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PLAN OF
CONSERVATION +
DEVELOPMENT

2014



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Groton
PLAN OF CONSERVATION + DEVELOPMENT
June 2014

Town of Groton Planning Commission

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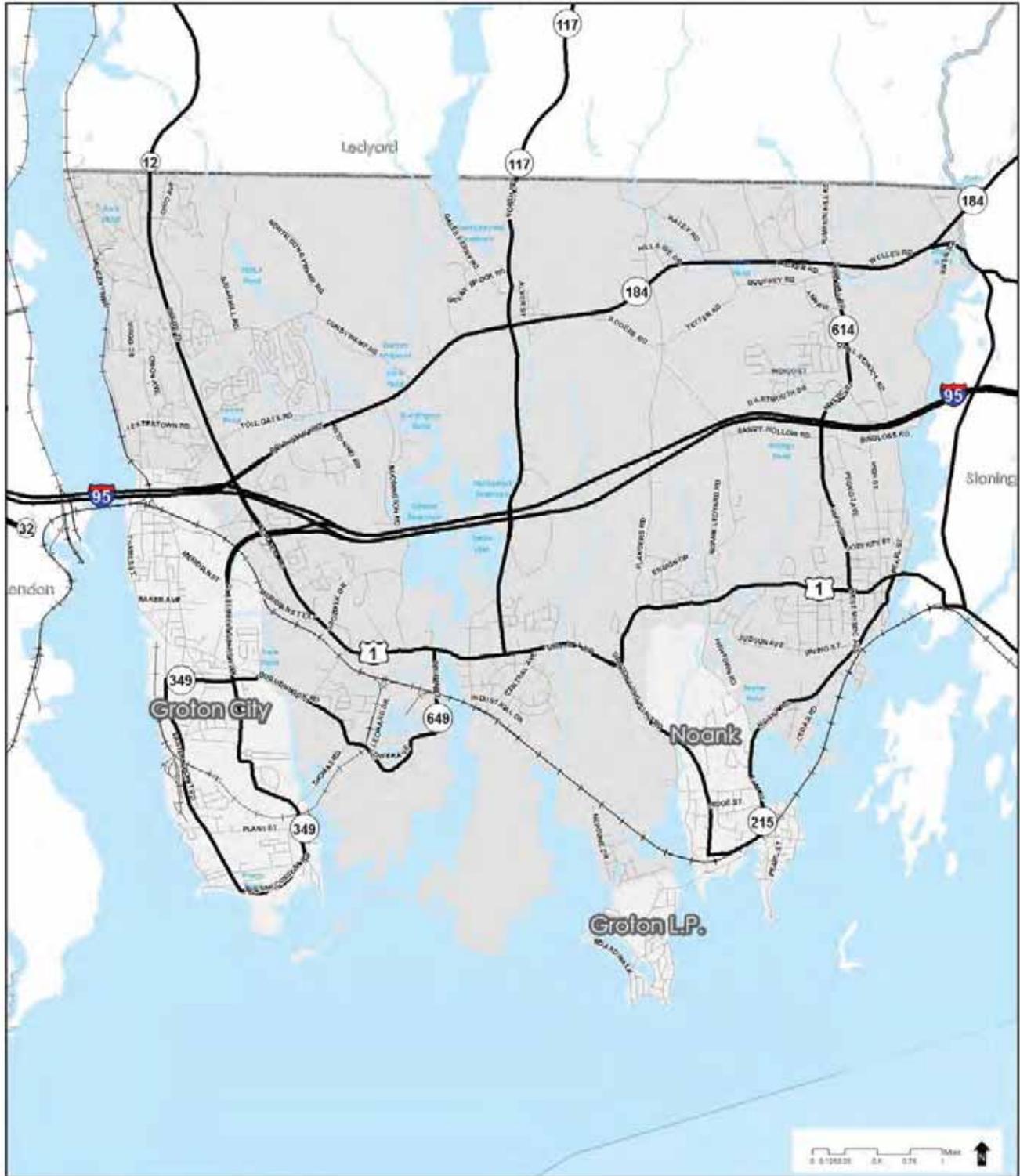
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Sources:
* Street Centerlines: Town of Groton GIS Dept.
* State Roads: Streetmap USA (2011)
* Base Map Data: Connecticut DEEP Map & Geographic Information Center (2012)
This map was developed for use as a planning document. Distances may not be exact.

April 2014

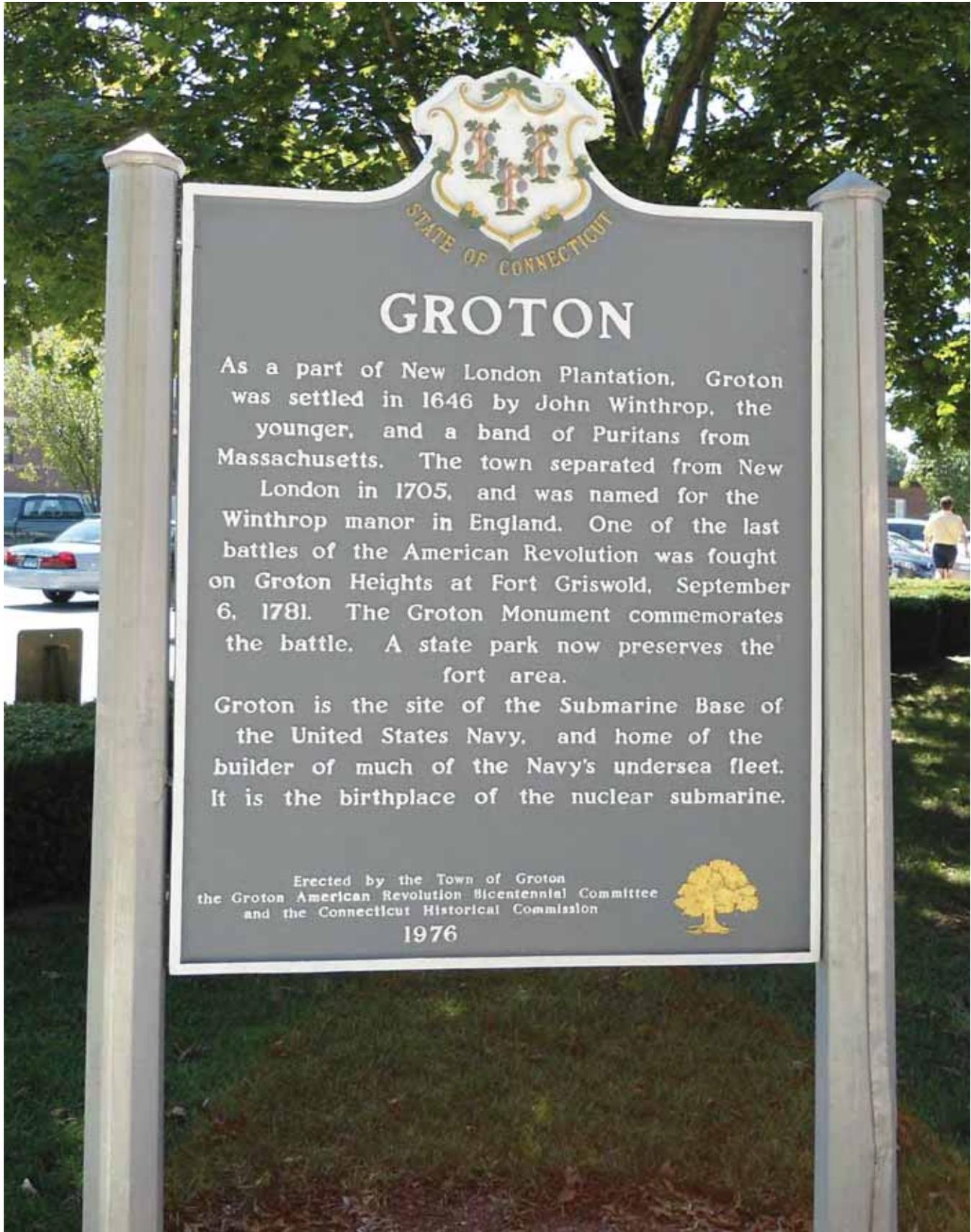
The logo features a vertical bar on the left with three colored segments: orange, green, and blue. To the right of this bar is a large white letter 'G' on a blue square background. Further right, the text 'Groton POCD' is written in a large, bold, blue sans-serif font. Below 'Groton POCD', the word 'INTRODUCTION' is written in a smaller, blue, all-caps sans-serif font.

Groton POCD

INTRODUCTION

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Groton Historic Marker

INTRODUCTION

Groton is located on Fisher’s Island Sound in southeastern Connecticut, about 10 miles west of the Rhode Island border. The town is bounded on the west by the Thames River and the City of New London, on the north by the Town of Ledyard, and on the east by the Mystic River and the Town of Stonington.

The 2010 Census indicated that Groton has 40,115 residents and a land area of about 31.8 square miles.

Groton has historically had a strong naval presence. The USS Nautilus Museum showcases the world’s first nuclear submarine, which was built and based in Groton. Today, Groton is still home to a U.S. Navy Submarine Base and the submarine shipyards of the Electric Boat Corporation, a division of General Dynamics Corporation. The more recent addition of the research headquarters for Pfizer Pharmaceuticals contributes to Groton being a manufacturing and employment center for the region.

Groton also has many cultural and natural resources. The historic maritime villages of Mystic and Noank, Bluff Point and Haley Farm State Park, the Groton Long Point area with residences on Fisher’s Island Sound, as well as other community and commercial facilities serve local and regional needs.

Political Jurisdictions

	Poquonnock Bridge	Center Groton	Mystic	Old Mystic	West Pleasant Valley	Noank	Groton Long Point	City of Groton	Navy Base	
Overall Government	Town of Groton					Town & Noank	Town & Assoc.	Town & City	Navy	
Education	Town of Groton									
Public Works	Town of Groton							City of Groton	Navy	
Police	Town of Groton						Town & GLP	City of Groton	Navy	
Wetlands	Town of Groton						GLP Assoc.	City of Groton	Town	
Land Use Planning	Town of Groton							GLP Assoc.	City of Groton	Navy
Zoning	Town of Groton					Noank	GLP Assoc.	City of Groton	Exempt	
Recreation	Town of Groton					Town & Noank	Town & GLP	Town & City	Town & Navy	
Fire	Poquonnock Bridge	Center Groton	Mystic	Old Mystic	City of Groton	Noank	GLP Assoc.	City of Groton	Navy	
Ambulance, Rescue & Paramedic	Groton Ambulance Association (GAA)		Mystic River Ambulance Association		GAA	Mystic River Ambulance Association		GAA	Navy & GAA	

The Town of Groton also encompasses numerous political subdivisions, some of which have their own jurisdictional powers. For example, while the Navy Base is located within the Town of Groton, it is largely self-governing as federal land, although children living on the base do attend Groton Public Schools. The City of Groton, Groton Long Point, and Noank all have independent zoning authority, and are thus not directly addressed in the Town POCD as their local authority supersedes the Town on zoning matters. The *Political Jurisdictions* table illustrates the various political subdivisions and their powers in the Town of Groton.

There is also the City of Groton, which has its own charter and provides police, fire, recreation, and other services to city residents. It also exercises planning and zoning authority within the City limits. While Town services are available to city residents (since the city is part of the town), City services are only available to residents that live in the City and pay taxes to the City.

WHAT IS A POCD?

Chapter 126, Section 8-23, of the Connecticut General Statutes requires that a planning commission, “prepare, adopt, and amend a plan of conservation and development for the municipality.” Plans of Conservation and Development (POCD) are guidance documents that set policy priorities for the physical, economic and social future of a community. POCDs contain goals and visions along with recommended action steps to help work towards achieving those goals. The planning process involves assessing current conditions and trends in order to develop reasonable goals and strategies and engaging the community in a dialogue on its future.

While being future-oriented, a POCD reflects the goals and objectives of a community at a point in time. In recognition of this, the State Statute requires that the Plan be updated at least every ten years, so that long-term planning objectives are based on current inventory of existing conditions and economic cycles.

As an advisory document, the POCD is intended to provide a long-term vision for the Town and guide short-term decision making relating to growth and development. This plan does not have the authority of a law or regulation; but is instead a set of broad recommendations for future development and improvement of Groton over the next ten years.

WHAT IS AN MCP?

Coastal municipalities may adopt a municipal coastal program for the area within the coastal boundary. A municipal coastal program shall include, but is not limited to:

- Revisions to the POCD
- Identification and description of the major coastal-related issues and problems such as erosion, flooding, recreational facilities, and utilization of port facilities and to include a description of the municipal boards, commissions and officials responsible for implementing and enforcing the coastal program, a description of enforcement procedures and a description of continuing methods of involving the public in the implementation of the municipal coastal program

The MCP was concurrently updated with this POCD and its recommendations are included within this POCD document as well as a stand-alone document.

GOALS

The major goals of this process are to update both the POCD and the MCP, and to introduce a new *Energy and Sustainability* element to the POCD. Rather than be an independent section, *Energy and Sustainability* are treated as integral elements within each planning task, and are interwoven throughout the document.

HOW THIS PLAN WAS DEVELOPED

In early 2012, the Town began the process of reviewing and updating the 2002 Plan of Conservation and Development. It has been guided by staff from the Town of Groton Office of Planning and Development, the consultant firm of Milone and MacBroom, and community members through input, comments, and a survey. In July of 2012 a Steering Committee was formed with representatives of the Town Council, Planning Commission, Zoning Commission, RTM, Conservation Commission, Economic Development Commission, Inland Wetlands Agency, and Water Pollution Control Authority.

The POCD Steering Committee received plan element memoranda that covered each topic, including background information, conditions maps, and analysis of trends and conditions since the completion of the 2002 Plan, along with goals and recommendations for future actions. These documents were shared with the public via the Town website, and at two public hearings, in May and November of 2013. The Steering Committee met from July 2012 until May 2014, on the third Thursday of the month. Two public forums were held, in May and November of 2013. The materials from these forums were then made available in the library for those who could not attend. An online public survey was run from September to December 2013.

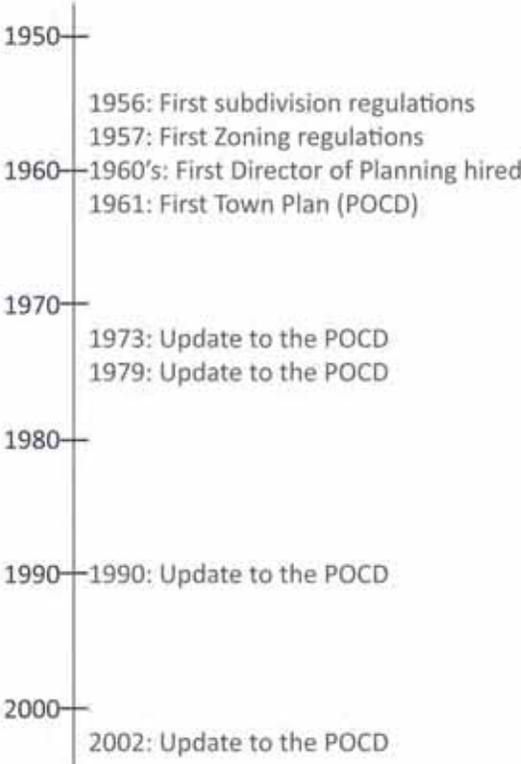
Eleven discrete Plan Elements were prepared as part of this Plan Update. Each of these elements led into the creation of the Generalized Future Land Use Plan.

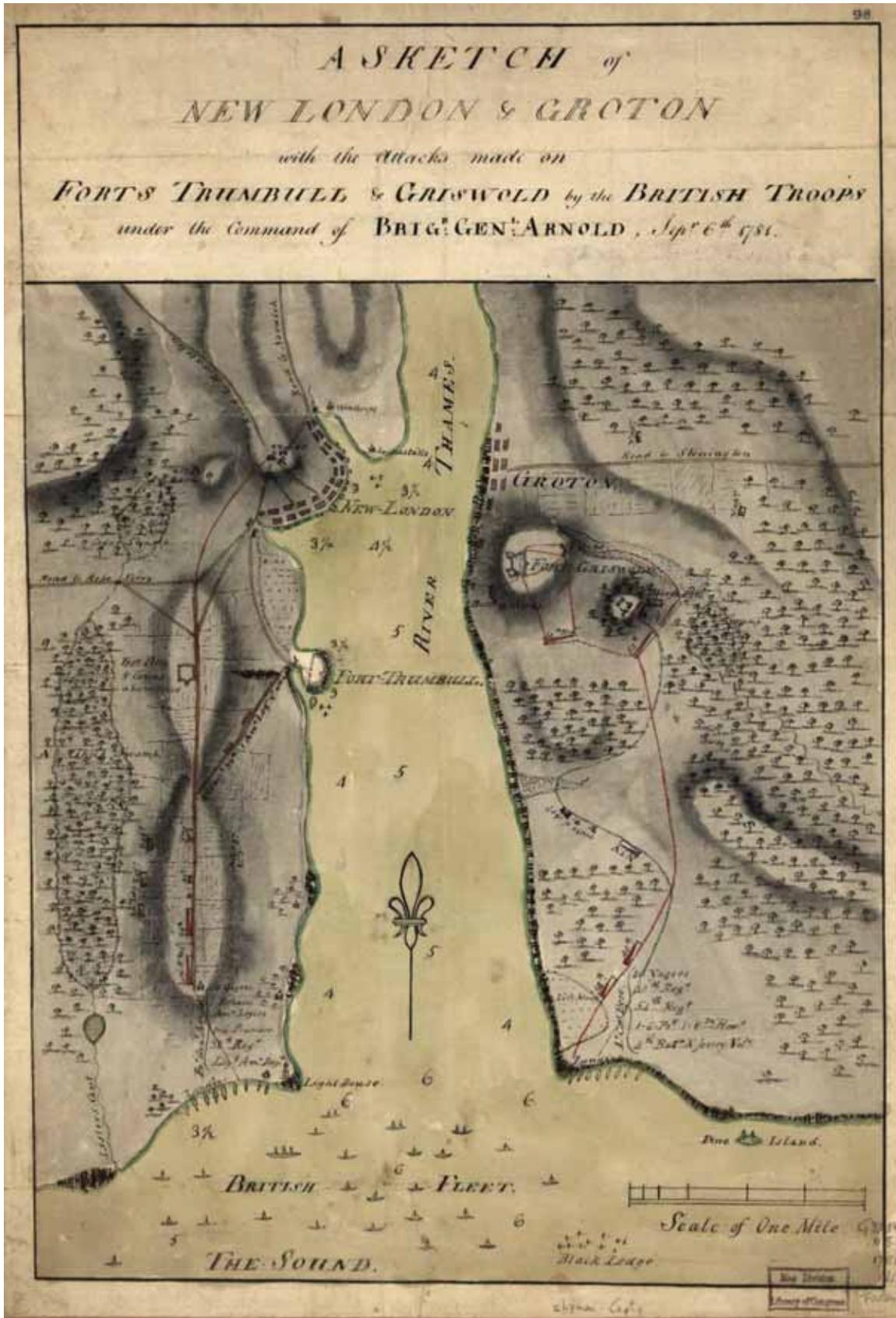
The key components of this Plan of Conservation and Development are the Goals and Objectives, the Generalized Future Land Use Plan, and the Action Agenda, which details steps towards implementation.

Plan Elements



GROTON'S PLANNING HISTORY





British Troop Movements During the Battle of Groton Heights, *US Library of Congress's Geography & Map Division*

HISTORY AND TRENDS

HISTORY OF GROTON

GEOMORPHOLGY

Groton, and Southern Connecticut in general, have been heavily culturally influenced by geological history and the resultant geomorphology. The hills and valleys, and underlying granite bedrock, have shaped the patterns of human development and early industry. All of the current town of Groton sits on relatively hard granite gneiss Avalonian bedrock, formed during the Proterozoic Period, and are a remnant from the Avalonia tectonic plate which separated from North America beginning 200 million years ago.

Much of the current landscape of the region was formed during the receding of the last ice age, which took place in two stages and left, at its terminal moraine, Long Island. The inland lake that was formed behind its terminal became Long Island Sound as the ocean levels rose to meet the inland lake. The large deposits of sand, pebbles and rock outcroppings that now make up much of the Southern Connecticut shore line were left as the glacier receded, as was much of the current coastline.

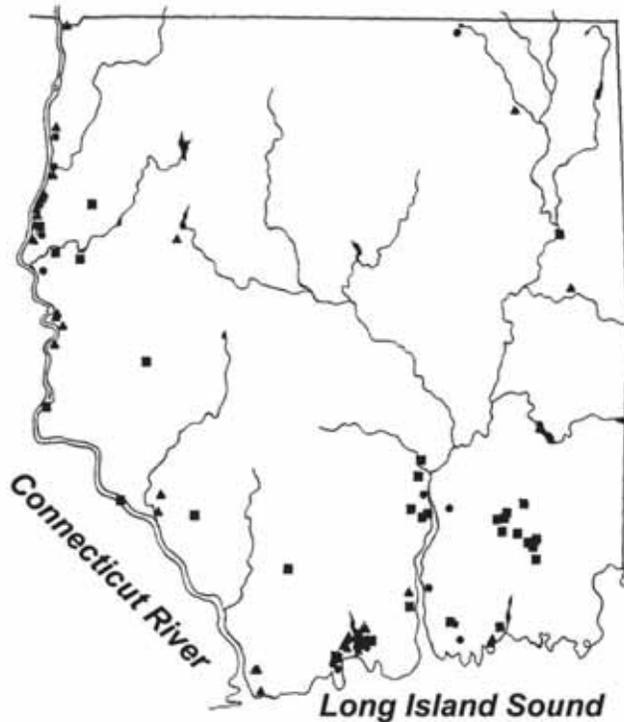
PRE-COLONIAL

There is substantial archeological evidence of early Native American settlement in Eastern Connecticut. The Cultural Resource Management firm ACS has surveyed Native American burial grounds and cemeteries in the area and their analysis of the sites and archeological evidence from the Susquehanna Tradition of the late Archaic period (ca. 5,900 to 3,200 years ago) found that because sites were “found to occur in formalized settings away from habitation sites,” it was an indication of “semi-sedentary settlement patterns for at least a portion of the population.” Additionally, “the elaborate nature of cremation sites...suggests [they] had some control over restricted and critical resources, ...including transportation routes,”¹ indicating an early sedentary culture. There is some evidence of a large settlement along Gungywamp Road, dating from 2000-770 BC, however some archeologists attribute the structural elements to later colonial development, and see the Native American arrowheads, stone flakes and pottery fragments as inconclusive evidence of a large or permanent settlement.

At the establishment of colonial settlements in Connecticut and Massachusetts, the Pequots-Mohegans were a tribe inhabiting much of the eastern portion of both states. Pequots-Mohegans's are eastern Algonquin people, and are today members of the Mashantucket (Western) Pequot Tribe, The Mohegan Tribe of Connecticut, or the Eastern Pequot Tribe, and the term Pequot-Mohegan has historically been used to describe those who were part of the Pequot, Niantic, and Mohegan tribes.

¹ ACS, *Native American Burials and Cemeteries of Eastern Connecticut*, http://acsarchaeology.com/projects/native_american_burials.htm.

Some historians believe that the Pequots migrated east from New York State as late as the 1500's, although much current archeological data and research seems to suggest that Pequots inhabited the area along the Connecticut River from 8,000 BC.² The tribe local to the shore of Long Island Sound, in the area



Distribution of Documented Native American Burial Sites and Historic Cemeteries in Eastern Connecticut, ACS

of the Connecticut and Niantic Rivers is the Nehantic (Niantic) tribe. Sometime after 1850 they were fully absorbed by the Pequot-Mohegan tribe. Although the Mohegans, Niantics, and Pequots split sometime before the turn of the 16th century and took opposite sides during the Pequot Wars, they were, for much of their history, one sociopolitical entity. In 1633 an epidemic is reported to have devastated all of the region's Native population (of whose numbers were estimated to be reduced 90% by a smallpox epidemic in 1616-19). Historians estimate that the Pequot suffered the loss of 80% of their population, and at the outbreak of the Pequot War four years later, survivors may have numbered only about 3,000.

Mohegans and Narragansetts against the Pequots. In May of 1637, Captain John Mason engaged in fighting with a group of Pequots along the Mystic River. The war largely accounted for the elimination of the Pequot people, and the possibility for unthreatened development of Southern Connecticut. The Treaty of Hartford officially ended the war in 1638, and divided the remaining Pequot under the control of other tribes. Those under the control of the Mohegans were given a reservation at Noank in 1651, and then transferred to land in Mashantucket in 1666.

Pequot War

Between 1634 and 1638 the drastic reduction in the Native populations left a substantial power vacuum in the region which escalated to the Pequot War, with the Colonists aligning with the

² Kevin Allen McBride, "Prehistory of The Lower Connecticut River Valley" (January 1, 1984). *Dissertations Collection for University of Connecticut*. Paper AAI8509510.

COLONIAL PERIOD

The Dutch explorer Adriaen Block explored the Long Island Sound and Connecticut coast in 1614, and in 1633, established a fur trading fort at present-day Hartford. In 1635 John Winthrop developed the Old Saybrook Colony at the mouth of the Connecticut River, and in 1636 Thomas Hooker and John Haynes led 100 people to present day Hartford in a direct challenge to Dutch claims. In 1644 the Old Saybrook Colony and Connecticut Colonies merged, and the Dutch left their fort in 1654, establishing the Connecticut Colony.

In 1644 development began on a compact village on the west side of the Pequot (now Thames) River, originally called Pequot and renamed New London in 1658. By 1649 development had expanded on the east side of the River. In 1702 the need for church services on the east side of the river, led the New London Congregational Church to approve a separate church, which was constructed in Center Groton in 1703, and in 1705, the General Assembly approved the petition to create a town of Groton, named after the English home of John Winthrop. The same year, a group of Baptists were allowed to build a church near Burnett's Corner, making Groton the first Connecticut town to tolerate a non-Congregational church.



Groton Monument

This tolerance of non-Congregational parishioners had important impacts on the land use development of Groton. The lack of a town green is assumed to be modeled after the Rhode Island town form which specifically prohibited town greens, "based on the theory that location of any church thereon implied public endorsement."³ This also led Groton to develop several self-contained clusters, rather than one central village. Absent of one central village, the development pattern of Groton instead followed major transportation routes. These began as pathways that connected bodies of water, including what are now Routes 184 and 1. Village nodes developed where crossroads intersected these routes, especially in Center Groton, Burnett's Corner, West Mystic, and Old Mystic.

AMERICAN REVOLUTION

Like many colonial towns, Groton supplied men and supplies to support the American Revolution. Groton was also well known for being the home to privateers who raided British war ships.

In response, in September of 1781, General Benedict Arnold commanded a British fleet to attack the port of New London. After taking Fort Trumbull on the New London side, and burning much of the town of New London, 800 British soldiers crossed the Thames and marched on Fort Griswold, held by Col. William Ledyard, who responded to the British call for surrender by stating, "we shall not surrender, let

³ Andrews and Will, *Preservation Plan for Groton*, 1996, 7.

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the consequences be what they may." After a forty minute fight, Leydard and 80 American soldiers were killed, and the British gained control of the Fort and the Thames.

MARITIME HISTORY

The connection to shipbuilding and the water has always been strong in Groton. In 1683, the first ship building was reported on the Thames River near the ferry landing, and by the early eighteenth century, several ship yards were operating in Groton. Throughout its history, whaling, sealing, fishing, Caribbean and coastal trade, and privateering and defense have been a major component of economic and physical growth.

After the Revolutionary War, Groton developed as a center for maritime activities. Shipbuilding on the Thames and Mystic Rivers included some of the fastest ships in the world at that time. Mystic became a center of the whaling industry in the mid-nineteenth century, and profits from shipbuilding and merchant marines build many of the stately homes still standing in Mystic, Groton Bank, and Noank. During the Civil War, Groton shipbuilders built the Union's ironclads. The USS *Galena* was designed by naval architect Samuel H. Pook and was built at the Mystic shipyard of Maxson, Fish & Company. The Palmer Shipyard in Noank was considered the largest builder of wooden vessels on the Atlantic Coast, and built over 600 ships, in the late 1800's.

Following 1882, the US Navy considered many of its ship designs outdated and began to redesign and build naval ships in earnest. Its New London base along the Thames was transformed in the early 20th century to the Naval Submarine Base in Groton. The first diesel powered submarine, the USS *E-1 (SS-24)*, was commissioned in Groton in 1912. In 1919, Groton Iron Works launched the steel-hulled freighter Worcester for the Emergency Fleet Corporation of the US Shipping Boards. During World War II, the Electric Boat division of General Dynamics produced 74 submarines in Groton, more than any other American yard. On January 21, 1954, the first nuclear powered submarine, the USS *Nautilus*, was launched in Groton by Electric Boat. At its peak, Electric Boat employed over 12,000 people and produced two submarines per month. Electric Boat continues to build and maintain submarines for the Navy.

COASTAL TOURISM

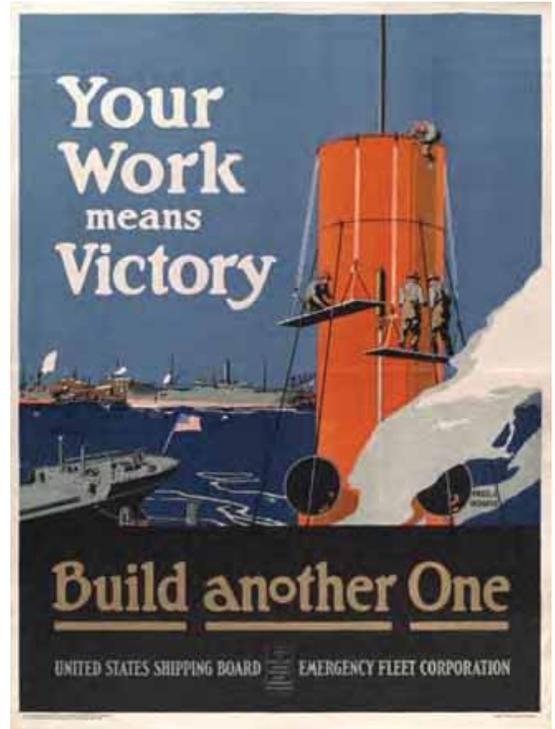
In the late nineteenth century and early twentieth centuries, development grew to support summer coastal tourism. In 1904 the Shoreline Railroad opened, bringing access for summer tourists. Especially popular were the village of Noank, the Griswold Hotel in Eastern Point at Shennecossett, and later Groton Long Point. Morton Plant arrived in Groton during this period, developing the Branford House on Avery Point. He would build the new Town Hall in 1908, and in 1911, he developed the New London Ship and Engine Company (Nelsec). To support the tourists, golf and yachting infrastructure was developed.

20TH CENTURY DEVELOPMENT

Following World War II and the beginning of the Cold War, the Navy increased production of submarines, and local industrial and military facilities grew to support that need. The construction of I-95 through Groton relieved traffic pressure on Route 1, and allowed for large scale commercial development along Route 1, and Routes 184 and 12. It has decentralized much of the residential development as well, as new housing could be automobile oriented, and located near Route 1, rather than within walking distance to village centers.

