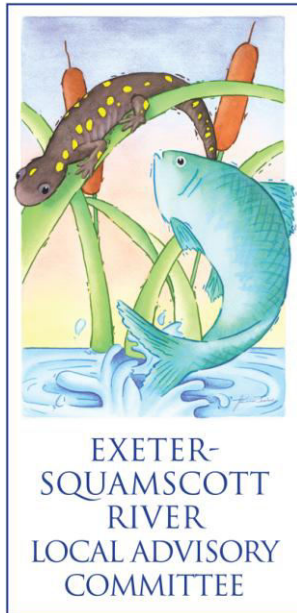
| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/14/2017 | 9:43 | 6.06 | 70.5 | 6.51 | 3.47 | 203.1 | 23.0 |
| 06/28/2017 | 9:28 | 6.57 | 70.5 | 6.63 | 5.73 | 256.9 | 18.8 |
| 07/19/2017 | 9:25 | 6.04 | 71.1 | 6.50 | 4.14 | 27.2 | 23.5 |
| 08/29/2017 | 11:26 | 7.16 | 75.6 | 6.61 | 3.23 | 256.5 | 17.9 |

00-LTE, Little River, Gilman Street Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/14/2017 | 9:59 | 6.88 | 79.5 | 6.35 | 4.63 | 231.3 | 22.7 |
| 06/28/2017 | 9:50 | 7.01 | 74.9 | 6.52 | 6.73 | 288.9 | 18.5 |
| 07/19/2017 | 9:58 | 6.44 | 75.8 | 6.55 | 5.13 | 286.4 | 23.5 |
| 08/29/2017 | 11:43 | 8.75 | 93.2 | 6.39 | 6.11 | 278.4 | 18.4 |

09-EXT, Exeter River, High Street Bridge, Exeter

| Date | Time of Sample | DO (mg/L) | DO (% sat.) | pH | Turbidity (NTUs) | Specific Conductance ($\mu\text{S}/\text{cm}$) | Water Temp. ($^{\circ}\text{C}$) |
|------------|----------------|-----------|--------------------|---------|--------------------------|--|------------------------------------|
| Standard | NA | >5.0 | >75% Daily Average | 6.5-8.0 | <10 NTU above background | 835 $\mu\text{S}/\text{cm}^{\text{A}}$ | NA |
| 06/14/2017 | 10:41 | 5.68 | 66.3 | 6.31 | 4.01 | 215.1 | 22.9 |
| 06/28/2017 | 10:13 | 5.99 | 70.6 | 6.67 | 5.28 | 225.6 | 23.6 |
| 07/19/2017 | 10:25 | 7.78 | 86.1 | 6.49 | 5.54 | 241.5 | 20.3 |
| 08/29/2017 | 11:59 | 8.71 | 96.8 | 6.78 | 3.78 | 266.1 | 19.5 |



2017 Annual Report Exeter-Squamscott River Local Advisory Committee

www.exeterriver.org

The Exeter-Squamscott River is enrolled in the New Hampshire Rivers Management and Protection Program, a unique partnership between citizens, towns and state government designed to promote and protect the river's outstanding natural and cultural resources. Established in 1996, the Exeter-Squamscott River Local Advisory Committee (ESRLAC) is comprised of citizen volunteers living in towns in the watershed, vested in working together to protect water quality, water quantity, wildlife habitat and recreational opportunities. The Exeter-Squamscott River is one river with two names, reflecting the fresh water (Exeter River) and salt water (Squamscott River) portions of this major tributary to Great Bay.

ESRLAC Representatives:

| | |
|----------------|---------------------------------|
| Brentwood: | Emily Schmalzer Eric Turer |
| Chester: | Vacant |
| Danville: | Vacant |
| East Kingston: | Vacant |
| Exeter: | Donald Clement David O'Hearn |
| Fremont: | Ellen Douglas John Roderick |
| Kensington: | Vacant |
| Kingston: | Evelyn Nathan |
| Newfields: | William Meserve |
| Raymond: | Vacant |
| Sandown: | Mark Traeger |
| Stratham: | Donna Jensen Nathan Merrill |

2017 marked ESRLAC's 21st year of acting "for the good of the river". The Committee continued to review proposals for land development along the river, providing information and analysis to developers, local boards and state agencies. ESRLAC reviews all plans closely to identify and recommend ways in which natural resources in and alongside the river may be protected through stormwater management and other conservation minded development practices.

In September, ESRLAC hosted an informational meeting on the future of the Mill Road dam in Brentwood. The workshop provided residents with information about management of the dam, including dam repair versus dam removal.

Also in 2017, ESRLAC refreshed the Committee's website, www.exeterriver.org, designed to share the watershed management plan, as well as river related research and reports. Work on the website will continue in 2018, with the goal of creating a robust library for river stewardship.

ESRLAC seeks members from all communities in the watershed. If you are a resident of Chester, Raymond, Fremont, Sandown, Danville, Kingston, East Kingston, Brentwood, Kensington, Exeter, Stratham, or Newfields and are interested in joining ESRLAC, please call the Rockingham Planning Commission at 603-778-0885 for more information.



Exeter, NH Public Works

@ExeterNHPublicWorks

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Exeter, NH Public Works added 2 new photos.

5 hrs · 🌐

Street Sweeping is not just about keeping roadways clean.

- 1 Regular cleaning keeps debris & trash from building up. This keeps properties looking great & prevents storm drains from getting clogged and flooding.
- 2 Clean & clear pavement protects the public. When street gutters become filled with debris, they can potentially cause vehicles to spin out or collide. Sidewalks filled with debris can be dangerous for pedestrians & cyclists because they may be forced to swerve into the road to avoid big objects, mud, or other trash. Regular sweeping can take care of these safety hazards.
- 3 Regular sweeping prevents harmful bacteria from growing & spreading. Road trash contains organic compounds, a breeding ground for bacteria, which can be dangerous for both humans & animals.
- 4 Street sweeping ultimately protects cars & other vehicles from getting damaged. Gravel, trash, & other debris can be detrimental to tires & undercarriages.
- 5 Pavement that is swept on a regular basis keeps water supplies safe by preventing particulates, trace metals, & other hazardous materials from entering storm drains.



