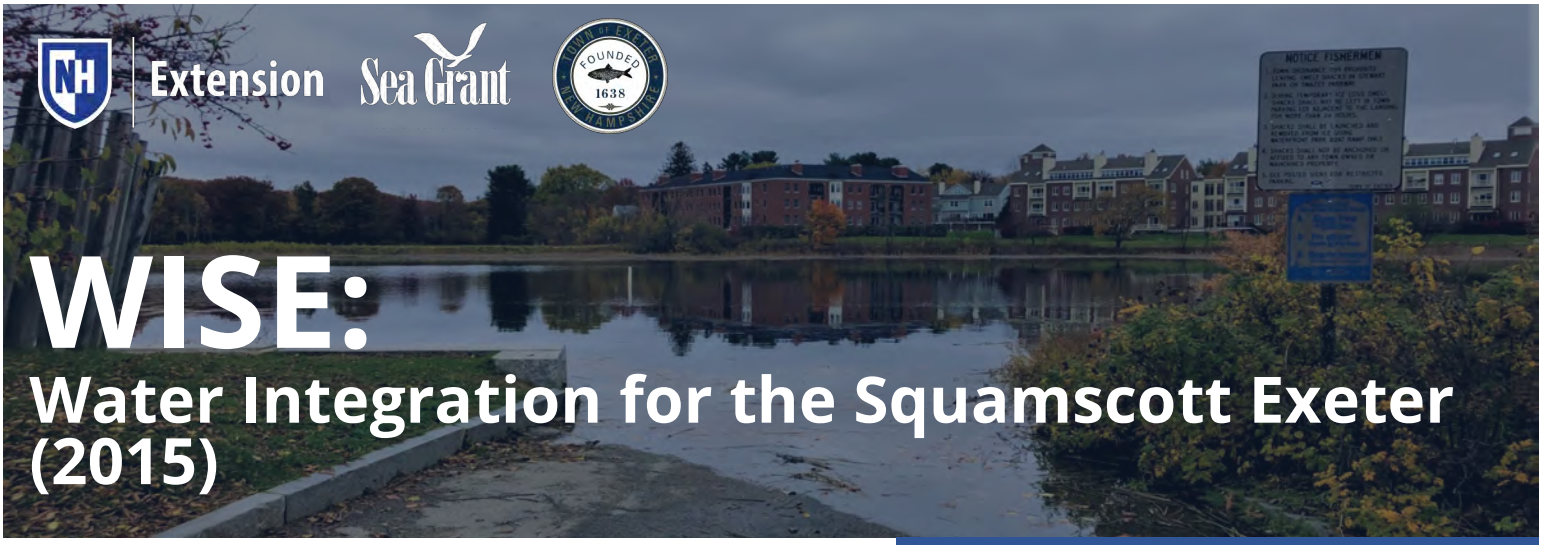

WISE:
Water Integration for the Squamscott Exeter (2015)

Summary:

The WISE project used an integrated Planning framework for Exeter, Stratham, and Newfields to provide recommendations for affordably managing federal permits for wastewater and stormwater. The framework was prepared to guide an integrated approach for permit compliance but components can also guide individual town approach.

Keywords:

- MS4
- Wastewater
- Stormwater
- Impervious cover
- N load
- Watershed planning
- Nutrient control measures
- Green infrastructure
- LID
- Administrative Order of Consent (AOC)

Key Points:

- The Squamscott River has a total nitrogen concentration is 0.77 mg/L (more than 2x the EPA's 2013 draft permit criteria) and has lost 100% of the eelgrass cover since 1948.
- Integrated Planning approach satisfies elements of both the MS4 and wastewater permits, reduces existing nitrogen loads by 60% and was estimated to provide 50% cost avoidance from individual permitting for the three communities.
- Communities of Exeter, Stratham and Newfields contribute ~50% of the Nitrogen Load from 24% of the watershed area, leaving 50% coming from upstream unpermitted communities.
- Appendix A includes educational information on Green Infrastructure (GI) designs, design constraints, applicable land use, fact sheets, case studies, cost effectiveness.
- Appendix D identifies priority areas for monitoring water quality.
- Appendix E includes a map of properties with septic systems in Squamscott/Exeter Watersheds.
- Appendix J provides GI maintenance checklists.