In 1946, Charles Pfizer & Co., Inc. first purchased land in the Groton. Pfizer's first Research & Development (R&D) facilities opened in Groton in 1959, and continue to operate in Groton today, employing over 6,000 people.

The twentieth century also saw the creation of new political boundaries within Groton. In 1903, the Borough of Groton was created, and in 1964 was renamed the City of Groton. Noank Fire District was established in 1929, and Groton Long Point was established in 1921, largely to provide fire protection and road maintenance to the beach community.



Frederick J. Hoertz, The Wolfsonian–Florida International University, Miami Beach, Florida, The Mitchell Wolfson, Jr. Collection

GROTON'S REGIONAL ROLE

Groton has a strong position in the regional economy, acting as a major employment center. Groton has 1.4 jobs for every resident member of the labor force, and 1.4 jobs per housing unit. Employment in Groton has been in a declining trend for the past decade as major employers adjust their operations to recessionary pressures and changing markets. However, Groton remains a significant State employment center, even as the economy continues to slowly transition from goods producing to a service-based economy.

At the beginning of 2014, announcements by Electric Boat and Pfizer point to a return to relative employment stability for the near term. Electric Boat plans a \$100 million upgrade to its facilities in Groton to accommodate construction or refitting four types of submarines over the next decade.

Virginia-class submarines will have new modules installed, two Los Angeles-class submarines will be converted to training platforms and work on a new class of ballistic-missile submarine gets underway. Pfizer announced that it anticipated maintaining its workforce of 3,400 employees and 3,100 contract employees at its research and development campus in Groton for the foreseeable future. It is also working with the State and CURE (Connecticut United for Research Excellence) to make available unused research buildings for bioscience start-ups.



COMMUTING

The Town of Groton has an estimated 21,567 workers, of which about 55% (11,831) are employed in Groton itself. The residents of Groton tend to work fairly close to home, with about 22% commuting to the directly neighboring towns of New London, Ledyard, and Stonington, and a 15% commuting to somewhere else in New London County. Almost 92% of workers stay within New London County.

The Town of Groton draws in more people than commute outwards for work. About 33,454 people work in Groton, with about 35% being residents (11,831). The adjacent towns of New London (1,990), Ledyard (2,793) and Stonington (1,694) contribute about 19% of workers commuting into Groton. About 84% (27,948) of Groton's workforce originates within New London County. About 8% (2,735) of workers commute to Groton from other counties in Connecticut, with nearly half coming from northern adjacent Windham County (1,160). About another 8% (2,771) of commuters come from out of state to work in Groton, nearly all of them from nearby Rhode Island (2,235).

Journey to Work Patterns (2006-2010), Top Ten

Commute Into Groton	Number	Commute Out of Groton	Number
Ledyard, CT	2,793	New London, CT	2,066
New London, CT	1,990	Ledyard, CT	1,298
Norwich, CT	1,720	Stonington, CT	1,291
Stonington, CT	1,694	Waterford, CT	800
Waterford, CT	1,574	Norwich, CT	775
East Lyme, CT	1,401	Montville, CT	620
Montville, CT	1,338	East Lyme, CT	430
Westerly, RI	933	North Stonington, CT	200
North Stonington, CT	767	Old Saybrook, CT	191
Griswold, CT	509	Old Lyme, CT	189
GROTON RESIDENTS	11,831	GROTON RESIDENTS	9,736

Source: *American Community Survey 2006-2010 Commuting and Employment Data*

Jobs/ Housing/ Workers

Town	Jobs	Housing Units		Labor Force	
	Number	Number	Ratio	Number	Ratio
Groton	25,754	17,978	1.4	18,741	1.4
Ledyard	12,195	5,987	2.0	8,222	1.5
Montville	13,901	7,407	1.9	10,526	1.3
New London	14,128	11,840	1.2	14,210	1.0
Norwich	16,702	18,659	0.9	22,177	0.8
Stonington	7,131	9,467	0.8	10,152	0.7
Waterford	11,010	8,634	1.3	10,454	1.1
Connecticut	1,651,200	1,487,891	1.1	1,848,500	0.9

Source: 2012 Non-farm employment, *CT Department of Labor*; 2010 Total Housing units, *US Census*; 2012 Labor Force Data, *CT Department of Labor*

**Groton's Immediate Market Area
Employment by Town - 2012**

	Groton	Ledyard	Montville	New London	Norwich	Stonington	Waterford
Total Non-Farm Employment	25,754	12,195	13,901	14,128	16,702	7,131	11,010
Goods Producing	10,646	190	681	583	954	1,083	147
Mining	0	-	-	0	0	0	-
Construction	192	84	267	176	410	268	-
Manufacturing	*10,454	106	414	407	544	815	147
Service Producing	15,107	11,809	12,990	13,425	15,595	6,017	9,344
Utilities	-	0	-	-	0	0	-
Retail Trade	2,052	143	905	1,384	1,947	871	3,432
Wholesale Trade	477	38	102	277	694	176	191
Trans. & Warehousing	908	*	121	273	851	84	475
Information	66	*	*	418	191	106	141
FIRE	657	69	98	408	672	159	201
Professional and Technical	2,259	92	77	724	687	396	476
Mgmt. Of Companies	-	-	-	50	39	-	73
Admin. & Waste Management	248	73	54	502	337	158	262
Education	81	16	-	1,139	413	97	77
Health Care/Social Assistance	1,830	300	492	4,481	4,949	825	1,554
Arts, Entertainment & Rec.	182	49	10	135	-	834	138
Accommodation & Food Service	2,175	1,038	1,300	1,185	1,290	1,340	1,117
Other Services	576	131	238	510	680	259	238
Government	3,594	9,861	9,593	1,939	2,845	713	968
Nonclassified	-	0	-	0	-	0	-
Farm Employment	-	51	0	-	-	17	0

*Disclosure provisions of Connecticut's Unemployment Insurance Law prohibit the release of figures which tend to reveal data reported by individual firms. For 2012 data, Manufacturing information was withheld. The figure reported on the table is an estimate based on the difference between the total employment numbers less all given figures. As such, the Manufacturing estimate is likely to be high due to the inclusion of the suppressed Utilities and Mgmt. of Companies, Nonclassified, and Farm Employment categories.

Source: *CT Dept. of Labor, OCEW Program Data, 2011.*

PEOPLE OF GROTON

The 2010 U.S. Census population was 40,115, a slight increase of 0.5% from 2000. While Census numbers indicate that Groton gained and lost approximately 5,000 people between 1990 and 2000, as shown in Groton Historic and Projected Population 1960-2025, town officials have indicated that the 1990 Census inaccurately counted Naval Base residents and that the community did not actually experience a small population boom and bust. Assuming the 1990 figure over-counted military personnel, the Town's total population has been remarkably stable since 1970, between 38,000 and 41,000 residents.

Groton's population stability is in contrast to a largely growing region. As shown in Population Change in New London County 1960-2010, Groton experienced among the lowest growth in New London County from 2000 to 2010. While there are many rural communities in New London County, both Norwich and New London, communities more similar to Groton in terms of size and character, experienced significantly stronger growth than Groton from 2000 to 2010. Norwich gained 12.1% and New London 7.6% in that time period. However, recent growth in Norwich and New London contrasts with population decreases in those cities from 1970 to 2000, when Groton's population was continuously growing slowly.

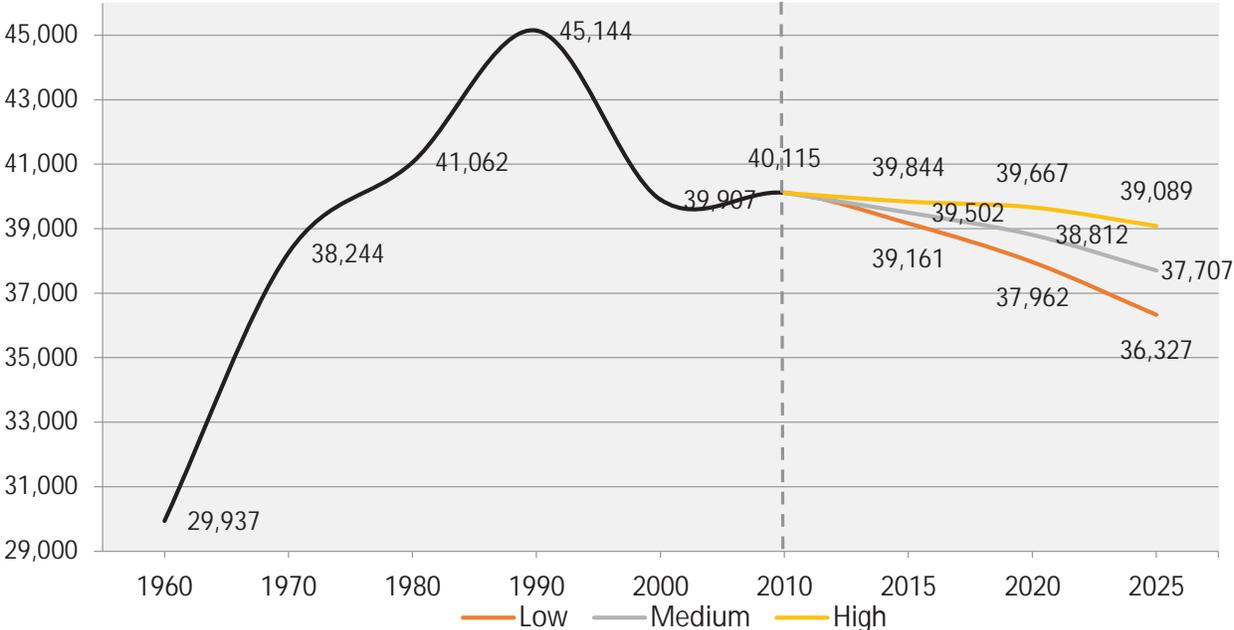
Population Change in New London County 1960-2010

	1960	1970	1980	1990	2000	2010	1960-2010	2000-2010
Lyme	1,183	1,484	1,822	1,949	2,016	2,406	103.4%	19.3%
Norwich	38,506	41,739	38,074	37,391	36,117	40,493	5.2%	12.1%
Bozrah	1,590	2,036	2,135	2,297	2,357	2,627	65.2%	11.5%
Griswold	6,472	7,763	8,967	10,384	10,807	11,951	84.7%	10.6%
Colchester	4,648	6,603	7,761	10,980	14,551	16,068	245.7%	10.4%
Salem	925	1,453	2,335	3,310	3,858	4,151	348.8%	7.6%
New London	34,182	31,630	28,842	28,540	25,671	27,620	-19.2%	7.6%
Lisbon	2,019	2,808	3,279	3,790	4,069	4,338	114.9%	6.6%
North Stonington	1,982	3,748	4,219	4,884	4,991	5,297	167.3%	6.1%
Lebanon	2,434	3,804	4,762	6,041	6,907	7,308	200.2%	5.8%
East Lyme	6,782	11,399	13,870	15,340	18,118	19,159	182.5%	5.7%
Montville	7,759	15,662	16,455	16,673	18,546	19,571	152.2%	5.5%
Franklin	974	1,356	1,592	1,810	1,835	1,922	97.3%	4.7%
Stonington	13,969	15,940	16,220	16,919	17,906	18,545	32.8%	3.6%
Voluntown	1,028	1,452	1,637	2,113	2,528	2,603	153.2%	3.0%
Old Lyme	3,068	4,964	6,159	6,535	7,406	7,603	147.8%	2.7%
Ledyard	5,395	14,837	13,735	14,913	14,687	15,051	179.0%	2.5%
Waterford	15,391	17,227	17,843	17,930	19,152	19,517	26.8%	1.9%
Preston	4,992	3,593	4,644	5,006	4,688	4,726	-5.3%	0.8%
Groton	29,937	38,244	41,062	45,144	39,907	40,115	34.0%	0.5%
Sprague	2,509	2,912	2,996	3,008	2,971	2,984	18.9%	0.4%
County Total	185,745	230,654	238,409	254,957	259,088	274,055	47.5%	5.8%

Source: U.S. Census 1960, 1970, 1980, 1990, 2000 and 2010

The Connecticut State Data Center at the University of Connecticut has projected populations for Groton based on high, medium and low levels of fertility. The projections are shown in *Groton Historic and Projected Population 1960-2025*. The projections show overall continued stability in the population over the next ten years. The low-fertility level projection, which represents a worst-case scenario, projects a decline of only by about 5%. The high-fertility level projections are for only a 1% decrease by the year 2020.

Groton Historic and Projected Population 1960 - 2025



Source: U.S. Census, Projections from CT State Data Center and UCONN, June 2012

Population changes result from natural increase (births - deaths) and net migration. Overall, annual births in Groton have declined during the last decade, as shown in Groton Natural Increase, 2000-2010. However, other communities and the State have experienced a more significant decline in annual births than the Town of Groton. Indeed, national fertility and birth rates have declined precipitously since 2007 according to the National Center for Health Statistics.

The number of deaths each year has remained relatively stable. The Town's natural increase from 2000 to 2010 was approximately 3,700 people. Given that the 2010 Census indicated a gain of only 208 residents between 2000 and 2010, one can assume the community experienced an out-migration of approximately 3,500 people over the last decade.

In contrast to State and regional trends, Groton's population did not significantly age between 2000 and 2010. The median age in Groton was only 33 in 2010, up just 1.5% from 2000 figures. These numbers reflect the influence of Navy personnel and their families on the demographics of Groton. As Change in Median Age in New London County 2000-2010 shows, the New London County region experienced significant aging between 2000 and 2010. Only New London experienced a decline in median age. The median age for the State in 2010 was 40, up 7% from 2000.

Groton Natural Increase, 2000-2010

Year	Births	Deaths	Natural Increase
2000	660	323	337
2001	631	293	338
2002	619	304	315
2003	682	332	350
2004	643	281	362
2005	653	259	394
2006	639	309	330
2007	627	291	336
2008	642	292	350
2009	592	290	302
2010	589	297*	292
TOTAL	6,977	3,271	3,706

* Data not available, estimated using long-term average

Source: CT Dept. of Public Health

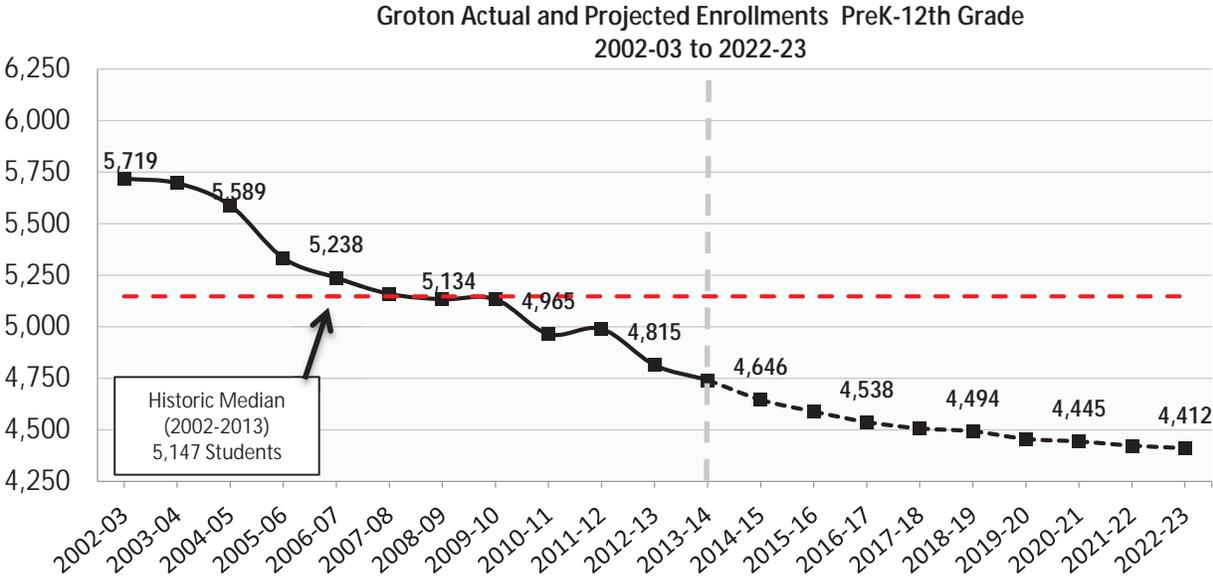
Change in Median Age in New London County 2000-2010

	2000 Median Age	2010 Median Age	Change
New London	31.2	30.3	-2.9%
Groton	32.5	33	1.5%
Norwich	36.9	38	3.0%
Sprague	37.1	38.5	3.8%
Griswold	36.7	39.6	7.9%
Ledyard	37.1	40.6	9.4%
Bozrah	40.1	43.9	9.5%
Lyme	47.1	51.6	9.6%
Franklin	39.9	44.1	10.5%
Waterford	41.7	46.1	10.6%
Montville	36.5	40.7	11.5%
Lebanon	38.2	42.7	11.8%
Preston	41	45.9	12.0%
Stonington	41.7	46.8	12.2%
Salem	37.1	41.8	12.7%
Lisbon	39	44	12.8%
East Lyme	39	44.3	13.6%
Old Lyme	42.9	48.8	13.8%
Colchester	35.3	40.6	15.0%
North Stonington	39.6	45.9	15.9%
Voluntown	36.3	42.8	17.9%

Source: U.S. Census 2000 and 2010

Looking more specifically at changes in population by age cohorts within Groton, it is evident that Groton has experienced a loss in children and young working age population, despite its relatively stable median age. Groton Change in Population by Age Group, 2000-2010 shows changes by age groups from 2000 to 2010. The increase in 18- to 24-year old population and the sizeable 25- to 34-year old population maintain a relatively young median age. The loss of children and increase in older age groups has implications on facilities and service planning for the Town.

A significant decline in the population under 18 can have an impact on a community’s school system. As part of a schools redistricting process, the Groton Public Schools system recently had enrollment projections for the district prepared by Milone & MacBroom, Inc. The study showed that the overall school system has experienced a decline of about 18% since 2002, and is projected to further decline over the next five years, albeit at a much slower rate, as shown in Groton Actual and Projected Enrollments PreK-12th Grade, 2002-03 to 2022-23.

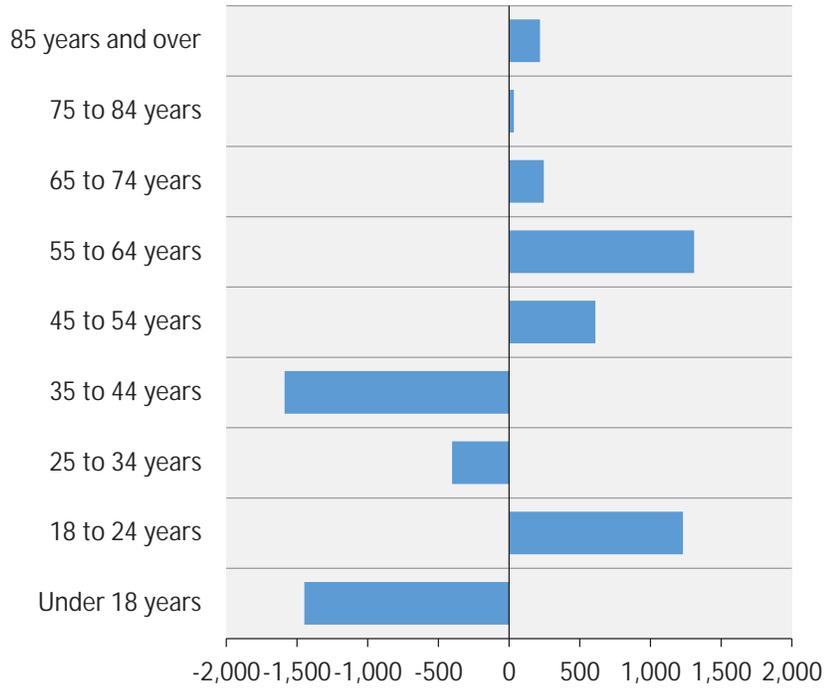


Prepared for the Board of Education by Milone & MacBroom, Inc. 2014.

Groton’s racial composition is similar to the composition of New London County. Groton 2010 Racial Composition shows the breakdown of Groton’s 2010 population by race. The majority, or 78%, is white. This is less than but comparable to New London County where the 2010 population was 84% white. As shown in Table 9, Groton has seen an increase in reported American Indian and Native Alaskans, Asians, Other Races and Multi-Racial population. Some of these increases may be the result of self-reporting differences.

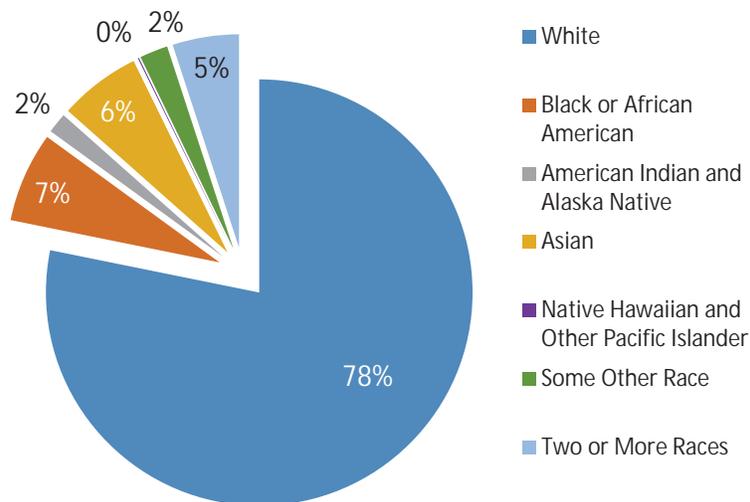
The Hispanic population, of any race, in Groton grew by 78% from about 2,000 people in 2000 to 3,575 in 2010. That is in line with growth in the Hispanic population throughout New London County, which was about 75% from 2000 to 2010.

Groton Change in Population by Age Group, 2000-2010



Source: U.S. Census 2000 and 2010

Groton 2010 Racial Composition



LAND USE

The Town of Groton has a total area of approximately 20,612 acres or 32 square miles. Groton contains a variety of land uses including industrial, commercial, residential, institutional, and open space.

As part of the study of existing land use and development potential, an analysis was prepared based on the Town’s digital parcel base map. Groton’s land records are incorporated into this parcel base map so that information such as land use, zoning, and property assessment value can be displayed and analyzed on a town wide, parcel-by-parcel basis. While utilizing detailed information of this type for quantifying land use patterns and estimating development potential is more accurate a method then used in the past, it is important to recognize that the purpose of this study is only to provide a generalized assessment of land use characteristics and indicate growth trends and potential for the future.

The joining of the digital base map and corresponding property records from the assessor’s database, resulted in a detailed *Existing Land Use Map* and inventory for all parcels in the Town. The *Existing Land Use* map was field verified during August and September of 2012, using the following Land Use categories.

LAND USE CATEGORIES

RESIDENTIAL	1-2 Family: Includes single-family and/or two-family houses, along with mobile and manufactured homes on individual parcels
	Multi-Family: Three or more units on a parcel
	Mobile Homes: Park sites of mobile homes
	Residential Navy Housing: Includes single-family and multi-family housing supporting the naval base, owned or operated by the federal government
COMMERCIAL	Commercial Retail: Includes retail sales and services operations; animal services; eating and drinking establishments; automotive sales/ services; driving ranges; and other commercial recreation.
	Offices: Includes commercial professional and medical office uses
	Lodging: Includes commercial hotel, motel, inn, bed & breakfast, and other lodging uses
	Marine Business: Includes commercial and industrial uses dependent on water access or proximity, such as marinas, boatyards, commercial fishing operations, etc.
INDUSTRIAL	Includes manufacturing, research and development, warehousing, storage, and earth processing
PUBLIC/ INSTITUTIONAL	Community Facilities: Includes local-government owned buildings and facilities such as schools and their associated grounds and facilities; transfer stations; lands dedicated to flood control; water company lands with structures or buildings; and public service facilities such as senior centers, fire stations, police stations, etc.
	Naval Base: Include federally owned naval property (as distinguished from naval housing)
	Other State Facilities: Includes state lands and facilities otherwise not classified
	Institutional: Includes private institutional uses such as places of religious worship, private schools, state or private universities, museums, daycare, and other non-profit facilities
OPEN SPACE AND PARKS	Includes parks and recreation that are maintained for active recreation, open space and parks in a natural state that are not maintained for active recreation, public & private parks, playgrounds, camping areas, golf courses, beaches, cemeteries, and water company holdings with no structures
TRANSPORTATION	Airport: Includes Runways, hangars and other supportive aviation facilities
	Parking: Includes standalone surface and structured parking
	ROW: Public rights-of-way including those for roads, train corridors, and “paper” streets
VACANT	Includes undeveloped parcels
AGRICULTURE	Includes Agriculture, Aquaculture, and Silviculture. Also includes parcels with a Connecticut Public Act 490 Agriculture tax adjustment

The 2012 Land Use Distribution Summary below is a summary of the major land use categories and a calculation of percent change since the 1998 land use inventory.

2012 Land Use Distribution Summary*

Land Use Category	Area (Acres)	Percent of Town's Land Area	Percent Change 1998-2012 ⁽¹⁾
Residential	5,908	29.0%	15%
Commercial	697	3.4%	24%
Industrial	627	3.1%	17%
Public Institutional ⁽²⁾	1,859	9.1%	13%
Parks & Open Space	4,694	23.0%	10%
Transportation/ Roads ⁽³⁾	2,562	12.6%	1%
Developed/ Committed	16,347	80.2%	16%
Vacant	2,946	14.5%	
Agriculture	1,084	5.3%	
Total Land Area	20,377	100%	

Source: Tax Assessor 2012

*Land Use does not include Town Parcels classified as Water

⁽¹⁾ Based on 2002 POCD, 1998 Land Use Inventory

⁽³⁾ Includes all Infrastructure, including the Airport's 489 acres

⁽²⁾ Includes Private Institutions

While some differences in inventory methodology and categorization of land uses between 1998 and 2012 exist, it is helpful to compare land use characteristics between decades in order to identify general trends in land development. Because of differences in source data and methodology, direct comparisons of individual land use categories from 2002 and 2012 are not completely accurate indicators of growth.

Groton has continued to develop and mature as a community in all respects particularly in the industrial, residential, commercial and parks and opens space which experienced growth of 17%, 15%, 24% and 10% respectively. The top three land use categories in 2012 are Residential (29%), Open Land (44%), and Institutional/Infrastructure (22%). Approximately 80% of the land in Groton is committed to a land use.

RESIDENTIAL DEVELOPMENT POTENTIAL

The results of the residential development potential analysis indicate that, based on existing zoning, approximately 4,530 additional dwelling units could be built within the Town's residential zones at full build-out. This represents an approximate 25% increase over the 17,978 existing dwelling units enumerated during the 2010 Census. Ninety percent of these potential units are in Single Family Zones, with fewer than 500 potential units in multi-family Zones.

In 2010, the Town had an average household size of 2.31; therefore, these units have the potential to increase the population by 10,464 people at full build-out, yielding a potential for a total population of 50,579 person in the Town. See section on "Residential Build Out" on page 91.

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Following the last POCD, zoning changes were made in 2002, based on recommendations from the plan, which removed two-family homes as-of-right in the RU-40 and RU-80 zones. This resulted in a decrease in the potential yield of dwelling units by an estimated 800 dwelling units in RU-40 and RU-80 zones.

Since 2007, there has been an average of 48 annual housing permits. If this trend continues for the next ten years, there would be an estimated additional 480 units of housing built by 2023. In 2010, the Town had an average household size of 2.31; therefore, these units would have the potential to increase the population by 1,109 people.

Existing Land Use

Residential

- 1-2 FAMILY
- MULTI-FAMILY
- MOBILE HOMES
- RESIDENTIAL NAVY BASE

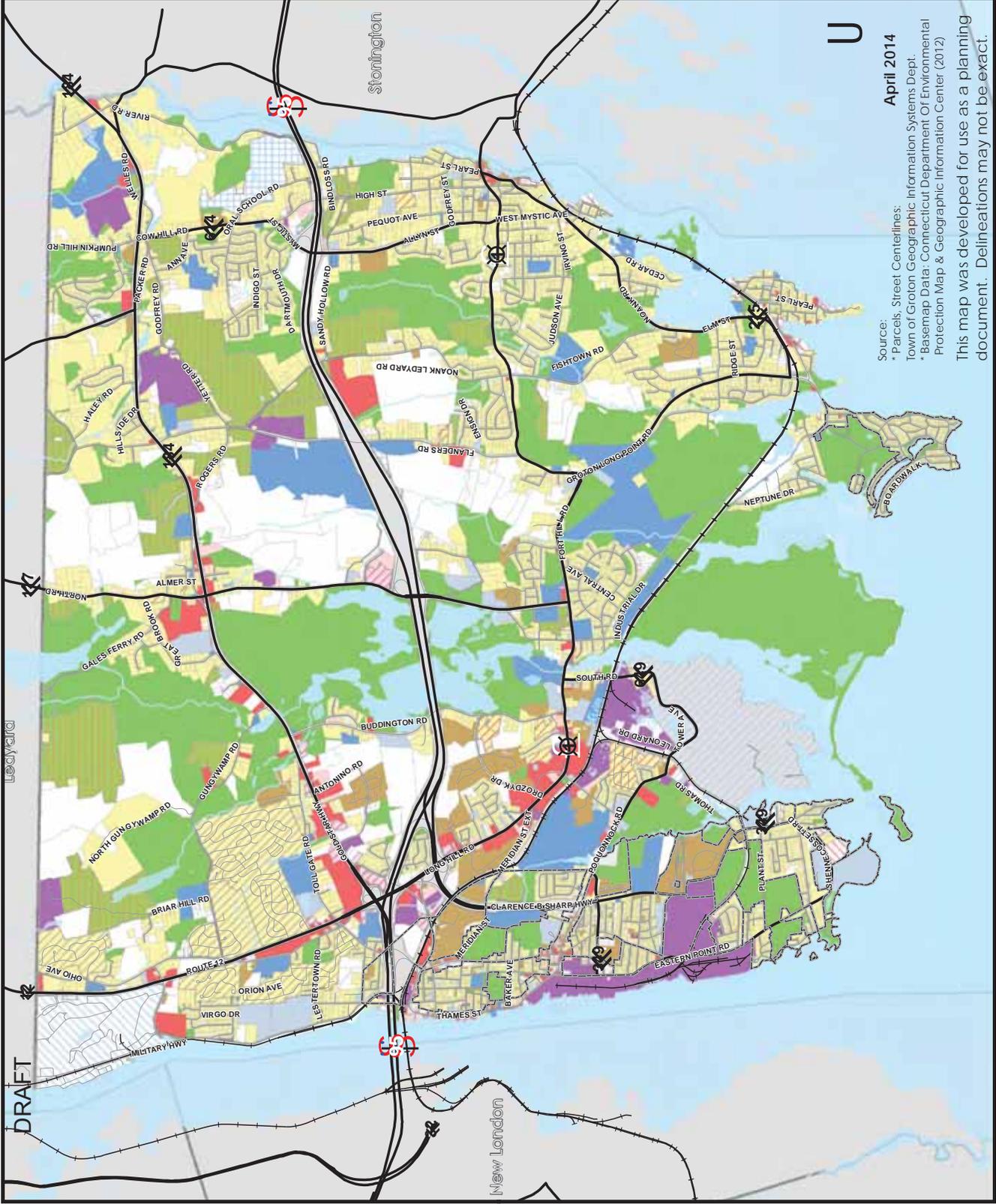
Commercial

- COMMERCIAL RETAIL
- OFFICES
- LODGING
- MARINE BUSINESS
- INDUSTRIAL

Open Space and Institutional

- COMMUNITY FACILITIES
- AIRPORT
- NAVAL BASE
- OTHER STATE FACILITIES
- INSTITUTIONAL

- AGRICULTURE
- OPEN SPACE
- PARKING
- VACANT



Source:
 * Parcels, Street Centerlines:
 Town of Groton Geographic Information Systems Dept.
 * Basemap Data: Connecticut Department Of Environmental
 Protection Map & Geographic Information Center (2012)
 This map was developed for use as a planning
 document. Delineations may not be exact.