Like Comment Share

5

Top Comments ▾

Attachment 4
2018 Nitrogen Tracking
Summary

ATTACHMENT 8 - PRELIMINARY NITROGEN TRACKING SUMMARY TABLE
TOTAL NITROGEN CONTROL PLAN ANNUAL REPORT FOR 2018
Wright-Pierce, 25 January 2019

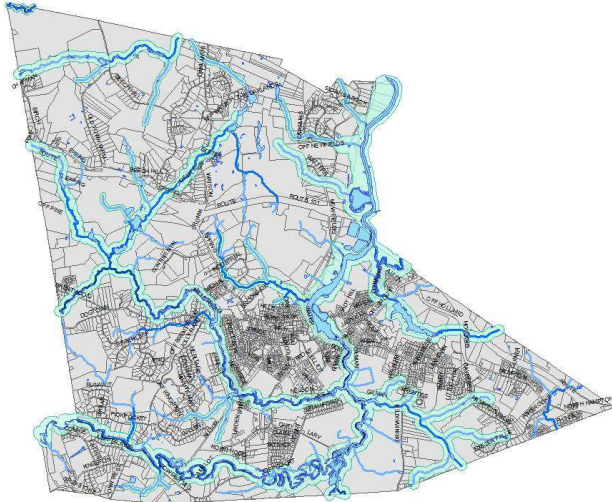
| Category | | Wastewater | | | | | | | | | Stormwater | | Land Use | | | | | | |
|--------------|-----------------------|-----------------|---------------------------------------|----------------|-----------------------|--|----------------------------|----------------------------|--------------------------------------|-------------------|---------------------------|-------------------------------|-----------------------------------|---------------------|----------------------|--|-----------------------------------|--|--|
| Parcel | Address | Zoning District | Residential, Commercial or Industrial | Sewered Parcel | Septic System Type | Septic System <200m from Surface Water | Septic System Install Year | Rebuilt, New or No Change? | Permitted Bedrooms for Septic System | Design Flow (GPD) | Structural BMPs Installed | Non-Structural BMPs Installed | Land Converted to Turf/Grass (SF) | Forest Removed (SF) | Wetlands Filled (SF) | Existing Impervious Cover Removed (SF) | New Impervious Cover Created (SF) | Amount of New Impervious Cover that is Disconnected (SF) | Land Converted to Agriculture Fields / Pastures (SF) |
| 016-005-0000 | 68 Old Town Farm Road | R-3 | Residential | No | Conventional | No | | No Change | - | - | - | - | - | - | - | - | 2,386 | - | - |
| 061-030-0000 | 11 Garrison Lane | R-1 | Residential | No | Conventional | No | | No Change | - | - | - | - | - | 2,578 | - | - | 2,578 | 2,578 | - |
| 072-070-0000 | 1 Franklin Street | C-1 | Mixed | Yes | - | - | - | - | - | 1,340 | - | - | - | - | - | - | 5,540 | - | - |
| 061-032-0000 | 19 Garrison Lane | R-1 | Residential | No | Conventional | No | 2018 | New | 4 | 600 | - | - | - | - | - | - | - | - | - |
| 097-031-0000 | 84 Kingston Road | R-1 | Residential | No | Advanced Enviroseptic | No | 2018 | Rebuilt | 3 | 450 | - | - | - | - | - | - | - | - | - |
| 058-036-0000 | 165 Brentwood Road | R-1 | Residential | No | Conventional | Yes | 2018 | Rebuilt | 3 | 450 | - | - | - | - | - | - | - | - | - |
| 035-003-0011 | 9 Walters Way | RU | Residential | No | Conventional | Yes | 2018 | Rebuilt | 4 | 600 | - | - | - | - | - | - | - | - | - |
| 104-071-0000 | 100 Linden Street | R-2 | Residential | No | Enviroseptic | No | 2018 | Rebuilt | 3 | 450 | - | - | - | - | - | - | - | - | - |
| 015-003-0001 | 1 Chapman Way | RU | Residential | No | Enviroseptic | No | 2018 | Rebuilt | 4 | 600 | - | - | - | - | - | - | - | - | - |
| 075-017-0031 | 8 Blackford Drive | R-1 | Residential | No | Advanced Enviroseptic | No | 2018 | Rebuilt | 4 | 600 | - | - | - | - | - | - | - | - | - |
| 098-012-0000 | 12 Pickpocket Road | R-1 | Residential | No | Conventional | Yes | 2018 | Rebuilt | 5 | 750 | - | - | - | - | - | - | - | - | - |
| Totals | | | | | | | | | 30 | 5,840 | 0 | 0 | 0 | 2,578 | 0 | 0 | 10,504 | 2,578 | 0 |

| | | |
|------|---|---------|
| Key: | | Unknown |
| | - | None |
| | # | Known |

Attachment 5
Education & Outreach

Healthy Lawns Clean Water

Opportunities to be Climate Resilient



Exeter's River and Stream Network

A Healthy System Is A Resilient One

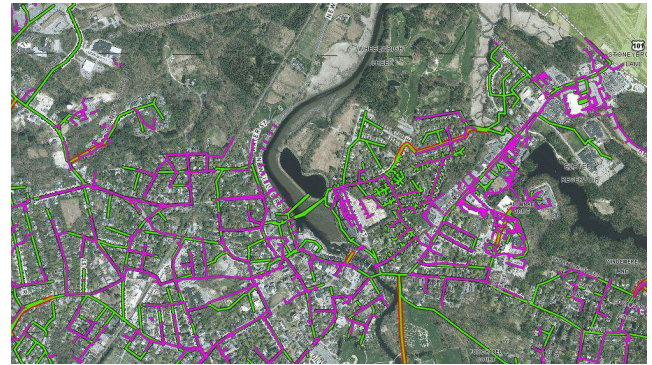
Just like people, when ecosystems are healthy, they are able to absorb stress and rebuild after a disturbance. Our committee is focused on maintaining a healthy watershed so we are more resilient to climate impacts.

