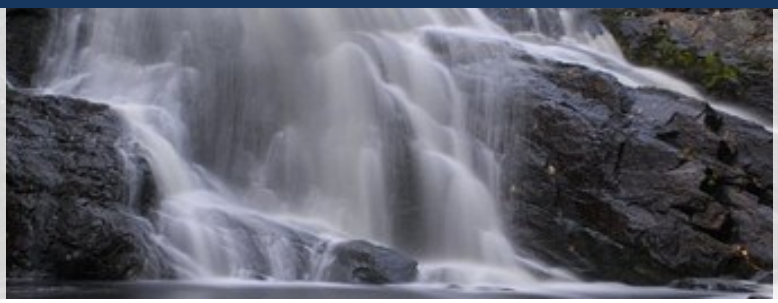
Water Infrastructure

A DISCUSSION
GUIDE



Nashua Regional Planning Commission

This discussion guide highlights drinking, storm and waste water issues prevalent in the Nashua region and is framed around the topics of public investment in infrastructure, regulations and education.

Public Investment:

Investment in infrastructure systems extends beyond drinking water, stormwater and sewer systems and also includes green infrastructure, protection of source waters and natural resources. How will the region balance repairs to aging infrastructure and new infrastructure needs with limited resources? How do we adequately protect natural resources to meet future water needs? What are our challenges to managing nonpoint source pollution? Where does septage in the region go and what are the capacity needs into the future?

Drinking Water: Drinking water in the Nashua Region comes from private wells, public water systems and surface water systems. The communities in our region vary in water quantity needs due to population distribution. How can we collaborate and pool resources to meet the needs of the region?

Storm Water: Many of the communities in our region are required to comply with new federal storm water requirements (known as MS4 permits), making storm water infrastructure needs increasingly urgent. Additionally, severe storms have become more common in the region in recent years. Innovative storm water management practices, such as the Soak Up the Rain program, are being undertaken on NH waters including on Baboosic Lake. How can our region mitigate storm water effects for changing storm patterns? How can the region best pool its resources to provide storm water education materials and consistent public outreach efforts?

Wastewater: Wastewater products are an interesting source of fertilizer in our region. Local products from the Merrimack Waste Water Treatment Facility have been used to fertilize areas like the Boston Common and Central Park in New York. How can our region provide innovative waste water products and meet the growing needs of our region while balancing increasing costs? What is the current status of combined sewer overflows in our region and how does that affect local water quality in the Nashua area?

Regulation:

Drinking water and aquifer protection ordinances are tools to protect source waters such as wellhead protection areas and highly transmissive aquifers. Do we have policies that insure access to clean water in the event of an emergency? How do our regulations support or affect the local economy? Where is water quality data available? Are there any local volunteer water quality monitors? In the absence of statewide monitoring for private wells, should communities require testing through local ordinances?

Education:

Public education is essential to help gain community support to maintain water resources and reduce potential for contamination. Coupled with other voluntary measures, outreach efforts can help implement local regulations. What forms of education and promotion techniques are most effective? Is signage such as those for Drinking Water Protection Areas or reduced salt areas effective? How should we provide information on water resource protection to commercial users, farms, local industry and homeowners?

Drinking Water Infrastructure

$1,713,000,000

Projected water distribution costs in NH, 2010-2030 [1]

$101,094,720

Combined waste and storm water needs in NRPC Region [2]

36 %

Share of NH residents who use private wells for drinking water [3]

Sources
1. Wright-Pierce, Drinking Water Needs Assessment, NHDES
2. (2012 Preliminary Needs by Town and Category.xls, NHDES)
3. Drinking Water Primer, NHDES

Storm Water Infrastructure

80 %

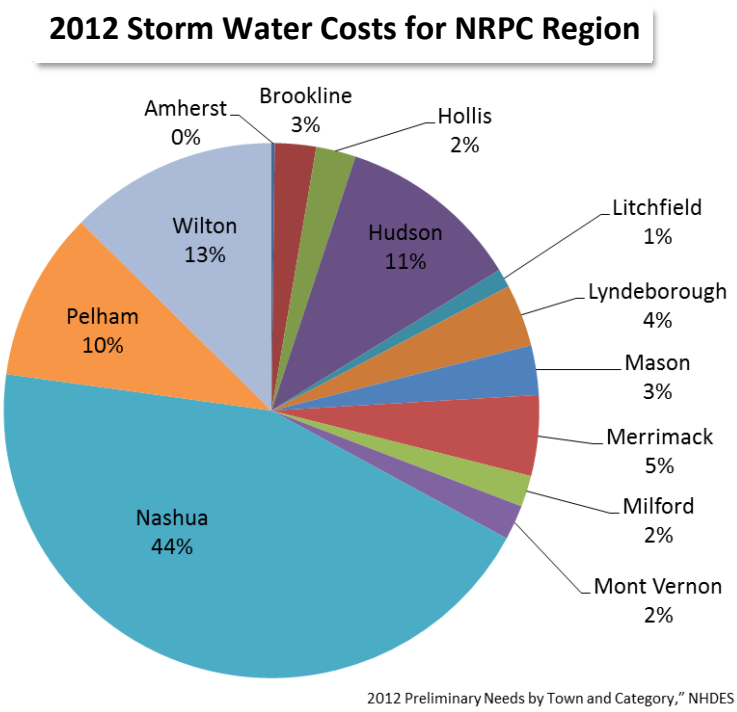
Percent of water quality problems in NH attributable to storm– and water-water runoff [4]