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FISCAL

Due to the variety of governmental organizations in Groton, it is very difficult to compare local revenues and expenditures with other jurisdictions. For example, fire protection expenditures (which may be included in other town's municipal expenditures) are levied separately in Groton and are not included in local expenditures. However, Groton has a typical tax base for a community of its size based on the Equalized Net Grand List (ENGL), a measure of the market value of all property in a community.

Groton's total taxable assessed value has increased by 70.2 percent between FY2003 and FY2012. The split between residential property and commercial property has changed from 55% and 33% in FY2003 to 59% and 31% in FY2012. Therefore, residential property has grown as a percentage of total taxable assessed value while commercial property has declined over the past decade. The taxable assessed value of residential property has risen by 81.3% over the decade while commercial property has risen by 60.2%. Maintaining a grand list with a substantial commercial property component is key to a favorable tax revenue position.

Tax Base Comparison
 (ranked by 2011 Population)

State Rank By Population	Town	Population	2010 Net Grand List	Equalized Grand List	Equalized Grand List/Capita	Net FY 2011 Equalized Mill Rates
20	Middletown	47,749	\$4.963B		\$108,287	19.59
21	Wallingford	45,062	\$5.959B		\$147,461	15.64
22	Enfield	44,686	\$4.158B		\$105,553	16.08
23	Southington	43,103	\$5.622B		\$133,771	16.71
24	Norwich	40,408	\$2.942B		\$77,905	18.11
25	Groton	40,038	\$5.219B		\$149,196	12.77
26	Shelton	39,954	\$6.465B		\$170,645	14.19
27	Trumbull	36,376	\$6.674B		\$178,448	19.24
28	Torrington	36,167	\$3.280B		\$93,530	22.24
29	Glastonbury	34,454	\$5.718B		\$168,420	21.06
30	Naugatuck	31,810	\$2.503B		\$83,534	24.31
	State Average				\$150,019	16.72
	State Median				\$138,977	17.16

Source: *Connecticut Office of Policy & Management*

Equalized New Grand List is an estimate of all taxable property in a municipality by OPM

**Town of Groton
Principal Taxpayers, Current Year and Nine Years Ago (In Thousands)**

Taxpayer	Nature of Business	2013			2004		
		Taxable Assessed Value	Rank	Percentage of Gross Taxable Assessed Grand List	Taxable Assessed Value	Rank	Percentage of Gross Taxable Assessed Grand List
Pfizer, Inc.	Pharmaceutical	\$587,665	1	13.30%	\$379,263	1	15.30%
Electric Boat Corp.	Submarine Mfg./R&D	\$215,640	2	4.80%	\$159,541	2	6.40%
LCOR Groton Apts. LLC	Ledges Apartments	\$21,454	3	0.70%	N/A	N/A	
Exit 88 Hotel LLC	Mystic Marriott Hotel	\$20,456	4	0.50%	\$10,501	4	0.40%
Groton Dev. Assoc Ltd	Country Glen Apartments	\$17,533	5	0.50%	\$11,354	3	0.40%
CW Groton Square LLC	Groton Square Shopping Center	\$14,518	6	0.40%	\$10,484	5	0.40%
ELK La Triumphe LLC	LaTriumphe Apartments	\$14,501	7	0.40%	\$9,425	7	0.30%
Groton Estates LLC	Colonial Manor Apartments	\$12,232	8	0.30%	\$8,313	9	0.30%
Branford Manor Assoc	Apartment Complex	\$10,932	9	0.30%	\$9,116	8	0.30%
CSC Outsourcing	Leased Equipment at EB	\$10,512	10	0.30%	\$9,587	6	0.30%
Groton Assoc of CT LP	Convalescent Home				\$7,679	10	0.30%
		\$925,443		21.50%	\$615,264		24.80%

Source: Comprehensive Annual Financial Report, June 30, 2013, *Town Assessor's Office*

FISCAL PARAMETERS OF DIFFERENT USES

A fiscal analysis determines whether the general fund tax revenues generated to the Town of Groton by a particular land use are greater than the Town expenditures associated with that land use. Fiscal parameters are not the only criteria on which municipal policy, especially conservation and development decisions, should be made. Such findings need to be balanced with environmental, physical, social, and economic implications.

Residential uses: Due to education expenses, several residential uses in Groton generally receive more in services than they pay in taxes. For example, single-family dwellings, apartments, and mobile homes typically receive more in services than they pay in taxes. Condominiums and undeveloped residential land and lots pay more in taxes than they receive in services. Generally, if a dwelling unit contains no school children, it likely pays more in taxes than it receives in services. For example, the Ledge Apartments are the third highest tax payer, and generate very few school aged children.

Commercial/Industrial/Public Utility Uses: Non-residential uses typically pay more in taxes than they receive in services because they receive no direct benefit from local education expenses.

Private Open Space: Land that is privately owned but assessed as farm, forest, or open space land under the Public Act 490 program (codified as CGS Section 12-107e) has a positive fiscal impact on the Town since it pays more in taxes than it receives in services.

Tax Exempt Uses: Since tax exempt uses pay no taxes yet receive some services from the Town, they typically have a negative fiscal impact.

State properties in Groton include open space land (such as Bluff Point and Haley Farm) and facilities (such as Avery Point, Groton/New London Airport, DOT facilities, etc.). Groton received about \$1.2 million from the state for payments in lieu of taxes (PILOT) for state properties in 2012. While some services are provided to these properties and facilities, the PILOT payments are estimated to cover these expenses. Connecticut is unique in the nation for having municipalities reimbursed by the state for tax-exempt properties. There is currently a proposal in the legislature to enact a Reverse PILOT program, where colleges and other traditionally tax-exempt uses would start paying taxes in their municipalities, with partial reimbursement by the state. Any changes to the PILOT program could have impacts on Groton's fiscal parameters.

Municipal facilities in Groton include all Town-owned land and facilities such as schools, Town Hall, public works, police, recreation, libraries, senior center, and other sites. While these uses require local expenditures but pay no taxes, they are the facilities that are used to provide municipal services and the costs are incorporated elsewhere in the municipal budget.

Other tax-exempt uses include educational, historical, charitable, and religious land and facilities. Again, while these uses require local expenditures but pay no taxes, they are facilities that typically enhance community character and quality of life.

COMMUNITY INPUT

The preparation of this Plan of Conservation and Development update included public input throughout the Plan drafting process. This input included a community-wide internet-based survey containing questions regarding all facets of the Plan’s topical chapters, which garnered 280 responses; and two, two-hour public workshops held in May and November 2013.

PUBLIC WORKSHOPS

The first public workshop held in mid May 2013 provided Groton residents with the opportunity to review and comment on topical memoranda prepared to date and to actively engage in the development of goals and objectives for the Town’s future. After an initial presentation of pertinent data gathered and conclusions drawn for topics such as demographics, housing, economic development and natural resources, “break out” sessions were held where members of the public could go to multiple Plan topic “stations”, discuss with one another the findings and implications for each topic area, and use large scale

maps to design and compose their own appropriate goals and objectives for consideration.



Community Input at the Public Open House

The second public workshop held in late November 2013 provided an opportunity to present to the public the initial goals and strategies developed for the Plan of Conservation and Development. These goals and strategies were presented and discussed with the public. Feedback was gathered from the attendees to help refine and improve the initial goals and strategies presented.

GROTON POCD COMMUNITY SURVEY

The Groton POCD Community Survey was intended to gather information from residents to inform the Plan of Conservation and Development (POCD) update. The questions were about quality of life, recreation, land use, economic development, and other topics in Groton. The survey was available online from the end of July to December 18, 2013, and advertised in local newspapers as well as on the Town website. 280 total Groton residents submitted responses. People taking the survey were able to skip questions, so the total pool of respondents for each question did not always equal the full 280 respondents.

The most heavily represented age demographic was 45 to 65 year olds at 34.3% (92 respondents), with another 32.5% in the under 25 age range (87 respondents). Roughly 60 of the respondents under the age of 25 were high school students involved in a civics class that participated in the survey.

The top three occupations of respondents were: Business, Financial, Architecture, and Engineering occupations (25.7%, 65 respondents), Health, Life Science, Physical Science, and Social Science

occupations (14.2%, 36 respondents), and Arts, Design, Entertainment, Sports, and Media occupations (5.9%, 15 respondents). A further 36.0% (91 respondents) selected Currently Unemployed, which is likely impacted by the number of high school students that took the survey.

Residents in Groton are largely happy with their community. When asked, "If you live in Groton, are you generally happy with your neighborhood?" 88.2% answered yes, and 11.8% answered no. When asked about neighborhood concerns, only 27 respondents selected an answer. Of these, 55.6% (15 respondents) selected "blight/poorly maintained homes or properties."

When asked about their reason for choosing Groton as a place to live, work, or visit, 36.8% (95 respondents) chose "Location (close to work/transportation)". Close behind were Friends/Family (29.5%, 76 respondents), Neighborhood (22.5%, 58 respondents), and Job was here (22.1%, 57 respondents).

Residents were asked "What housing types should Groton plan for MORE of in the future?" Respondents were able to choose more than one option. 48.1% (113 respondents) chose Affordable Housing, 41.7% (98 respondents) chose single family houses, 27.2% (64 respondents) chose senior housing (nursing homes, retirement communities, 55+ communities, etc.), 22.1% (52 respondents) chose multi-family house (apartments, condos, etc.), and 15.3% (36 respondents) chose assisted living facilities.

Groton has very limited underdeveloped land available for large scale business or industrial expansion and development. A full 63.9% (154 respondents) strongly agreed with the statement that "The Town should maximize use of existing developed business/industrial areas." Respondents also strongly agreed that "The Town should pursue new evolving options like mixed use concepts for these areas" (91) and "The Town should streamline development permitting in these areas" (77).

The majority of respondents meet their daily transportation needs by driving (82.0%, 168 respondents). While some respondents get around Groton by walking "Once in a while" (39.1%, 70), the majority "Never" bike (59.4%, 98) or take the bus (78.4%, 127). When asked what changes would encourage them to take the bus more, respondents were more likely to select extended routes ("If the buses went where I needed to go," 80; "If the buses came more often," 62), or if routes and times were better known ("If I knew where the buses went," 62; "If I could check schedules on my smart phone/computer" 47). When asked what changes would encourage them to bike more, most respondents selected infrastructure improvements ("If there were more bike lanes...", 92; "If there were more bike trails...", 71). Similarly, 44.4% (88 respondents) would walk more "If there were more sidewalks."

For most categories of Parks and Open Space in Groton, most respondents feel that Groton's supply is "Just Right" (athletic fields, tennis courts, golf courses, picnic areas, playgrounds, dog parks, public boat launches, fishing areas, handicapped accessible parks, natural areas, and hiking trails). Of the facilities that respondents felt that Groton has too few of, pool facilities was selected the most (56), followed by public beaches (46) and community gardens (30). Additionally, when asked how Town money for Open Space and recreation would best be spent, 88.0% (73) feel that money should be spent on "Maintaining the facilities we have" and 65.1% (54) selected "Providing more access to land we already own (new trails, new handicapped access, etc.)".



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PROMOTE COMMUNITY CHARACTER... 64



Beebe Pond

NATURAL RESOURCES

Natural resources are as vital to the community as any part of the built environment. Their continued conservation provides benefits to current residents and ensures the viability of the Town for future generations. Protecting natural resources is an important issue in the Plan since such efforts help:

- Guide development in balance with the natural environment
- Preserve vital natural functions and ecological services
- Improve the quality of life for existing and future generations

Protection of natural resources will require taking positive steps to identify and protect vulnerable environmental assets.

PROTECT WATER QUALITY AND WATER RESOURCES

Protection of water quality is Groton's most important natural resource preservation priority. In addition to the need to protect the drinking water supply for Groton residents, it is also significant in terms of protecting the overall health of Groton's ecosystem.

In 2008, Groton was included as part of a regional Drinking Water Quality Management Plan (DWQMP) that was developed as the first on of its kind in Connecticut. The DWQMP was designed as a tool to manage drinking water in a coordinated effort among the supplier, watershed communities, and end users to integrate planning at every level. Implementation of the DWQMP will also provide a framework for bridging barriers to land use and resource protection issues that span multiple jurisdictional layers between municipal boundaries and planning and regulatory bodies.

Specific recommendations from the 2008 DWQMP are:

1. Implement the DWQMP with full participation of stakeholders, including the water utility, the existing and future watershed communities, and the existing and future consumer communities.

2. Reach out to the leadership, commissions, and planning bodies in Groton, Ledyard, Preston, and North Stonington to formally engage these organizations in their role as watershed stewards. Equip these individuals and organizations with mapping and information to adequately identify sensitive resource areas such that the appropriate planning and review can take place and appropriate protective standards can be justified and applied



Bluff Point

while balancing economic development and public health protection. Review and modify local land use regulations as appropriate to be congruent with the goals and objectives enumerated in the DWQMP.

3. Work with state agencies through the Water Planning Council to coordinate efforts in these respective organizations relative to the implementation of the DWQMP, sharing information, data, and planning efforts, exploring possible technical assistance opportunities, collaborating on water resource planning management objectives, and identifying potential conflicts as well as working towards their resolution.

4. Effect specific changes in regional and municipal plans of conservation and development, local policies, and land use and resource regulations consistent with the principles of sound drinking water quality management. These include low impact development and state-of-the-art best management practices for land development.

5. Seek multiple and concurrent approaches to stormwater management. Require new development to utilize modern methods of stormwater management that provide for water quantity control and water quality protection. Implement centralized or regionalized approaches to stormwater management in areas that have been previously developed without the benefit of best management practices. Amend local regulations as necessary to accommodate the application of low impact development by developers. Finally, strive for consistency in local stormwater regulations in the member watershed towns.

6. Institute changes in the manner in which streets are maintained within the existing and future water supply watersheds, including state-owned streets and highways.

7. Explore alternate and equitable sources of revenue relative to funding stormwater management initiatives. Evaluate fair and effective means of placing the burden of post construction stormwater management system maintenance such that it is properly funded and executed.

8. Work with the Mashantucket Pequot Tribal Nation in Ledyard, the U.S. Navy in Groton, and the Connecticut Department of Transportation, with the goal of incorporating the principles and recommendations of the DWQMP in these operations.

9. Seek changes in legislation to place greater emphasis on source water protection in state grants and aid funding considerations.

10. Seek changes to modify the manner in which the State Conservation and Development Policies Plan is applied such that it is consistent with local plans of conservation and development and the DWQMP.

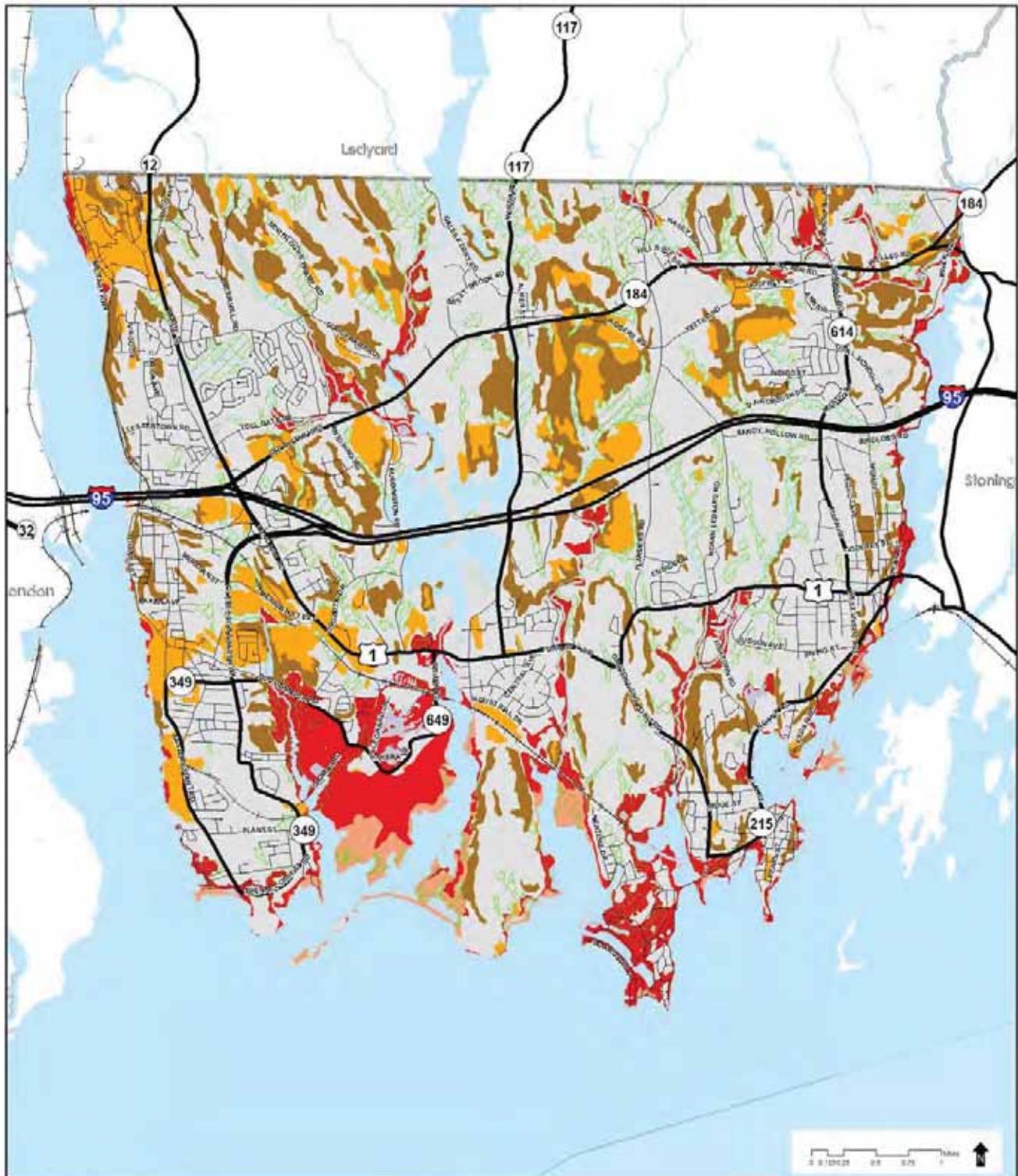
11. Take proactive measures to secure critical lands within the watershed in perpetuity.

12. Adopt a balanced approach to harnessing the recreational benefit of the large land holdings within the drinking water supply watersheds while maintaining an appropriate level of security of these resources.

13. Educate watershed stakeholders relative to the importance of the regional drinking water resource, its protection, and proper household spill response and waste management.

14. Expand the existing water quality monitoring program within the drinking water supply watershed to properly identify and track trends.

15. Maintain, upgrade as necessary, and properly manage the water treatment facilities within the region.



Areas Physically Sensitive to Development

- Wetland Soils
- Slopes > 15%
- 100-Year Flood Zone
- Coastal Flood Zone
- Shallow Soils (Max. Depth <60")

Sources:
 * Sheet Certified by Town of Groton GIS Dept.
 * State Roads & Highways USA (2011)
 * Wetlands and FEMA Data: Connecticut DEP
 Map & Geographic Information Center (2012)

This map was developed for use as a planning document. Definitions may not be exact.

April 2014

PROTECT OTHER IMPORTANT NATURAL RESOURCES

Some resources are so significant for preserving environmental quality or community character that efforts must continue to ensure that these resources are preserved. Preservation generally means to avoid altering these areas to the extent feasible and prudent. Resources for preservation can include: watercourses, sensitive habitat, inland and tidal wetlands, floodplains (100-year, 1.0% probability), and coastal "V" flood hazard areas (within the 100-year, 1.0% probability flood plains, and also have additional hazards with storm-induced waves).

Some important functions of other natural resources can be maintained while compatible activities take place nearby. While development in these areas is possible, it must be undertaken in a way that is sensitive to the conservation of other important resources. Resources for conservation can include: slopes exceeding 15%, floodplains (500-year, 0.2% probability), watersheds for public water supply, areas of high groundwater availability, and unique or special habitat areas.



View of Noank Harbor

FLOODPLAINS

There have been recent changes to the FEMA mapping that determines areas of 100-year and 500-year flood risks. A 2013 update to the coastal Digital Flood Insurance Rate Map (DFIRM) has resulted in some changes in coastal base flood elevations. An additional 228 acres became part of the 100-year floodplain, and 804 acres were added to the 500-year floodplain. These changes are not due to sea level rise, but only incorporate changes from improved modeling and analysis of coastal hazards such as storm surges. Sea level rise will eventually cause the FEMA base flood elevations to rise, putting currently unaffected elevations into 100-year and 500-year flood categories.

Groton has additional Flood Protection Regulations in the Zoning Regulations. These regulations have separate regulations depending on FEMA Flood Zone classification to protect floodplain resources. A Zones are areas within the 100-year floodplain where no hydraulic analyses have been performed. AE Zones are within the 100-year floodplain that have documented Base Flood Elevations (BFE), or flood depths. V Zones are coastal areas within the 100-year floodplain, which have additional hazards associated with storm-induced velocity wave action. VE Zones are V Zones that have documented BFEs. One recommendation from the Municipal Coastal Program is to hold coastal A Zones to the higher standards of the V Zones to create development that is more appropriate to flood-prone coastal areas. Groton's position as a coastal town means that it will continually have to evaluate development patterns and resource protection along its coast.

SIGNIFICANT HABITATS AND STATE LISTED SPECIES

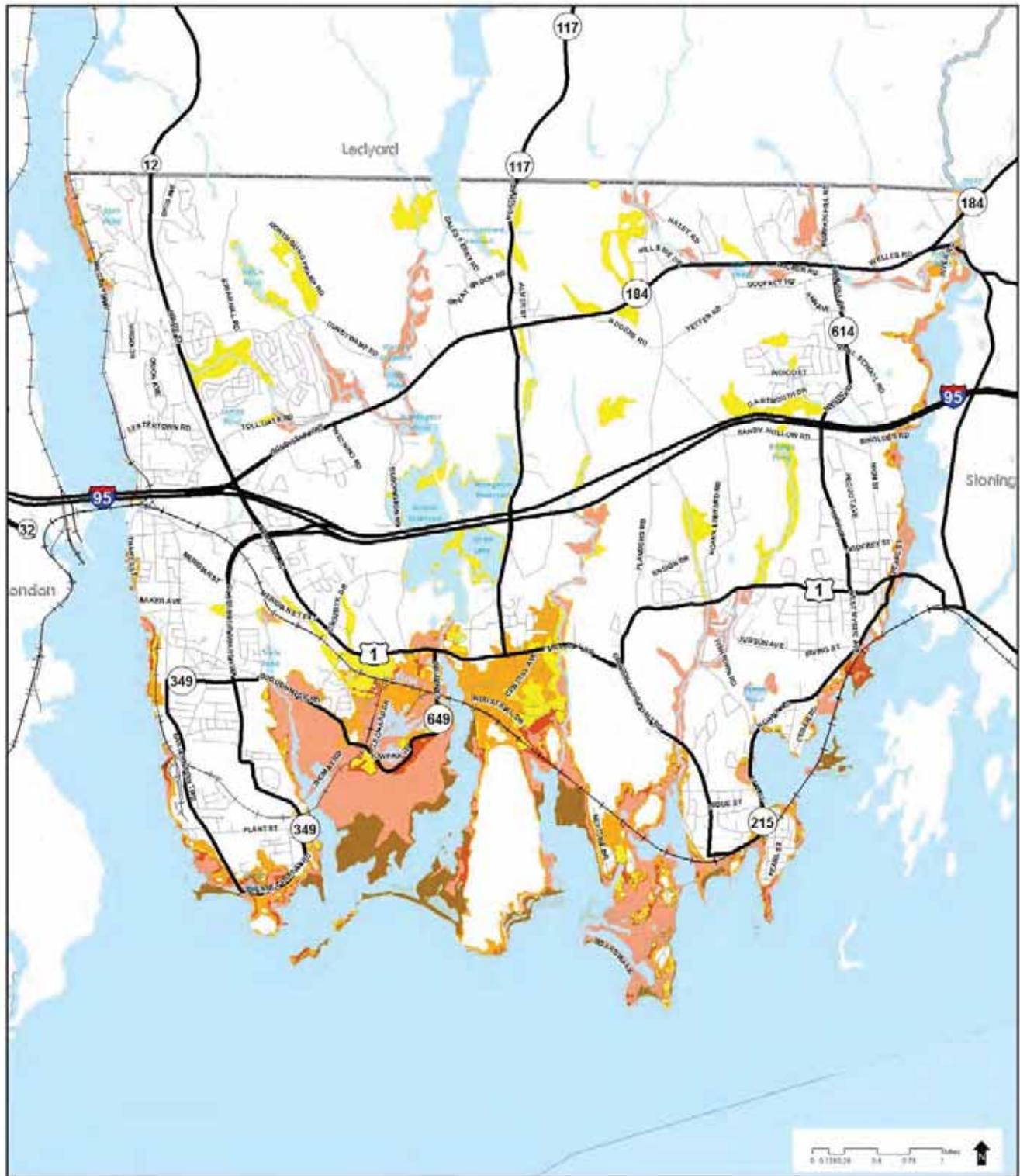
The variety of topography, forested lands, and coastal resources provide exceptional habitats for a variety of plants and animals. The CT DEEP has inventoried sites across the state that contain habitats of endangered, threatened and special concern species in the Connecticut Natural Diversity Database. The database represents years of biological surveys and identify areas that are unique and receive special protection status. The *Significant Habitat & State Listed Species* map highlights these areas. As is demonstrated in the map, Groton's high quality marine resources provide unique habitats.

WETLANDS

Wetlands have many defining characteristics: periods of standing water, saturated soil conditions, and specific organisms and vegetation that are adapted to or tolerant of saturated soils. In Connecticut, wetlands are defined by soil types, specifically soils that are classified as Poorly Drained, Very Poorly Drained, and/or Alluvial/Floodplain by the Natural Resources Conservation Service (NRCS) of the U.S. Geological Survey.

Wetlands provide highly productive natural ecosystems; habitat for a variety of plant and animal species, including threatened and endangered species; flood protection in their ability to store and slowly release flood waters; and serve to improve water quality through sediment and nutrient removal processes.

About 11% of Groton's land area, or approximately 2,190 acres, consists of wetland-designated soils. These areas are shown in the *Wetland Soils* map.



Groton
PLAN OF CONSERVATION + DEVELOPMENT

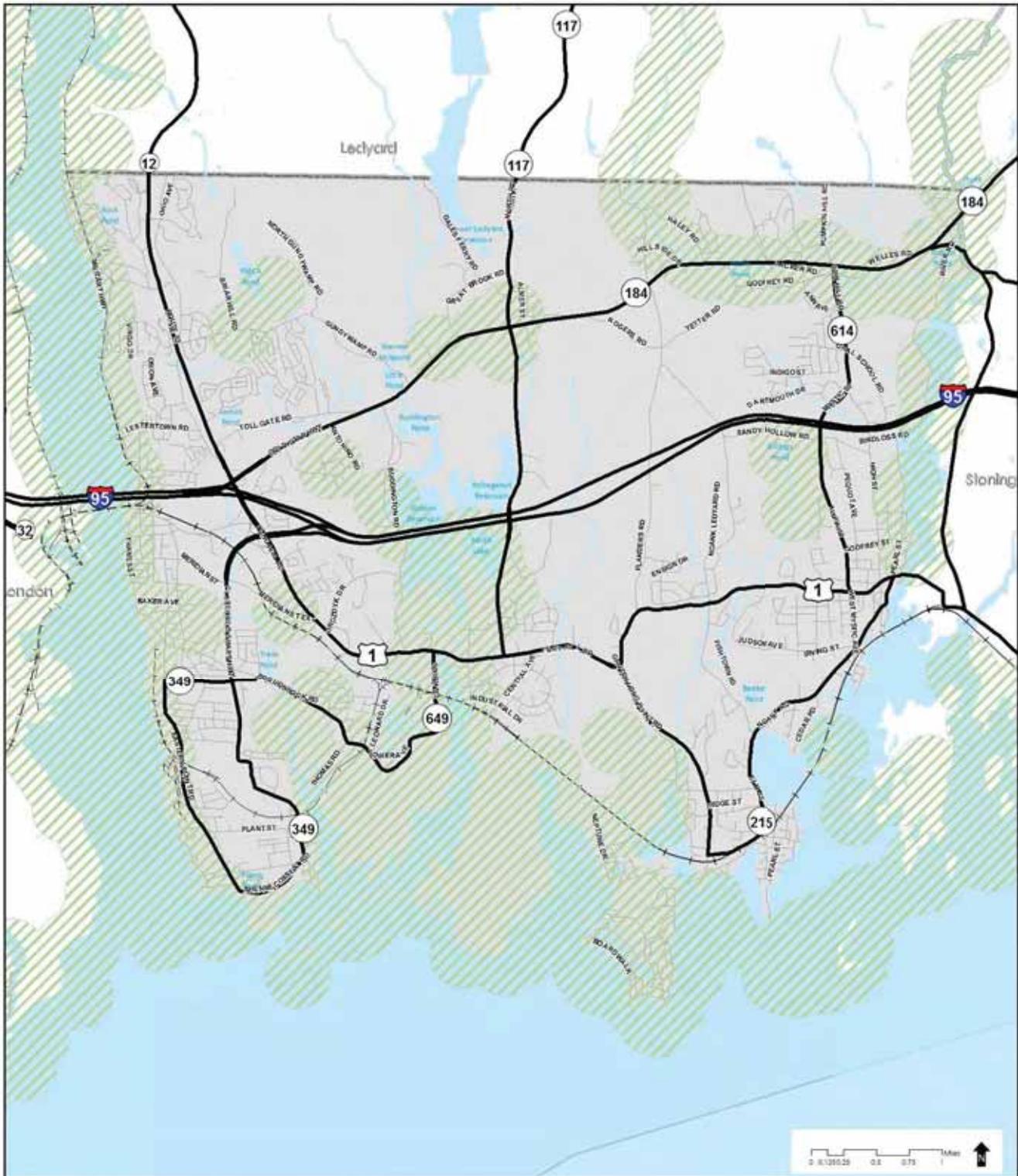
FEMA Flood Map

- 100-Year Flood Zone
- Change since 2010 (+228 acres)
- 500-Year Flood Zone
- Change since 2010 (+804 acres)
- Coastal Flood Zone

Source:
 * Sheet Centerline: Town of Groton GIS Dept
 * State Roads: Streetmaps USA (2011)
 * Rosemap and FEMA Data: Connecticut DEP
 Map & Geographic Information Center (2012)
 This map was developed for use as a planning
 document. Geographical may not be exact.