Fresh and salt water rivers and streams traverse our Town from north to south, and west to east, and wetlands dot it's landscape. *Exeter residents as a result, play an important role in the watershed's health.*

We Are All Connected

Whether on the shore of a river or far inland, our businesses and homes have a direct connection to Exeter's water bodies through **STORMDRAINS** and our stormwater network.

When it rains, water flows across surfaces like lawns, roads, and driveways, picking up fertilizer, dirt and oils. *This pollution flows into storm drains and is deposited directly into our waterways.*



Exeter's Stormwater Network.

How Can You Help?

You play a KEY role in the health of Exeter's rivers and streams.

Nitrogen is a significant threat to the health of our water. You may be surprised to learn the largest sources of excess nitrogen result from unmaintained septic systems, excess or improper application of fertilizer, and pet waste.

Follow these easy steps to be a Climate Champion!

Regularly Maintain Your Septic System

Practice Water-Quality Friendly Lawn Care

Clean Up After Your Pet



Follow These 5 Steps For A Healthy, Natural Lawn That Keeps Our Rivers Clean

1. **Mow Higher.** Set mower blades at 3" for more vigorous roots.
2. **Let clippings lie.** Clippings are high quality, free fertilizer.
3. **Healthy Soil?** Test your soil for pH and organic matter.
4. **Water wisely.** Lawns need 1" of water per week from rain and/or irrigation.
5. **Still not satisfied with your lawn condition?** Visit www.exeterhealthylawnscleanwater.com for resources.

HEALTHY LAWNS CLEAN WATER



Exeter Conservation Commission

Working To Make Exeter Climate Resilient



Teaching SST Students to Test Water Quality



Our Monarch Butterfly "Story Walk"



Historic Tours of Raynes Barn

PERMANENT RESOURCE PROTECTION
THROUGH LAND CONSERVATION

MANAGING FOR DIVERSE FORESTS
THROUGH SELECTIVE HARVEST

MANAGING DEVELOPMENT THROUGH
OUR REGULATORY ROLE

COLLECTING WATER QUALITY DATA TO
TRACK LONG TERM TRENDS

MINIMIZING HABITAT LOSS THROUGH
INVASIVE PLANT MANAGEMENT

CREATING CONNECTIONS THROUGH TRAIL
MANAGEMENT AND PUBLIC EDUCATION

Get Involved!



Planting and Invasive Control



Leading Educational Programs



Stream Monitoring & River Clean -Up



Trail Maintenance and Blazing

What is the Town of Exeter doing to prepare for Climate Change?



Great Dam Removal 2016

The removal of Great Dam and restoration of the Squamscott River to a free-flowing state was a major undertaking. This effort will have water quality, aquatic habitat, improvements and will help to reduce upstream flooding during storm events.

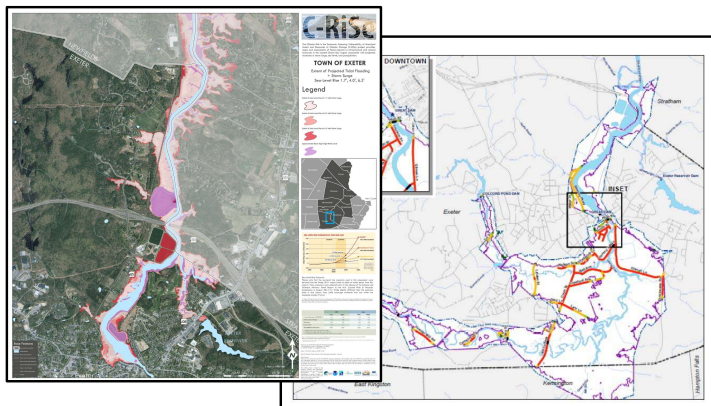
Diversifying Our Drinking Water Supply

The recent construction of the Larry Lane Groundwater Treatment Plant provides treatment for the Town of Exeter's three existing groundwater production wells. We also improved the river intake site along the Exeter River. Having the option of obtaining water from surface and ground water sources helps ensure a more stable water supply for Exeter's residents.



Waste Water Treatment Plant Construction

The upgrading of our wastewater treatment facility is, by all accounts a major undertaking. The new facility will have increased treatment capacity and will improve water quality by reducing the amount of nitrogen released to Great Bay. Want to learn more? We offer tours!



Modeling Climate Impacts

Recent reports such as the Climate Adaptation Plan for Exeter (CAPE) and Climate Risk in the Seacoast (C-Rise) help us to identify vulnerable areas subject to the altered sea level rise and storm surge.

All of these projects require community support by Exeter residents. The Town thanks its citizens for being such wonderful climate champions!



