

7. Natural Resources and Rural Character

Conservation Vision

Conservation should be achieved through smart development choices, regulation enforcement, and thoughtful open space planning that protects and preserves natural and historic resources and our rural character. The presence of farms enhances sustainability and livability of the community by providing a quiet rural setting, economic opportunity, and healthy food choices. People define progress as moving toward a cleaner, healthier, protected environment, with opportunities to 'go green' and buy local.

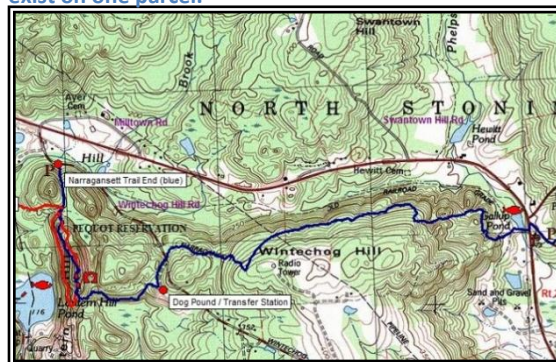
7.1 Natural Resources are not only essential for our survival, their presence or absence greatly affects our quality of life. From an economic standpoint, abundant natural resources such as raw land, clean water, and prime farm and forest land can be vital to a community's economic sustainability. For residents of North Stonington, the plentiful resources are an essential component to the preservation of the town's rural character.

Results of the 2012 Community Survey showed that nearly 87% of residents felt that it was important to preserve North Stonington's rural character. Nearly 77% stated that the dark skies and quiet rural feel were the reasons they moved here or have stayed here. Residents who attended the POCD's "Neighborhood Meetings" and other informal meetings and planning sessions all spoke of the great need to preserve natural resources not only for the sake of the town's character, but also for the sake of sustainability and progress.

The goals and strategies identified to help preserve natural resources and open space focus on enforcing current regulations pertaining to open space set asides and wetland regulations, as well as implementation of the goals set forth in the Plan of Conservation and Recreation Lands ³ drafted by the Conservation Commission.

Resource	Acreage	% Total Land Area
Aquifer Area	13,215	38%
Wetlands	5,276	15%
Flood Plain (A &AE)	2,769	8%
Water Bodies	1,041	3%
Steep Slopes	5,498	16%

Figure 6 - Source: North Stonington GIS Data
Note: For this chart, acreage was calculated for each resource layer separately though multiple resources may exist on one parcel.



Steep Slopes- Lantern Hill & Wintechog Hill



Lantern Hill Pond

³ PCRL document found in Appendix C.



**Environmental
Constraints**

**Slope >15%
Wetland Soils
Water Features**

Per CT DEEP GIS
Data 6/2013

Town GIS
Data 10/2012

Legend

Parcels - 2013

CT DEEP Data

Wetland Soils

Slope >15%

Water Features

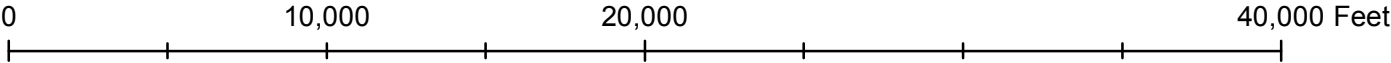
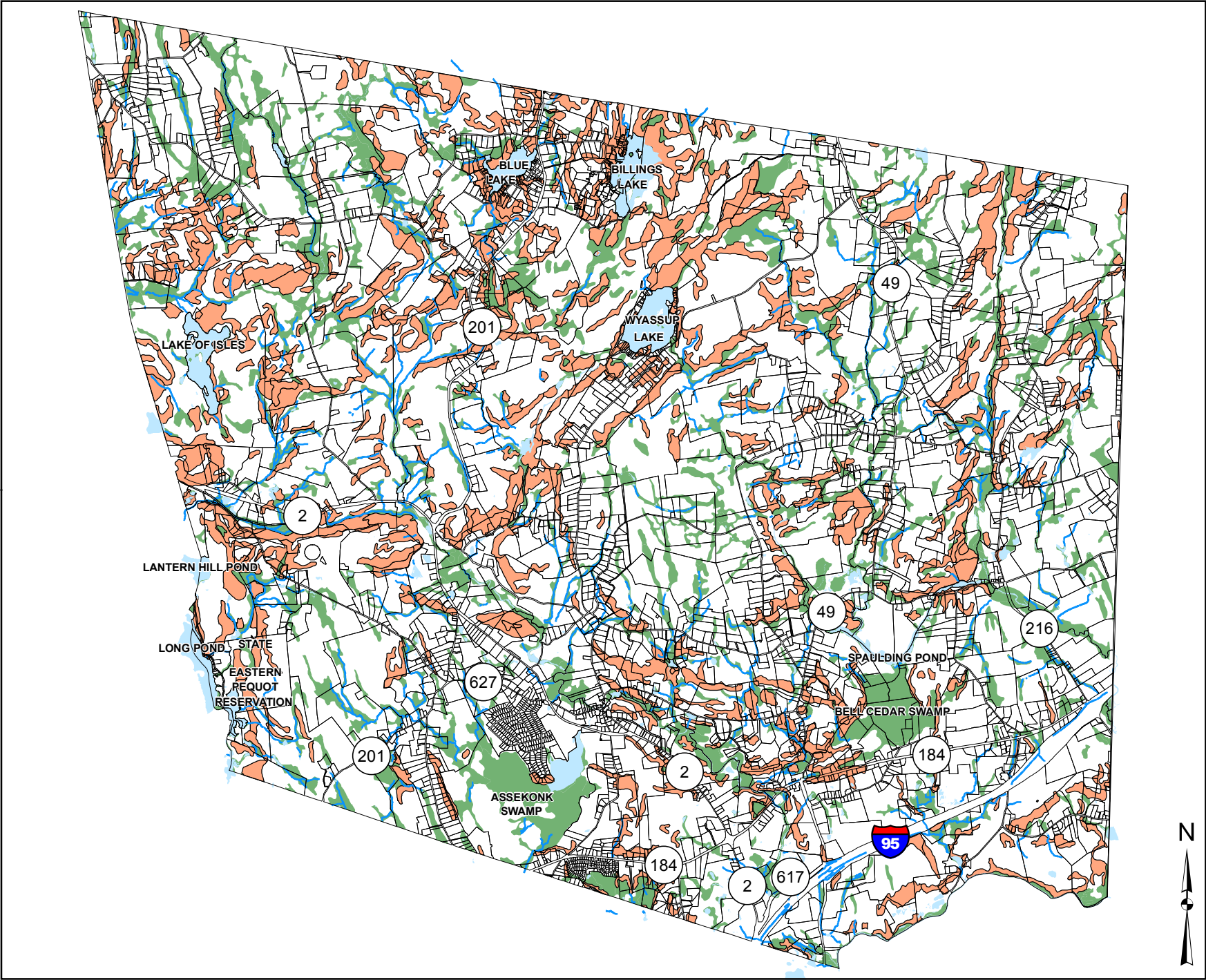
Lakes and Ponds

Streams

Map #: 1840 - R3
Map Date: 9/4/2013

Notes

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FEMA Flood Zones

Legend

Parcels - 2013

Water Features

Lakes and Ponds

Streams

FEMA 06/01/2013

0.2 PCT

A

AE

A - Areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.