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MILONE & MACBROOM



Significant Habitat

 Natural Diversity Database Area

Sources:
 * Street Centerlines: Town of Groton GIS Dept.
 * State Roads: Streetmaps USA (2011)
 * Base Map Data: Connecticut DEEP Map & Geographic Information Center (2012)

This map was developed for use as a planning document. Delineations may not be exact.

June 2014



Haley Farm State Park

PRESERVE + STRATEGICALLY EXPAND OPEN SPACE

The quality, quantity and variety of parks and open spaces are important characteristics of any community. Neighborhood parks and larger community recreational facilities such as Poquonnock Plains Park and Sutton Park lend strength to Groton's residential neighborhoods, while open spaces add to the overall character of the Town. The benefits of parks and open space are multifold: they provide spaces for healthy activities and opportunities for social interaction, help preserve natural resources, enhance community character and positively affect property values.

The increasing focus on organized youth sports programs for recreation places demands on community facilities in many communities. The increasingly high participation in programs, extended seasons and specialized facilities are significant considerations for many communities in capital improvement planning. The need for spaces and/or facilities for informal recreational activities are also important to the overall health of a community. Recreation activity has evolved over the years to the point where organized sports and formal recreation programs are the focus of adolescent active recreation. In addition, providing opportunities for informal recreation activities (i.e. walking, jogging, hiking, and biking) is also important to meet the full spectrum of recreational needs of the community.

Open spaces are lands preserved primarily for conservation purposes but also support passive recreation uses. Recreation on open space lands is generally passive in nature, requiring little to no developed facilities. Open space preservation, in many instances, is a matter not only of maintaining ecological equilibrium but also of economic importance. As consistently demonstrated in the real estate market, people are willing to pay more money for a home in close proximity to parks and open space than a similar home that does not offer this amenity. Open space, if included as a major design component in community development, can help provide for the continuance of an intimate connection between the natural environment and the residents of the community.

CONTINUE TO FUND AND IMPROVE OPEN SPACE

The 2002 Groton POCD defines open space as land that is permanently preserved for or dedicated to open space uses. For the 2014 POCD Open Space Inventory, lands were placed into three categories: dedicated open space, managed open space, and residual public land.

- Dedicated Open Space includes all land that is permanently preserved as open space. This includes land owned by the State, municipal organizations, and land trusts. It can also include land that is privately owned but set aside for open space as part of a development.
- Managed Open Space includes land that is used or preserved for some purpose other than open space but that provides open space characteristics. In Groton, this includes land owned by the City Department of Utilities, cemeteries, golf courses, the YMCA, and beaches.
- Facilities includes some land on public facilities that is used for open space or recreation.

Open Space Inventory, Acres of Open Space								
Parks and Open Space Categories	2014 POCD				2002 POCD			Change in Open Space
	Total Area in Acres	Facilities (est.)	Open Space	% of Total Open Space	Total Area in Acres	Facilities (est.)	Open Space	
Dedicated Open Space	2,895	0	2,895	51%	2,311	0	2,311	584.3
<i>Municipal Dedicated Open Space</i>	1,347		1,347	24%	1,198			
<i>State Dedicated Open Space</i>	1,195		1,195	21%	1,020			
<i>Private Land Trust Dedicated OS</i>	354		354	6%	93			
Managed Open Space	2,310	234	2,076	37%	2,075	197	1,878	197.6
<i>Public Managed Open Space</i>	392		392	7%	302			
<i>Private Managed Open Space</i>	282		282	5%	258			
<i>Groton Utilities Land</i>	1,401		1,401	25%	1,318			
<i>Class 1 Utility Land</i>	817		817	14%				
<i>Class 2 Utility Land</i>	449		449	8%				
<i>Class 3 Utility Land</i>	135		135	2%				
<i>Cemeteries</i>	63	63			63	63		
<i>Golf Courses</i>	171	171			134	134		
Facilities*	835	127	708	12%	578	237	341	367
<i>Municipal Facilities</i>	594				336	164		
<i>Schools- Parks Open Space at Schools</i>	391	65	327	6%				
<i>State Facilities</i>	241	62	179	3%	242	73		
Total Parks and Open Space	6,041	362	5,679		4,964	434	4,530	1,149

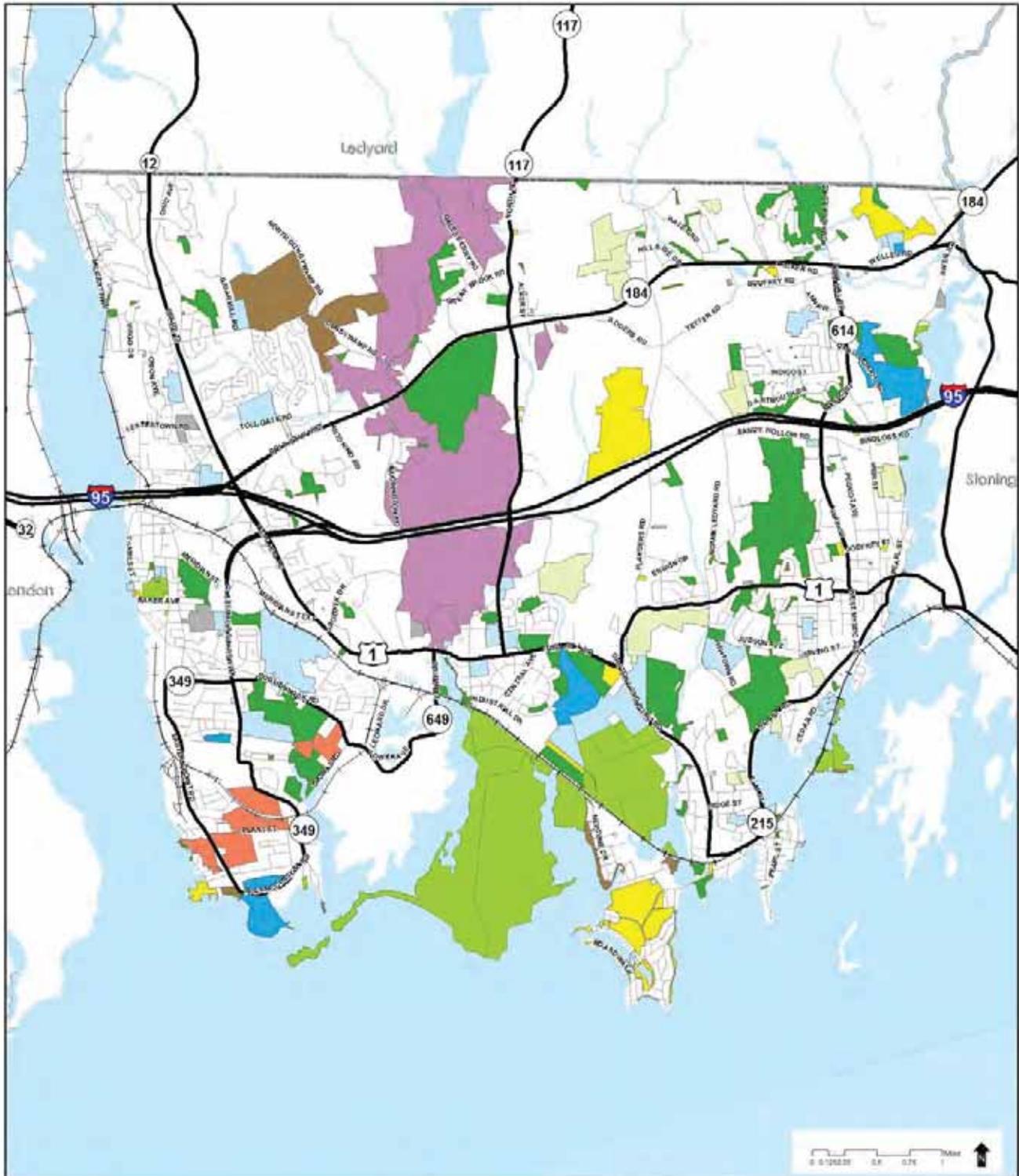
2002 POCD info from 2002 Groton POCD Workbook, Booklet #11 p.1 and 2

*Other Facilities included in this section are the Senior Center, Town Hall Annex, Police and Fire services, libraries, and Dept. of Public Works. ** UConn Avery Point, Ella T. Grasso Technical HS, and Mystic Oral School

The State of Connecticut has a stated goal of preserving 21% of Connecticut’s land as open space by the year 2023. This open space goal is broken down by 10% to be state-owned additions, and 11% owned by municipalities, private nonprofit land conservation organizations, water companies, and the federal government. CT DEEP’s website indicates that the state has achieved 73% of this goal as of October 2010.

In the Town of Groton, roughly 14% of its total of 20,377 acres is currently preserved as dedicated open space. State-owned dedicated open space (such as Bluff Point State Park) totals 1,195 acres, or 6% of the total land area of Groton. Municipal and Private Land Trust dedicated open space totals 1,700 acres, or about 8% of the total land area in Groton. If Groton Utility lands are included (1,400 acres), the total open space total becomes 21% of total land area.

In this POCD, active recreational facilities are defined as areas that accommodate organized sporting activities such as baseball, basketball, soccer, or tennis, or playscapes for children. Active recreational facilities have been further categorized by ownership as well as those associated with school facilities. Passive recreational facilities are areas that provide low impact recreation such as hiking or picnicking with minimal development or improvements. If improvements have been made they typically include little more than park benches or picnic areas. Some areas included in this inventory function as natural conservation areas and are generally left as natural, undeveloped open space. In addition, there are many facilities dedicated to both passive and active recreational uses in Groton.



Existing Parks, Recreation, and Open Space

Facilities

- Municipal Facilities
- State Facilities

Dedicated Open Space

- Municipal Dedicated OS
- State Dedicated OS
- Private Land Trust Dedicated OS

Managed Open Space

- Public Managed OS
- Private Managed OS
- Groton Utilities Land
- Cemetery
- Golf Course

Sources:
 * Street Centerlines: Town of Groton GIS Dept.
 * State Roads: StateMap USA (2011)
 * BaseMap Data: Connecticut Dept. of Transportation & Geographic Information Center (2012)

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April 2014

PASSIVE RECREATION

Passive recreational facilities are lands dedicated to low-impact recreation such as hiking or picnicking that require minimal development or improvements. If improvements have been made they typically include little more than park benches, picnic areas or hiking trails. In general, passive recreation encompasses the less intensive range of outdoor activities that are compatible with preserving cultural and natural resource functions such as wildlife habitat, watershed, cultural landscape, or floodplain protection.

In Groton, passive recreation and open space areas total approximately 1,687 acres, or about 5.9% of Groton’s total land area. Much of the land in open space is owned by the State of Connecticut and is located in Bluff Point State Park and Haley Farm State Park. In addition to those lands protected in perpetuity as open space, it is important to recognize lands and facilities that contribute to the overall fabric of Groton’s open space system. While PA 490 and Groton Utility lands may not be open to the public and may not be permanently protected, their presence affects the visual open space appearance of the community and their loss would represent an erosion of Groton’s community character.

Bluff Point State Park is one of the last remaining large, undeveloped coastal properties in Connecticut. This 789-acre property is located in south central Groton between the Groton airport and Noank. Bluff Point was designated as a coastal reserve in 1975. The property consists of saltwater marsh, beach landscape and an upland ridge that rises 125 feet to Bluff Point. The Park contains an extensive trail system and is heavily used by pedestrians and bicyclists.

Haley Farm State Park consists of 241 acres, located northeast of Bluff Point State Park. The former farmland contains forests, tidal wetlands, open fields, ponds, bike paths, and a series of hiking trails. A trail connects Haley Farm State Park to adjacent Bluff Point State Park. This property is also heavily used by pedestrians and bicyclists and includes wheel-chair accessible trails.



Four properties owned by the Town make up 427.7 acres, about 25% of the community’s existing passive open space: Beebe Pond, Pequot Woods, River Road Park and the Wright Property. An additional property, Copp Family Park, also contains a large amount of passive recreation area. This 227 acre former farm parcel contains a network of trails through former farm fields and woods, though it also has a portion of more developed park land currently used as a dog park.

Beebe Pond Park, located in West Mystic off of Route 215, is a 99-acre park containing woodlands with a salt pond, remnants of an old mill, stone walls, swampland and a stream. The property has rock outcrops, ledges and large glacial boulders. A trail system runs through the property and connects to adjacent trails in Ramble Brook Park and the privately held Moore Woodlands property.

Pequot Woods, also located in Mystic between Route 1 and Interstate 95, contain 140 acres of woodlands, streams, wetlands, boulders, a shallow pond, and a network of trails. Parking is available at the Sandy Hollow Road entrance.

River Road Park is a 40-acre parcel located in Old Mystic, along the Mystic River and adjacent to the Mystic Education Center. The park is wooded, with no formal trail system.

The Mortimer Wright Property is a 77-acre property north of Noank off of Route 215. The parcel is across from Fitch High School and Haley Farm State Park. An existing trail on the property leads to private property. The property contains woodlands and a large wetland.

Finally, parcels owned by private non-profits dedicated to preserving open space and natural resources contribute an additional 321 acres to Groton's passive recreation open space inventory. The Avalonia Land Conservancy and Groton Open Space Association own several parcels throughout the community, many of which contain trail systems.

ACTIVE RECREATION

Active recreational facilities are defined as areas that accommodate organized sporting activities such as baseball, basketball, soccer, or tennis. These facilities may also provide playscapes for younger children. For the purposes of this inventory, active recreational facilities have been further categorized by ownership as well as those associated with school facilities.

Groton's diverse array of active recreational facilities is an asset to the Town and its residents. The parks, school facilities, and open spaces in Groton represent a broad spectrum of active uses, including a public golf course, baseball fields, soccer fields, basketball courts, and playscapes. The Town owns an estimated 660 acres of Active Recreation areas. There are fifteen separate neighborhood parks, fourteen school parks, four community parks, and five special use facilities, including the Esker Point Beach. These Special Use facilities are discussed further in the community facilities section.

Among the highlights of Groton's extensive inventory of parks and open space facilities are a few large active recreation facilities. These include several Community Parks: Farquar Field, Library Recreation Field, Poquonnock Plains Park, Sutton Park, and the Shennecossett Golf Course. As cornerstones of the Town's active recreation system, these facilities are highlighted below.

- Farquar Field – This eight-acre park, located on Gales Ferry Road, near its intersection with North Road, contains a baseball field, tennis courts, basketball courts and playground. In addition, there is potential for walking trails in the forested area of the park, potentially connecting to a regional trail system.
- Library Recreation Field – This 10.8 acre park is located adjacent to the Town Library and Senior Center on Route 117. This facility includes an in-line hockey rink and a field.

DRAFT

- Poquonnock Plains Park – This 15.8 acre park contains well-used recreation facilities. Located on Fort Hill Road adjacent to Claude Chester School, and across from Sutton Park, this park lies near the geographic center of the community. The park contains three soccer fields, a stone dust walking trail/track, a picnic area, a concession stand/restroom facilities, and a playground.
- Sutton Park – This 17.8-acre park is located across Fort Hill Road from Poquonnock Plains Park and is adjacent to the Fort Hill neighborhood and Ella T. Grasso Technical School. This park has the Town’s skate park, basketball courts, two baseball fields with concession stand, a playground and shelter, and horseshoe pits.
- Shennecossett Golf Course - This 135 acre golf course is located between Eastern Point Road and Shennecossett Road. The course is a Donald Ross designed, 18-hole course, with three holes that overlook Long Island Sound. Purchased in 1969 by the Town of Groton, the course is open to Groton and area residents for public play. The property includes a club house.

MAINTENANCE AND IMPROVEMENTS

The Town of Groton is fortunate to have an existing park and open space system that is in relatively good condition, well distributed geographically, and diverse in the types of uses accommodated. Maintaining parks and open spaces that are adequate in extent, strategic in location and equitable in distribution is important for meeting the unique active and passive needs of the Town’s population. The future of existing parks and open space will depend in part on the efficient use of the existing facilities, the maintenance and rehabilitation of facilities requiring improvements and the potential development of new facilities.

The continued maintenance and improvement of the Town owned land is critical. Twenty-five thousand dollars has been budgeted for each of the next five years, in the Capital Improvement Program (CIP), to investigate new potential open space acquisitions. Additionally the CIP has budgeted a million dollars in the next five years for improvements to specific parks, such as construction of fields on the Merritt property, and new ADA upgrades at Sutton Park.

Additionally, the Town should continue to seek Open Space set-asides as part of new Open Space developments, especially when these parcels can create linkages between existing Open Space, or provide neighborhood park facilities in underserved areas.

PRESERVE ACTIVE FARMLAND

The preservation of the remaining Farmland in Groton would help to retain a sense of the former rural heritage of the Town. To assist municipalities in the preservation of farmland, the Connecticut Department of Agriculture has established a joint State-Town Farmland Preservation Program as a means to limit the conversion of prime farmland to nonagricultural uses. Due to the development suitability of farmland soils, there is increasing pressure to develop farmlands.

The preservation of active farmland differs from other types of Open Space preservation because the goal is to preserve the activity associated with the farm in order to stave off development pressures, rather

than simply purchase rights to develop the land, or the land itself. The goal should be that the farm stays owned by a farmer, and that the economic viability of farming can resist the pressures of new development interest on that land. In this sense, farmland preservation requires as much economic development as it does traditional open space preservation.

The Town should actively work to promote the viability of farming, through promotion of locally grown products, and incentivize the keeping of land in production, through continued reduced tax assessments. Additionally, the town should consider the adoption of a Right-to-Farm law to reduce nuisance complaints associated with production agriculture. The Town should also acknowledge, that while farms can be aesthetically pleasing, farms in various stages of production may appear messy or disordered, and should work to educate neighbors that the preservation of these critical farmland assets may not always appear picturesque. Finally, the town should consider relaxing regulations associated with on-farm agri-tourism activities, especially those that promote local food production, such as local food festivals, or other onsite events that capitalize on Groton's agricultural amenities. In today's economy, creative strategies and flexibility are necessary to support the farms' ability to sustain their businesses and therefore preserve their land.

ESTABLISH GREENBELTS

The establishment and preservation of greenbelts and greenways, in particular, has been a longstanding high priority objective for Groton in the past. Groton has been a leader in recognizing the importance of greenbelts in planning, first identifying and focusing on streambelts in 1961 and expanding this focus to "greenbreaks" in the community. Greenbelts refer to open space linkages that join open spaces into a cohesive whole greater than the equivalent amount of land separated into many small parcels. Greenbelts create connections that allow for corridors for trails and wildlife migration. When properly planned, greenways can link existing parks and open space areas with neighborhoods and community facilities, including schools, and provide an interconnected network serving Town residents.

ESTABLISH A TRAIL SYSTEM

Non-motorized modes of transportation provide alternatives for those who cannot, or choose not, to drive for some or all trips. Walking and biking are the most common and practical modes of non-motorized transportation. Sidewalks, multi-use trails, bike routes and greenways form the foundation of the non-motorized transportation network and can attract and maintain users. The Town of Groton has long supported improvements to pedestrian and bicycling facilities: the *Groton Bikeway Proposal* was completed in the 1970s, and several other pedestrian and bike plans have been completed in recent years. The existing trails and bikeways are mapped in the Transportation section of this report.

The *Groton Bicycle, Pedestrian & Trails Master Plan*, completed in 2005, established the following goals for all forms of non-motorized transportation in Groton: 1) to interconnect neighborhoods, 2) develop commuter routes, 3) develop recreational trails that provide access to open space, and 4) to build facilities

that are safe and attractive. In addition, the 2002 Plan of Conservation and Development recommended creating an overall pedestrian network, including improving and extending the sidewalk network, developing and improving the trail network and establishing a bikeway network. In addition to the recommended routes outlined in the 2002 Plan of Conservation and Development, the Southeast Connecticut Council of Governments (SCCOG) Long Range Transportation Plan, 2011-2040 recommends further additional pedestrian/bike routes through Groton. Trail system improvements and upgrades are budgeted for each of the next five years in the Capital Improvement Program.

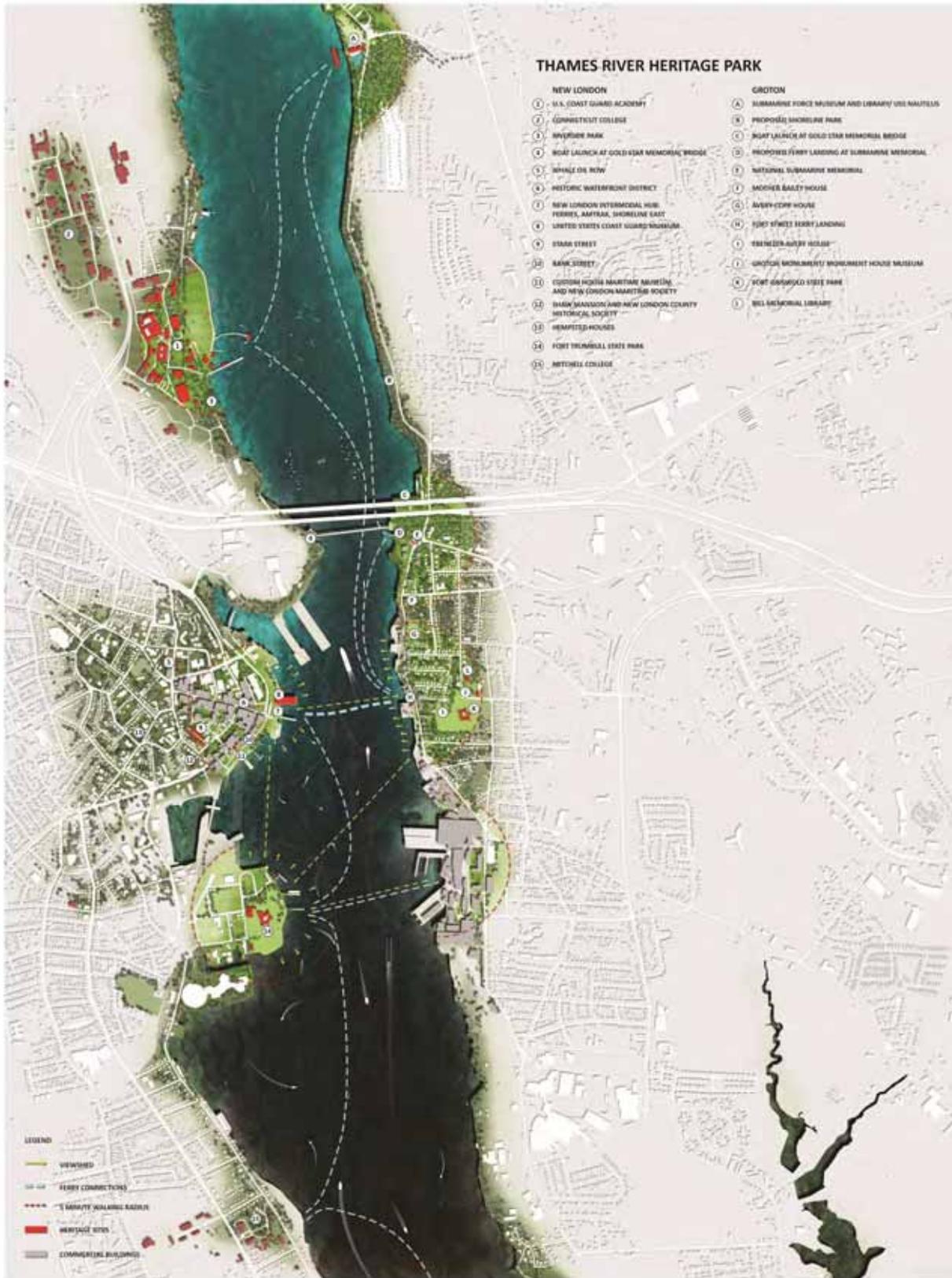
IMPLEMENT THE PARKS AND RECREATION MASTER PLAN

In recognition of the changing needs of Groton, a comprehensive Parks and Recreation Master Plan for the Town of Groton was completed in 2009 and components are incorporated into this Plan of Conservation and Development update. The Parks and Recreation Master Plan included an extensive community survey and outreach process to gauge existing facilities and programming strengths, weaknesses, opportunities and threats, establish goals for the department and community, and identify gaps in service. In addition, the Plan included an extensive action agenda designed to move the Groton Parks and Recreation Department closer to its goals.

SUPPORT THE ESTABLISHMENT OF THAMES RIVER HERITAGE PARK

To celebrate the area's historic relationship with the Thames River and the sea, a Thames River Heritage Park has been proposed to connect various parks and historical sites on the Thames River by water taxis. Since enabling legislation for heritage parks was enacted in 1987, \$2.5 million in state funding was been allocated and expended on infrastructure, such as a boat dock on the Groton side of the Thames River.

The National Coast Guard Museum, the Submarine Force Museum, Fort Trumbull State Park, and Fort Griswold Battlefield State Park would have touch-screen kiosks as well as a mobile application to provide self-guided tours. Ferry connections between the sites on the New London and Groton sides of the Thames River are proposed to create a cohesive heritage park, as well as meet cross-river business and institutional needs for Electric Boat and between UConn Avery Point and Mitchell College. Also under discussion are multi-use trails for walkers and bicyclists to tie together the historic and cultural sites to improve circulation and transportation options. Concept plan mapping for the Thames River Heritage Park is being undertaken by the Yale Urban Design Workshop, and funded by the Avery-Copp House Museum in Groton.



Plan for Thames River Heritage Park, *Yale Urban Design Workshop*



View of Mystic River from River Road

PROTECT COASTAL RESOURCES

Groton is a coastal town abutting Fisher's Island Sound. Due to the importance of the coastal area to Groton's character and quality of life, Groton has an important obligation to carefully manage coastal areas. The Connecticut Department of Energy & Environmental Protection – Office of Long Island Sound Programs (CTDEEP-OLISP) oversees activities within coastal communities. The Town of Groton is also responsible for managing areas seaward of the coastal boundary through coastal site plan reviews and harbor management.

A Municipal Coastal Program (MCP) was adopted for the Town of Groton in 1982, and served as the coastal portion of previous Plans of Conservation and Development. As part of the update to the POCD, an update to the Municipal Coastal Program (MCP) was also completed as a stand-alone document. Recommendations for the following sections are taken as excerpts from the updated MCP – the MCP should be consulted for more in-depth discussion of coastal issues facing Groton, including a full list of recommendations.

To be a good steward of its coastal areas, the Town of Groton must protect and restore its coastal resources; resolve use conflicts for waterfront sites, particularly promoting water-dependent uses; and balance economic growth and resource protection.

Different coastal resources are impacted by development in different ways. As defined by Connecticut General Statutes (CGS) Section 22a-93, "Coastal Resources" include the coastal waters of the State, their natural resources, related marine and wildlife habitat and adjacent shorelands, both developed and undeveloped, that together form an integrated terrestrial and estuarine ecosystem. The MCP lists the following coastal resources found in Groton: coastal bluffs and escarpments, rocky shorefronts, beaches and dunes, intertidal flats, tidal wetlands, estuarine embayments, coastal hazard areas, islands, nearshore waters, offshore waters, shorelands, shellfish concentration areas, and developed shorefronts.

As detailed in the MCP, tidal wetlands are an important coastal resource in Groton. According to Coastal Resilience (coastalresilience.org):

Among the most productive ecosystems on Earth, tidal wetlands perform many functions that are highly valued by society, called "ecosystem services." Wetlands protect coastal water quality by filtering land-derived nutrients and contaminants; they are an important component of the coastal food web; they provide valuable wildlife habitat; and they protect upland and shoreline areas from flooding and erosion associated with storms. In sum, wetlands support the health of our coastal ecosystem and the recreational and economic activities that depend on it.

There may be a greater need for protecting existing tidal wetlands and providing space for marsh advancement rather than conducting full-scale marsh restoration projects in all areas, such as a previously successful marsh restoration project on Mumford Cove. There is already considerable open space located adjacent to existing tidal wetlands in Groton. However, the success of marsh advancement depends on the existing grades and ground surface elevation in these open spaces, and may not advance in all areas simply because the space may be available.

PROTECT COASTAL WATER QUALITY AND COASTAL RESOURCES

Due to advances in wastewater treatment implementation among many communities along major tributaries to Long Island Sound, Connecticut's coastal water quality is believed to have improved overall in recent years. Numerous state and municipal programs have also been implemented to address coastal nonpoint source pollution in Connecticut.

However, coastal water quality remains a concern in Groton. The CT CEEP conducts water quality sampling in Long Island Sound to assess long term trends in water quality, including segments of coastal Groton. In the most recent *2012 Connecticut Integrated Water Quality Report* available from the CT DEEP website, seven water bodies were deemed impaired for safe shellfish harvesting due to fecal coliform concentrations (Beebe Cove, Palmer Cove, Mumford Cove, Inner Poquonnock River, Inner Baker Cove, West Cove, and Bluff Point). The report identified nearly all of the testing sites in Long Island Sound as impaired, and lays out action plans for the State for improving water quality. The Thames River adjacent to the Town of Groton is also impaired for commercial shellfishing and aquatic habitats due to bacteria, poor dissolved oxygen due to industrial point discharges, municipal discharges, illicit discharges, remediation sites, and/or groundwater contamination.

While the Town of Groton has taken steps to address the impacts of stormwater runoff through the development and implementation of a Stormwater Management Plan (SWMP), improvements still should be made. The MCP details areas of town where stormwater outfalls are located near or directly at the edge of coastal waters, where stormwater from town roads (carrying roadway pollutants and sediments) discharge directly into coastal waters. Groton should strive to look for opportunities to retrofit stormwater systems to avoid direct discharges to coastal waters, as well as follow the many methods of stormwater management presented in the Groton Utilities Drinking Water Quality Management Plan (DWQMP), as well as the *2004 Connecticut Stormwater Quality Manual*.

PROVIDE FOR WATER DEPENDENT USES

Promoting water-dependent uses of waterfront sites is another goal of Connecticut's coastal management program. "Water-dependent uses" are defined as land uses that require direct access to coastal waters in order to function, such as marinas, commercial fishing operations, waterborne transportation facilities, and uses which provide general public access to marine or tidal waters.

The Connecticut Coastal Management Act requires that municipal land use authorities give highest priority and preference to water-dependent uses at waterfront sites. Groton currently has many water-dependent uses, including commercial boat yards and commercial marinas, as well as public boat launches that accommodate car-top boats and trailer-mounted boats. As noted in the MCP, while it may be difficult to develop new water-dependent commercial uses in Groton, there are opportunities to return some properties in Mystic to water-dependent uses. Some waterfront properties currently house office space that could be returned to water-dependent uses over time. Water-dependent uses are also typically more resilient to coastal hazards than general office buildings. In the face of increasing coastal hazards, the Town of Groton may need to team with its water-dependent businesses to encourage adaptation and

help build resilience. Water-dependent uses are typically more resilient to coastal hazards than offices, and it may be practical to relocate water-dependent businesses to these buildings over the long term.