**WORLD FISH
MIGRATION DAY**



Saturday, April 28 10:00 – 11:00 AM

Exeter Great Dam Removal

Presented by:

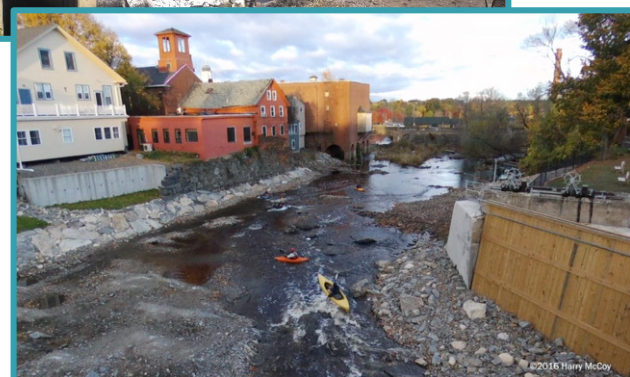
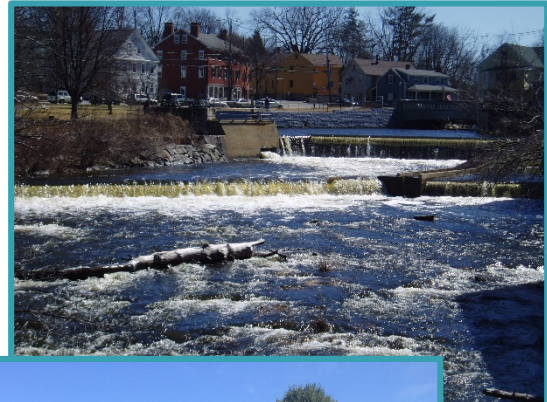
Sean McDermott, NOAA Fisheries Biologist

Michael Dionne, NH Fish and Game Biologist

Location: Founders Park, near Exeter Library. Contact Sean McDermott for more information: sean.mcdermott@noaa.gov, or 978-281-9113.

The Great Dam on the Exeter River was removed in 2016. For the first time since colonial days, the lower Exeter River flows free and migratory fish can access historical spawning habitat. This restoration did not come without great effort or lack of controversy.

Fisheries Biologists from New Hampshire Fish and Game and NOAA Fisheries Service will lead a site visit (from shore) and a discussion of the benefits and challenges of dam removal.



Follow These 5 Steps For A Healthy, Natural Lawn That Keeps Our Rivers Clean

1. **Mow Higher.** Set mower blades at 3” for more vigorous roots.
2. **Let clippings lie.** Clippings are high quality, free fertilizer.
3. **Healthy Soil?** Test your soil for pH and organic matter.
4. **Water wisely.** Lawns need 1” of water per week from rain and/or irrigation.
5. **Still not satisfied with your lawn condition?** Visit www.exeterhealthylawns-cleanwater.com for resources.



THINK BLUE EXETER

TOWN OF EXETER, NH

DO YOUR PART, BE SEPTIC SMART

It's Septic Smart Week: September 19-23, 2016

During Septic Smart Week, the EPA and the Town of Exeter encourage homeowners to get Septic Smart and take action. Proper Care and Maintenance of your septic system can prevent costly repairs and protect the environment. Malfunctioning septic systems release pollutants into the ground which eventually enter local waterways.

SEPTEMBER 2016

| SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY |
|--------|------------------------------------|--------------------------------|-----------------------------|-------------------------------------|--------------------------------|----------|
| | | | | 1 | 2 | 3 |
| 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 |
| 18 | 19 <i>Protect & Inspect</i> | 20 <i>Think at the Sink</i> | 21 <i>Don't Overload</i> | 22 <i>Don't Strain the Drain</i> | 23 <i>Shield your Field</i> | 24 |
| 25 | 26 | 27 | 28 | 29 | 30 | |

Day 1 - September 19: Protect & Inspect

Homeowners can save more than \$10,000 in repair and replacement costs if they have their septic system inspected at an average cost of \$200-\$350 at least every 3 to 5 years by a septic service professional.

Day 2 - September 20: Think at the Sink

Whether you flush down the toilet, grind it in the garbage disposal, or pour it down the sink, shower, or bath...what goes down the drain can have a major impact on how well your septic system works.

Day 3 - September 21: Don't Overload

Only put things in the drain or toilet that belong there. Things that DON'T belong in the drain include: coffee grounds, dental floss, disposable diapers or wipes, feminine hygiene products, cigarette butts and cat litter. These items can clog or damage septic systems.

Day 4 - September 22: Don't Strain the Drain

Efficient use of water and staggering water use can not only improve the operation of your septic system but also reduce the risk of failure as well.

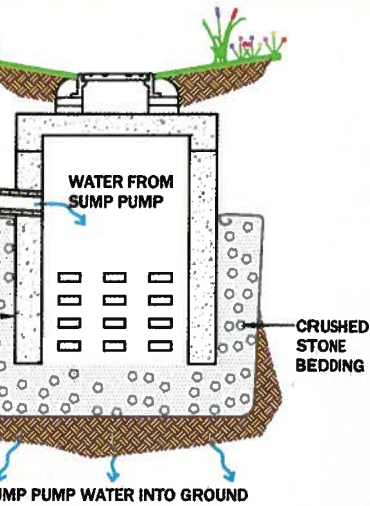
Day 5 - September 23: Shield your Field

What is placed on or around your drainfield—a component of your septic system that removes contaminants—matters.



U.S. Environmental Protection Agency

DISCHARGE OPTIONS



INFILTRATION BASINS



RAIN GARDENS



MUNICIPAL DRAIN SERVICES

TOWN ORDINANCE

Chapter 15 – Sewer Regulations

Article 1507.3C

No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof runoff, subsurface drainage, uncontaminated cooling water, or unpolluted industrial process waters to any sanitary sewer

Section 1501.8, Paragraph 6

No person shall make connection of roof downspouts, foundation drains, area drains, or other surface runoff or groundwater to a building sewer

WHAT YOU CAN DO TO HELP

Check to see if your home contributes I/I:

- Look for I/I connections yourself in your basement and on the outside of your house.
- Look for additional information that will be provided by the Town.
- Contact the Town by calling Matt Berube at 773-6157 to set up an appointment and check for I/I connections to the sewer or for more information.