AE - The base floodplain where base flood elevations are provided

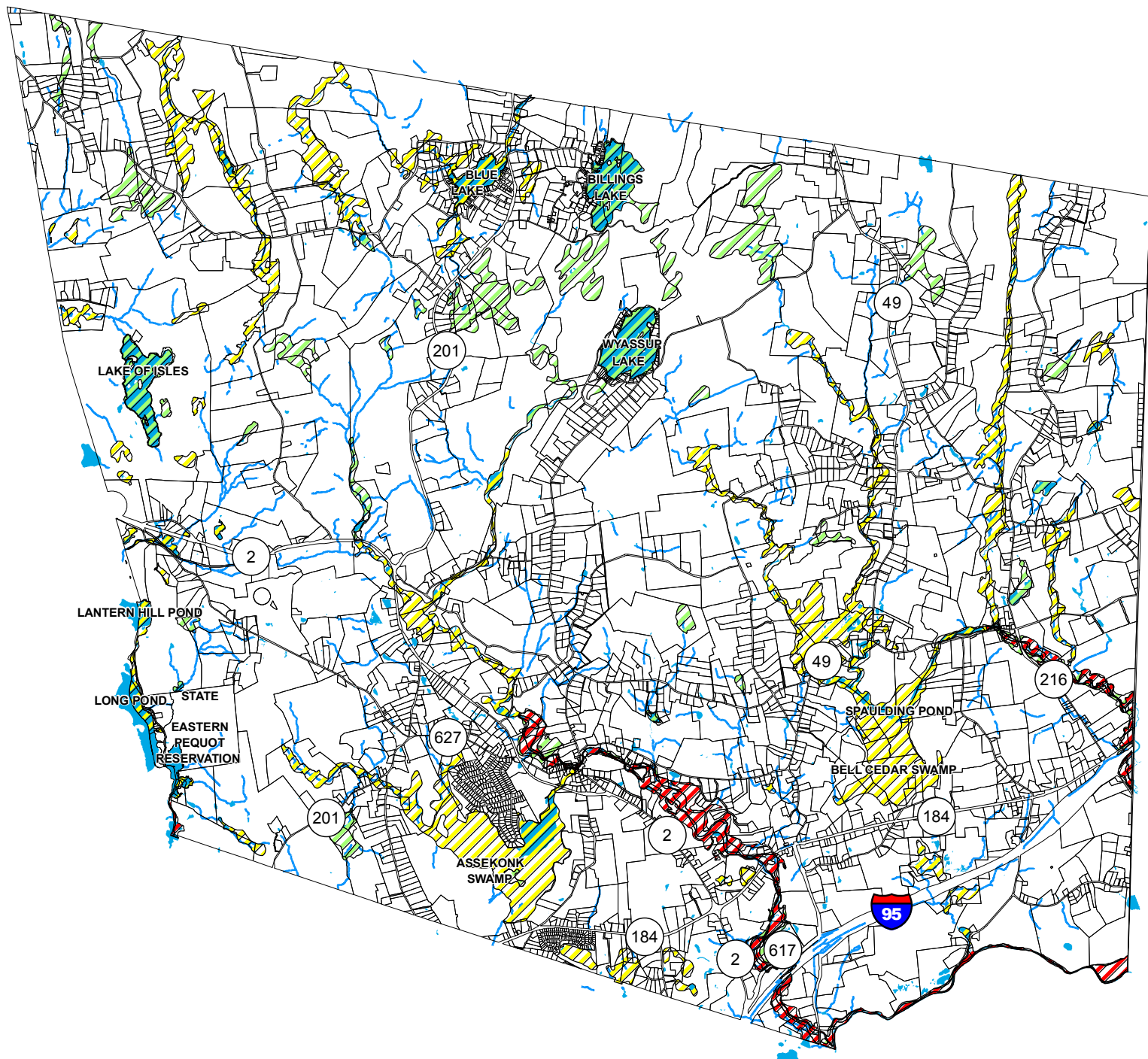
0.2 PCT - Corresponds to zone previously identified as 'X100'. Areas outside the 1-percent annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone.

Map #: 1838 R4

Map Date: 9/4/2013

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10,000

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40,000 Feet

Another key strategy is investing in certain infrastructure improvements in the southern area of town and/or allowing greater density in targeted growth areas in exchange for land preservation to specifically draw development *away* from the more rural parts of town thereby effectively preserving many valuable resources while also allowing the town to progress economically. One of the most effective strategies identified is that of developing a plan that identifies all desired areas for future conservation and demonstrating how these pieces fit into the overall conservation plan for the town. With such a document in place, planning can become much more deliberate.

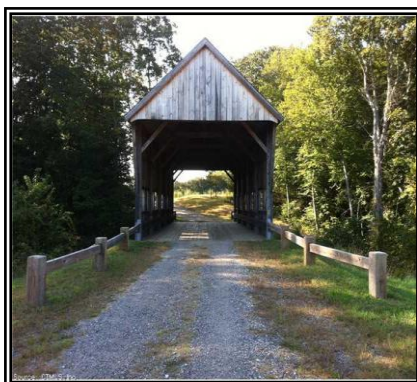
7.2 Open Space

North Stonington has a tremendous amount of “undeveloped land” which is what primarily defines it as a rural town. In order for the town to plan for a future as a rural community, or even for an individual to understand the implications of a private land purchase, it is important to understand the potential uses of land and what kind of protection, if any, is placed on it.

All land in North Stonington is zoned for either commercial/industrial or residential development. Of the town’s total acreage of 35,179, only 3,023 acres - or less than ten percent of it - is protected as open space in perpetuity (via land trust holdings, deed restrictions, conservation easements, and 9 town-owned open space parcels). Some land in North Stonington is temporarily protected as Open Space (PA 490 farms and forests, State Forests), and some open land is not protected at all (vacant land, lots that have enough acreage to subdivide, farm and forest land not in PA 490). Temporarily protected and unprotected undeveloped lands are valuable as they give North Stonington the feel of a rural town in the present, but do not guarantee a rural future. Also included in this vacant and unprotected land or “perceived open space” category is approximately 7,000 acres of land currently unbuildable due to steep slopes, wet soils and/or location within a flood zone. Much of this acreage is accounted for on parcels that fall under one of the three open space categories identified in the chart below. Other unbuildable acreage may include areas located on residential or commercial properties, and though effectively protected by regulatory restrictions as open space, is not actually factored into the chart totals because it is not considered the principal use of the parcel.