MANAGE COASTAL DEVELOPMENT

Since the development of the initial municipal coastal program in 1982, there has been significantly increased attention to coastal hazards in general among members of the public, and specifically an increased attention to climate change and sea level rise. The previous Municipal Coastal Program (MCP) discussed erosion and shoreline change but made no mention of sea level rise. Although erosion and shoreline change have long been recognized as coastal hazards, it is only recently that the chronic problem of sea level rise has been closely connected to the acute threats of erosion and shoreline change. Indeed, sea level rise may accelerate from current trends and therefore increase the incidence, severity, and adverse effects of erosion and shoreline change.

The Town of Groton is very much concerned with coastal hazards and resilience and understands the importance of coastal planning. Thus, this updated MCP addresses coastal hazard resilience and its implications on coastal land use and development patterns. Detailed recommendations in the MCP include zoning and easement changes to establish a future sea level overlay zone, pursuing living shoreline projects to restore targeted eroded tidal marshes, and flood mitigation of key vulnerable infrastructure elements such as evacuation routes and sewer pumping stations.



Groton Long Point

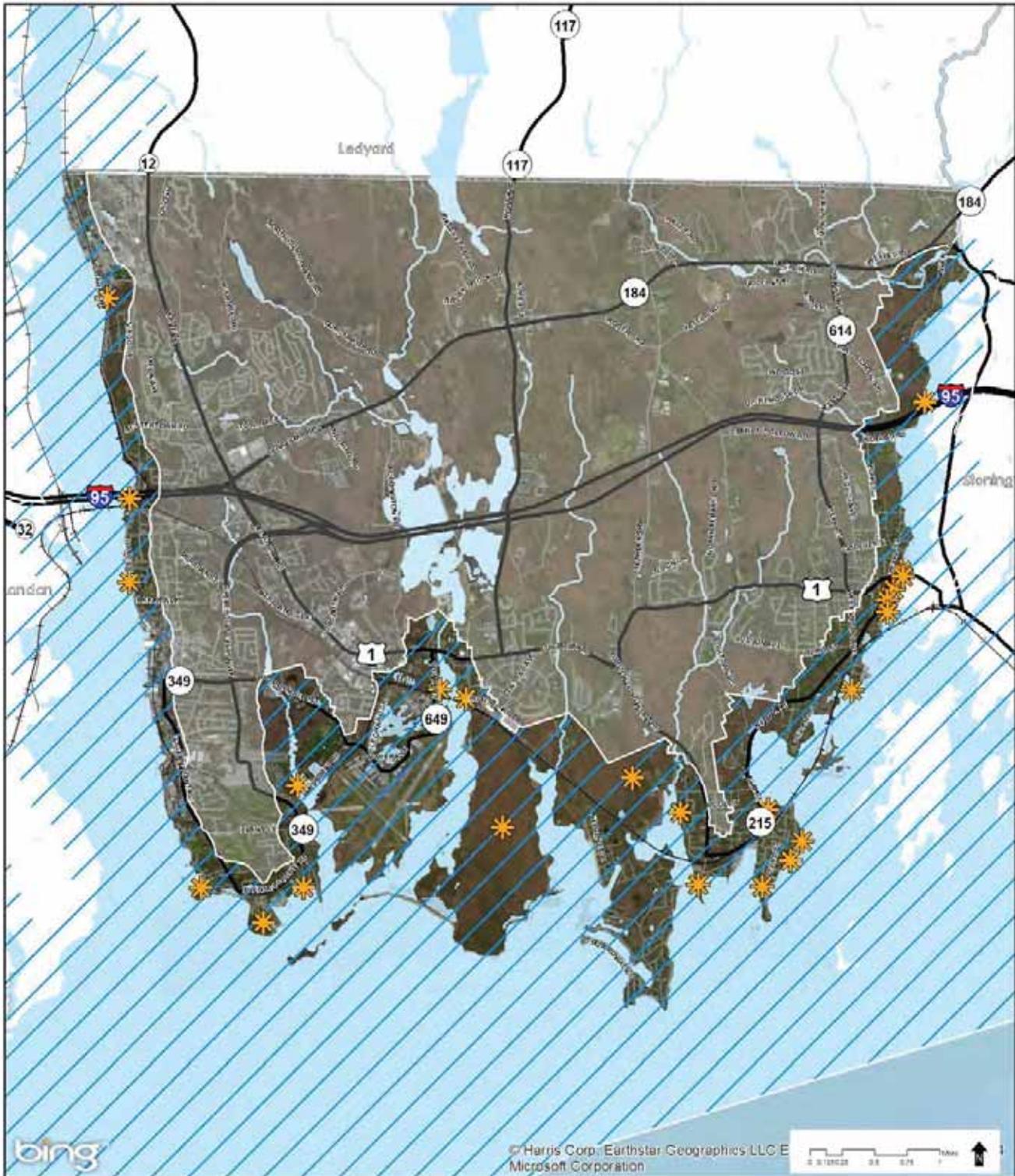
IMPROVE COASTAL PUBLIC ACCESS

Provision of public access to the waterfront is one of the cornerstones of coastal management. The Town of Groton is generally considered to have abundant opportunities for coastal public access, as reported in the 2002 POCD and the Groton Parks and Recreation Master Plan (2009), and shown on the Coastal Public Access Map. Nevertheless, the 2013 Community Survey for the POCD update suggests that the public perceives a lack of public coastal access. 58% of responders felt that there are “too few” public beaches available in Groton. Roughly one-third of responders believed that Groton should acquire new open space to access the shoreline.

Physically handicapped users are also underserved by the Town’s open space areas, with the only handicap accessible trails into natural resource areas on State Parks in Bluff Point and Haley Farm. The Poquonnock River Boardwalk can accommodate wheelchair users, but was not designed with wheelchairs in mind and thus there are no unimpeded views or areas to pause or turn around.

The town must continue striving for provision of diverse and spatially distributed public access to the shoreline and water, possibly securing land through conservation easements or other methods for marsh advancement and public access

Few locations in Groton appear to be available for providing public access in the future where it is not currently available, and few opportunities for developing new public access will be available in the next few decades. Therefore, the Town must maximize the promotion and usage of existing sites and provide parking when possible.



Coastal Public Access

-  Public Access
-  Coastal Management Area Boundaries

Sources:
* Street Datafiles: town of Groton/GSD/beat
* State Road: Streetmap USA (2011)
* Roadmap Data: Connecticut DSP Map & Geographic Information Center (2012)

This map was developed for use as a planning document. Distinctions may not be exact.

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Historic Mill Conversion, Mystic

PROTECT CULTURAL & HISTORIC RESOURCES

The character of a community is strongly shaped by its history and connection to its historic resources. These resources also shape our values and experiential relationship with a place. A sense of place is defined by the community's interaction with the physical and built landscape of a place, over time, and along with the current sense of historic and cultural significance of places, people, and events. Culture is a process of incremental change and requires a strong understanding of the historic changes that have preceded us.

The utilization of the Plan of Conservation and Development to preserve and enhance desired aspects of Groton's history and culture should begin with a collective perception of the elements that contribute to the formation of the town's history. These protections can be through local ordinances and historic districts, which offer the most protection; State and Nation registers, which offer limited protections but a notion of more significance; and through education, which in and of itself offers no legal protection but aims to create individual stewards of history and culture throughout the community.

Periods of Significance

In order to set a framework for protection of historic and cultural resources, a net of nominal values is created to define what the community finds most symbolic of character, and most crucial for protection. The 1996 Historic Preservation Plan and the 2002 Plan of Conservation and Development both define this by using four periods of significance. The list has been appended to include the Period of pre-Colonial Native American Settlement, due to new archeological discoveries in the past 15 years. These periods are not discrete, but instead represent five major periods of development in the history of Groton that create much of the sense of community and culture today, and therefore represent the areas most crucial to maintain. The periods are intended to overlap as development in different parts of town was occurring simultaneously for different reasons. The periods are:

1. Native American Settlement (PreHistory-1666), until the establishment of the Mashantucket reservation
2. Early European Settlement (1637-1781), including the Pequot War and Battle of Groton Heights
3. Maritime Orientation (Late 17th c. through 20th c.), including shipbuilding, privateering, whaling and fishing, and Naval/ Submarine histories
4. Waterfront and Seasonal Growth (Late 19th c. Mid 20th c.), including Grand Hotels/ Shennecossett Golf Course, and Groton Long Point.
5. Transportation-motivated growth (Mid-20th c.-today), including the construction of I-95, reorientation along Route 1, and construction of mid-century residential developments.

CONTINUE TO IDENTIFY HISTORIC AND CULTURAL RESOURCES

Groton has a long a diverse history and prides itself in its continued preservation of that history. Within the Town of Groton there are five Historic Districts listed nationally and on the State Register. The National Register of Historic Places (NRHP) is the U.S. federal government's official list of districts, sites, buildings, structures, and objects deemed worthy of preservation. The State Register of Historic Places is Connecticut's official listing of structures and sites that characterize the historical development of the state. Areas on the State and National register are not necessarily protect from alteration or demolition, however the listing is honorific and does qualify properties for Historic Tax credits for rehabilitation.

Two districts, Burnett’s Corner and Mystic River are in the Town of Groton. Three others, Groton Bank, Eastern Point and Noank, are in the City of Groton and the Village of Noank, respectively. Additionally, there are 8 National Register of Historic Places sites within the town. The 1996 Preservation Plan suggested 11 potential new NRHP districts or expansions, and 4 potential new sites. These sites and districts are all deemed significant to American history, architecture, archeology, engineering, or culture. The Plan also suggested that Fort Griswold be nominated as a **National Historic Landmark**. Landmark properties are nationally recognized as having “exceptional value or quality in illustrating or interpreting the heritage of the United States,” and there are less than 2,500 in the Nation.

Groton should recognize the extensive archeological work that has taken place in the last 15 years to identify sites important to Native America and pre-Settlement History. In coordination with the work of the Mashantucket Pequot Museum and Research Center, critical sites should be recognized in a manner that best ensures their continued protection. Additionally, significant recent work has been undertaken to survey the Gungywamp area including colonial house foundations, root cellars, a bark mill, stone walls, old cranberry bog, pond, and a rock shelter site that was utilized by Native American by at least 2,000 years ago. According to the State Archeologist, the entire complex remains eligible for the NRHP.

EXISTING NATIONAL REGISTER HISTORIC PROPERTIES

- 1 Fort Griswold
- 2 Yeoman House (Cove Neck Farm)
- 3 USS Nautilus
- 4 Jabez Smith House
- 5 Branford House
- 6 Pequot Fort
- 7 New London Ledge Lighthouse
- 8 Avery Point Lighthouse

EXISTING NATIONAL REGISTER HISTORIC DISTRICTS

- A. Mystic River Historic District
- B. Noank Historic District
- C. Eastern Point Historic District
- D. Groton Bank Historic District
- E. Burnett's Corner Historic District

POTENTIAL NATIONAL REGISTER HISTORIC DISTRICTS

- F. Eastern Point expansion (Avery Point)
- G. Groton Bank expansion
- H. Mystic expansion
- I. Noank expansion
- J. US Submarine Base
- K. Electric Boat Shipyard
- L. Devil's Foot Hill
- M. Groton Long Point Boardwalk
- N. Prospect Hill
- O. Poquonnock Bridge
- P. Old Mystic

POTENTIAL NATIONAL REGISTER HISTORIC PROPERTIES/ NATIONAL HISTORIC LANDMARKS

- 9 Electric Boat Shipyard – site status
- 10 Fort Griswold – landmark status
- 11 Mystic Bascule Bridge – site status
- 12 Gungywamp area – site status



National Register of Historic Places

- NRHP Sites
- Potential NRHP Sites
- NRHP District
- Potential NRHP District Expansion
- Potential NRHP District

Sources:
 *US Dept of Interior NRHP (2012)
 *Street Centerlines: Town of Groton GIS Dept.
 *State Roads: Streetmaps USA (2011)
 *BaseMap Data: Connecticut DEEP Map & Geographic Information Center (2012)
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PROTECT HISTORIC AND CULTURAL RESOURCES

The Historic Preservation Plan from 1996 can continue to serve as a comprehensive review and analysis of Groton's cultural and historic resources. It provides a clear framework for the future of preservation in the town, however, due to continued Preservation efforts, is in need of some minor updates. However, simply acknowledging the presence of historic and cultural resources does little to protect.

The Town (and City) have four designated historic districts which protect the structures and infrastructure of these important cultural and historic areas. The local Historic District Commissions regulate activity including construction and demolition of buildings, and alteration of external architectural features. Municipal historic districts offer some of the best protection for areas with a high concentration of historic fabric by creating an additional level of municipal oversight of changes that will affect buildings' influence on the integrity of the district. Private land owners must apply for approval over changes to their property that will potentially affect the building's significance in the district. This approval is in addition to any zoning, building, or other municipal permissions.

The State of Connecticut also allows for the establishment, by the Zoning Commission, of protected Village areas through Historic Resources Overlay Zoning, which do not require the endorsement of property owners. These districts are often best used in places where the overall character is more important than any set of specific properties.

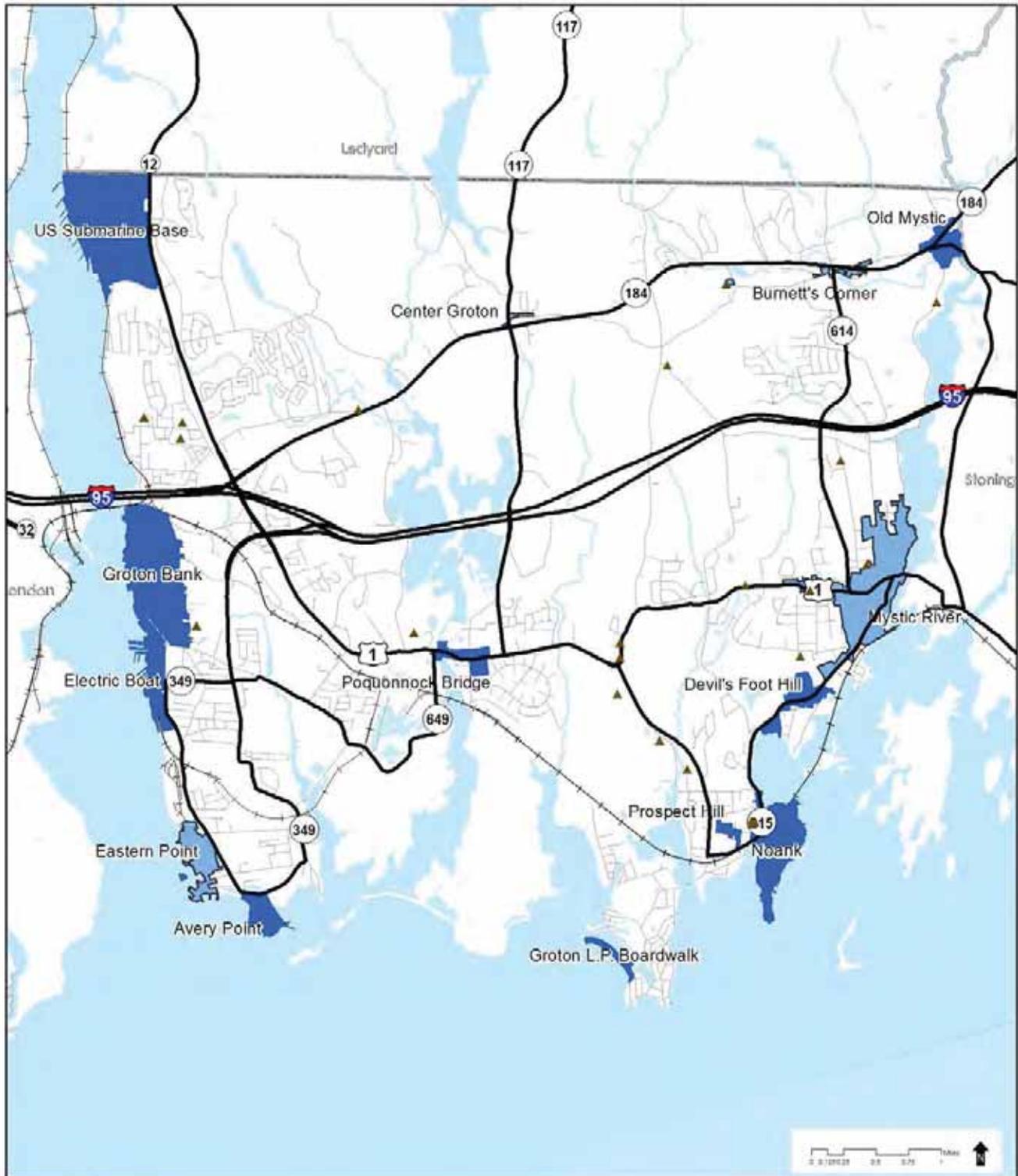
There are four municipal historic districts in the Town of Groton. They are:

- A. Center Groton Historic District
- B. Mystic River Historic District
- C. Eastern Point Historic District (City of Groton)
- D. Burnett's Corner Historic District

NRHP listing provides a guarantee of consideration in planning for Federal, Federally licensed, and Federally assisted projects, under Section 106 of the National Historic Preservation Act of 1966 ; eligibility for certain tax provisions; and qualification for Federal grants for historic preservation. However, their national or state designation does not offer significant protection from destruction or substantial alteration by private owners when no Federal monies are involved. Protection is best served by ownership through a preservation organization or society, or designation in a local Historic District.

In 2013, the State authorized municipalities to "Protect the historic or architectural character of properties or districts that are listed on or under consideration for, the National Register of Historic Places..." [PA 13-181] This allows municipalities to legally designate districts and sites already on the NRHP as locally protected, without the individual permission of the landowners. Groton has considerable historic assets that are on the NHRP and not locally protected, and should consider adding legal protection for the properties through local ordinances.

Groton has been recognized as a Certified Local Government through the Connecticut Historical Commission. This program provides financial assistance to participating communities to study and preserve local resources.



Local Historic District

- Historic District
- Potential Local District
- Cemetery

Sources:
 * Street Centerlines: town of Groton project
 * State Roads: Streetmap USA (2011)
 * Base map: Data: Connecticut DEP Map & Geographic Information Center (2012)

The map was developed for use as a planning document. Determinations may not be exact.

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PROMOTE COMMUNITY CHARACTER

Community character is the essence of a city or town and derives from its values and experiential relationship with a place. The character of a community is shaped by the interaction of the community with the physical and built landscape of a place, over time, and reflects the current cultural understanding of the community along with a current sense of historic and cultural significance of places, people, and events.

The utilization of the Plan of Conservation and Development to preserve and enhance desired aspects of Groton's community character should begin with a collective perception of the elements that contribute to the formation of the town's community character. As Groton continues to develop, these characteristics can be preserved through careful planning, including the nodal approach, as discussed further in this Plan.

ENHANCE "SENSE OF PLACE"

Groton has a strong, defined community character. It is a maritime community, with historic connections to the Navy and the sea; shipbuilding, both historic and modern industrial; and a strong beach tourism season. Groton has developed to support these industries and connections. The development patterns can be organized into character areas which help to define the community character of Groton. Generally, these character areas include villages of mixed commercial and residential use; residential areas; industrial areas; commercial corridors; transportation corridors; coastline; and rural areas.

There are five defined **village areas** in Groton. These village areas are a dense mix of commercial uses including offices and retail, next to residential uses. These areas vary differently, but they all share certain qualities, including older housing stock, increased density, and strong transportation connections, either to the water or a central road. These five areas are also the historic villages of Groton, and prior to the 1930's were the most developed parts of the Town. These villages include the area generally around Mystic, Old Mystic, Noank, Center Groton, and the City of Groton.

There are **five residential areas** of Groton. These areas are less dense than the villages, and contain far less mixing of commercial uses with residential uses. Much of their development occurred in the middle of the twentieth century, and were often developed specifically to serve a neighboring industry or village center. They include a mix of single and multi-family housing. Several are proximate to commercial corridors, which serve as their commercial centers. These areas are harder to define than the historic villages, because of their age and density. Many residential areas continue to expand and represent the majority of residential development in the Town of Groton in the last ten years. This new development is mostly expansion into rural areas, rather than infill or an increase in density in existing areas. These areas include the eastern portion of the City of Groton; the area to the south of the Submarine Base and north of 1-95; the area on the east side of the reservoir, along Route 1 including Ring Drive and Midway Oval; the area that extends west of Mystic, northward to the northern side of 95; and Groton Long Point. Groton Long Point is an exception in this group because it is slightly denser and was built earlier in the 20th century, however its lack of substantial commercial areas lend it more to a residential than village

character.

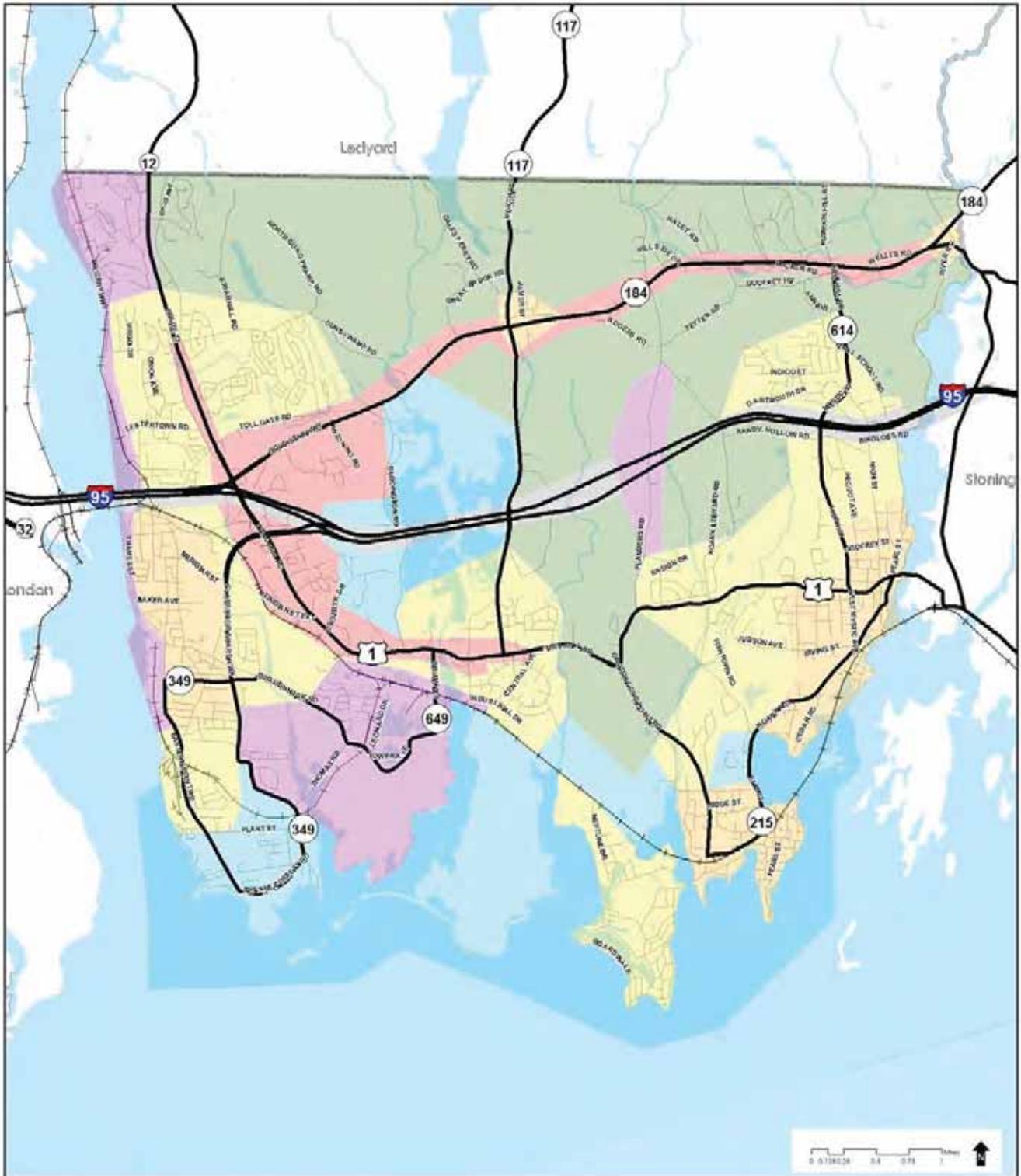
Groton has two **commercial corridors**. These are defined by low density commercial uses that are automobile reliant and form a strip along a roadway, rather than a grid like pattern. The larger of the two corridors begins south of the Submarine Base along Route 12, spears slightly eastward along Route 184, but is mostly defined south of I-95 along Route 1. It is a mix of commercial uses, including hotels, large retail stores, chain restaurant, and large commercial shopping centers. The farthest eastern reach of this area, at Poquonnock Bridge around Route 117 also has a strong civic and institutional presence. The second of the commercial corridors is decidedly more rural in character and consists of the remainder of Route 184, stretching eastward from Gungywamp Road. This corridor consists of less dense commercial uses that support the surrounding residential neighborhoods and rural areas.

Northern and central Groton is part of one large **rural character area**. For the most part it is north of I-95 from Gungywamp Road, east, excluding the Groton Reservoir. East of the Reservoir, the area crosses I-95 southward to almost Groton Long Point, and includes the Merritt Farm Property, Haley Farm State Park, and the Noank Realty Property, crossing back north of I-95 to the north side of Route 184. It includes Center Groton and Old Mystic. It is the least dense and least developed part of the town. Its topography is more varied than other parts of the town, and includes substantial pieces of permanently protected land. Nearly all of the land that is still actively farmed in Groton is in this area. This is also the area that faces the most development pressures, as residential developments spread westward from the larger Mystic area. The Town should aim to target Farmland Preservation in these areas.

The **coastal character area** is nearly a mirror of the rural character area. The area follows the Fisher's Island Sound coastline, including Bluff Point and Avery Point, Groton Long Point, Noank, and the Mystic River, south of the Bascule Bridge. Where the rural character area extends south, the coastal area extends north up the Poquonnock River to include the Groton and Pohegnut Reservoirs. The density along the coast varies significantly, but it is defined by the existence of shoreline birds, coastal habitats, inlets, and relatively flat land or water. Housing and industry in this areas is more likely to be connected to the water, including fishing and boating industries, and housing typologies in the shingle style or with raised foundations.

Groton has three **industrial areas**. Their character is defined by large industrial central parcels that are surrounded by light industrial uses including warehousing, parking and corporate headquarters, and small pockets of higher density housing to support the industrial area. The largest area is the Thames waterfront, including the Submarine Base, and the entire waterfront of the City of Groton, including the Electric Boat and Pfizer plants. There is also an additional area around the airport, extending north along the Northeast Corridor rail line, and again, along Flanders Road, especially north of I-95.

Finally, the **I-95 Transportation Corridor** is important because it bisects Groton. It can only be crossed at certain points, and is expansive where the Northbound and Southbound lanes are separated. This barrier has proved successful at separating much of the rural land uses in the north of the town from the more developed south.



Groton
PLAN OF CONSERVATION + DEVELOPMENT

Character Areas

- Rural
- Commercial Corridor
- I-95
- Industrial

- Residential
- Village
- Coastal

Sources:
 * Latest Centerlines: Town of Groton GIS Dept.
 * State Roads: Streetmaps USA (2011)
 * Roadmap Data: Connecticut DEEP Map & Geographic Information Center (2012)

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MILONE & MACBROOM

PROMOTE SYMPATHETIC DESIGN

Character areas are only useful if their role in defining historic development patterns is carried forward into future development goals. By maintaining the form, function, and design aesthetics traditionally present in these character areas, Groton can continue to grow and develop without losing the identifying characteristics that make each area so unique and valued. This plan has identified several nodal areas that align with character areas. Nodal development is further explained in the Community Structures Plan, however, broadly speaking, development in these areas should be carefully tailored to enhance the specific identity and historic and cultural resource present in those places.

Areas such as Mystic, Noank, Easter Point, Burnett’s Corner, and Fort Hill are protected and defined by Historic Districts, which in part help to preserve the character of the areas. Therefore, special attention should be paid towards the areas of Center Groton, Poquonnock Bridge, and Old Mystic, where districts have not been created, and their identity is being threatened by loss of historic fabric or unsympathetic development. In these development nodes, new development should seek to create connectivity through sidewalks and streetscape improvements; continuity of design and massing and set-backs with existing structures; preservation of historic or architecturally significant features; and a mix of uses.

Poquonnock Bridge is also facing serious threat from climate change which threatens its increased role as the civic and governmental center of Groton. Groton and the region has experienced an increase in the frequency of coastal and inland flooding, and Poquonnock Bridge has been particularly effected by flooding along the Poquonnock River and Route 1. The impact of these events is magnified by the citing of critical facilities in this area. Currently FEMA prevents the siting of new critical facilities in 500 year flood zones. While the level and speed of climate change actions are unclear, Groton needs to be aware of the vulnerability of this area when focusing institutional uses here. Its role as an institutional center has been bolstered by the Town’s takeover of the former Fitch Middle School, and the construction of the new Senior Center and Library complex



View across Poquonnock River

DRAFT

Additionally, the Town may consider targeting land conservation towards Rural and Coastal character areas and targeting residential development in those areas where it is already a significant identifying feature of the landscape. Development in Rural and Coastal areas should seek to maintain viewsheds and cultural landscapes through mitigation techniques such as height restrictions, ridgeline protection, and cluster development.

The Town to continue to address abandoned and blighted buildings as promptly as possible to preserve character. The Town should look to use the newly enacted Blight Ordinance, where appropriate, to prevent deterioration of properties before they are deemed too structurally unsound to preserve.

The Town should continue to identify scenic roads, scenic vistas, and scenic view sheds, especially those that enhance their character areas. The designation allows the town to suggest sympathetic mitigations to new development proposals, that allow growth but still target that growth to align with general cultural conservation goals.

The Town should consider design review guidelines for areas where Historic Districts or Village Districts are not applicable. Design guidelines and design review can limit the impact of development on scenic vistas and view sheds. Clear design guidelines and design review gives communities a chance to decide how development will affect their neighborhoods and help a development blend with its surroundings.

The Town should consider implementing ordinances for view protection. Zoning laws that limit the height of buildings based on their proximity to a designated view shed are an effective way of preserving scenic vistas. Consider overlay zoning which places additional restrictions on zoned areas and is often used to control density, grading, ridgeline development, and vegetation. View corridors are planned openings in the built environment that allow views of scenic vistas and view sheds.

PROTECT SCENIC ROADS

Groton has a scenic road ordinance for Town roads that was adopted in 1989, recognizing Sandy Hollow and River Roads as such. For a local road to be designated as a scenic road, it must not have intensive commercial development or high volumes of traffic. Scenic roads are discussed in more detail in the Transportation section of this document.



River Road, Scenic Drive



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Recent Streetscape Improvements in Mystic

DEVELOPMENT PATTERNS

Development patterns address the overall physical organization of Groton. The pattern of development is an important consideration in the Plan since it addresses how people, both residents and visitors, perceive and understand the community. Development patterns are a critical aspect of Community Character areas, which was discussed earlier in this plan.

