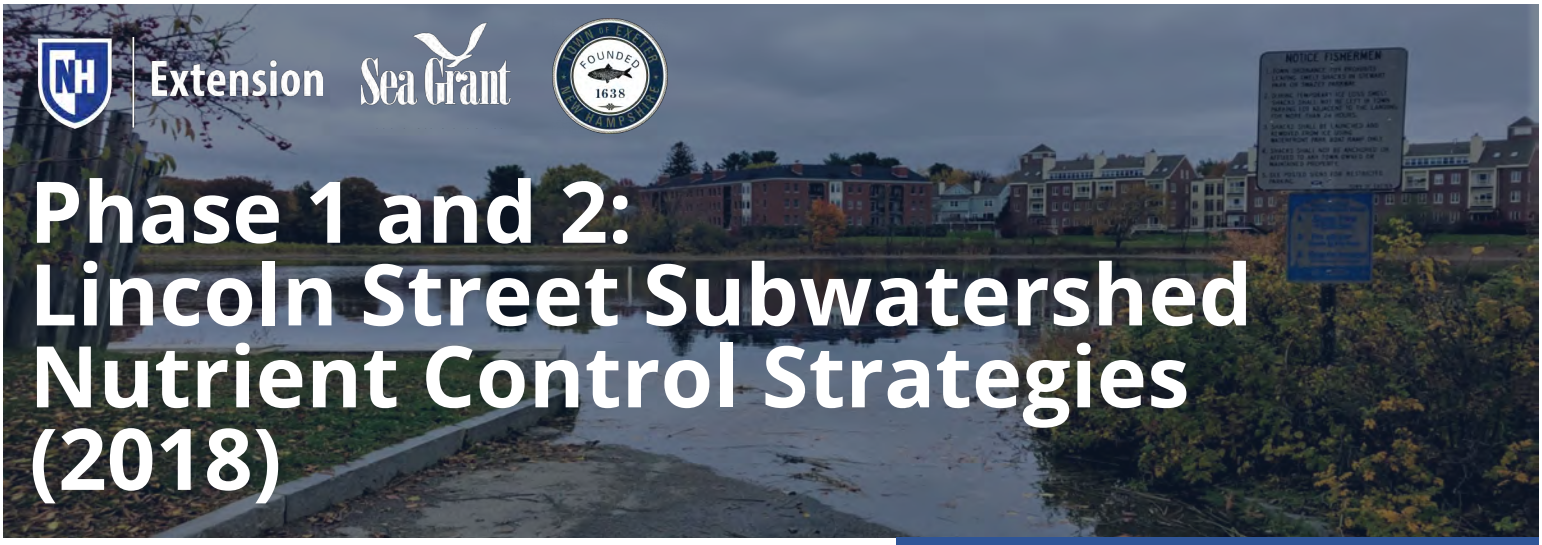


Phase 1 and 2: Lincoln Street Subwatershed Nutrient Control Strategies (2018)

Summary:

- Builds off WISE (Watershed Integration for Squamscott Exeter) initiative for integrating wastewater and stormwater permit compliance.

  Phase 1: Permit Compliance Focused
  - Identifies Best Management Practices (BMP)/Green Infrastructure (GI) opportunities for Stormwater Management in this watershed, calculates respective nitrogen load and flood reduction and evaluates cost/benefits
  - Develops GI designs for future capital improvement projects (CIP) in the Lincoln Street subwatershed (largest in Exeter)

Phase 2: Outreach Focused
  - Watershed Alliance Member Survey on Climate Resiliency
  - BMP outreach materials emphasizing climate resiliency benefits (Appendix A)
  - Water Trail Sign design/installation for stormwater education (Appendix B)
  - Model Climate Adaptation Policy for Exeter identifies goals and implementation actions to build resilience to current and future climate risks, including municipal policy, infrastructure management, natural resource protection, land use planning, and community engagement (Appendix C)

Keywords:

- Wastewater permit
- Stormwater permit
- Stormwater outreach
- Green infrastructure
- Best management practices
- Flood reduction
- Nutrient removal

Key Points:

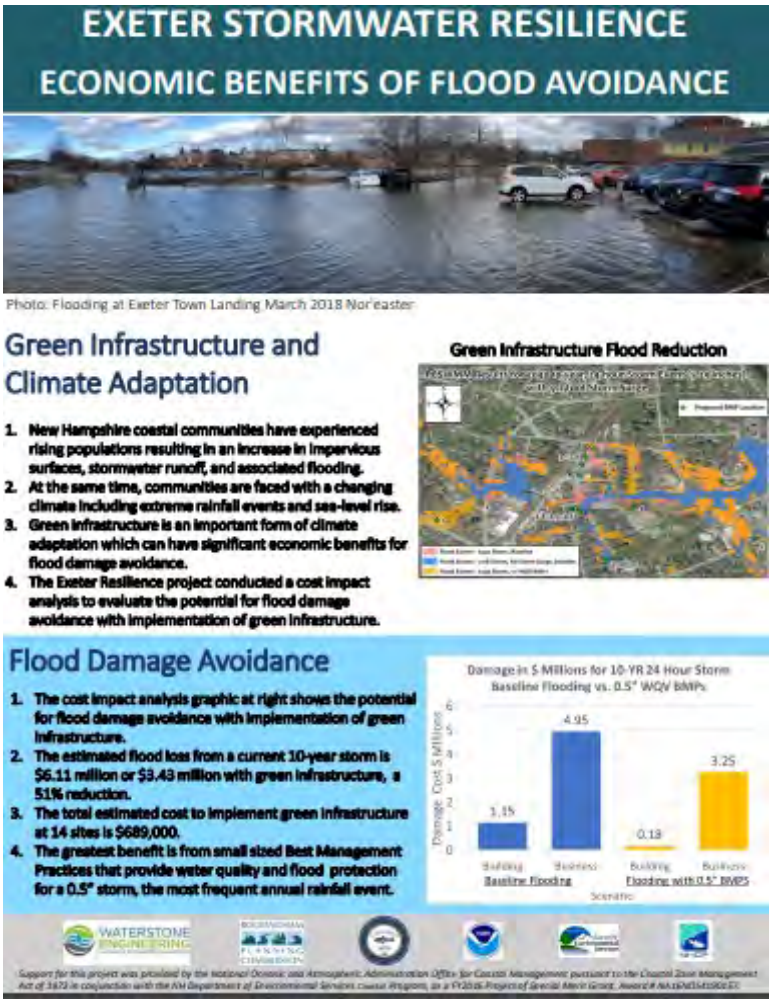
- Greatest nitrogen load comes from the Lincoln Street watershed (largest in town)
- Installing BMPs would reduce flood losses by 51%
- Factsheets: Climate Adaptation Policy, Stormwater Retrofit Opportunities, Economic Benefit of Flood Avoidance, Flood Reduction from Green Infrastructure, Water Trail

How to Use Lincoln Street Phase 1 & 2:

- Engineered designs and cost analysis can inform Exeter's CIP process to aid implementation.
- Factsheets for BMPs serve as informational resources applicable to any watershed.
- Climate policy adoption can inform steps a more resilient community.

Link to Exeter Climate Resources Page with Lincoln Street Project Report and Appendices

Sample Factsheets (see Appendix A):



EXETER STORMWATER RESILIENCE

ECONOMIC BENEFITS OF FLOOD AVOIDANCE

Photo: Flooding at Exeter Town Landing March 2018 Nor'easter

Green Infrastructure and Climate Adaptation

1. New Hampshire coastal communities have experienced rising populations resulting in an increase in impervious surfaces, stormwater runoff, and associated flooding.
2. At the same time, communities are faced with a changing climate including extreme rainfall events and sea-level rise.
3. Green infrastructure is an important form of climate adaptation which can have significant economic benefits for flood damage avoidance.
4. The Exeter Resilience project conducted a cost impact analysis to evaluate the potential for flood damage avoidance with implementation of green infrastructure.

Green Infrastructure Flood Reduction

Flood Damage Avoidance

1. The cost impact analysis graphic at right shows the potential for flood damage avoidance with implementation of green infrastructure.
2. The estimated flood loss from a current 10-year storm is $6.11 million or $3.43 million with green infrastructure, a 51% reduction.
3. The total estimated cost to implement green infrastructure at 14 sites is $689,000.
4. The greatest benefit is from small sized Best Management Practices that provide water quality and flood protection for a 0.5" storm, the most frequent annual rainfall event.

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 FY2018 Projects of Special Merit Grant, Award # NA18NOS4190151

Exeter Climate Adaptation Policy

VISION FOR THE FUTURE *"Proactive strategies are identified and implemented that address the impacts of climate change to create a more sustainable and resilient community."* The purpose of a ***Climate Adaptation Policy (CAP)*** is to guide local decision making and investment in climate adaptation and implementation actions.

CLIMATE ADAPTATION POLICY GOALS

Ensure the community is better prepared to protect the security, health and safety of its citizens.

Protect natural resources from the impacts of flooding from sea-level rise and storm events.

Provide for a stable and viable economic future.

Minimize the future costs of infrastructure replacement and maintenance.

Support installations of renewable energy systems and electric vehicle charging stations.

IMPLEMENTATION ACTIONS - FOCUS AREAS

- *Municipal Policy and Actions*
- *Management and Investment*
- *Environment-Natural Resources*
- *Regulatory and Land Use Planning*
- *Community-Based*

Exeter Water Trail

The Exeter Water Trail is an educational installation on the campuses of the Main Street Elementary School and Lincoln Street Elementary School. The Trail consists of a series of five signs located at various landscape features that illustrate concepts relating to water. Topics such as stormwater runoff, water quality, flooding, watersheds and the water cycle are displayed in brightly colored graphic images and narrative explanations.

Explore How Water Works

Learn about water! It's everywhere – above ground and below ground!

Report Authors: Rockingham Planning Commission and Waterstone Engineering
Photo Credit: Jonas Procton; Kristen Murphy

The development of this factsheet was made possible, in part, by funding from NOAA's Office for Coastal Management under the Coastal Zone Management Act in conjunction with the NH Department of Environmental Services Coastal Program.

NHDES

New Hampshire Coastal Program