Purposes of Open Space

- **Provides wildlife habitat.**
- **Protects natural resources including air and water quality.**
- **Protects and enhances rural character.**
- **Provides recreational opportunities.**
- **Good for the economy – attracts visitors, no tax burden (though property doesn’t generate taxes either and can cost tax dollars to properly maintain it – i.e. forest management).**



The goal of the Town is to determine the right balance between facilitating the development of raw land and preserving it as permanently protected Open Space – keeping in mind the different levels (or lack) of protection that exist on any given parcel, in the implications for the future. The following chart (and map on page 37) shows the different types of conservation and recreation lands as they exist in North Stonington today.

TYPE OF OPEN SPACE	EXAMPLES	Current Acreage
Protected Open Space ** These parcels are not necessarily protected in perpetuity, but for the purposes of this Plan, they are considered as such.	State-Owned Development Rights (or TDR)	462
	Conservation Easements/other Deed Restrictions and Required 15% Set-aside Open Space per Subdivision Regulations	1,614
	Land Owned by Avalonia Land Conservancy	479
	Land Owned by North Stonington Citizens Land Alliance	145
	Land Owned by The Nature Conservancy**	145
	Town-Owned Open Space Parcels (Including Hewitt Farm)	178
Total Protected Open Space		3,023
Temporarily Protected (perceived) Open Space	Farmland (PA 490 and 10 Mil)	5,473
	Forest (PA 490)	6,235
	Town Owned Parcels (Including Wintechog Hill Parcel)	151
	State Land (Includes State Parks/Forests) (Note: Acreage could also be included in Active/Passive Recreation Category below)	3,942
Total Temporarily Protected Open Space		15,801
Active and Passive Public Recreational Areas	Municipal Recreational Areas (Recreational Facility, School Fields)	58
	Private Recreational Facilities and Areas (Little League, Summer Camps)	1,315
	(Though not included here, please note that the 3,942 acres of State Land listed above could fall under this category as well)	
Total Active and Passive Public Recreational Areas		1,373

Figure 7 – Types of Open Space: Source Assessor and GIS Data



Open Space Map

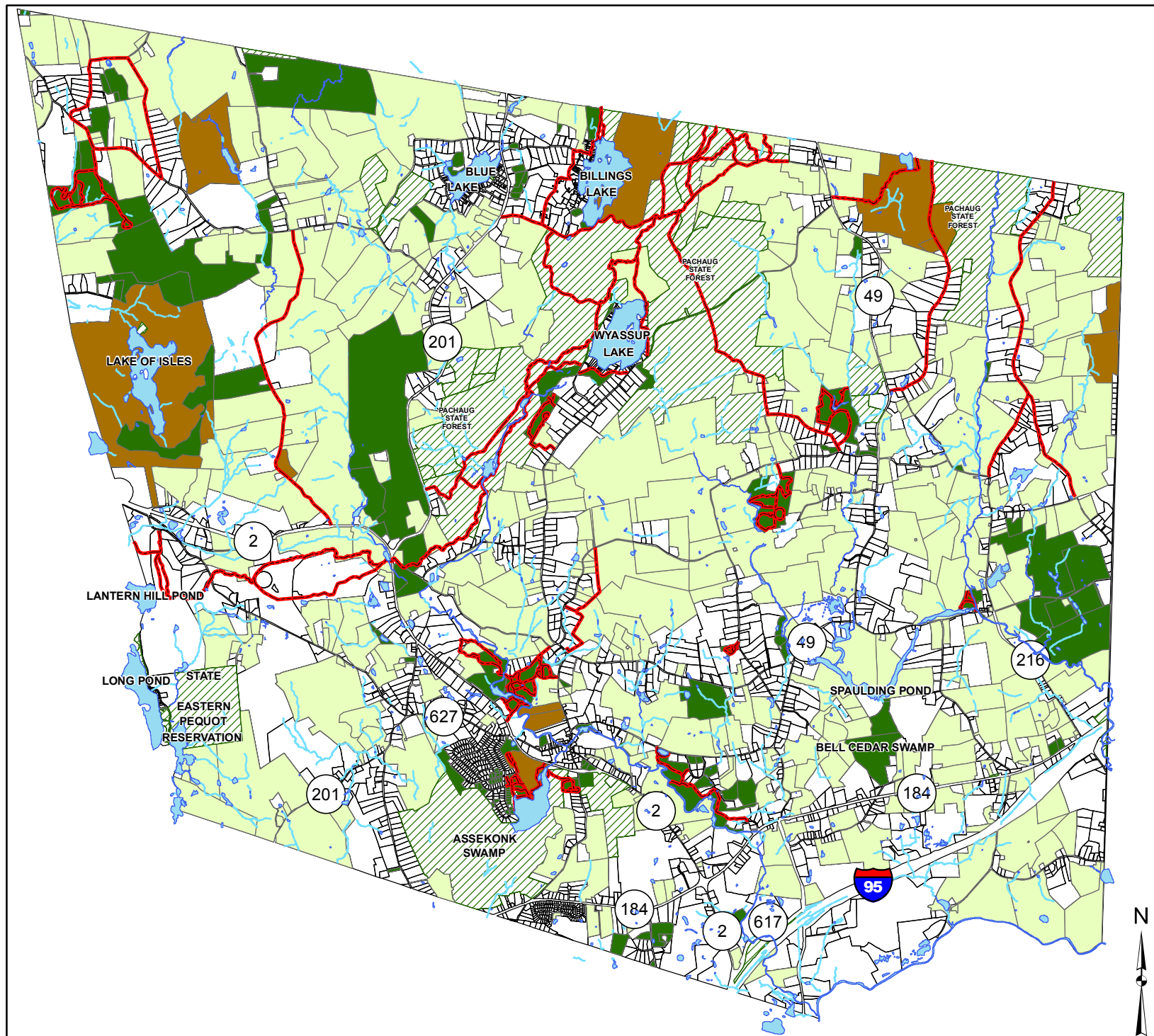
Parcel Lines To
10/1/2012

Legend

— Town Identified Trails

Open Space

- Active and Passive Recreational Areas
- Protected Open Space
- Purposeful/Perceived Open Space
- State Land (Includes State Parks/State Forests)