Development patterns are also an important guide for land use regulations and decisions. Regulations can be designed and implemented to reinforce appropriate development patterns and enhance community character.

REINFORCE APPROPRIATE DEVELOPMENT PATTERNS

In Groton, residents and visitors identify most strongly with the mixed use village pattern that exists in Mystic and Noank and, to some extent, in the City of Groton. These centers have more intense activity that serve as a focal point for the surrounding areas, with a development pattern that is appropriately scaled to the location.

In contrast, most current residential development in Groton is largely occurring through large-lot subdivisions that are contributing to a more sprawling, car-centric development pattern. Most business development in Groton is likewise occurring in strips along major roads with separate curb cuts and limited architectural character. While these areas meet the acute need for single family residential development, and retail commercial shopping, they do not contribute to meaningful community character or add to the quality of life in Groton.

As well as improving community character, village-type development patterns with mixed uses brought close to the sidewalk, create walkable neighborhood centers. Development patterns that encourage residents and visitors to park and walk or bike to clustered destinations have many added benefits such as reduction in emissions from cars that contribute to air pollution; reduction in traffic and congestion on roads, extending the life of infrastructure and reducing the number of accidents on the road; physical and mental health benefits for people who walk or bike often; and a greater sense of social connectedness from running into people on the street rather than passing by in separate cars.

The 2002 Plan of Conservation identified these historic village areas as sites for Nodal development. In addition, areas outside of the traditional villages that have strong development potential, and could be further guided in terms of uses and physical structure design, were included as additional nodes. A node is a geographic designation of a concentration of land uses, identified in order to shape the land use patterns of the community. The nodes are hubs of activity that contain a mix of uses, provide amenities to nearby residences, may be connected by conservation/natural lands transportation or other public utility infrastructure, and possess a unique identity or historic features. In addition to the historic villages the nodes include Center Groton, a Commercial Node, the Poquonnock Bridge area, an Institutional Node, and Downtown Groton and the and Route 1/Route 12/ Route 184 Intersection, Mixed Use Nodes.

ENCOURAGE EACH NODE

The goal of the designation of these nodes is to target new development in specific areas to achieve the community character, land use, infrastructure, environmental, and smart growth policy objectives related to a given Node. In general, these principles for smart growth should include the following:

- Focal point for Town development
- Mix of uses, concentrated development
- Maximize access to public transport
- Detailed, human-scale design, identifiable place
- Pedestrian friendly circulation
- Efficient use of land resources
- Promotes open space

A planning technique to accomplish the goals of each node, is the codification of Design Districts. There are currently three Design Districts in the Town, the Mystic Waterfront Design District (WDD), the Downtown Design District (DDD), and the Nautilus Memorial Design District (NMDD). All three align directly with Nodes.

The **Mystic Waterfront Design District** is an example of how Town Zoning can codify nodal goals, by establishing specific guidelines to ensure a mix of uses, concentrated development, detailed, human-scale design, pedestrian friendly circulation, shared parking and public spaces, and the continuation of historic styles that create the signature location that Mystic has come to be. In Historic Districts, like Mystic, these standards can be further specified by the application of Design Review standards through the Historic District Commission.

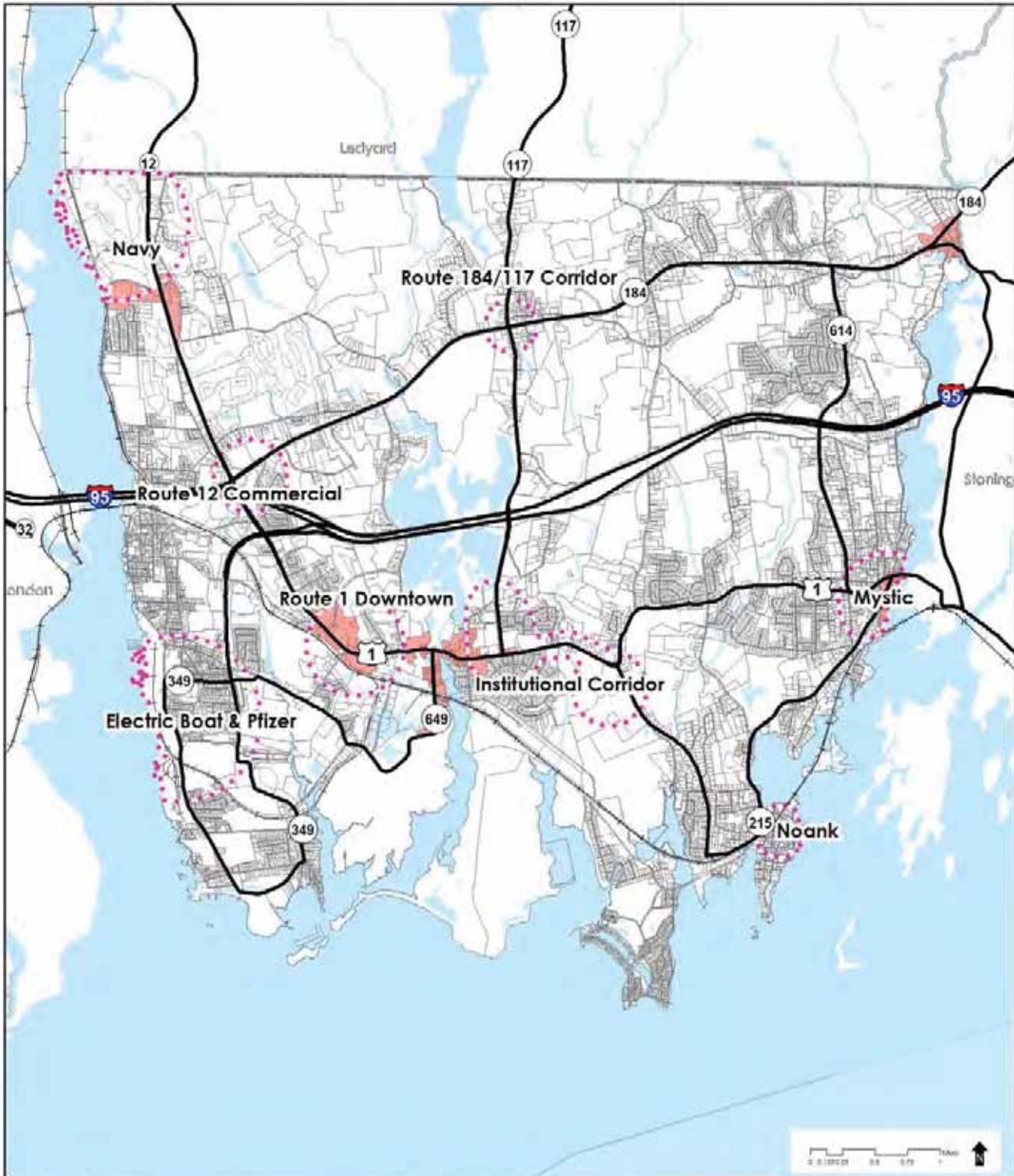
Neither the Downtown Design District nor the Nautilus Memorial Design District are associated with Historic Districts, but both overlap nodes, and further codify the character of their areas that the nodal development plan is trying to sustain.

The **Downtown Design District** is intended to “encourage a concentration of commercial development with special attention paid to public amenities... in order to continue to develop the downtown area as the Town’s retail, office, governmental, and cultural center.”

The **Nautilus Memorial Design District** is intended “to create a viable tourist commercial, service, and residential area which serves the needs of visitors to the Nautilus Memorial, personnel associated with the Submarine Base, and adjacent residential areas.”



Conceptual Design for Center Groton Node, *BL Companies*



Nodes

ZONING DESIGNATED DESIGN DISTRICTS

- Mystic District
- Old Mystic District (Proposed)
- Poquonnock Bridge District (Proposed)
- Groton Downtown District
- Nautilus Marine Design District

●●● NODES ●●●

Sources:
 * Street Centerlines: Town of Groton (2012)
 * State Roads: Streetmap USA (2011)
 * Knowledge Data: Connecticut DEEP Map & Geographic Information Center (2013)

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This plan suggests the addition of two additional design districts, **Old Mystic District** and **Poquonnock Bridge District**. It is expected that both areas would maintain the character defined by their survey in the 1996 Preservation Plan, or any subsequent updates to that Plan. It is suggested that these areas also be considered for inclusion in a Local Historic District.



Poquonnock Bridge

The nodes of **Center Groton** and **Route 1/Route 12/ Route 184** are currently areas of more intense commercial and mixed-use development and would benefit from a study to further define their character and desired futures.

The Nodes in **Noank** and the **City of Groton** are advisory, as the Town has no direct Land Use control over those areas, but are intended to reiterate the importance of targeted development.



Noank

MX ZONING

To address recommendations concerning nodal development in the 2002 POCD and the 2006 Strategic Economic Development Plan, the Town added a Mixed Use (MX) floating zone to the zoning code in 2007, in order to offer greater development flexibility. The MX zone is a floating zoning classification that can be applied to projects within the identified Naval Base Node, Center Groton Node, Groton

Downtown Node, and Route 1/Route 12/ Route 184 Node. The Zoning Regulations state:

The MX Zone is a special zone tailored to the unique characteristics of its area or its neighborhood and is intended to encourage design innovation and a mix of residential, commercial, and office uses appropriate for the site. The intent of the MX zone is to achieve the community character, land use, infrastructure, environmental and other policy objectives related to a given “Node” depicted in the CSP [Community Structure Plan in the 2002 POCD]. Depending upon the specific node, projects will vary in scale, uses and other attributes. In general, however, the MX zone is intended to create compact, mixed use environments, which are pedestrian in scale, and well-integrated with surrounding uses. These projects could generally be considered an “infill” form of development or redevelopment.

The MX zone application includes a Preapplication Review with Preliminary Node Site Plan, Zoning Map Change, an MX Project Master Plan Application, and a Site Plan Application. All MX application would automatically be considered a “Complex Application” and require a consultant fee/escrow as well as a Grant of Application Review Extension. In addition to the Master Plan, traffic impact studies, a Design Manual, Market Analysis, and Fiscal Impact Analysis are also required. To date, no development project has received the MX zoning.

While the purpose and goals of the MX zone are laudable and speak to the recommendations in the 2002 POCD and 2006 SEDP, the fact that no developer has successfully completed an MX application for a project in one of the nodes can partially be attributed to the recession beginning in 2007, but also may be an indication that the process for the MX zone may warrant review. Both the Waterfront Design District and the Nautilus Museum Design District have some similarities in purpose and design objectives, and require far fewer applications, although the MX zone is designed for projects of a much larger scale and scope. A study should review barriers to successful implementation of the MX zone and suggest recommendations for changes or incentives to encourage adoption and implementation.



NODAL IMPROVEMENTS

Mystic Streetscapes

Improvement in the Mystic Node to reinforce the community structure have focused primarily around the pedestrian's interaction and circulation within the area, through targeted Streetscape Improvements, and plans for wayfinding and conceptual designs. In conjunction with the Historic District Commission, the Streetscaping has been especially successful at improving user experience in the downtown area, through improvements such as increased plantings, relocation of utilities underground, bump-outs, and improved street materials.

Poquonnock Bridge Institutional Improvements

The Town has made strategic acquisitions in the last ten years in the Institutional node area around Poquonnock Bridge. This has included taking over the former Fitch Middle School, directly adjacent to the Town Hall, as well as the acquisition of the Merritt Farm property, near the intersection with Groton Long Point Road. Additionally, the newly constructed Senior Center and Library expansion have expanded the institutional uses present in this area.

This Senior Center project featured substantial outdoor and walkway improvements in the vicinity, however, it missed an opportunity to add architectural continuity to the area, instead choosing a design that is set far back from the street, and which features no discerning design elements. In contrast, the improvements to the CT Center for Massage Therapy, on the far western edge of the node, are an example of how new institutional development can use design to integrate into the character of the node, while creating continuity with sidewalks, plantings, and the reuse of historic structures.



Mystic Streetscape under construction

RESIDENTIAL DEVELOPMENT

As one of the principal land uses within a community, housing and housing-related issues affect all residents. The form, layout, condition, and cost of housing available within a community are key to the quality of life within a community.

ENCOURAGE APPROPRIATE RESIDENTIAL DEVELOPMENT

Total Housing Units - The 2010 Census recorded 17,978 housing units in Groton. Nearly eighty-eight percent (87.9%) of the housing units were occupied leaving a 12.1% vacancy rate. Of the total 15,809 occupied housing units, 51.6% were owner-occupied and the remaining 48.4% were renter-occupied units. According to Census counts, 2,169 housing units were vacant.

The 2002 POCD estimated total housing units in the year 2000 to be 17,100, and the 2000 Census reported 16,820 housing units. Using Census statistics, housing growth for the decade of the 1990's was 3%, 2000's was 1.3% and the past decade saw growth at 6.8%. Over a thirty year period 1,864 units or 10% of total housing units were added to the housing stock of the Town.

Vacancy Rate - The housing unit characteristics of Groton were compared to its neighboring communities, New London County and the State of Connecticut. The Town's vacancy rate of 12.1% was higher than the New London County and State rates of 11.2% and 7.9%, respectively. However, the Town of Groton has a substantial number of seasonal homes with 688 seasonal units in its housing stock. These units account for almost one-third of the vacant units in Groton. In terms of local communities, Groton at 12.1% had the third-highest vacancy rate, with Stonington first and New London second. Stonington's high housing vacancy rate is likely attributable to a significant number of seasonal homes. Ledyard and Waterford both had much lower vacancy rates.

Rental Stock - Groton's percentage of rental units (48.4%) is considerably higher than the New London County and State of Connecticut rates. The communities in the immediate region all have renter percentages that are much lower than Groton with the exception of the urban cities of New London and Norwich. Groton and Norwich both have renter-occupied housing stock at 48% of their total with New London much higher at 62%. Thus, Groton has a housing stock whose composition in terms of occupancy of units is characteristic of a moderate-sized, urban community. The quantity of rental housing is indicative of Groton's role as the employment center of the Region as housing production tends to follow the availability of employment. The 1,476 units of Navy housing contribute to the higher percentage of rental units in the Town. Also the rental housing stock is concentrated in only a few locations within the Town.



New residential development

Housing Unit Characteristics: 2010, Groton and Surrounding Communities

	Total Housing Units	% Occupied	% Vacant	Total Occupied Units	% Owner Occupied	% Renter Occupied
GROTON	17,978	87.9%	12.1%	15,809	51.6%	48.4%
New London	11,840	87.6%	12.4%	10,373	37.7%	62.3%
Norwich	18,659	89.0%	11.0%	16,599	51.9%	48.1%
Ledyard	5,987	94.1%	5.9%	5,634	84.4%	15.6%
Stonington	9,467	85.7%	14.3%	8,115	71.4%	28.6%
Waterford	8,634	92.7%	7.3%	8,005	83.7%	16.3%
New London County	120,994	88.5%	11.5%	107,057	67.7%	32.3%
Connecticut	1,487,891	92.1%	7.9%	1,371,087	67.5%	32.5%

Source: U.S. Bureau of the Census.

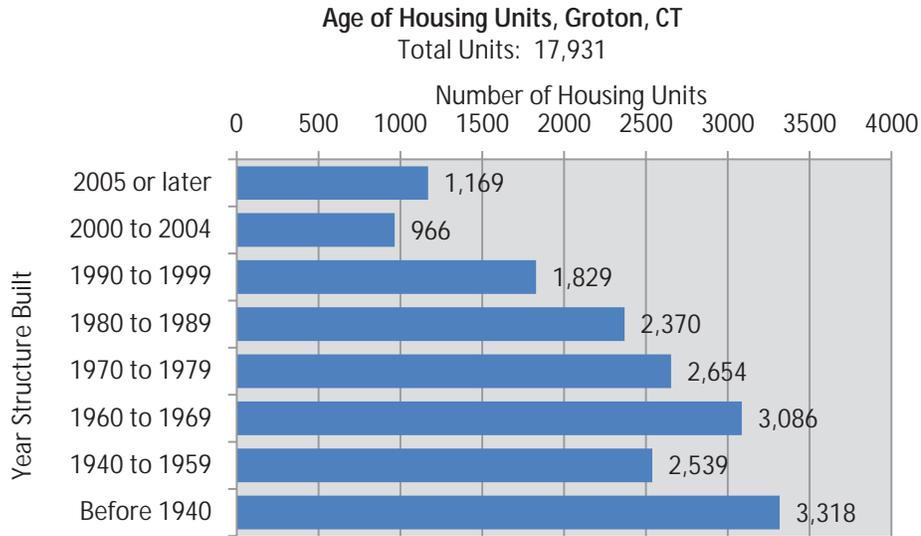
Navy Housing – The 2002 POCD reported Navy housing consisting of 2,723 units of family housing mostly outside the gates of the Submarine Base straddling Route 12 and 4,668 beds in the barracks on the base. A major housing rebuilding program commenced in mid-2000 to replace or rehabilitate much of the family housing units that no longer met the needs of Navy families. A feature of that program was for the Navy to provide its land to a private housing developer who built and manages the housing. That program resulted in a reported Navy family housing inventory of 1476 units. The current military staffing level at the submarine base is 6943 personnel.

Seasonal Housing – The 2010 Census reports there were 688 seasonal housing units in the Town or 3.8% of the total housing units. This is approximately the same percentage as reported in 1990.

Age of Housing Units & Structures - An indicator of housing condition and housing variety in a community is the age of the housing stock. The age of housing generally affects both aesthetic appeal as well as the availability of a variety of housing types. Only 32.7% of Groton's housing units were built before 1960. The number of housing units produced during the 1960s, 1970s and 1980s is very substantial at 8,110 (45.2%) housing units respectively. Housing construction during the 1990s remained relatively steady, with 1,829 units built in the decade. Only 11.9% of the Town's total housing stock was built between 2000 and the present. Groton has a relatively young housing stock for a Town founded in 1705.

Change in Housing Units by Structure Type: 2000 to 2011, Groton, CT

TYPE OF STRUCTURE	Total Housing Units 2000 Census	% of Housing Stock	Total Housing Units 2011 ACS	% of Housing Stock	Change in Units 2000-2011	% Change Between 2000-2011
1 unit, detached	8,163	48.5%	8,514	47.5%	351	4.3%
1 unit, attached	1,927	11.5%	1,409	7.9%	-518	-26.9%
2 to 4 units	2,549	15.2%	3,399	19.0%	850	33.3%
5 or more units	3,583	21.3%	4,066	22.7%	483	13.5%
Mobile home, trailer, other	598	3.6%	543	3.0%	-55	-9.2%
TOTALS	16,820		17,931		1,111	6.6%

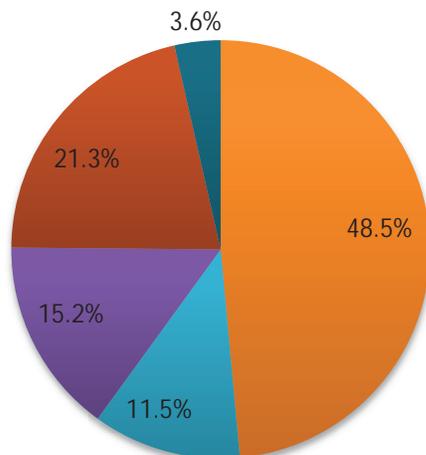


CHANGE IN HOUSING

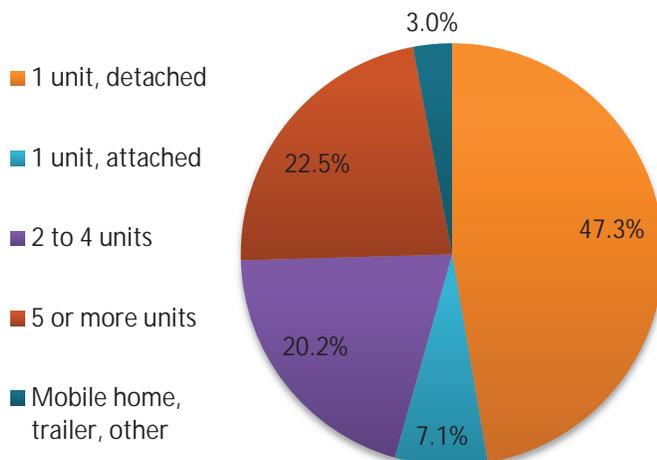
Change in Housing Unit Type

According to the 2000 Census and the 2011 ACS 3-Year Estimates, between 2000 and 2011 the number of housing units in single family detached structures increased by an estimated 351 units. Single family attached units declined by 518 units or -26.9%; the corresponding gain of 850 units in structures with two to four units may be indicative of single family attached units being reclassified in the Census figures as multi-family properties coupled with the significant redevelopment of naval housing.

**2000 Housing Stock Characteristics
Groton, CT**



**2011 Housing Stock Characteristics
Groton, CT**



Multi-family units in structures with 5 or more units also increased, gaining 483 units or 13.5%. Development of the Ledges in 2003 with 339 units accounts for most of this multi-family growth. Mobile homes and other forms of non-traditional housing declined by -9.2% over the time period. The total estimated number of housing units in Groton as of 2011 was 17,931.

Most of the increase in housing units since the 2000 Census have been in two to four family structures (850 out of 1,111); again this increase and the corresponding decrease in single family attached units may indicate a reclassification of single family attached units as multi-family structures.

Compared to other communities in the immediate region, Groton had the second highest percentage of multi-family units after New London. Where Groton stands apart from its surrounding communities is in single family attached and multi-family structures. Even with the changes in housing units by structure data since the 2000 Census, Groton still has a substantially higher percentage of its housing stock comprised of single family attached units than any of the surrounding communities. Groton's percentage of multi-family (5 or more) units is the second highest in the immediate area, behind New London, which has a very high percentage of its housing in multi-family structures for a community of its size.

Location of Housing Unit Change

Much of the decrease in housing units since 2000 are associated with rebuilding the Navy housing over the past decade in the northwestern corner of the Town. The greatest percentage of growth took place straddling the Allyn Street connector to Mystic and in Center Groton south of I-95 between Groton City and the Poquonnock River. Many of these units were part of two Senior/ Assisted living complexes that were built.



Multi-family Housing in Mystic

Growth in Housing Units

The majority of Groton’s new housing development during the last decade was in the form of single-family detached housing and single-family attached condominium units. However, there were also a significant number of permits for multi-family housing units issued during the early part of the decade mainly around development of the Ledges in 2003 and 2004. No multi-family development has occurred since 2006.

Although 1,032 new housing permits were issued in Groton between 2002 and 2011, the Town only experienced a net gain of 934 units during this period due to a number of demolitions. Between 2003 and 2009, the Town ranked in the top twenty of Connecticut’s 169 communities in terms of annual net gain in housing units, ranging in rank from 5th to 23rd. Housing construction has tailed off in Groton since 2009 due to recessionary conditions but the Town is still in the top one-third of Connecticut municipalities in annual net gain in housing units, albeit ranked 50th and tied for 47th in 2010-2011.

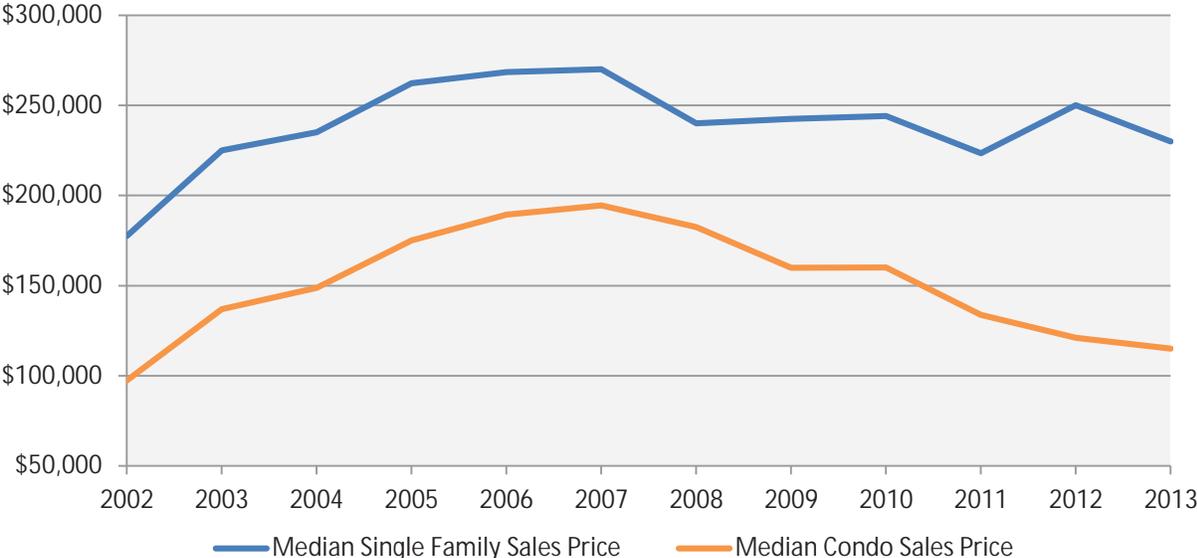


House on Overlook Drive

AFFORDABILITY OF HOUSING

The issue of housing affordability is a state-wide issue. Affordability on a regional basis is also complex and defies simple solutions. The cost of housing is the result of a variety of factors including, but not limited to, the demand for a specific location, availability of buildable land, labor and material costs, mortgage standards and lending practices. Other factors, such as the age and quality of the existing housing stock as well as the introduction of new product to the market greatly impact the cost of housing. Other factors independent of housing cost including mortgage standards and practices, interest rates, job growth, and local economic conditions all work together to influence the cost and availability of housing. Most of these factors are beyond the control of local governments.

Median Single Family and Condo Sales Prices in Groton, CT 2002-2013



Source: The Warren Group

The State of Connecticut requires that the issue of affordable housing be addressed in each community's Plan of Conservation and Development. Development over the years in Groton has resulted in a housing stock that is quite diverse in terms of housing types and styles. Current zoning regulations are flexible in terms of providing a wide range of allowable densities and housing types.

According to recent real estate market statistics for the period of 2002-2011 from The Warren Group, an average of 274.4 single family homes per year were purchased in Groton. As shown in the *Median Sales* chart, median single-family residential sales prices were on a steep upward trend until 2007, and have since decreased and leveled off.

With an average home sales price of \$237,500 and a 20% down payment to avoid mortgage insurance, a new homeowner would need a mortgage of \$190,000 and a down payment of \$47,500. At an assumed interest rate of 4%, a \$190,000 mortgage would result in principal and interest payments of approximately \$907 per month. Assuming roughly \$1,000 per year in homeowner's insurance and a mil rate of

Gross Rent for Specified Renter-Occupied Units: 2010
Groton and Surrounding Communities

	GROTON	Ledyard	New London	Norwich	Stonington	Waterford
Less than \$200	181	0	323	149	93	0
\$200 to \$299	363	0	171	212	81	24
\$300 to \$499	265	12	318	870	223	67
\$500 to \$749	423	92	1,107	1,236	175	112
\$750 to \$999	1,817	122	2,068	1,855	426	325
\$1,000 to \$1,499	3,020	369	1,942	2,062	707	216
\$1,500 or more	1,341	192	292	372	333	170
No Cash Rent	274	81	118	175	189	105
Total	7,684	868	6,339	6,931	2,227	1,019
Median Rent	\$1,099	\$1,166	\$894	\$897	\$1,013	\$928

Source: U.S. Census Bureau, 2010 American Community Survey 5-Year Estimates.

approximately 20.22 mils, an additional \$363 per month in taxes and insurance would be added, leading to a total monthly home cost of \$1,270. Using the standard calculation of 30% of gross household income for housing costs, a household would need to earn approximately \$50,800 per year to afford an average home in Groton. This income level is 12.0% lower than Groton’s 2011 median household income (\$57,731), which itself is equal to 88.1% of the median household income for New London County as a whole (\$65,564).

On a regional basis, Groton now has the sixth highest median home sales price of the 18 municipalities in the Southeastern Connecticut Council of Governments (SECCOG) for which data is available. Despite this fact, Groton remains a reasonably affordable community due to the fact that New London County and the SECCOG area are very affordable by Connecticut standards. In addition, statistics provided by HOMEConnecticut, an initiative of the Partnership for Strong Communities organization, indicate that Groton has only a small “gap” in terms of raw dollars between its median household income and the qualifying income needed to purchase a home at the median sales price in the Town.

In a community such as Groton, which not only has ample numbers of affordable housing units, but also has a significant percentage of the total region’s affordable housing stock, different strategies must be utilized to decrease the “gap” between median household income and median home sales price. In Groton, rather than applying more pressure to the supply side of the affordable housing market by adding more units, a more effective strategy would be to focus on economic development and public policy initiatives that would raise household incomes to higher levels rather than attempting to moderate and lower the cost of housing, since these costs are already reasonably low relative to the surrounding region.

Detailed housing figures from the 2010 American Community Survey included statistics on gross rent for renter-occupied units. With 7,684 specified renter-occupied units (i.e., the sample size for purposes of computing rent data), Groton’s median rent in 2010 was \$1,099. This rent level is the second highest among the surrounding communities. As to be expected, Groton and New London contain the vast majority of the area’s rental housing. In 2010, over 34% of the area’s rental units fell within the \$1,000 to \$1,499 gross rent cohort, followed by 26.2% of the units falling within the \$750 to \$999 gross rent cohort. Units renting for \$1,500 or more per month in the area accounted for 12.8% of the area’s total.

HUD issues, on an annual basis, a schedule of Fair Market Rents counties and metropolitan areas across the United States. HUD's FY 2013 Final Fair Market Rents provide a better picture of actual rents in these areas at the present time. Fair Market Rents are based upon Census data that is updated through various rental housing survey tools. For 2013, the Fair Market Rents for the Norwich-New London area (of which Groton is a part) was \$737 for a studio apartment, \$829 for a one-bedroom apartment, \$1,088 for a two-bedroom apartment, \$1,393 for a three-bedroom apartment and \$1,606 for a four-bedroom apartment.

The State legislature has established an Affordable Housing Appeals Procedure to provide assistance with development of affordable housing throughout the State. The procedure does not apply where at least 10% of the dwelling units in the municipality are:

- (i) governmentally assisted housing;
- (ii) units receiving either RAP or Section 8 rental assistance;
- (iii) currently financed by Connecticut Housing Finance Authority or Farmer's Home Administration mortgages; or
- (iv) subject to deeds containing covenants or restrictions that require sale or rental at affordable levels.

Affordable levels means housing for which persons and families pay 30% or less of income, where such income is less than or equal to 80% of the median income.

Where municipalities do not reach the 10% level required for exclusion from the appeals procedure, proposed assisted housing and set-aside developments may appeal denial of municipal zoning approvals to the court. Set-aside developments must reserve 30% of the units for affordable housing. One half of those set-aside units must be rented to persons or families whose income is less than or equal to 80% of the lesser of the state or area median income; the remaining half of the set-aside units must be reserved at 60% of the lesser of the state or area median income.

The most recent data from the State Department of Economic and Community Development Affordable Housing Appeals Program puts the number of affordable housing units in Groton in 2011 at 3,670. This is 20.41% of the number of housing units in the Town according to the 2010 Census. This level exempts the Town from the affordable housing appeals procedure.