$20,209,483

Storm water infrastructure needs across NRPC Region [5]

Photo by Jillian McCarthy, NH DES

Sources
4. (2012 Preliminary Needs by Town and Category.xls, NHDES)
5. NH Lives on Water, 2012



2012 Preliminary Needs by Town and Category," NHDES

Waste Water Infrastructure

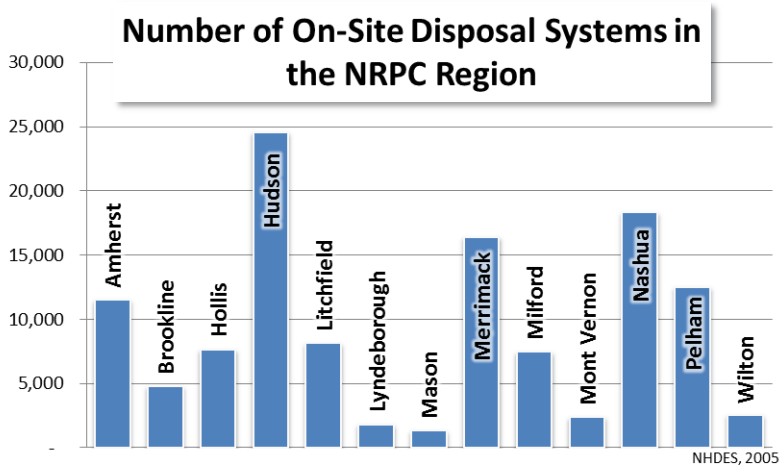
$80,885,237

Total cost of new waste water treatment, CSO's, new sewer, and sewer abatement needed in the NRPC region [6]

Digester Power

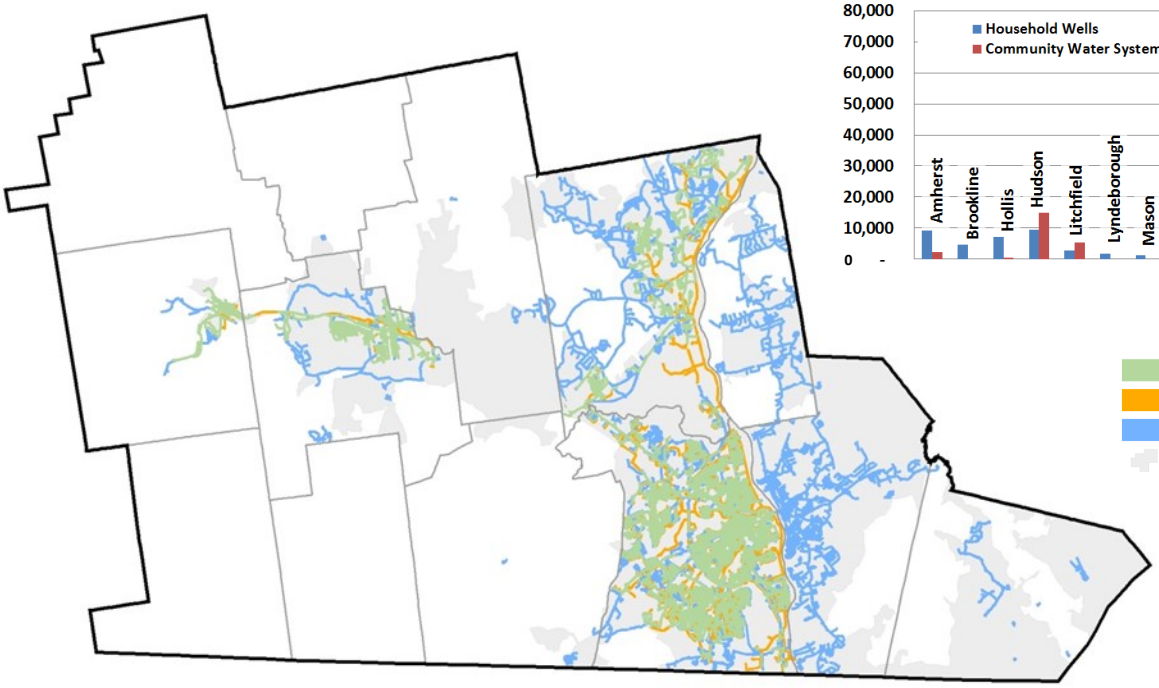
The Nashua Waste Water Treatment Facility uses gases created from their digesters to power the facility and reduce energy costs [7]