Notes

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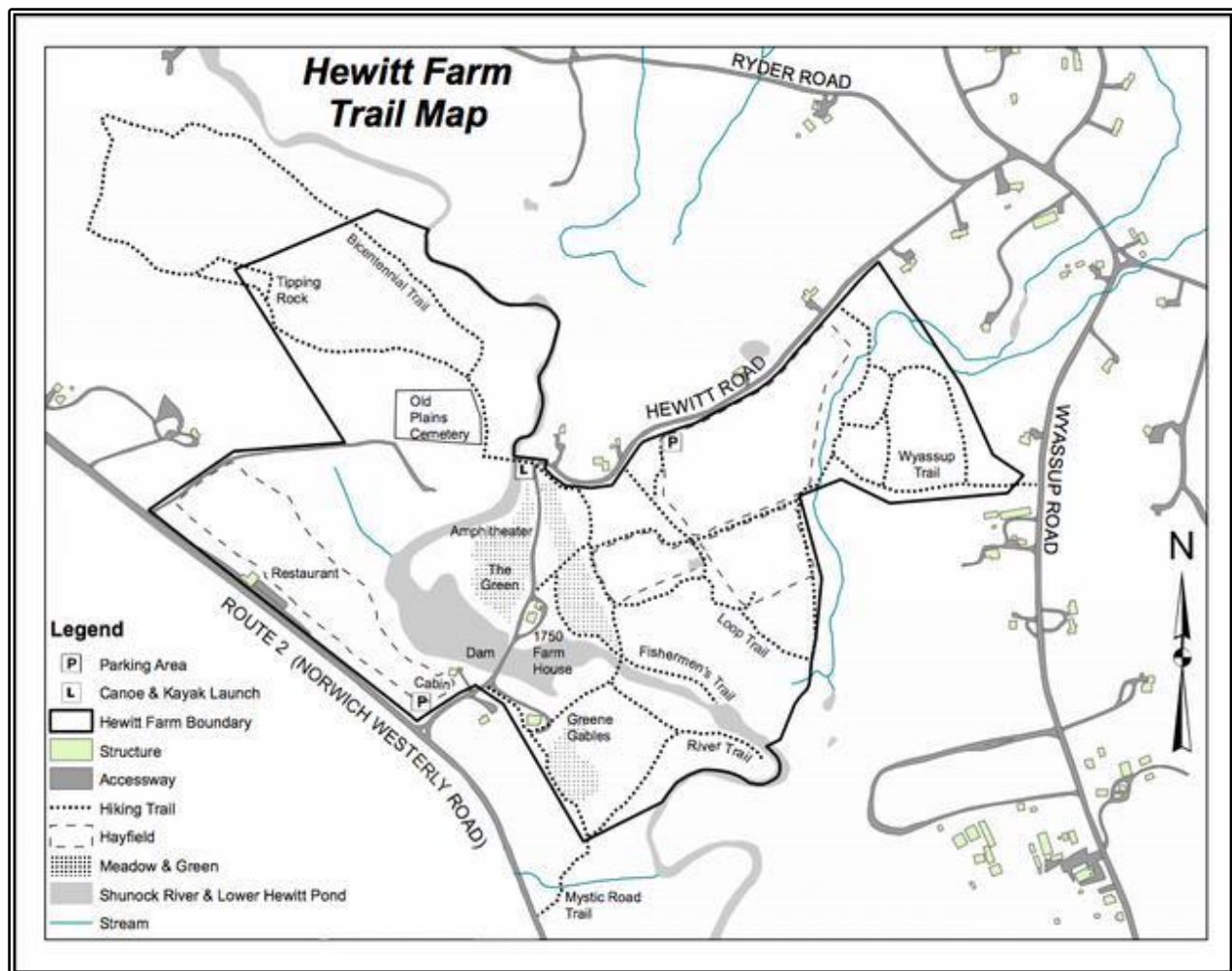
The results of the 2012 Community Survey identified two primary reasons residents want to preserve open space.

- **To protect natural resources like lakes, aquifers, scenic views, and habitats.**
- **To preserve our rural character and maintain our high quality of life and sense of place.**

When asked however, if they would be willing to vote for an increase in taxes to purchase and maintain Open Space, 73% of the 430 respondents said “no.”

The town is fortunate to have undeveloped areas of significant size that can substantially expand existing protected areas or help to provide a connective corridor for wildlife or recreation. The State of Connecticut’s goal is to preserve 21% of the land in the state as open space by the year 2023. This statewide goal can bring state help and financial support to a town that is proactive in acquiring conservation lands.

In August 2008, the townspeople voted to purchase the Hewitt Farm; North Stonington’s first purchase of open space land. The property includes extensive fields with rich farm soils, woods, wetlands, streams and the Shunock River running through it. The Hewitt Farm will be preserved in perpetuity for recreation and park purposes.



7.3 Agriculture

Probably the most defining rural characteristic of North Stonington is its surviving farms and the



Breaking Ground on Hewitt Road

remnants of past agricultural activity, such as stonewalls, that continue to define the landscape. Preserving the town's existing farms and encouraging new farming activities have always been strong goals of the town. **North Stonington's farms are central to the community.** They provide good jobs for young people, food security, tax revenue with little demand on town services, wildlife habitats, and open space. They contribute to a high quality of life and provide local products year round. Despite various protective state programs, Connecticut still loses between 7,000-9,000 acres of farmland a year to development. Local support for farmland protection is strong. Residents in North

Stonington have sold development rights to 462 acres. In addition to development pressure threatening existing farmland, many find land costs in North Stonington too prohibitive to start a new farm. Rising