Brochure produced by:
Public Works Department
13 Newfields Rd
603-773-6157

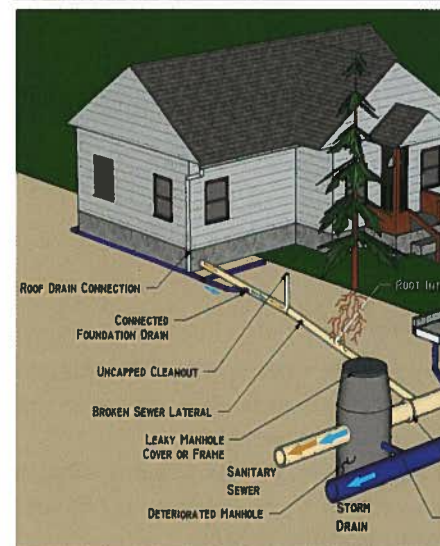


SUMP PUMP

REMOVAL

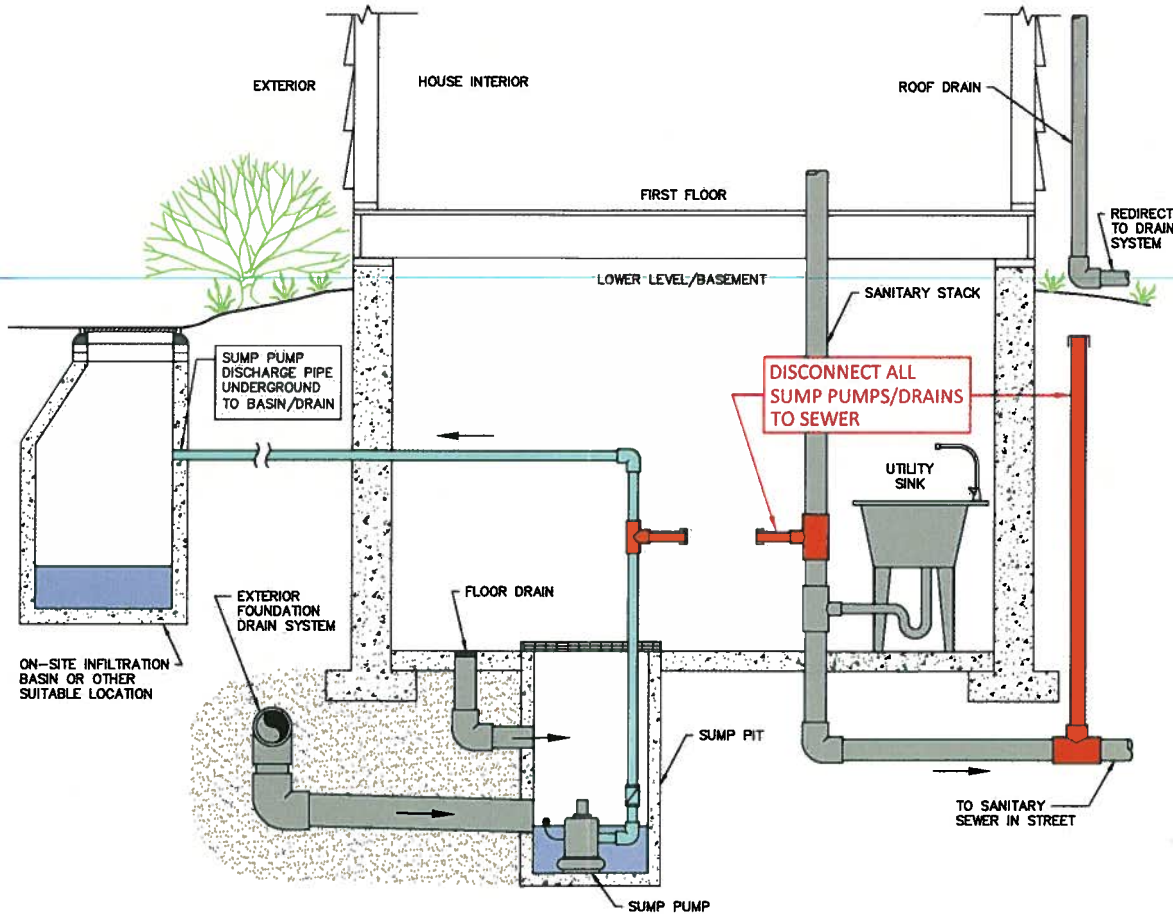
PROGRAM

*Includes roof leaders, floor drains, foundation drains, and other illicit connections



What is Infiltration and Inflow (I/I)?

I/I is clean water that gets into the sewer system and is treated at the wastewater treatment facility. Since the water is clean, it doesn't really need to be treated like sewage ("dirty" water) does. However, because it gets into the sewer system it is processed like sewage and treated. Treatment costs money (from ratepayers) and treating clean water is a waste of money and energy. Removing the clean water from the sewer system will reduce the costs of treatment and provides other benefits to the Town. *This brochure summarizes some of the important points you should know about I/I in your house and how you can help!*



Remove clean water connections to the sewer:

Disconnect any sump pumps or roof leaders from the sewer and discharge to a proper location.

Please Don't Direct Sump Pumps or Roof Leaders to the Street!



This can lead to icing and other maintenance issues

Preferred Discharge Locations include:

- On-site Infiltration Basin
- Rain Gardens
- Municipal Drain Service Lateral (if applicable)
- Surface Drainage Courses
(see reverse side for examples)

WHY IT'S A BIG DEAL

- Ratepayers pay to treat wastewater. It is estimated that 50% of the flow at the treatment facility is I/I and much of this I/I from private property.
- Too much I/I can overwhelm the sewer system and cause dirty water to overflow to the Squamscott River (called a combined sewer overflow (CSO)).
- Treating I/I at the wastewater treatment facility leaves less space for treating sewage and requires capital improvements to treat these higher flows.
- I/I from private property violates The Town's Sewer Use Ordinance. For more info go to www.town.exeter.nh.us/sewer.