Sources
6. (2012 Preliminary Needs by Town and Category.xls, NHDES)
7. NH DES, Mike Rainey, Waste Water Division

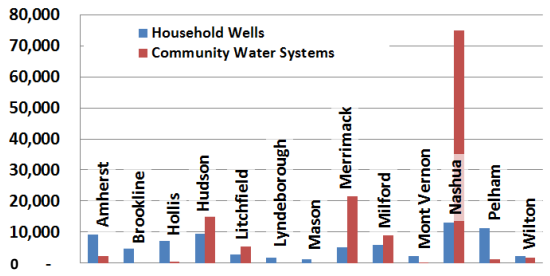


NHDES, 2005

Physical Infrastructure: Water and Sewer



Household Wells v. Community Water Systems*

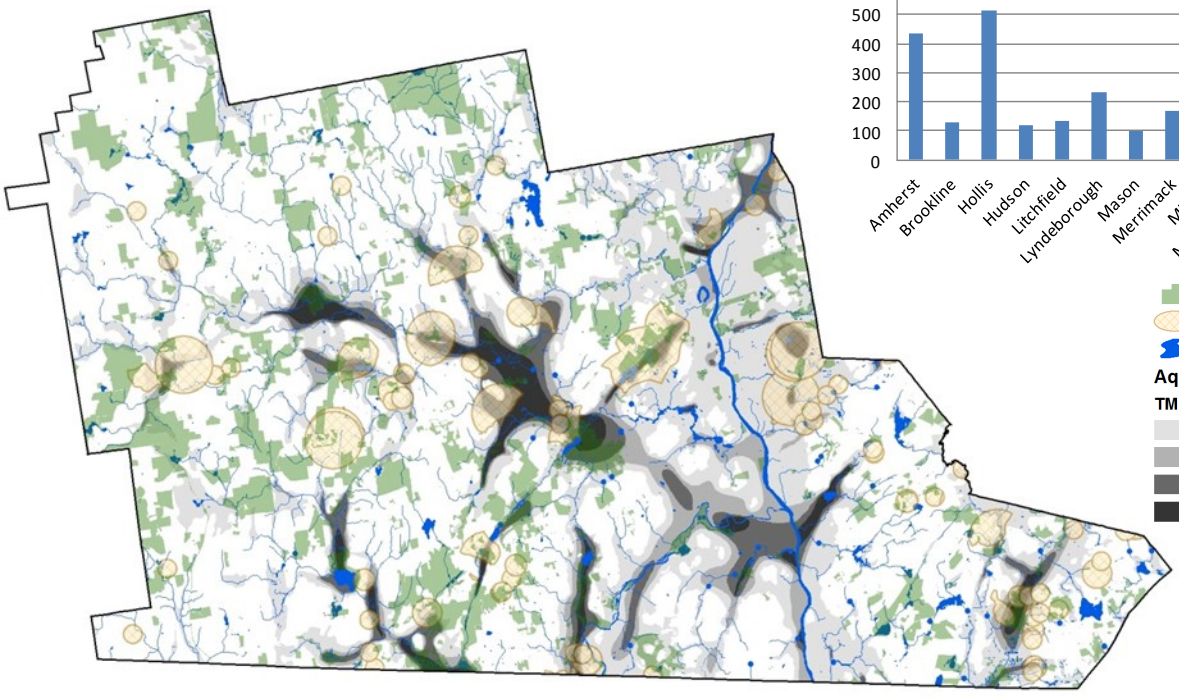


** - gallons per day*

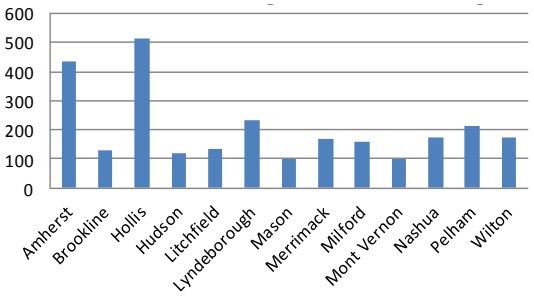
Data Sources: Water and Sewer, NH DES; Urbanized Areas, U.S. Bureau of the Census.