How to Use WISE:

- Opportunities are recommended for collaboration between towns to collaborate between towns in order to achieve permit compliance, including cost-analysis to help prioritize actions.
- Provides a good overview of the MS4 and wastewater permits.
- Includes data that supports many of our zoning regulations including shoreland buffers and impervious surface limits and stormwater requirements.
- Green infrastructure design constraints, land use applications and nutrient efficiencies can help when reviewing development applications.
- The map of septic systems could aid in targeting an outreach program to address nitrogen contributions that result from aging or unmaintained septic systems and could inform groundwater intrusion risk analysis.
- Nutrient control measures by user type can inform outreach to residents and commercial/industrial/institutional users.

Link to Exeter Climate Resources Page with WISE Report and Appendices

Example Maps & Figures:

Build Green Infrastructure at Public Facilities

FACT SHEET #3

Municipal buildings, libraries, public parking lots, schools, community centers and parks offer opportunities for highly visible green infrastructure retrofits. Projects can be undertaken as part of the capital improvement process, ideally in conjunction with other needed maintenance such as building additions and modifications, repaving, re-landscaping, or infrastructure repair or replacement. Green infrastructure offers the following benefits:

- Reductions in impervious area
- Infiltration of runoff from paved areas and rooftops
- Public education opportunities (signage)
- Shade when trees are used
- Wildlife habitat
- Welcoming area
- Creation of park-like areas

GREEN INFRASTRUCTURE OPPORTUNITIES

Permeable pavement	Choose permeable pavement for areas with low volume traffic, such as parking stalls, fire lanes, sidewalks, medians, and alleys.
Flow-through planters	Install fully-lined flow-through planters at the foot of buildings to slow the flow of runoff from rooftops to the storm drain system.
Bioretention	Replace paved and gravel areas between the curb and sidewalk, in parking islands and medians, and parking aisles with shallow depressions planted with low-maintenance vegetation.
Trees	Plant trees or install tree boxes in the right-of-way between the curb and sidewalk, in curb bump-outs, in medians or roundabouts, and in landscaped areas to provide shade and improve aesthetics.
Rainwater harvesting	Install cisterns and rain barrels to collect runoff from roof downspouts for nonpotable reuse (e.g., irrigation, wash water).
Reduce impervious area	Convert unused parking to open space or bioretention. Replace pavement in medians and traffic islands with vegetation.

This bioretention area captures stormwater and enhances the beauty and wildlife value of the landscape.
Photo credit: Robert Domm Photography

Table 4-2. Matrix of structural nutrient control measures by land use

CATEGORY		COVER TYPE	STRUCTURAL NUTRIENT MANAGEMENT MEASURES									
			Wet Pond	Gravel Wetland	Subsurface Infiltration	Sand Filter	Biofiltration	High Efficiency Biofiltration	Tree Pits	Raingarden	Dry Well	Permeable Pavement
LAND USE	Residential	Pervious						•		•	•	
		Impervious						•		•	•	
		Roof						•		•	•	
	Residential Subdivision	Pervious					•	•				
		Impervious					•	•				•
		Roof					•	•			•	
	Commercial/ Industrial/ Institutional	Pervious	•	•	•	•	•	•	•			
		Impervious	•	•	•	•	•	•	•			•
		Roof			•		•	•			•	
	Road/ Freeway	Impervious	•	•			•					
	Outdoor/ Other Urban Land	Pervious		•	•	•	•	•	•			
		Impervious		•	•	•	•	•	•			•

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Photo Credit: Jonas Procton; Alyson Eberhardt

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NHDES

New Hampshire Coastal Program