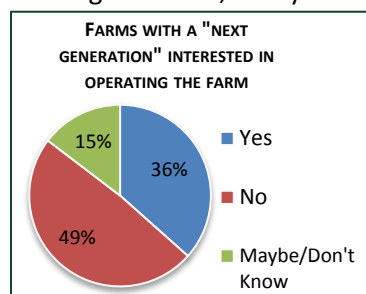


Figure 8 Source 2009 Farm Survey

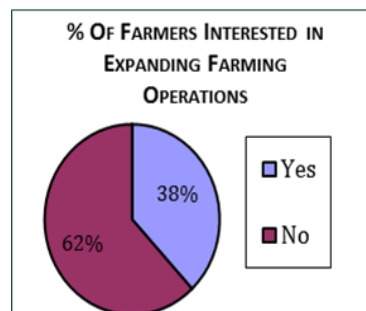


Figure 9 - Source 2009 Farm Survey

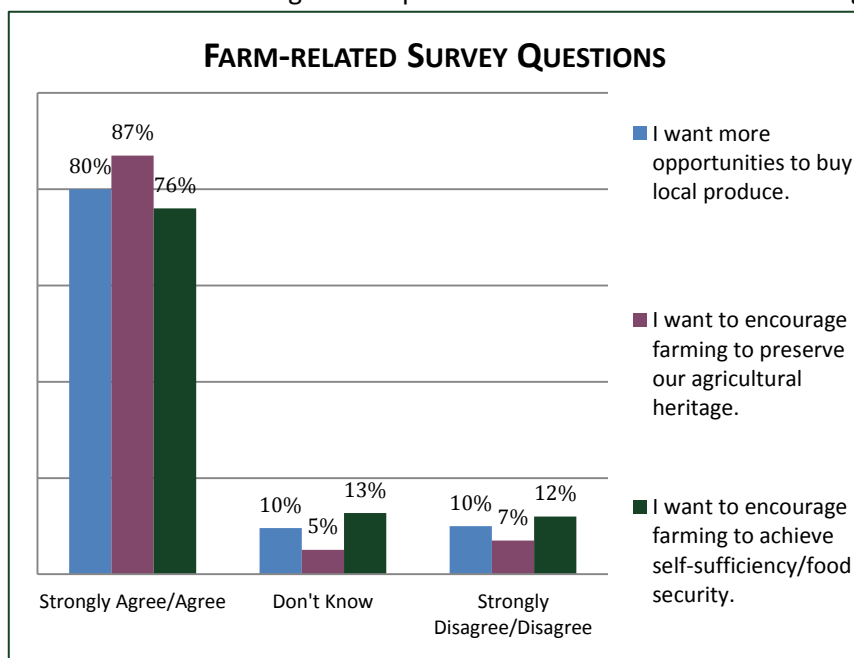


Figure 10 - Source 2013 Community Survey

taxes and fuel costs as well as increased problems with vandalism and "predatory wildlife" were problems identified by existing local farmers in a 2009 survey.

In December of 2007, under the leadership of one of the town's dairy farmers, North Stonington passed a Right-to-Farm Ordinance. Another ordinance, passed in June of 2007, provides tax exemptions for farm machinery and farm buildings. In 2009, the town adopted new regulations that clearly define

agriculture and include regulations concerning animals and fowl, “Best Management Practices” for the disposal and spreading of manure, and regulations concerning equine stables and equine enterprises.

North Stonington is known for its large dairy farms, but other traditional farming includes turkey, sheep, and corn production. Many specialty farms (Christmas tree, rare pigs and chickens, llamas, honey) also operate as well as a winery.

The following are suggestions about ways North Stonington could continue to support new and existing agricultural operations.

- **Reintroduce school programs to teach agriculture and reconnect children with farms and farming.**
- **Enact supportive regulations that meet the needs of the farmers such as allowing well-planned farm worker housing, low-impact ag-tivities, and more opportunities to sell products (i.e., farm store, farmer’s markets, and farm stands).**
- **Support new state regulations that are less restrictive for selling locally grown or gathered wild food, and value added products.**
- **Continue to provide, and possibly increase, tax relief offered.**
- **Reclaim select forest land for farming.**
- **Encourage businesses that support farming (i.e., slaughterhouse, feed store, or granary).**
- **Encourage preservation of farmland (purchase and/or transfer of development rights).**

7.4 Food Security

In an emergency, Connecticut’s food supply reportedly will not last more than a day and a half. New London County was also cited as having one of the poorest levels of food security in the state. With its abundant water supply and prime farmland, North Stonington, however, is positioned to be a regional food and water resource of major importance. Large commercial development in abutting towns and



Hewitt Farm Community Gardens



Farm on Route 2



Local Christmas Tree Farm

potential large developments within the town raise the importance of good planning and implementation, not only to preserve the quality of life residents hold dear but also to protect valuable resources that will help ensure regional sustainability and security (with respect to food and water).



Farm and Forest Land Use with Farm Soils Overlay

Per Assessor Data 7/3/2013

Legend

- Dev. Rights Sold
- Farm
- Forest
- Mixed Forest and Farm

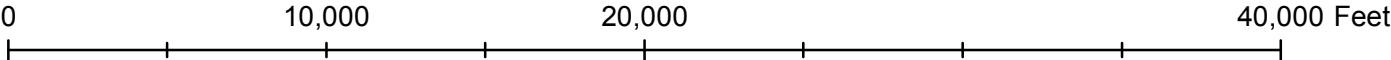
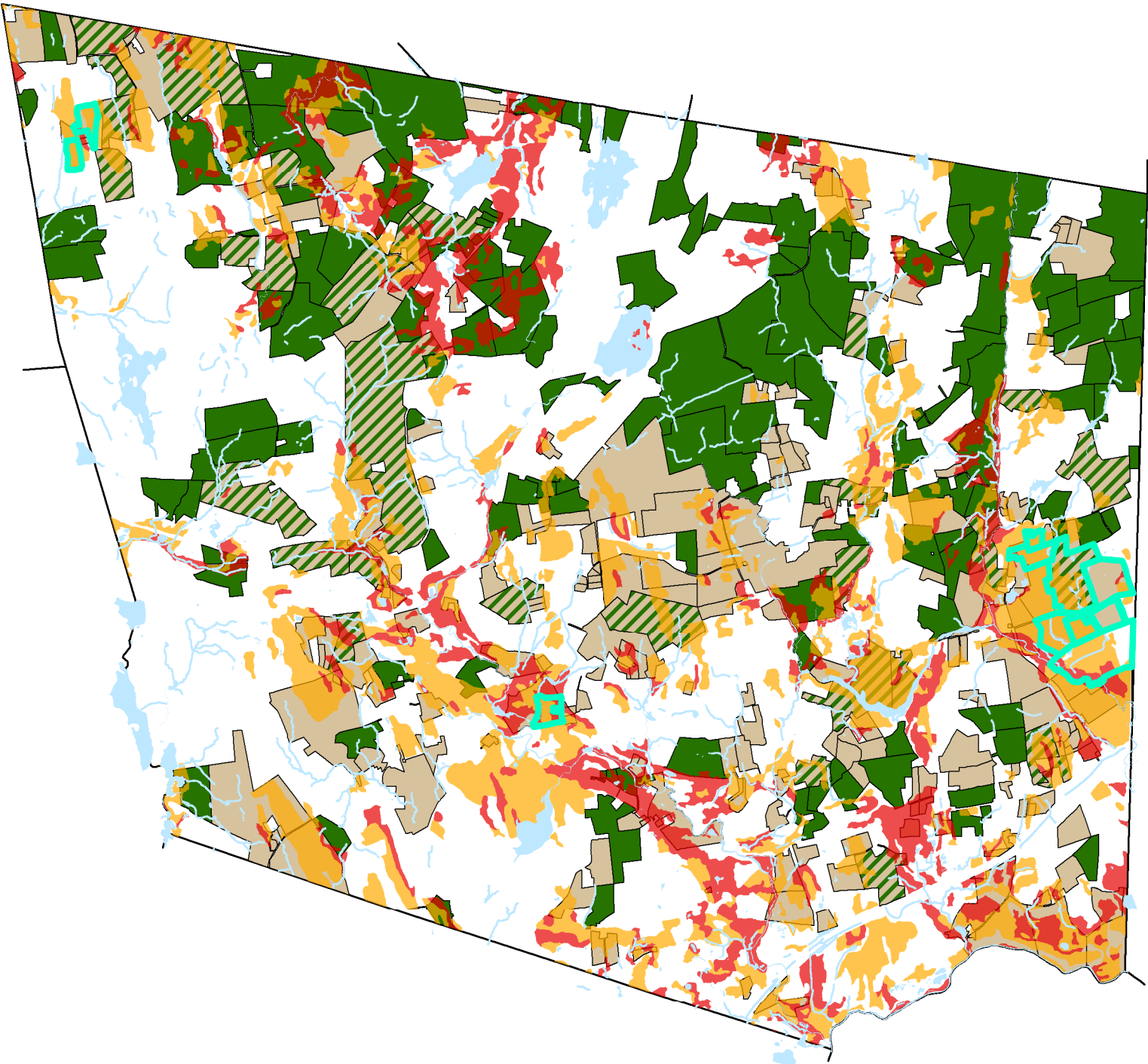
DEEP Identified Farm Soils 4/6/2011