**Also...spread the word
Tell a neighbor or a friend
about the Sump Pump Program.**

The Hidden COST



A recent survey shows that towns have spent an average of **\$40,500** dealing with unflushable items in sewer systems.



The replacement cost of a typical residential leach field is **\$6,000-15,000**



29 Hazen Drive, Concord, NH 03301
des.nh.gov
(603) 271-3571

What's FLUSHABLE?



What's FLUSHABLE?

The DO NOT FLUSH List:

A toddler will tell you that *everything* is flushable... but what you *think* is flushable could be costing you money!

Product labels can be misleading. Some items that claim to be "flushable" can clog sewer and septic systems and can end up costing you a pretty penny.

"Flushable" does NOT mean it is SAFE for your septic system or sewer.

"Disposable" items ARE NOT flushable and should be placed in the trash.

The bottom *line*:
ONLY

Human waste and toilet paper
ARE FLUSHABLE

Diapers
Cigarettes
Paper Towels
Cotton Swabs
Tampons



Condoms
Dental Floss
Facial Tissues
Wipes




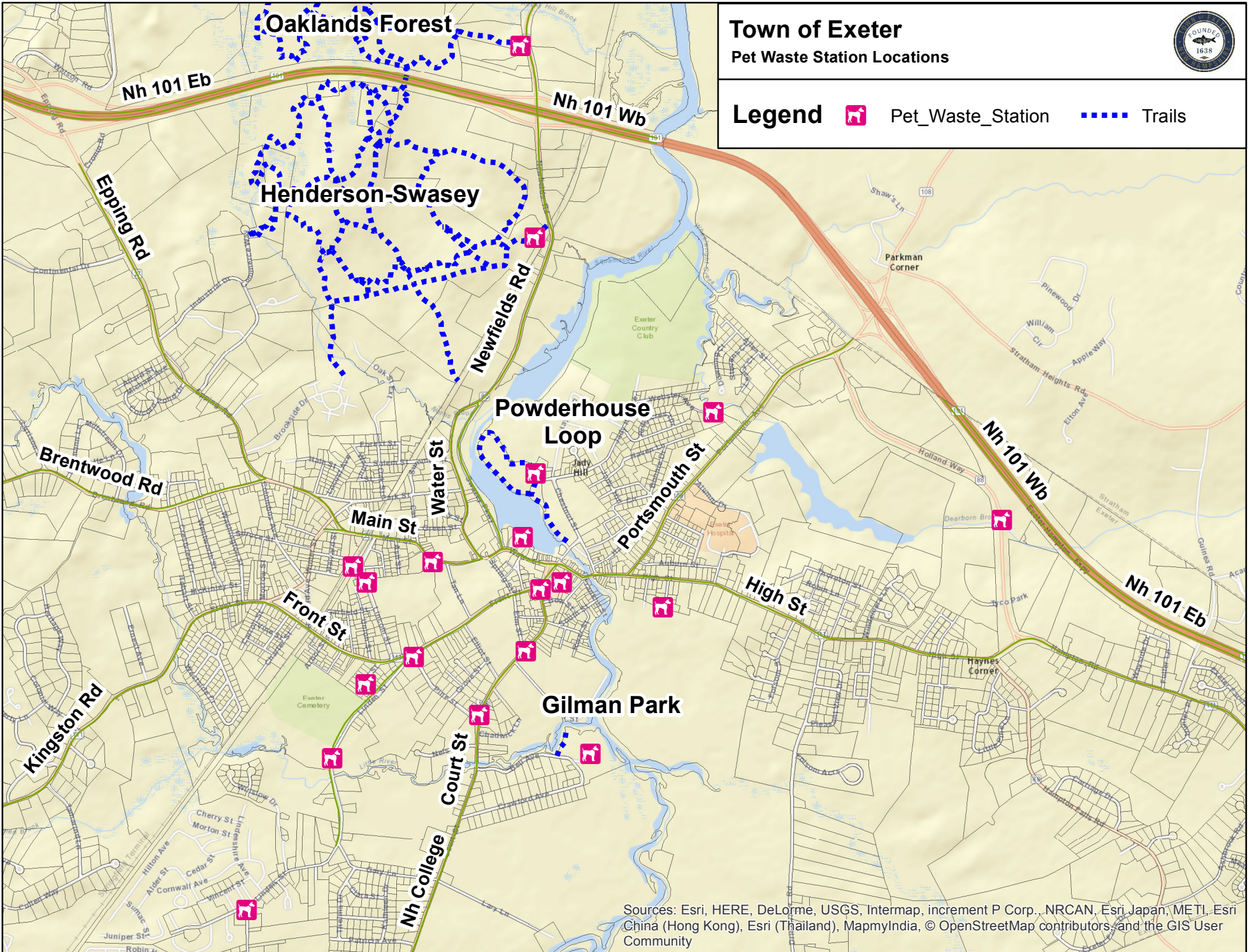
Attachment 6
Pet Waste Station Location Map

Town of Exeter

Pet Waste Station Locations



Legend  Pet_Waste_Station  Trails



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Attachment 7
PTAPP Reports for Public
Works Activities

Exeter Municipal Report (2019-01-01 - 2019-01-31)

Impervious Cover Management Table

| Structural BMP | Impervious Cover Managed | Runoff Volume Storage at Design Capacity (ft ³) | Design Storm Depth (") | Infiltration Rate (in/hr) | Report of Origin |
|---|--------------------------|---|------------------------|---------------------------|--------------------------------------|
| Infiltration Trench | 0.16 | 230.00 | 0.5 | 0.52 | DPW Maintenance 2018 |
| Total Impervious Cover (acres) | 0 | | | | |
| Total Management (acres) | 0.16 | | | | |
| Effective Impervious Cover (acres) | -0.16 | | | | |