Number of Governmentally Assisted Units:	3,267 units
Number of Tenant Assisted Units:	56 units
Number of CHFA/FmHA Mortgages:	337 units
Deed Restricted:	<u>10 units</u>
TOTAL	3,670 units

It should be noted that DECD does not include affordable unrestricted market rate units in its count of affordable units. There are many units in Groton, both rental and ownership, that serve as affordable homes for the Town's population. Therefore the percentage of affordable housing stock in the Town of Groton is actually much higher than the 20.4% figure defined by Section 8-30g.

MULTI-FAMILY HOUSING

Of the 17,978 housing units in Groton, 22.7% are multi-family units (buildings with 5 or more units), but an additional 19.0% of the inventory is in 2 to 4 unit structures. Currently, multi-family dwellings are permitted as conditional uses in the RMF, OMF, CA, WDD and WF zoning districts, and by right in the newly established MX zone, subject to master plan approval. The number of units allowed per site is determined in various ways. In the RMF zones, minimum lot area per dwelling unit ranges from 2,700 square feet to 5,500 square feet. In the OMF zone, the requirement of 6,500 square feet of lot area for every unit may be reduced to as little as 4,000 square feet if the proposed development includes one or more desirable amenities or design features. In CA zones, minimum lot area per unit ranges from 7,500 square feet to 30,000 square feet. The WDD zone permits a minimum lot area of 4,000 square feet per dwelling unit, while the WF zone requires 15,000 square feet per dwelling unit. Two-family dwellings are also allowed by right in the R, OMF, CA, CB and WF zoning districts, as well as conditional uses in the RMF, RU and IPC zones. It should be noted that since the 2002 Plan of Conservation and Development, two-family units have been eliminated as permitted uses in the RU-40 and RU-80 zones. No multi-family development of 5 or more attached units has been applied for in the Town since 2006.



Branford Manor Apartments

ELDERLY HOUSING

As the population of a municipality ages, it is important that a community provide alternative living arrangements from single-family detached homes to multi-unit communities as options for seniors. This gives the elderly population opportunities to continue to reside in the community where they have spent the majority of their years and not be forced out by escalating housing prices. Housing product for the elderly spans a broad range of types and supporting services. From housing designed to promote mobility (e.g., one-level, grab bars, ramps, etc.) to provision of medical and support of daily living functions, there are many variations of housing product. The main distinguishing characteristics of the housing types are the level of medical assistance and the extent of communal facilities provided. Development of these housing types have been facilitated in Groton by amendments to the Zoning Regulations that specifically recognize Assisted Living Facilities, Congregate Living Facilities, Residential

Life Care Communities and Active Senior Housing types. Since the last POCD in 2002, 70 units of assisted living have been built at Academy Point and a combined 104 units of senior housing built at Mystic Run and Haley Brook.



The Groton Housing Authority addresses the supportive housing/service needs of the elderly, frail elderly and disabled. The Authority operates two federal low-income public housing communities for the elderly; Grasso Gardens, a 70 unit development on Governor's Circle, and Pequot Village, a 104 unit complex located at 770 Poquonnock Road. Unlike the housing authorities in the nearby cities of New London and Norwich, Groton has a very small public housing authority. However, there are numerous other elderly housing providers and developments within the Town, such as the following:

- AHEPA 250 Apartments – 40 units – 251 Drozdyk Drive
- Avery Heights - 104 units – 300 Brandegee Avenue (Groton City)
- Mystic River Homes - 46 units – 201 Elm Street (Noank)
- Mystic Congregate Housing - 51 units – 205 Elm Street (Noank)

Future demand for elderly housing in Groton will depend upon market conditions, the economy and similar outside forces that cannot be predicted. However, with almost 23% of Groton's population being between the ages of 45 and 64, it is reasonable to expect the demand for elderly housing options in Groton will either remain stable or increase over the next decade.

In addition to providing housing, companies that manage multi-family housing are also some of the largest tax payers in the Town. The number 4th, 5th, 7th, and 8th largest taxpayers in the town are residential management companies, which combined account for more than \$72,500,000 of taxable assessed value.

Age in Place- Communities must also plan to accommodate those who choose to age in their existing homes or neighborhoods, rather than moving to apartments or other communities that may offer more traditional services. According to the AARP's *Home Sweet Home* survey, seniors prefer to remain in their communities. Additionally, some seniors simply cannot afford to move, and therefore communities must plan to connect services with seniors. This can include a range of actions from altering the length of stop lights to allow seniors to cross, adding sidewalks and bus stops to help seniors stay mobile, and

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providing tax modification or abatement to senior homeowners. This can also mean changes to zoning regulations to allow in-law suites that can be used to either house seniors with their adult children, or to in-home caregivers.

Groton has addressed many of these issues, such as creating Tax credits for seniors, and providing a myriad of services, including health care services, at the Groton Senior Center. Additionally, Senior Center transportation provides free shuttle service to the senior center, and \$2.00 shuttle service to many other locations throughout the town. Additionally, Groton has a TRIAD program that connects senior services and Police services to increase senior safety.

SUSTAINABLE DEVELOPMENT PATTERNS

The vast majority of the Groton's vacant and agricultural land is zoned for some form of residential development. In keeping with the existing land use of properties in Town, the zoning for the densest housing is found in the City of Groton, the area around the submarine base and in older established neighborhoods in various parts of the Town that have access to state roads and infrastructure. There are still numerous vacant, agricultural and underdeveloped residential parcels of land that are zoned for residential use and are potential areas for future residential development. The largest of these tracts are generally found in the northern and central sections of the Town, interspersed among lower density housing developments and dedicated open space parcels.

An initiative of the 2002 Plan was to promote open space development patterns for new single family housing. The Subdivision Regulations were amended in November 2005 to allow an in lieu fee in addition to the 10% open space set aside requirement in new subdivisions. Great Brook and Mill Pond subdivisions, both located north of Route 184 are good examples of open space subdivisions that implemented the recommendations of the 2002 Plan. The open space set asides are contiguous with other permanently protected open space to create a continuous greenbelt from 184 to the Ledyard line, supporting one of the town's long standing initiatives.



Open Space set aside as part of the Great Brook subdivision

RESIDENTIAL BUILD OUT

Balancing the demands for new development with the physical constraints of the landscape and existing regulatory controls can prove to be a significant challenge. Once factors such as the availability of necessary public facilities, the adequacy of road and utility infrastructure, and the protection of valuable natural resources are considered, the balance gets even more complicated. This challenge is compounded by the reality that there is only a finite amount of vacant land available for development. Understanding where the developable land is located within the Town of Groton and how much development can be accommodated based on existing regulatory controls and physical constraints on the landscape is the first step in establishing a development plan for the future. Issues such as infrastructure limitations and natural resource protection can be considered and new growth can be properly planned. This analysis has been undertaken for the entire Town, including the zoning districts in the City of Groton, Groton Long Point, and Noank, and the appropriate zoning and subdivision regulations have been used.

The analysis of development capacity is expressed as potential dwelling units in vacant lands zoned for residential uses, and as total area of vacant lands in non-residential zones. These development capacity calculations represent a reasonable scenario of growth under a scenario where all available and reasonable land has been built upon, following existing zoning and building limitations.

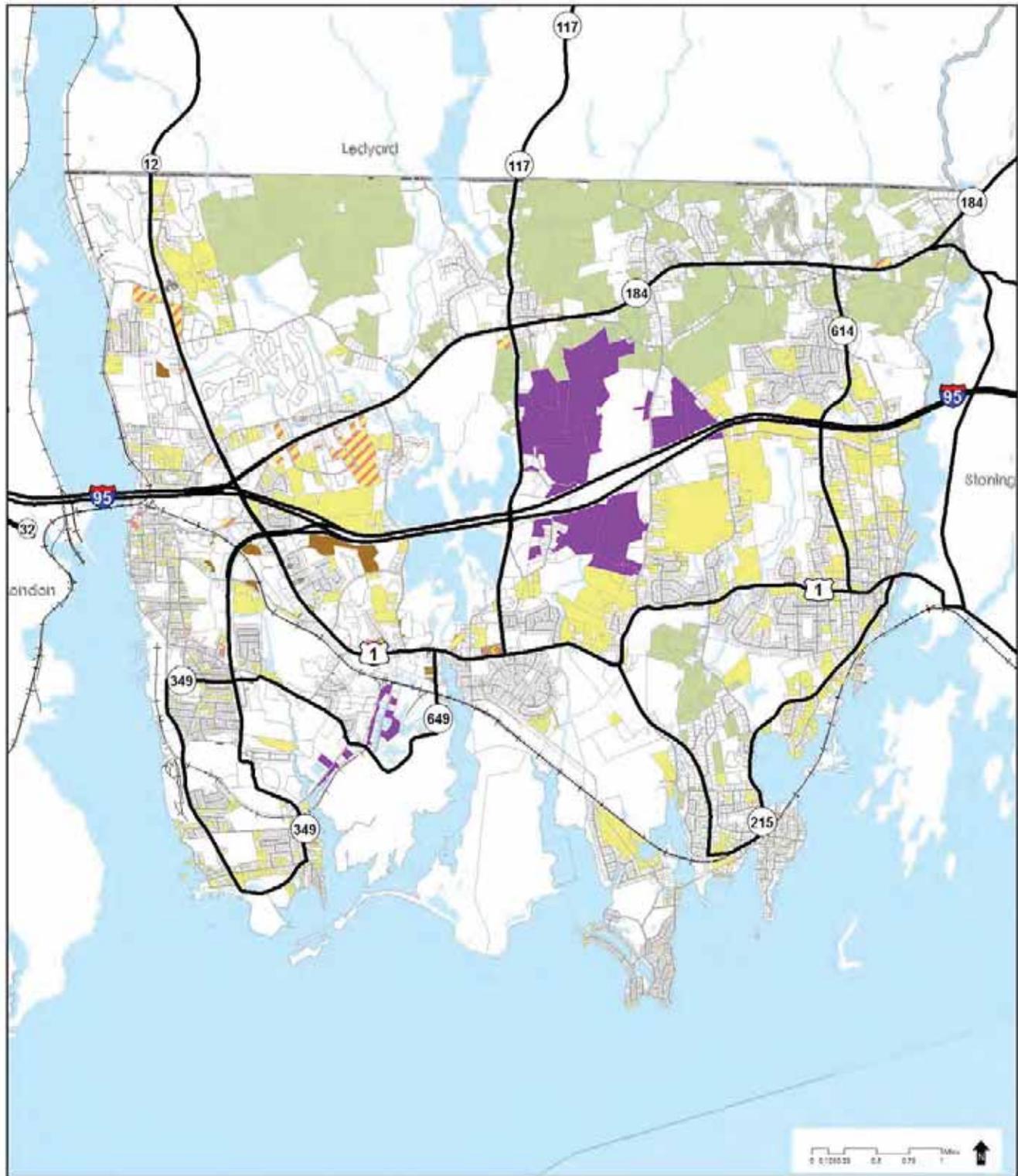
LAND ANALYSIS

It is calculated that 13.9% of the Town is classified as Vacant Land and 6% is classified as Agricultural Land. Visualizing the distribution of these vacant and agricultural parcels is important in order to gain an understanding of *where* future development on raw vacant land can be accommodated. For the residential build-out, only those parcels in residential zones have been included in the Build-Out. This analysis also included a category of those single-family parcels that are large enough to be subdivided (greater than three times the minimum lot size as defined by zoning), which are referred to as Underdeveloped. These parcels are included in the Residential Development Potential analysis..

Vacant and Agricultural Land Analysis by Zoning

Zoning Category*	Acres with Zone District (acres)	Vacant & Agricultural Land (acres)	Percent of Zone Vacant & Agricultural	Percent of Total Ag & Vacant Land
Commercial	145.9	9.5	6.5%	0.3%
Industrial	2,206.4	689.0	31.2%	18.3%
Mixed ResCom	819.7	147.4	18.0%	3.9%
Mixed ResOffice	88.5	12.2	13.8%	0.3%
Subtotal Non-Residential Zones		858.1		22.8%
Residential Multifamily	454.1	61.6	13.6%	1.6%
Residential >1 Acre	5,712.7	1,803.0	31.6%	47.9%
Residential <1 Acre	8,538.7	1,037.8	12.2%	27.6%
Subtotal Residential Zones		2,902.4		77.2%
Total Vacant and Ag in all Zones		3,760.5		100.0%

*Zoning Categories Open/Conservation and ROW are not listed because they contain no vacant or agricultural lands



Groton
PLAN OF CONSERVATION + DEVELOPMENT

Vacant and Underdeveloped Land By Zone

Vacant, Ag, and Underdeveloped Land by Zoning

- | | |
|--------------|------------------------|
| Mx_ResCom | Industrial |
| Mx_ResOffice | Commercial |
| Res_Multi | Mixed Use: Res/ Comm |
| Res_Rural | Mixed Use: Res/ Office |
| Res_Single | |

Sources:
 • Street Centerlines: Town of Groton/CIDeas.
 • State Roads: Streetmap USA (2011)
 • Base Map Data: Esri/Intellicart ODFP Map & Geographic Information Center (2012)
 This map was developed for use as a planning document. Delineations may not be exact.

April 2014

MILONE & MACBROOM

RESIDENTIAL SUMMARY

The majority of vacant and agricultural land in the Town is zoned Residential >1 Acre (47.9%), generally allowing single-family housing units on one acre lots or greater. There is also considerable residential land in the town that would be considered Underdeveloped because its current zoning would allow for further subdivision of the parcel for additional housing units. These parcels are considered Underdeveloped if their land use is Single-Family Residential and their area is at least three times greater than the minimum lot size allowed by right. There are 1,480.1 such acres in Groton, although only 1,477.3 are in single family zones. Only those parcels in single family zones have been included in the Build-Out.

Underdeveloped Land Analysis by Zoning				
Zoning Category*	Acres with Zone District (acres)	Underdeveloped Land (acres)	Percent of Zone Underdeveloped	Percent of Total Underdeveloped Land
Residential Multifamily	454.1	2.8	0.6%	0.2%
Residential >1 Acre	5,712.7	815.1	14.3%	55.1%
Residential <1 Acre	8,538.7	662.2	7.8%	44.7%
Subtotal Single Family Zones		1,477.3		99.8%
Total		1,480.1		100.0%

**Only Residentially Zoned Land Is Included in this Analysis. Only Single Family Residential Land is Analyzed for Unit Yield in the Build-Out*

RESIDENTIAL DEVELOPMENT CAPACITY

In order to understand the development capacity of residentially zoned land in the Town, each parcel’s capacity to accommodate new development is assessed based on the presence of development constraints and existing zoning. Development constraints were defined and deductions taken according to the following assumptions:

- 100% deduction of FEMA 100-year floodzones
- 100% deduction of water courses and bodies
- 100% deduction of inland wetlands and tidal wetlands
- 80% deduction of steep slopes >25%
- 35% deduction of moderate slopes (15% to 24%)

Areas that contain development constraints were deducted from the gross land area for each parcel, yielding a per parcel buildable land area (unconstrained land). From the unconstrained land, 20% was factored out to account for the required internal roadways, stormwater retention, or open space offsets, to result in a Total Net Buildable Land calculation. This analysis was done for both Vacant/ Ag parcels, and residentially zoned parcels with an existing residential structure that are large enough to be subdivided (greater than three times the minimum lot size as defined by zoning), and are referred to as Underdeveloped.

From the Net Buildable Land area, the minimum lot size of the underlying residential zones was applied

to yield an approximation of potential residential dwelling units for each parcel. For example, a vacant parcel with 3.5 acres of net buildable area in a 1 acre zone will yield 3 dwelling units. The remaining .5 acres does not contribute to additional dwelling unit yield. For underdeveloped parcels, any existing living units, as calculated by the Tax Assessor records, were deducted from the yield of dwelling units.

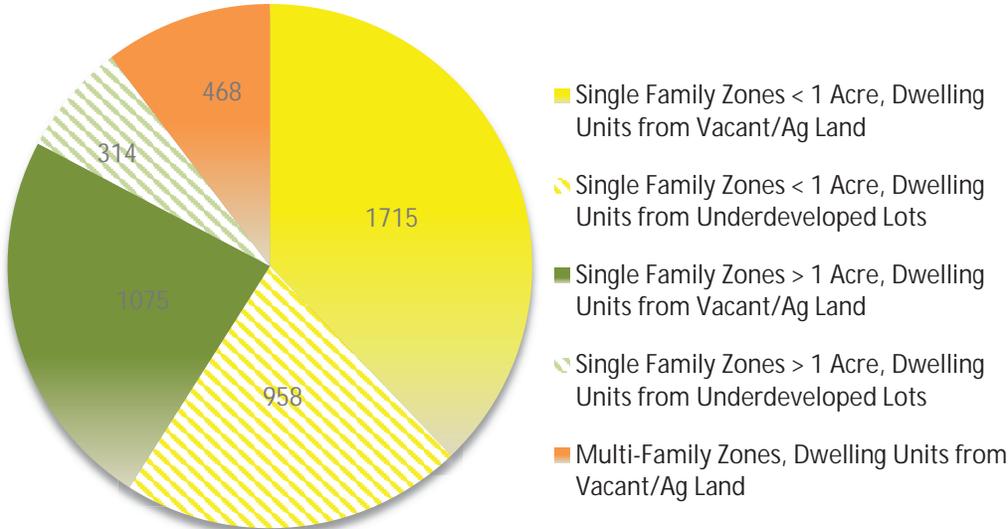
Residential Development Potential at Full Build-Out

The results of the residential development potential analysis indicate that, based on existing zoning, approximately 4,530 additional dwelling units could be built within the Town’s residential zones at full build-out. This represents an approximate 25% increase over the 17,978 existing dwelling units enumerated during the 2010 Census. Ninety percent of these potential units are in Single Family Zones, with fewer than 500 potential units in Multifamily Zones.

In 2010, the Town had an average household size of 2.31; therefore, these units have the potential to increase the population by 10,464 people at full build-out, yielding a potential for a total population of 50,579.

Following the last POCD, zoning changes were made in 2002, based on recommendations from the plan, which removed two-family homes as-of-right in the RU-40 and RU-80 zones. This resulted in a decrease in the potential yield of dwelling units by an estimated 800 dwelling units in RU-40 and RU-80 zones.

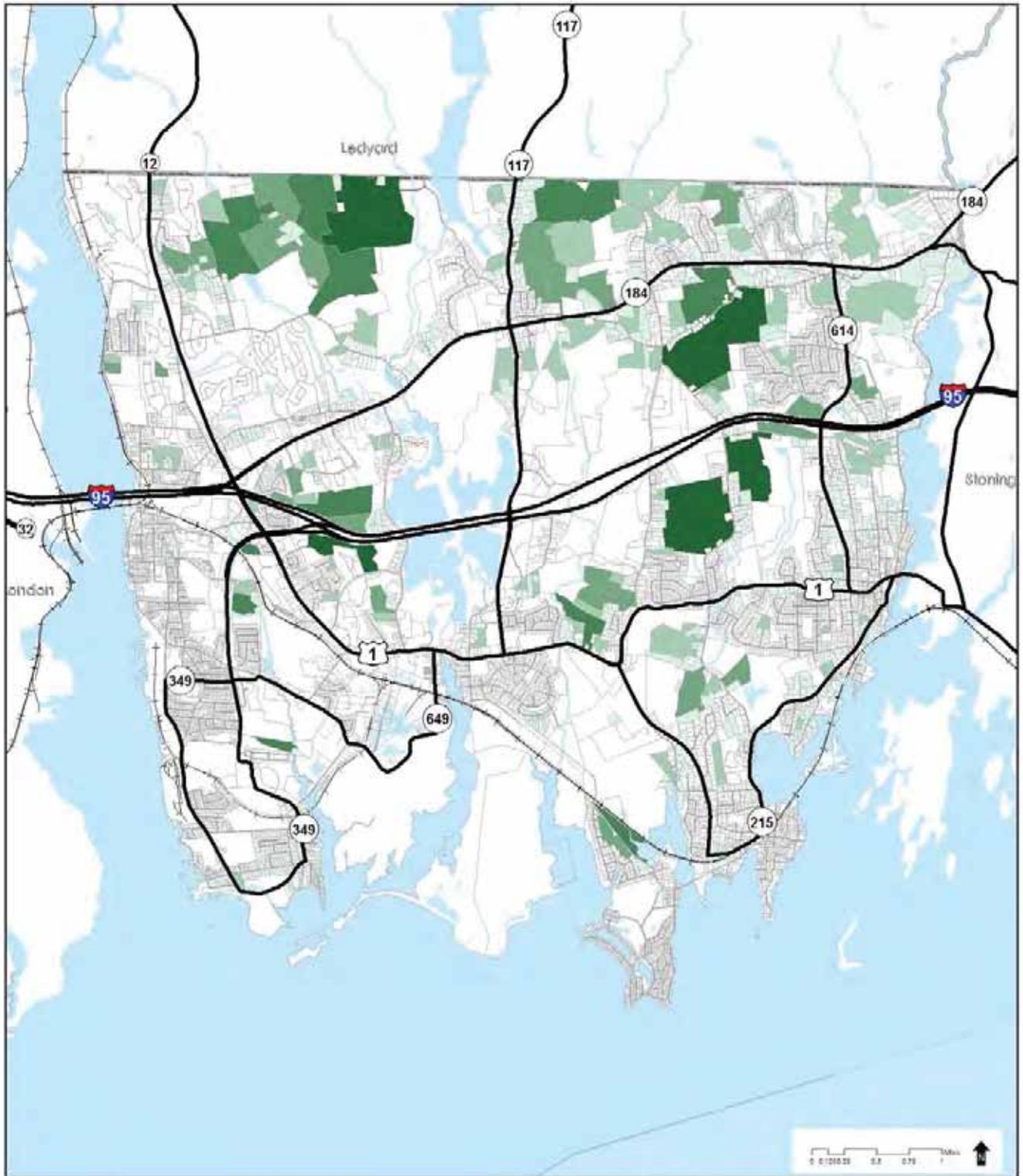
Residential Development Potential, Total Potential Units Under Full Build Out



Residential Development Potential for the Next Decade

Data from the US Census, CT Data Center, and CT DOT, as explained in the Demographics Memorandum, suggests that despite projections the population remaining around 40,000 residents for the next decade, the Town will likely see continued shrinkage in the average size of its resident households as the nature of the household unit continues to evolve. This trend will likely put upward pressure on housing demand, as fewer people per household results in the gross number of households increasing even as the total population remains stable. Additionally, shifting demand for different housing typologies as the community matures will drive the need for additional housing units. As discussed in the Housing Memorandum, between 2000 and 2011 the percentage of the Town's housing stock in single-family structures actually decreased, while the percentage of housing units in structures of two to four units increased 33% and the percentage of housing units in structures of five or more units increased 13.5%, suggesting that changing demographics and market demand may already be driving the diversification of housing typologies.

Since 2007, there has been an average of 48 annual housing permits. If this trend continues for the next ten years, there would be an estimated additional 480 units of housing built by 2023. In 2010, the Town had an average household size of 2.31; therefore, these units would have the potential to increase the population by 1,109 people.



Groton
PLAN OF CONSERVATION + DEVELOPMENT

Potential New Dwelling Units Under Full Build Out

Potential New Dwelling Units

- 0 - 5
- 5 - 20
- 20 - 50
- 50 - 100
- > 100

Sources:
• Street Centerlines: Town of Groton/GSD/DeWitt
• State Roads: Streetmap USA (2011)
• Base Map Data: Connecticut DEP Map & Cartographic Information Center (2012)
This map was developed for use as a planning document. Delineations may not be exact.

April 2014

MILONE & MACBROOM



Downtown Mystic

ECONOMIC DEVELOPMENT

LABOR FORCE AND EMPLOYMENT

During the past ten years, the Connecticut economy has provided most residents with a high economic standard of living, enabled by one of the highest per capita income levels in the United States. Despite the low rate of population growth and the aging of Connecticut's population, the total labor force increased in size between 2005 and 2013. The state added 59,929 workers to its labor force (a 3% increase) while adding 85,783 people to its population total, an increase of only 2%. These seemingly contradictory figures can be explained to a certain degree by the fact that many older workers are choosing to remain in the workforce well past the traditional age range for retirement, and that many immigrants entering the state are of working age.

In contrast, the Norwich-New London Labor Market Area lost 2,568 workers between 2005 and 2013, and resident labor force of Groton decreased by 6.8%. Groton's static population and labor force figures are indicative of a situation where significant economic development based solely upon the local population is quite difficult to achieve. Groton's economic development is largely driven by large national corporations and the military and the ebb and flow of their production decisions that are beyond local ability to influence.

Trends in Population, Labor Force, Employment, and Unemployment
Connecticut, Norwich-New London Labor Market Area, and the Town of Groton (By Place of Residence)

	2005	2006	2007	2008	2009	2010	2011	2012	2013
Connecticut									
Population	3,510,297	3,510,787	3,502,309	3,501,252	3,518,288	3,575,498	3,580,709	3,591,765	3,596,080
Labor Force	1,806,997	1,826,817	1,846,194	1,868,874	1,886,800	1,897,433	1,888,084	1,879,452	1,859,926
Employed	1,718,608	1,745,993	1,761,588	1,763,911	1,730,053	1,724,024	1,721,360	1,722,394	1,715,390
Unemployed	88,389	80,824	84,606	104,963	156,747	173,409	166,724	157,058	144,536
% Unemployed	4.9	4.4	4.6	5.6	8.3	9.1	8.8	8.4	7.8
Norwich-New London LMA									
Population	272,176	273,859	270,090	271,424	272,364	278,562	278,003	*	*
Labor Force	148,396	149,131	150,159	152,765	153,725	155,044	153,497	149,019	145,828
Employed	141,699	142,808	143,635	144,219	141,526	141,168	140,075	136,233	134,098
Unemployed	6,697	6,323	6,524	8,446	12,199	13,876	13,422	12,787	11,730
% Unemployed	4.5	4.2	4.3	5.5	7.9	8.9	8.7	8.6	8.0
Groton									
Population	39,880	42,555	39,205	39,346	39,551	40,109	40,038	39,896	*
Labor Force	19,606	18,996	20,230	19,272	19,517	19,555	19,407	18,741	18,265
Employed	18,718	18,176	19,363	18,195	17,896	17,724	17,599	17,092	16,732
Unemployed	888	820	867	1,077	1,621	1,831	1,808	1,648	1,533
% Unemployed	4.5	4.3	4.3	5.6	8.3	9.4	9.3	8.8	8.4

Sources: Population Information - U.S. Census Bureau (July 1 reporting period), CT DPH (July 1 reporting period)
Labor Information - Connecticut Dept. of Labor

*Data not available for this period

EMPLOYMENT TRENDS

Over the past several years, New London County has seen its total employment decline by 4.4% as the region struggled through the most recent economic recession. The goods producing industries of construction and manufacturing were particularly hard hit, reducing jobs by -10.8% and -15.8%, respectively. Service producing industries declined by -2.5%, although specific industries within the service producing realm saw much more significant declines. Information services jobs declined -29.4% between 2006 and 2011, and administrative & waste management; finance, insurance and real estate (FIRE); and government sectors all experienced significant declines in employment as well.

There were several economic bright spots in this data, however. The management of companies sector grew by 36.9% during the recession, and the wholesale trade sector increased its employment total by 30.3%. The transportation & warehousing; health care & social assistance; and accommodation & food service sectors also experienced strong gains in employment. The health care and social assistance sector had the largest numerical increase, adding 1,650 new jobs. Finally, the farming sector experienced a 3.6% increase in employment, although the raw number of new employees was still quite small in comparison to other larger employment sectors.

Groton and New London County are heavily affected by changes in Government spending, especially spending by the Department of Defenses. Due largely in part to the winding down of war costs since 2010, Defense spending is expected to decline 20% between 2010 and 2017, according to the fiscal year 2014 budget. Discretionary budget caps have also been mandated by the Federal government. However, the Defense Department has committed to modernizing many of its fleets, including its nuclear submarine fleet, and order for Virginia-class submarines has continued. The Fiscal Year 2015 budget includes \$5.9 billion for two Virginia-class attack submarines in FY 2015 and \$28 billion for two submarines a year through FY 2019.

Groton Employment Trends

Economic activity within Groton is generated by the demand for goods and services by residents, workers, businesses and visitors to the Town. The overall health of Groton's economic base is also influenced by market conditions in the larger Norwich-New London market area. In turn, the economic health of these larger market areas is linked to the health of the state and national economies.

During the period of 2006 to 2012, the Town of Groton experienced a 0.8% decline in employment, losing 215 jobs. This was the result of significant decreases in construction and manufacturing employment offsetting generally solid gains in service sector employment. Groton experienced strong gains in employment in the wholesale trade, transportation and warehousing, and professional and technical services sectors, contrasted with declines in administrative and waste management services, education, other services and arts, entertainment and recreation services.

Groton continues to be the largest employment center in the immediate area, with 25,754 jobs. All of the surrounding communities now have economies dominated by service sector employment, with Groton being the only town with significant manufacturing jobs. Groton also has a significant number of jobs in the professional and technical services, retail trade, and accommodation and food services sectors. It should be noted that employment data for Pfizer and Electric Boat, which are headquartered in Groton, includes workers who are actually at New London sites, as labor data is assigned to companies, not towns. Therefore the regional employment trends are especially valuable.

Groton Town Employment Trends
Average Annual Employment: 2006 to 2012

	2006	2007	2008	2009	2010	2011	2012	Change, 2006-2012	% Change, 2006-2012
Total Non-Farm Employment	25,969	25,560	26,079	25,287	25,043	25,581	25,754	-215	-0.8%
Goods Producing	12,444	11,420	11,310	11,174	11,014	11,059	10,646	-1,798	-14.4%
Mining	0	0	0	0	0	0	0	0	0.0%
Construction	253	264	259	149	156	221	192	-61	-24.1%
Manufacturing	12,191	11,156	11,051	11,025	10,858	10,838	10,454*	-1,737	-14.2%
Service Producing	13,504	13,761	14,752	14,095	14,012	14,499	15,107	1,603	11.9%
Utilities	-	-	-	-	-	-	-	N/A	N/A
Retail Trade	2,178	2,179	2,131	1,988	2,047	2,033	2,052	-126	-5.8%
Wholesale Trade	178	-	572	543	521	524	477	299	168.2%
Trans. & Warehousing	462	604	762	773	785	792	908	446	96.6%
Information	76	82	76	98	74	69	66	-10	-13.3%
FIRE	650	653	664	662	671	656	657	7	1.1%
Professional and Technical	1,129	1,268	1,242	1,285	1,466	1,892	2,259	1,130	100.1%
Mgmt. Of Companies	-	-	-	-	-	-	-	N/A	N/A
Admin. & Waste Management	313	339	428	282	259	240	248	-65	-20.9%
Education	119	112	114	105	104	86	81	-38	-31.6%
Health Care/Social Assistance	1,767	1,802	1,866	1,592	1,671	1,750	1,830	63	3.6%
Arts, Entertainment & Rec.	198	195	198	204	192	178	182	-16	-8.0%
Accommodation & Food Service	2,075	2,172	2,337	2,208	2,101	2,136	2,175	100	4.8%
Other Services	637	630	599	563	547	553	576	-61	-9.6%
Government	3,722	3,725	3,763	3,792	3,574	3,590	3,594	-128	-3.4%
Nonclassified	-	-	0	0	0	0	-	N/A	N/A
Farm Employment	-	N/A	N/A						

*Disclosure provisions of CT's Unemployment Insurance Law prohibit the release of figures which tend to reveal data reported by individual firms.