- Prime Farmland Soils
- Statewide Important Farmland Soils

Map #: 1841 - R4
Map Date: 9/4/2013

Notes

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7.5 Water

North Stonington has abundant water bodies including small lakes, and an extensive network of ponds, streams, and wetlands. These water bodies provide significant quantity and quality of wildlife habitat. The town's primary drinking water source is a major stratified drift aquifer. The health and ecological functions of the town's water bodies are very critical aspects of the town's physical, economic, and cultural wellbeing.

The town's 5,276 acres of wetlands are spread through every region of the town and affect all major land use plans. Laws are enacted to protect wetland areas because their ecological function is critical to all life. Wetlands provide overflow areas during flooding, water retention areas during times of heavy precipitation, and water reserves during times of drought.



North Stonington has three lakes and three ponds with state-owned boat launches on five of them. Water flow through the lakes provides water to streams

discharging from them. Residential development is attracted to the lakes making them especially vulnerable to ecological damage from the effects of overdevelopment within their basins.

Eight water sub-basins are mostly or partly within the town boundaries with another four barely entering. The Shunock and Wyassup sub-basins are the largest and encompass more than 60% of the town's land area. The interconnectedness of the sub-basins underscores the need for protection by all towns that share water resources in the region. To that end, several municipalities in Southeastern Connecticut, including North Stonington, recently participated in a comprehensive, stake-holder involved, planning process that culminated in the production of a *Drinking Water Quality Management Plan*. The participants recognized the need for a coordinated effort among the water supplier, the watershed communities, and the end users, to develop a common understanding of the valuable water resources of the region and to implement strategies to effectively manage and protect them in order to achieve long-term preservation of safe and sustainable public drinking water supplies.



Billings Lake

In February 2009, the Town of North Stonington *Water Supply Plan* was adopted. The Plan gives an overview of the existing water systems that service the town followed by a review of the water utility structure and assets; water system performance; and historic data on population and water use. The




Sub-Regional and Local Water Basins

Per Current
DEEP and GIS
Data

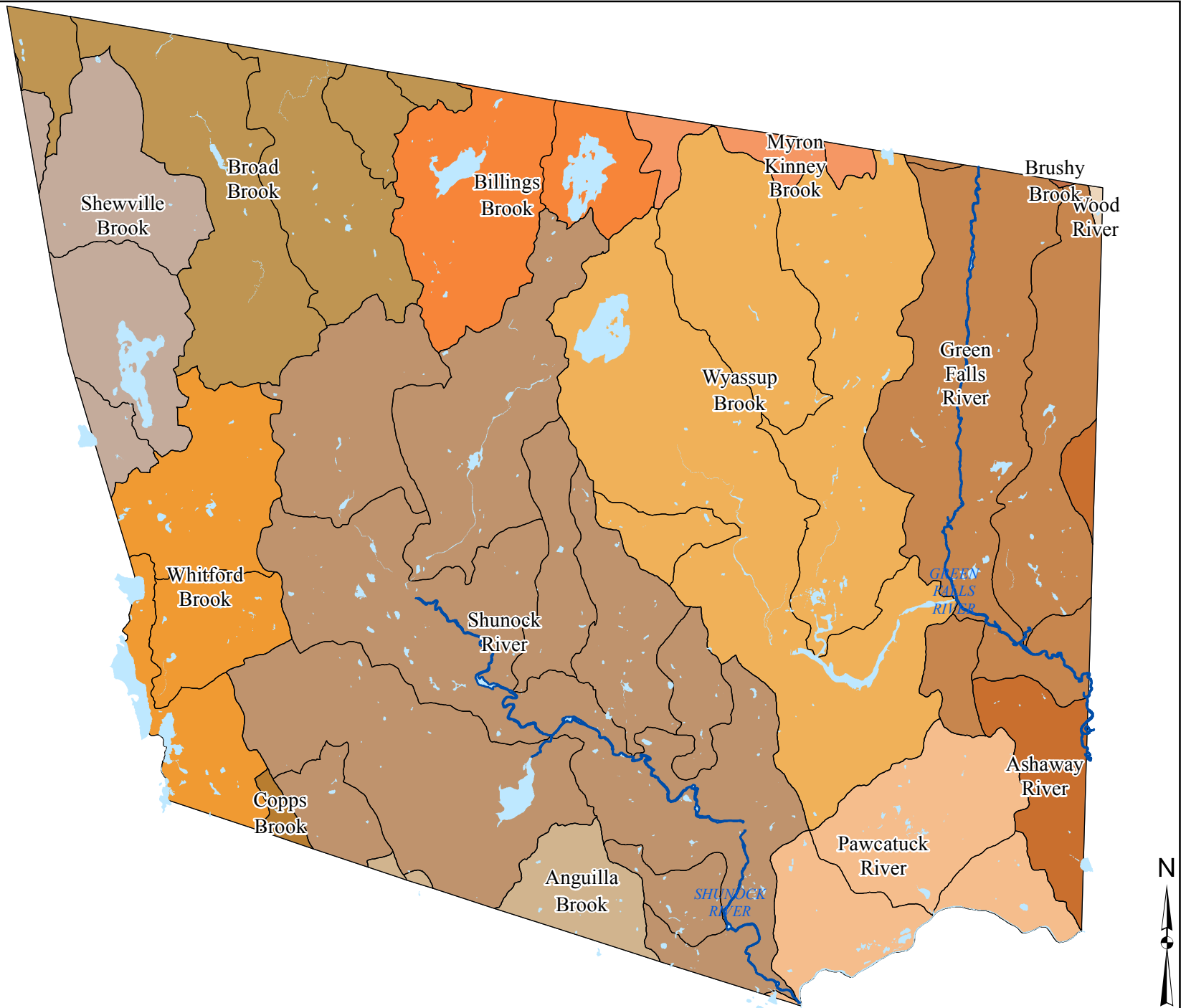
Legend

Water Features

 Lakes and Ponds

Sub-regional Basins

-  Anguilla Brook
-  Ashaway River
-  Billings Brook
-  Broad Brook
-  Brushy Brook
-  Copps Brook
-  Green Falls River
-  Myron Kinney Brook
-  Pawcatuck River
-  Shewville Brook
-  Shunock River
-  Whitford Brook
-  Wood River
-  Wyassup Brook