BMP List Table

| Structural BMP | Infiltration Rate (in/hr) | Impervious Cover Managed | Design Storm Depth (") | Instance Count |
|---------------------|---------------------------|--------------------------|------------------------|----------------|
| Infiltration Trench | | | | |
| | 0.52 | 0.16 | 0.5 | 1 |

BMP Summary Table

| Structural BMP | IC Managed (acres) | # of BMPs |
|---------------------|--------------------|-----------|
| Infiltration Trench | 0.16 | 1 |
| Totals | 0.16 | 1 |
| Total EIC | -0.16 | |

Impervious Cover Management Table - Non Structural BMPs

| Non Structural BMP | Amount | Description | Report of Origin |
|--|---------|--|--------------------------------------|
| Catch Basin Cleaning (# basins) | 561.00 | catchbasins cleaned June 2018 | DPW Maintenance 2018 |
| Street Sweeping (# street-miles) | 1400.00 | Lane-miles swept from February through November 2018 | |
| Leaf Collection Composting Program (frequency of collection) | 2.00 | May and November 2018, residents are allowed to have up to 12 bags of leaves picked up. The transfer station also accepts yard waste all year. | |
| Fertilizer Control Program | 1.00 | updates to fertilizer ordinance | |
| Pet Waste Pickup Program | 19.00 | # of pet waste stations (bags and receptacles) owned and maintained by the town | |

Impervious Cover Management Summary Table - Non Structural BMPs

| Non Structural BMP | Amount |
|--|--------|
| Catch Basin Cleaning (# basins) | 561 |
| Fertilizer Control Program | 1 |
| Leaf Collection Composting Program (frequency of collection) | 2 |
| Pet Waste Pickup Program | 19 |
| Street Sweeping (# street-miles) | 1400 |

Attachment 8
Lincoln Street Subwatershed
Nutrient Control Strategies
Report

Phase 1 and Phase 2: Lincoln Street Subwatershed Nutrient Control Strategies

Incentivizing Resiliency Through Implementation Plans in One of Coastal New Hampshire's Fastest Growing Communities

FINAL REPORT – MARCH 2018



Project:

Water Integration for Squamscott-Exeter (WISE) Integrated Plan

Prepared for:

Town of Exeter, New Hampshire

Prepared by:

Waterstone Engineering and the Rockingham Planning Commission

Funded by:

NOAA Office for Coastal Management
NH Coastal Program



Phase 1 and Phase 2: Lincoln Street Subwatershed Nutrient Control Strategies

Incentivizing Resiliency Through Implementation Plans in One of Coastal New Hampshire's Fastest Growing Communities

FINAL REPORT -- MARCH 31, 2018



Project:

Water Integration for Squamscott-Exeter (WISE) Integrated Plan

Prepared for:

Paul Vlasich, PE, Exeter Public Works
13 Newfields Road, Exeter, NH 03833

Prepared by:

Robert Roseen, PE, PhD,
Jake Sahl, MS
Waterstone Engineering

Julie LaBranche
Rockingham Planning
Commission

Phase 1 Funded by:

Sally Soule, Grant Manager
NH Coastal Program, NHDES

Phase 2 Funded by:

Nathalie Morison
Coastal Resilience Specialist
NH Coastal Program, NHDES

*Support for this project was provided by the National Oceanic and Atmospheric Administration
Office for Coastal Management pursuant to the Coastal Zone Management Act of 1972 in
conjunction with the NH Department of Environmental Services Coastal Program, as a FY2016
Project of Special Merit Grant, Award # NA16NOS4190157*



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ACRONYMS

| | |
|---------|--|
| AOC | Administrative Order on Consent |
| BMP | Best Management Practice |
| CAP | Climate Adaptation Policy |
| CSO | Combined Sewer Overflows |
| CIP | Capital Improvement Plans |
| CWA | Clean Water Act |
| EPA | United States Environmental Protection Agency |
| GBNNPSS | Great Bay Nutrient Nonpoint Source Study |
| GI | Green Infrastructure |
| HAZUS | Hazards U.S. |
| HRU | Hydrologic Response Unit |
| I/I | Inflow and Infiltration |
| IP | Integrated Planning |
| LID | Low Impact Development |
| MEP | Maximum Extent Practicable |
| MS4 | Municipal Separate Storm Sewer System |
| NHDES | New Hampshire Department of Environmental Services |
| NLM | Nitrogen Load Model |
| NPDES | National Pollution Discharge Elimination System |
| NPS | Nonpoint source pollution |
| NRCS | Natural Resources Conservation Service |
| O&M | Operations and Maintenance |
| ORIWMP | Oyster River Integrated Watershed Management Plan |
| PREP | Piscataqua Region Estuaries Partnership |
| PTAPP | Pollution Tracking and Accounting Pilot Program |
| ROW | Right-of-way |
| SSO | Sanitary Sewer Overflow |
| SWMM | EPA Stormwater Management Model |
| TMDL | Total Maximum Daily Load |
| TN | Total Nitrogen |
| UNH | University of New Hampshire |
| WISE | Water Integration for the Squamscott-Exeter |
| WLA | Waste Load Allocation |
| WQRP | Water Quality Response Plan |
| WWTF | Wastewater Treatment Facility |

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Phase 1

The Phase 1: Lincoln Street Subwatershed Nutrient Control Strategies, Water Integration for Squamscott-Exeter (WISE) was funded, in part, by NOAA's Office for Coastal Management under the Coastal Zone Management Act in Conjunction with the NH Department of Environmental Services Coastal Program. We would also like to acknowledge and express our gratitude to all those who participated in the development of this phase of the report.