Although water use on a per-person basis is declining, demands on water withdrawals grow with population, which may result in increased demand for and, potentially, conflicts over water use.

Green Infrastructure: Water and Conserved Lands



Conserved Flood Storage Land Acreage



Data Sources: Conserved Land, NRPC; Wellhead Protection Areas, NH DES; NHHD Waterbodies and Aquifer Transmissivity, NH GRANIT.

Regulations

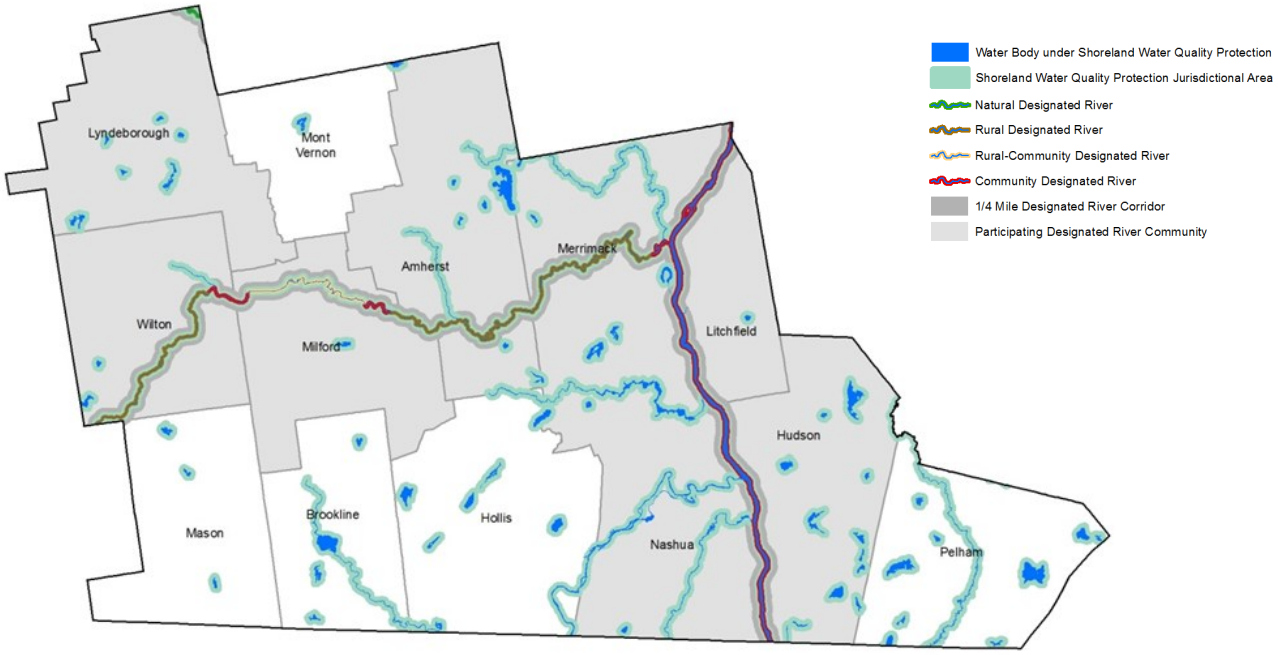
Aquifer and drinking water protection ordinances are effective mechanisms to protect water resources in towns. Ordinances coupled with voluntary and education programs for residents and business create enthusiasm for water resource protection.

Groundwater Regulations in the NRPC Region	
Town	**Regulation Title**
Amherst	Aquifer Conservation District Zoning Ordinance
Brookline	Aquifer Protection Ordinance, Wetlands Conservation Ordinance
Hollis	Water Supply Conservation Zone, Aquifer Protection Overlay
Litchfield	Aquifer Protection District
Merrimack	Aquifer Conservation District
Milford	Groundwater Protection District
Pelham	Aquifer Conservation District
Wilton	Aquifer Protection District

Education

As part of the federal MS4 permit, many communities in the region are required to include public education in their storm water planning. NH DES's Soak Up the Rain program on Baboosic Lake is one example of infrastructure improvement coupled with storm water education within our region. Additionally, programs such as the NH Designated Rivers work to promote and protect our rivers and watersheds as critical natural resources and components of our local economies. Finally, NRPC has developed a storm water curriculum and teaching guide to educate young people on storm water and its effects on our local water bodies.

Shoreland Protection Act and Designated Rivers



Data Sources: Shoreland Protection Waterbodies selected from NHHD Waterbodies, NH GRANIT-selection and buffer criteria courtesy NH DES Shoreland Program; Designated Rivers and associated GIS data courtesy NH DES Rivers Management Protection Program.