Map #: 1855R2
Map Date: 9/10/2013

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Plan examines existing land use and future service areas and concludes with an analysis of the town's future needs and potential alternative supply sources.

Major stratified drift aquifers are located under 38% of the town's total land area. Nearly three-quarters of the town's residential population is served by private on-site wells. The Pawcatuck groundwater hydrologic system is a federally designated sole-source aquifer due to its vital importance in supplying drinking water to the town and region for both present and future residential and economic development needs. It encompasses the Shunock, Wyassup, Pawcatuck, Ashaway and Green Falls sub-regional drainage basins. The aquifer is of major importance to local and regional water supply needs and plans for economic growth. The State of Connecticut legislature has given North Stonington the right to distribute water from this aquifer. In 2010, the Connecticut Department of Energy and Environmental Protection (DEEP) delineated a "Level A" Aquifer Protection Area in an area just north of Route 2. State Statutes required North Stonington to form an Aquifer Protection Agency and to develop regulations to regulate land use activity within this new area. The Planning and Zoning Commission was established as this agency effective May 24, 2010.

7.6 Wildlife and Vegetation

The town's topography and low human population promotes wildlife habitat. The Connecticut DEEP monitors and records species diversity and the location of sensitive ecological communities within the town. *Critical Habitat and Natural Diversity* sites are areas of habitat that the state feels should receive special attention. Thirty-five biodiversity locations are identified in the town with several significant concentrations. Both aquatic and surface vegetation in those sensitive areas, as well sensitive fauna, should be adequately protected. Invasive aquatic wetland and upland species are gaining a foothold and the need for their management has been identified.

The Connecticut DEEP also inventories and manages the forest and wildlife resources at the Pachaug State Forest and the Assekong Wildlife Management Area. The Fisheries Division is especially interested in North Stonington's cold-water fish population in the Shunock River, a state-designated and managed wild trout stream.



Blue Trail across Yawbux Brook



Billings Lake



Shunock River




Aquifer Protection Areas

Per
Current
North Stonington
Planning and Zoning
Map

Legend

 Level A Aquifer Protection Area

 Parcels - 2013

 Aquifer Protection Zone - Town

Water Features

 Lakes and Ponds

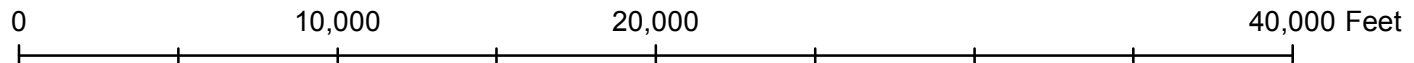
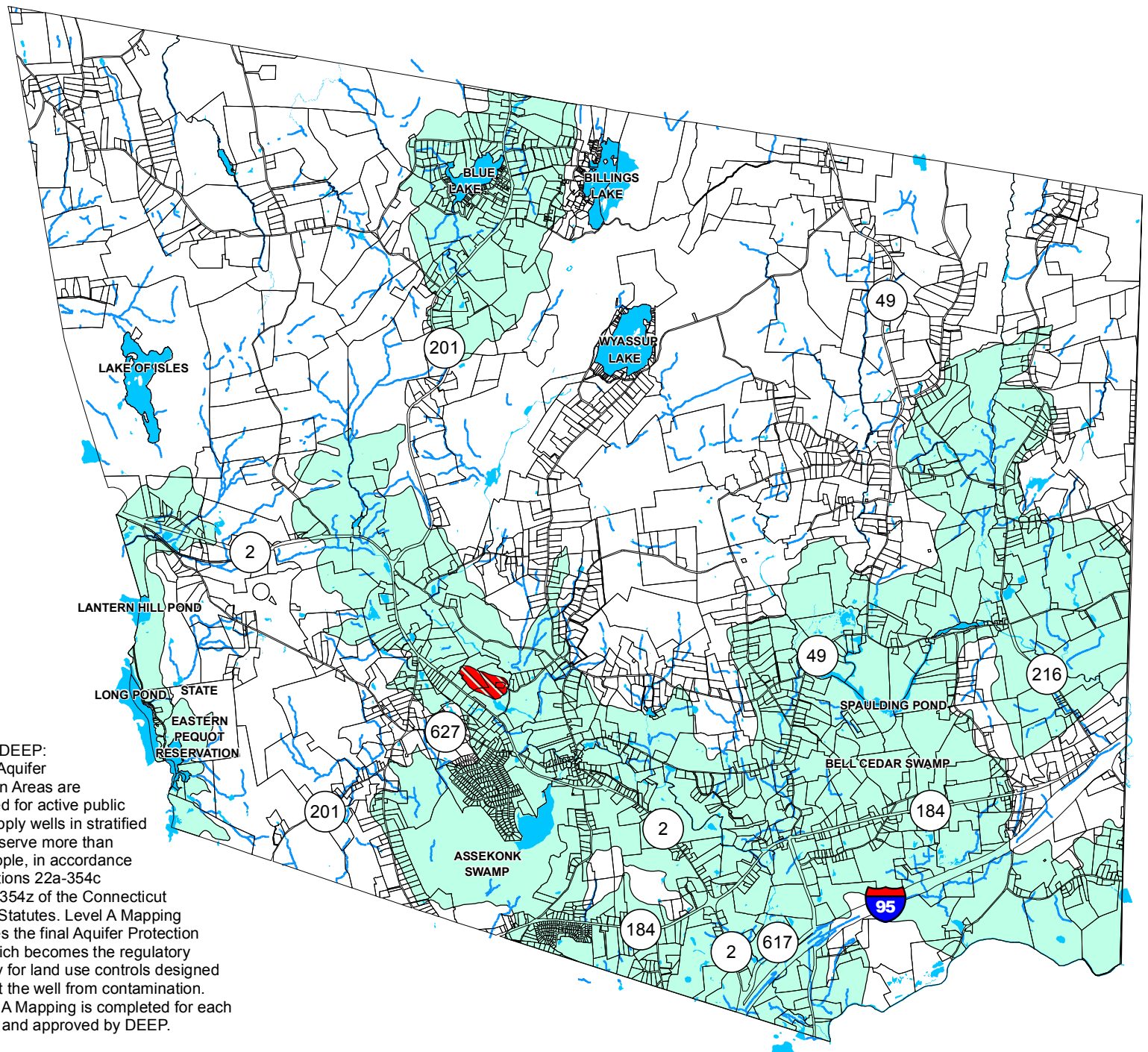
 Streams

PER CT DEEP:
Level A Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP.