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Phase 2

The Phase 2: Incentivizing Resiliency Through Implementation Plans in One of Coastal New Hampshire's Fastest Growing Communities, Water Integration for Squamscott-Exeter (WISE) was funded, in part, by the National Oceanic and Atmospheric Administration as a FY2016 Project of Special Merit Grant, Award # NA16NOS4190157. We would also like to acknowledge and express our gratitude to all those who participated in the development of this phase of the report.

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The final report and full appendices can be downloaded at the Rockingham Planning Commission <http://www.rpc-nh.org/regional-community-planning/climate-change/exeter-resilience>

EXECUTIVE SUMMARY



What is the Lincoln Street Subwatershed Nutrient Control Strategies Report?

This report presents information from two projects, the *Lincoln Street Subwatershed Nutrient Control Strategies (Phase 1)*, and *Incentivizing Resiliency Through Implementation Plans in One of Coastal New Hampshire's Fastest Growing Communities (Phase 2)*, of the *Water Integration for Squamscott-Exeter (WISE) Integrated Plan* (hereafter, 'the Plan'). The projects (conducted from 2016-2018) build upon recommended activities detailed in the Plan which will help satisfy permit requirements for wastewater and stormwater management and increase climate resiliency for municipal drainage infrastructure.

This project provides a plan and design to support the Lincoln Street Capital Improvement Plan for Utilities and Road Reconstruction. The capital project is based on a Complete Streets approach that balances mobility and safety for all users while creating a healthier place – socially, environmentally, and for the local economy. A Complete Streets approach combines the use of green infrastructure with attractive public spaces for the community and local businesses to help reduce nitrogen and flooding from stormwater runoff. This project conducted watershed planning and designs for green infrastructure strategies in the Town's largest subwatershed for use in future CIP, and grant program applications. The project uses recommendations from the 2015 Integrated Plan and involved priority sites with the highest pollutant load that discharge directly to the Squamscott-Exeter River.

Phase 1 of the project has four primary objectives:

1. Increasing municipal capacity to identify and implement feasible and cost effective nutrient control strategies by beginning the implementation of the WISE Integrated Plan through the use of Plan recommendations and best management practice (BMP) sizing tools.
2. Reduce nitrogen load from a series of BMPs throughout the Lincoln Street subwatershed.
3. Increase climate resiliency by reducing flooding through installation of BMPs.
4. Development of construction-ready green infrastructure designs for inclusion in future capital improvement projects in Exeter's largest subwatershed.

Phase 2 of the project has three primary objectives:

1. Achieve municipal capacity building around planning for climate change and flood events.
2. Implement public outreach and communication to build support for and understanding of adaptation planning including economic considerations.
3. Advance green infrastructure, low-impact development, and other effective means of adaptation implementation for flood damage avoidance.

Why Nutrient Control Planning?

New Hampshire coastal communities have experienced rising populations resulting in an increase in development in point source and non-point source nitrogen loads. As communities respond to new federal permit requirements for treating and discharging stormwater and wastewater, meeting regulatory requirements requires innovative ways to find effective and affordable means to meet water quality goals. Integrated Planning allows flexibility in permitting of wastewater and stormwater controls to plan for the most cost-effective measures first while still meeting regulatory standards that protect public health and water quality. It encourages the use of green infrastructure which manages stormwater as a resource, and supports other economic and quality of life benefits. Integrated planning is being shown to have great cost-efficiencies through the comprehensive management of wastewater, stormwater and nonpoint sources.

Why Incentivize Resiliency?

Building community awareness about stormwater flooding, water quality issues, and being adaptable and resilient brings with it the nuances of effective communication methods and strategies. Complex concepts are often challenging for the lay person to comprehend and identify in their own life experience without targeted repetitive exposure and messaging. In the case of the Lincoln Street watershed, several distinct and diverse populations live, work and play in a relatively small geographic area but rarely interact or share common activities or space. Proactive strategies can be identified and implemented that address the impacts of coastal hazards and climate change to create a more sustainable and resilient community. To effect change means to bring about a different state or condition. Incentivizing changes in behavior, attitude or technical capacity around resiliency is a challenging task. Different audiences respond to different messages depending on their age, beliefs, attitudes, education and social position. A person's degree of "social or community capital" can also influence their behavior and choices as being connected to social networks and community often fosters collective actions and collaboration. Local survey results indicate that many communities have adopted proactive actions to address the impacts of climate change and the benefits of resiliency planning, and that informing local land use boards and commissions and decision makers is important and beneficial. An integral component of a community resilience strategy includes the adoption of a guiding policy document. This project developed a draft Climate Adaptation Policy for Exeter which lays out the following vision, purpose, goals and implementation actions to guide the community.

Major Findings

- The total annual nitrogen load from the entire Lincoln Street watershed is 1,265 pounds from 179 acres.
- Installation of BMPs 1, 2, 3, 4, 5, 7, 8 and 9 is expected to reduce this load by 691 pounds annually, a 76% reduction.
- The BMP unit cost performance averaged \$1,000 and ranged from \$498 - \$5,080 per pound of nitrogen, and is estimated to be \$1,200 for the new Exeter facility at \$3 mg/L.
- Flood reductions are estimated at 60% for the current 10-YR storm and 50% for the future 2040 storm with 9.21 ft of storm surge.
- These activities address requirements of EPA's 2017 NH Small MS4 General Permit for stormwater for nitrogen source identification reporting, and BMP optimization and prioritization.
- A cost impact analysis evaluated the flood damage avoidance potential with green infrastructure.
- The estimated flood loss from a current 10-YR storm is \$6.11 million or \$3.43 million with green infrastructure, a 51% reduction.
- The total estimated cost to implement green infrastructure at these 14 locations is \$689,000 and manages 179 acres.
- The flood reduction benefit is from small sized BMPs with a 0.5" water quality volume.