Map #: 1839 R3
Map Date: 9/4/2013

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DEEP Critical Habitat And Natural Diversity Areas

Per Current
DEEP GIS Data

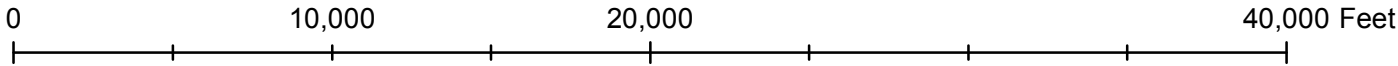
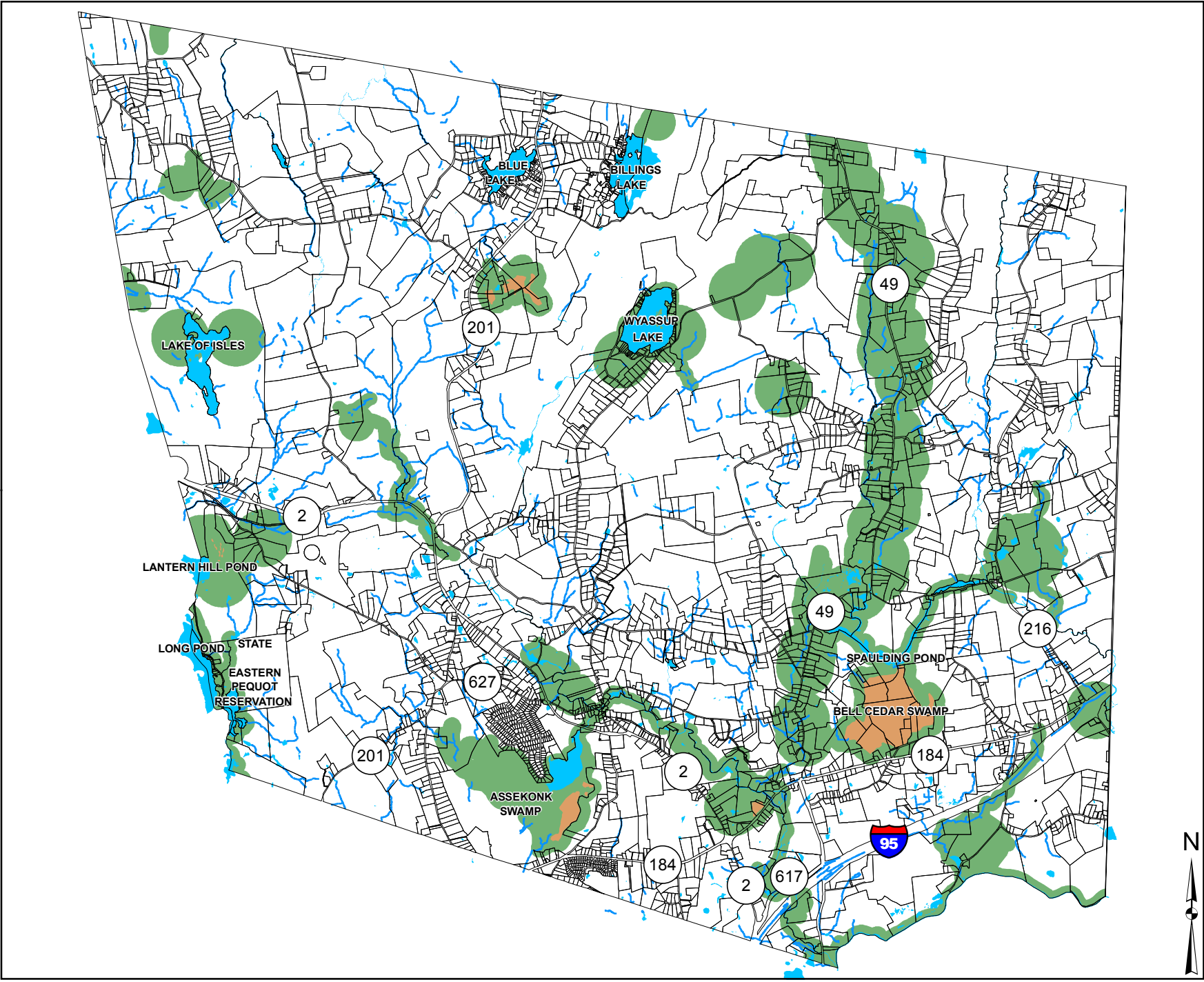
Legend

- Parcels - 2013
- Critical Habitat
- Natural Diversity
- Water Features**
- Lakes and Ponds
- Streams

Map #: 1842 - R3
Map Date: 9/4/2013

Notes

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Approximately 70% of the town is forested. Forest cover not only provides forest resources and habitat, it has also been directly connected to water quality. State forest and wildlife management areas in North Stonington provide the majority of protected vegetative cover within the town. Lands now classified as forest land for tax relief purposes provide some temporarily protected forest cover, although timber can be harvested.

Many land areas have multiple conservation and recreation attributes such as forest cover combined with biodiversity sites, significant water, historic and cultural features, and significant habitat for fish and wildlife. Conservation areas can also provide intangible amenities to residents, such as peace and quiet, dark night skies, and privacy.

7.7 Summary

Rural living is important to most residents, from the farmer who works land that has been in his family for generations, to the ex-urbanite who is embraced by the green landscape every time he steps out of his new house. It is available to the weekend fisherman pulling trout out of the river, the gardener with her hands in the soil, the hiker trekking through the woods, the star gazer viewing the nighttime sky, and the horseman enjoying the shade of a tree-lined road.



Though residents are dedicated to preserving a rural way of life, North Stonington's farms, natural, and historic resources have stayed relatively healthy through the years primarily due to North Stonington being a relatively undeveloped town, and less because there are regulations and strategies in place to protect, enhance, and utilize resources. Therefore, a proactive holistic approach to planning should include protection of these cornerstones of the town.

Fresh cut cornfield and scenic stonewalls near intersection of Chester Main and Hangman Hill Rd. (Above); Garden on property along Pinewoods Road (Below)