For 2012 data, Manufacturing information was withheld. The figure reported on the table is an estimate based on the difference between the total employment numbers less all given figures. As such, the Manufacturing estimate is likely to be high due to the inclusion of the suppressed Utilities and Mgmt. of Companies, Nonclassified, and Farm Employment categories.

Source: CT Dept. of Labor, QCEW Program Data, 2006-2012

Groton Employers

The fluctuations in the size and composition of the business entities in a community's economic base over time are often good indicators of the community's overall economic health. Data from the State of Connecticut's Department of Labor (CTDOL) for 2011 indicates that Groton's economy contained 1,033 business entities employing 25,581 people. Approximately 58.8% of the businesses in Groton are within the industry categories of retail; health care & social assistance; accommodations & food services; and professional, scientific and technical services. In addition, 70.9% of the businesses in Groton have fewer than 10 employees and only 22 businesses employ more than 100 people. The Town's economy is heavily rooted in a diverse mix of small businesses combined with several key large-scale industrial enterprises.

Groton Employers by Number of Employees and Industry Category

Category	# of Employees						
	Total	1 to 4	5 to 9	10 to 19	20 to 49	50 to 99	100+
Forestry, fishing, hunting and agriculture support	1	1	0	0	0	0	0
Construction	50	40	5	1	4	0	0
Manufacturing	24	11	5	3	2	0	3
Wholesale Trade	35	18	7	8	1	1	0
Retail Trade	233	118	64	25	17	5	4
Transportation & warehousing	14	7	1	1	4	1	0
Information	13	6	1	4	1	0	1
Finance & insurance	65	30	21	8	3	3	0
Real estate and rental and leasing	46	35	6	3	2	0	0
Professional, scientific & technical services	121	81	15	11	5	5	4
Management of companies & enterprises	2	1	0	1	0	0	0
Administrative & support, waste management & remediation	37	28	2	4	1	1	1
Educational services	9	4	1	3	0	1	0
Health care & social assistance	134	44	31	37	10	6	6
Arts, entertainment & recreation	35	14	8	9	2	0	2
Accommodation & food services	158	46	30	37	33	11	1
Other services	119	65	31	17	5	1	0
Industries not classified	2	2	0	0	0	0	0
TOTAL	1,098	551	228	172	90	35	22

Source: 2010 ZIP Code Business Patterns, U.S. Census Bureau. Zip codes 06340, 06349 and 06355 which includes a portion of the Town of Stonington.

Groton's Major Employers

Name	Nature of Business	Employees	2013	
			Rank	% of Total Town Employment
U.S. Navy Submarine Base	Military Base	9,710	1	34.5
Electric Boat Corporation	Submarine Mfg/R&D	6,700	2	23.8
Pfizer, Inc.	Pharmaceutical	3,360	3	11.9
Town of Groton	Municipality	1,296	4	4.6
Theater Aviation Sustainment Maintenance Group	Helicopter repair	528	5	1.9
City of Groton	Municipality	206	6	0.7
PCC Structurals ⁽¹⁾	Manufacturer	180	7	0.6
Mystic Marriott	Hotel/Conference Center	225	8	0.8
Lawrence & Memorial Facilities	Hospital	149	9	0.5
Doncasters Precision Castings	Manufacturer	105	10	0.4
Total		22,459		79.7

(1) Formerly known as Wyman Gordon Company

Source: Groton Comprehensive Annual Financial Report, June 30, 2013, Table 13

The top five employers remain the same over the decade, lead by Groton’s big three – Submarine Base, Electric Boat and Pfizer. However, employment at these five businesses declined by over 4,000 employees and their share of total top ten employees declined by 1.4% over the decade. Businesses new to the 2012 list were from the hospitality and medical sectors. This transition is consistent with the movement of business to the service sector. The Town is slightly less dependent upon its top ten employers as employment in those businesses declined to 80.6% from 91.3% over the past decade

At the beginning of 2014, announcements by Electric Boat and Pfizer point to a return to relative employment stability for the near term. Electric Boat plans a \$100 million upgrade to its facilities in Groton to accommodate construction or refitting submarines over the next decade.

Pfizer announced that it anticipated maintaining its workforce at its research and development campus in Groton for the foreseeable future. The State, Pfizer and CURE



Future CURE Research Campus

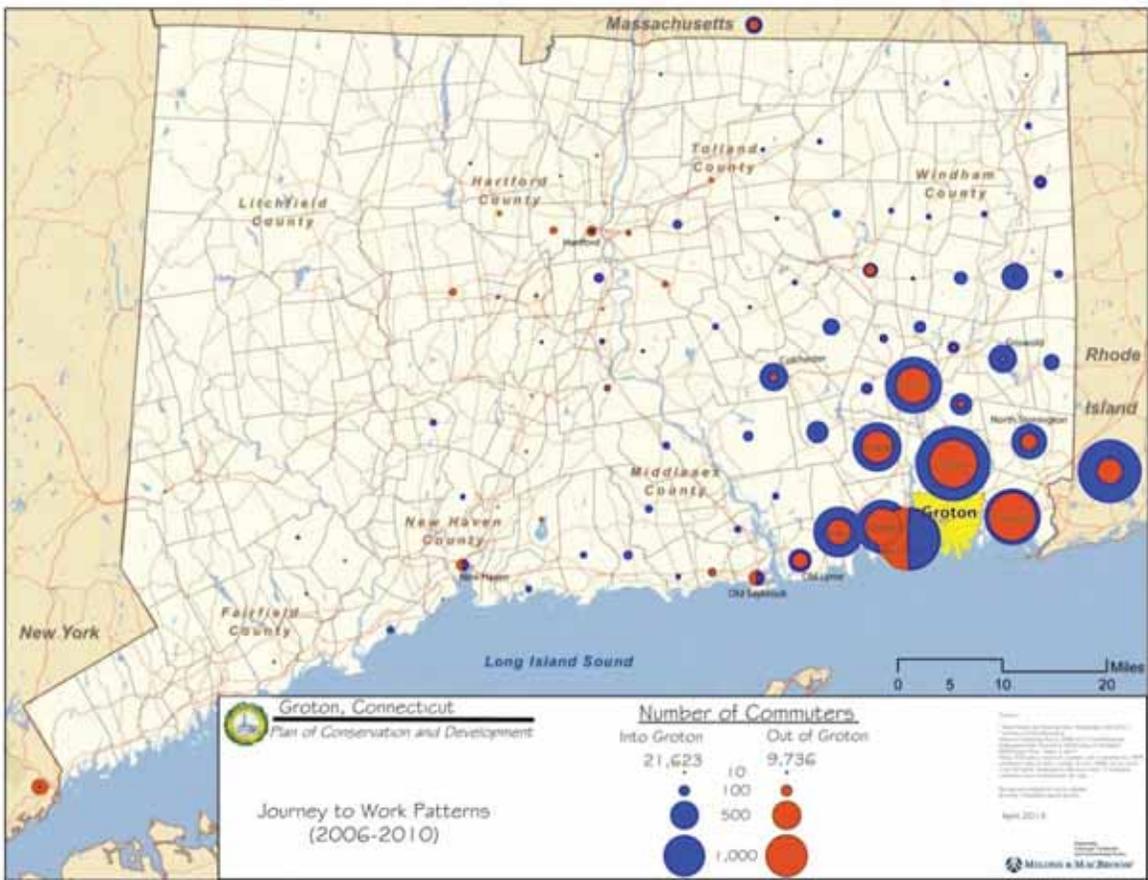
(Connecticut United for Research Excellence) have reached an agreement to reuse two buildings on the Pfizer campus as a bioscience incubator and the new state data center. Pfizer's Building 286 through CURE is slated to become a technology incubator that will serve as a hub for entrepreneurs, scientist, and start-up businesses. The State is slated to occupy building 230, which will serve as the new state IT data center. The state's new IT data center will support the critical work of some 50,000 state personnel whose work is highly dependent on the smooth and reliable operation of the state's IT network, including public safety related functions. These projects will help retain the economic footprint of those facilities, attract and retain jobs in high-demand information-technology and bio-technology field

COMMUTING TRENDS

More people commute into Groton for jobs than commute outwards. About 80% of Groton's workforce originates within New London County, with 35% being Groton residents, the adjacent towns of New London, Ledyard, and Stonington accounting for about 20% of workers commuting into Groton.

Of the Town's resident workers about 55% are employed in Groton itself. The residents of Groton tend to work fairly close to home, with about 22% commuting to the neighboring towns of New London, Ledyard, and Stonington, and a 15% commuting elsewhere in New London County. Almost 92% of Groton's residents work within New London County.

The following map illustrates the number and percentage of workers that both commute into Groton, and commute from Groton. The circles are scaled by size, and the color indicates whether workers are commuting into Groton (Blue) or out of Groton (Red). For example, the circle for Rhode Island, in the lower right corner of the map, indicates that more than 1,00a0 Rhode Island workers commute into Groton to work (large blue circle), and far fewer workers commute out of Groton to jobs in Rhode Island (smaller red circle). There is one circle for each of the neighboring states of Rhode Island, Massachusetts, and New York, and one circle for each town in Connecticut that has workers either commuting into our out of Groton. As previously stated, most workers come from New London County to jobs in Groton, and most Groton workers stay in New London County.



GROTON'S GRAND LIST

Groton's total taxable assessed value has increased by 70.2% between FY2003 and FY2012. The split between residential property and commercial property has changed from 55% and 33% in FY2003 to 59% and 31% in FY2012. Therefore, residential property has grown as a percentage of total taxable assessed value while commercial property has declined over the past decade. The taxable assessed value of residential property has risen by 81.3% over the decade while commercial property has risen by 60.2%. Maintaining a grand list with a substantial commercial property component is key to a favorable tax revenue position. The table below presents the changes over the ten year period.

The contribution of the top ten major businesses to the gross taxable grand list declined by 2.5% over the decade. These ten businesses provided 21.5% of the gross taxable assessed grand list of the Town in 2012. Six of the top businesses have remained the same over the decade. In addition to the two dominant manufacturers of Pfizer and Electric Boat, the 2012 list consists of one hospitality property, four apartment complexes, and three shopping centers. Apartment complexes have grown in importance among the top ten businesses over the decade rising from 6.8% of taxable assessed value in 2003 to 8.3% in 2012. Electric Boat and Pfizer have both engaged in demolition of underused buildings in the past several years, reducing their contribution to the Grand List.

Groton's Taxable Assessed Value 2003-2013

Fiscal Year	Real Property				Total Taxable Assessed Value
	Residential Property	%	Commercial Property	%	
2003**	\$1,337,947	55	\$787,520	33	\$2,415,040
2004	\$1,344,379	55	\$816,332	33	\$2,450,282
2005	\$1,367,849	55	\$826,284	33	\$2,501,875
2006	\$1,374,504	53	\$845,102	33	\$2,580,928
2007	\$1,392,856	51	\$865,827	32	\$2,719,702
2008**	\$1,713,224	54	\$1,009,245	32	\$3,195,147
2009	\$2,059,143	56	\$1,110,085	30	\$3,692,260
2010	\$2,397,057	58	\$1,257,988	31	\$4,107,371
2011	\$2,411,954	59	\$1,261,987	31	\$4,103,933
2012	\$2,425,700	59	\$1,261,870	31	\$4,110,602
2013**	\$2,255,322	57	\$1,183,933	30	\$3,938,277

Note: By state law, property is assessed at 70% of actual value with periodic revaluation of real property.

** Denotes years in which a revaluation of real estate properties occurred.

Source: Groton Comprehensive Annual Financial Report, June 30, 2013

ENCOURAGE APPROPRIATE ECONOMIC DEVELOPMENT

STRATEGIC ECONOMIC DEVELOPMENT PLAN

The Town undertook a Strategic Economic Development Plan (SEDP) in 2006 to analyze the economic development conditions and develop a detailed strategy for the Town's economic future. The SEDP was in response to threat of the closing of the Groton-New London Submarine Base and aimed to increase economic diversification in the Town. The following highlights the core objectives and proposed policies of the SEDP.

The Strategic Plan represents a synthesis of many existing project and policy proposals, combined with a number of new proposals, all repositioned to address four core objectives:

- *Diversifying the Town's economy, both from the standpoint of the industry mix as well as the degree of dependence upon military spending and the pharmaceutical industry.*
- *Redeveloping Downtown Groton in a manner that unlocks its latent economic potential while revitalizing the civic core of the community.*
- *Improving the Town's ability to compete for tourist activity and spending.*
- *Improving the Town's overall quality of life, which speaks directly to its attractiveness as a place both*



to live and to operate a business.

PROPOSED ECONOMIC DEVELOPMENT POLICIES

1. *Diversify the local economy by attracting new business, retaining and growing existing businesses, and assisting with the startup of new business*
2. *Take a proactive approach to creating sites for economic development*
3. *Enhance economic development capacity at the Town level and through regional partnerships*
4. *Zone with economic development in mind*
5. *Improve the aesthetics and image of Groton's highway business corridors, including Downtown Groton*
6. *Improve circulation and access in Downtown Groton and throughout the Town*
7. *Work with property owners to spur the redevelopment of downtown Groton*
8. *Preserve and enhance the Town's historic, scenic, and open space resources to create both local and tourist amenities*
9. *Improve the packaging and marketing of existing tourist attractions*
10. *Undertake projects and plans which bolster community pride and image*

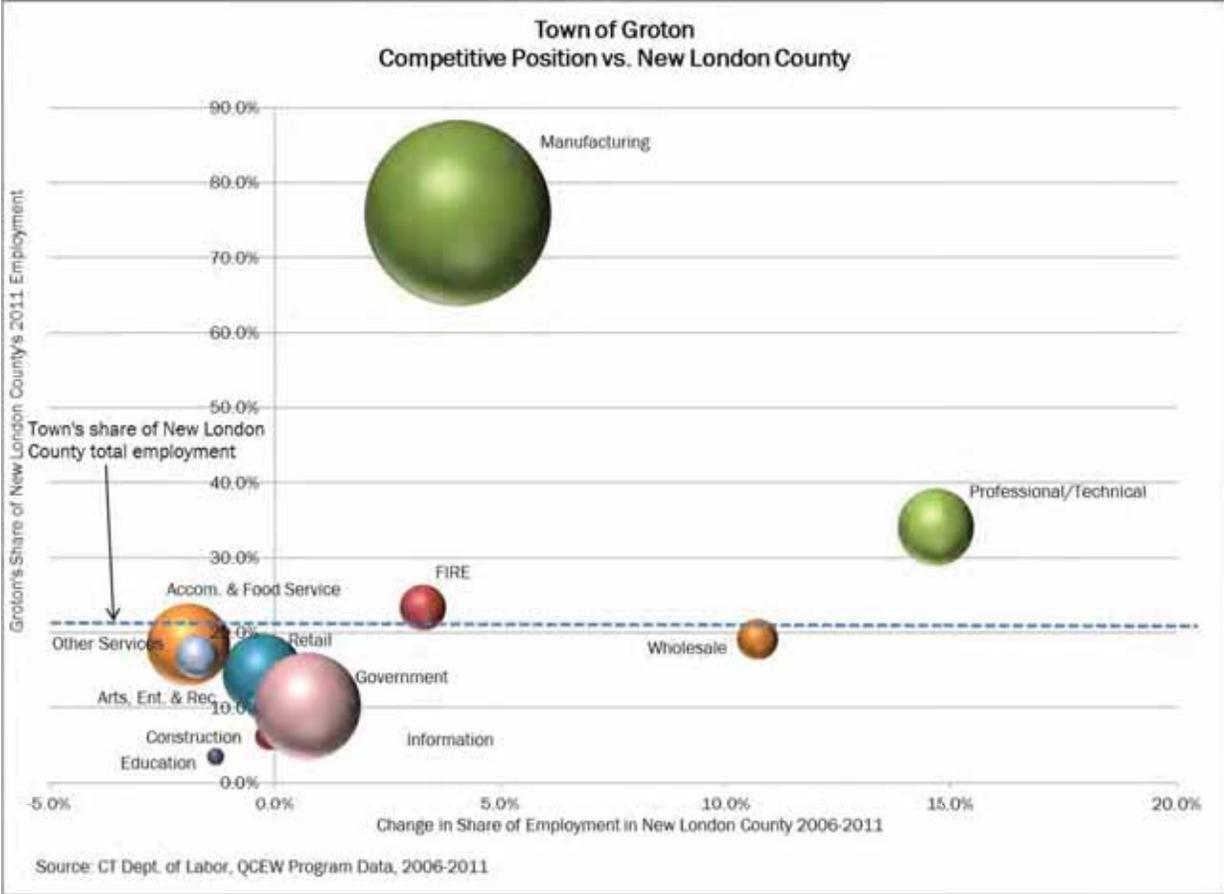
In addition, the SEDP identified thirteen projects to be undertaken throughout the Town to improve economic viability. These projects ranged from streetscape improvements to traffic studies. Most of these project have been completed or initiated, however those that have not should continue to be top priorities of the Town.

LEVERAGE ECONOMIC COMPETITIVENESS

The Town of Groton has certain industries in which its economy demonstrates a competitive advantage. These industries often appear as "clusters", with several businesses in the same industry category being located near each other. These clusters are often accompanied by related and supporting industries which help create a mutually reinforcing structure to the community's economy.

The following chart illustrates the various industries in Groton and compares how competitive they are versus the balance of New London County. Industries near the top of the chart have a larger share of employees in Groton versus the balance of New London County. Industries to the left of the chart have seen this share decline between 2006 and 2001, while those farthest to the right have seen this share increase the most. The circle size indicates the relative size of each industry in Groton's economy. For example, the manufacturing sector in Groton accounts for 76.0% of the total employment in the manufacturing sector in New London County and this share has increased 4% from 2006 to 2011. The blue line represents Groton's share of the total employment in New London County in 2011, 20.9%.

Those bubbles that lie above the blue dashed line and to the right of the y-axis are industries in which Groton has been gaining a competitive advantage in comparison to the balance of New London County. Manufacturing; professional and technical; and finance, insurance and real estate (FIRE) sectors are all industries where Groton has an edge over its neighboring communities. These industry sectors are logical starting points for developing industry clusters in the Town.



LEVERAGE LOCAL ECONOMIC DEVELOPMENT STRENGTHS

Goods Producing & Service-Based Economic Development

The manufacturing sectors', especially defense and pharmaceutical manufacturing, dominance in Groton's economy should be exploited to generate new business development. While defense industry procurement practices limit the potential to attract related businesses to the Town, the highly skilled labor pool creates an opportunity to attract businesses that also utilize these skill sets. The diverse skills needed for the defense and pharmaceutical industries are valuable to other industry types. Identifying the business types that can utilize these local labor skills can form the basis for soliciting new businesses to locate in Groton.

Assistance is available to local businesses interested in selling their their products or services to federal, state and local governmental agencies, including on the Submarine Base. The Procurement Technical Assistance Program (PTAP) administered by seCTer provides customized bid matching, counseling, seminars, bid/proposal preparation, assistance with central contractor registration and specialized marketing assessments. The Connecticut Department of Administration Services also provides similar assistance.

Local Population Dependent Economic Development

This component of the Town's economic activity is driven by household expenditures of local residents. Total Groton household budget expenditures exceed \$1.1 billion for all categories of goods and services. Housing expenditures, consisting of shelter and utility costs, dominate annual household spending at 31.8%. followed by transportation at 13.9 % and food at 12.1%.



Downtown Mystic

Tourism

Groton's coastal, historic and scenic assets make possible a variety of tourism related business opportunities such as bed and breakfasts in unique buildings, small paddle boat and trail bike rentals, harbor tours, charter fishing, marine accessory and service businesses, eco & historic tour businesses and the many associated business types. Reactivating the Maritime Heritage Parks proposal in New London Harbor may now gain traction with the recent announcement of the US Coast Guard Museum. Linking the several historic sites on the Thames River could create a new feature attraction and promote overnight visitor stays that substantially increase tourist spending in the area.



A component of the tourism sector is recreational boating. Groton has over two thousand slips and moorings within its jurisdiction contained in sixteen marinas. They attract a continual stream of non-residents during the boating season that support a variety of service jobs and businesses in the Town. This concentration of marine businesses is among the largest in Connecticut and therein lies the potential to create linkages among marine businesses and promote new ventures. In addition, this boating activity creates the maritime atmosphere that non-boating visitors expect to find when visiting coastal communities. Therefore, supporting and encouraging this component of the tourism sector can provide multiple benefits to the Town’s micro-economy. Outreach to the local maritime business community could be a first step to learn if local regulations impede investment or if some type of municipal assistance could stimulate new private investment in this business sector.

Home Occupations

There has been a continued interest in home occupations in Groton. These are often entrepreneurial in nature and should be considered strong assets to the economic viability of the town. Regulations should be adjusted where need, including streamlining of a registration process to assure that the Town received applicable tax revenue, and zoning changes to promote in-home occupations in all zones if they do not create significant parking or traffic impacts.

CONTINUE ECONOMIC DEVELOPMENT EFFORT: PHYSICAL

A three-part approach to economic development policy is proposed for the Town of Groton. These parts are defined as **Physical**, **Structural** and **Socio-Political**. Each part has a number of subtopics under its heading that address individual issues of concern that should be concentrated on as part of the Town’s economic development strategy.

Nodal Approach

The 2002 POCD identified a series of nodes in its Community Structure Plan that reinforced historical development patterns and are the areas where more intense development activity should be focused. This concept has proven workable over the past decade and should continue to guide growth for the duration of this POCD update. These nodes are highlighted on the Development Patterns section of this Plan.

The continued development of these areas should be reinforced through the utilization of design principles and guidelines, such as the mixing of uses, pedestrian-friendly streets and green buildings; low impact development (LID) techniques such as the disconnection of impervious surfaces and cutting-edge stormwater management methods; and elements of Traditional Neighborhood Development (TND) such as compact built forms and centers of activities. The creation of the MX zone regulation facilitates development using these principles.

Zoning

The Town's Zoning Regulations should continue to be reviewed to determine what elements of the regulations are providing positive incentives for economic development and what regulations could be hindering creativeness and dynamic economic development. If necessary, the Zoning Regulations should be revised to assure a clear, concise and expeditious pathway for appropriate projects while still protecting and enhancing the Town's unique features and character.

Infrastructure

The Town has ample supplies of water and sanitary sewer capacity, however connection to much of Groton's undeveloped industrial lands would require extension of services, especially in the area along Flanders Road.

CONTINUE ECONOMIC DEVELOPMENT EFFORTS: STRUCTURAL

Business retention and expansion

One of the critical components for the successful economic development strategy is an effective business retention and expansion strategy. Emphasis should be placed on assisting existing businesses and creating a friendly environment for local entrepreneurs. Working in concert with regional and state economic development groups, keeping in close contact with the area Chambers of Commerce and helping them become even more robust will be a critical task.

The Town may also be helpful to existing businesses by assisting them in assessing what "stage" they are in their growth and evolution and tailoring the type of assistance available depending upon this assessment. For example, the Town could help connect local businesses and entrepreneurs who are just starting out with support programs for small businesses, organizations that perform feasibility analyses for businesses or potential business ideas, and assistance in becoming incorporated. More mature, growth oriented businesses could be assisted through services such as mentoring, help with improving their business model or researching customer base expansion. This component is addressed, in part, by

the Town’s Economic Assistance (EA) and Development Assistance (DA) Funds which provides construction of necessary public infrastructure improvements associated with new job-creating development opportunities in the Town. To date, the EA program has funded four projects, property acquisition associated with the Midway Industrial area, Shore Avenue relocation associated with the Pfizer/ Groton land exchange project, Mystic public restrooms, and new sidewalk on Route 1 east of Buddington Road. The Capital Improvement Program has budgeted \$250,000 to be added to the EA fund for FY2015.

Other services that the Town could help local businesses include market research assistance through partner organizations, avenues for networking and financing for expansion. This *economic gardening* approach is becoming widely used in local economic development initiatives and is yielding favorable reactions from entrepreneurs. As a physical manifestation of this approach, the Town could also look to develop incubator spaces that could help facilitate economic gardening in certain targeted industries.

Groton is home to an Enterprise Zone, components can include: corporate tax credits, property tax abatements, exemption from certain state sales and use taxes, state grants for the creation of new full-time jobs, job training and placement assistance, as well as other local incentives such as deferrals of taxes on business plant and equipment (personal property). These incentives generally provide financial relief or increase the capital/leverage available to businesses, thus reducing the overall cost of business.

**Groton, Connecticut
Enterprise Zone**



Clusters & Specialties

The emergence of incubator space in industrial areas of the Town encourages small business growth and investment. Availability of flexible business space is important to the Town’s small business promotion efforts. The Town should monitor the types of businesses being attracted to these spaces and offer supportive services that promote growth of these companies. Also, if patterns emerge the Town may wish to orient some of its economic development services to emerging business types. The recent announcement of CURE’s reuse of vacant Pfizer lab space into incubator space is an excellent example of this technique.

The existence of a substantial cluster of marine recreational businesses and tourist businesses in the Town create opportunities to increase the growth and capture market share. Assisting businesses with reaching new markets and broadening products and services and facilitating collaboration among compatible

business types strengthens this business sector. As this sector consists largely of small businesses, promoting collaboration advances growth while working within the limited footprints and scattered locations of these businesses that are important to the historic scale of the Town's coastal areas. Direct outreach by the Town to the businesses in this sector is required to identify what actions the Town can take to stimulate new private investment in this sector.

Creative Economy

The creative economy is a good focal point because it can be developed and nurtured at a small scale but still have important impacts. It also dovetails with the idea of promoting greater entrepreneurship, as the creative economy is a move away from a focus on industry concerns and more of a focus on individuals and ideas. This idea is supported by the job clusters of existing residents discussed earlier. The creative economy includes a wide range of activities, from arts and artisans to scientists and engineers to cultural/heritage tourism. An important component for developing the community's creative economy is fostering the networking and collective idea generation that is essential. The SEDP called for exploration of creating a multipurpose, Town-owned arts center to support and grow local arts organizations.

The town should support workshops, classes and community events as a way to foster collaboration and networking. Additionally, support and collaboration can be promoted by the town through streamlining of Home Occupation zoning regulations and support of non-traditional shared spaces and incubators, such as shared studio spaces or co-working spaces, where renters formally share expensive equipment and informally share knowledge and support. The recently formed Southeastern Connecticut Cultural Coalition should have a strong Groton participation as it attempts to grow the arts and heritage capacity of the region.

CONTINUE ECONOMIC DEVELOPMENT EFFORTS: SOCIO-POLITICAL

Promotion of Entrepreneurship

The promotion of entrepreneurship should be a key component of Groton's economic development program. Groton has a wealth of engineering and scientific intellectual capital within its borders that has the potential to create a strong entrepreneurial environment. The economic development staff can assist in nurturing business growth in the Town by creating linkages between potential entrepreneurs and mentors, along with providing access to economic data and market analysis. The Town would ideally work in concert with the Chambers of Commerce and seCTer to promote economic development and recruit new businesses/start-ups. They would provide a better communication channel between the Town and entrepreneurs to assess needs and provide solutions. Providing connections to potential sources of financing for new start-ups and small businesses is a critical step that the Town and seCTer working together could accomplish.

While traditional economic development offices are often focused on business attraction, Groton should target direct services to entrepreneurs because of the potential to incubate business from within Town that best fit the community character and best capitalize on the existing capital. Working in conjunction with other surrounding communities, Groton could help start a regional business accelerator program or

a start-up “competition”, where entrepreneurs with ideas for businesses could be assisted.

Any program for entrepreneurial development must maintain clear goals and realistic expectations; Economic development and entrepreneurial development programs need to focus on small gains and successes. However, successes should be highlighted and celebrated in order to build a positive outlook on the economic environment of the Town.



Mystic Industrial Park

Focus on Regionalism

Groton should not view its economy as a stand-alone system in a vacuum. Rather, the Town needs to look at itself as part of a larger regional economic system. In a world of global competitiveness towns are too small an entity to produce significant economic development that is locally-dependent only.

Focusing economic analysis to all of New London County or to the greater Groton-New London area would provide a more complete cluster for general economic analysis. A regional view could provide important sector linkages for expanding or creating new industries.

Groton needs to consider its place within the region and what the Town’s competitive advantages are. Groton should look for ways in which it can collaborate with the State, surrounding communities to develop economic development networks.

Connection to Housing

A key underpinning of good economic development policy is the existence of or creation of housing that is affordable to current and future workers in a community. This relationship is at least partially responsible for Groton’s success as a regional employment center. It must be recognized that economic growth requires housing that is affordable to new employees, and that there must be some nexus between wages paid and the price of housing. Groton has done a creditable job in this area but should remain mindful that its economic future is directly linked to its ability to provide a housing stock that

meets a diverse set of household needs and economic means. The Town should continue to take steps to increase its supply of housing that correlates to the economic development it desires.

ECONOMIC DEVELOPMENT CONSTRAINTS

Groton has only 6.9% of its land area in commercial or industrial use and 826 acres currently undeveloped and zoned for commercial or industrial uses although it has ample water and sewer capacities on a town-wide basis. However, there are industrially and commercially zoned areas that do not yet have utilities accessible and that lack of infrastructure should be examined in light of the zoning designation.

The dominance of Groton's prime industries impacts local labor rates and labor availability. Its extensive waterfront has very limited open land for growing new marine businesses thereby largely confining water dependent businesses to existing locations. With limited suitable land area available for new non-residential development, attention needs to shift to promotion of investment in existing commercial properties to maximize their use potential and repurposing areas with declining property values and physical condition.

The Town has a considerably large amount of vacant land zoned for Industrial uses (18.3%), especially between Route 117 and Flanders Road, north of Route 1 and south of Route 184.

There are only 169.1 acres of vacant or agriculture land currently zoned for commercial or mixed uses. Commercial zones as a whole also have a much smaller percentage of their total acreage classified as vacant, making the potential for new development in these zones limited to redevelopment and assembly of underperforming and obsolete land uses. Additionally, the vacant land that does exist is largely outside of the Community Structure Nodes, as defined in the economic development section of this plan, suggesting that the possibility of new commercial development would likely be outside of those areas targeted for growth if not for infill and redevelopment.

These vacant industrial, commercial, and mixed-use parcels are shown on the Vacant Land by Zone map.

Vacant Commercial and Industrially zoned properties were analyzed to yield a potential for future development. Parcels included in the Commercial and Industrial build out are those parcels in Commercial or Industrial zones and classified as vacant or agriculture. Commercial and Industrial development was calculated under floor to area ratio (FAR) by zone by right, and under the effective FAR by zone. Floor Area Ratio is defined in the Town of Groton Zoning as, "the total floor area of a building or buildings divided by the area of the zoning lot on which it sits."

FAR by right is what is allowed in each zone under current zoning. Where it was not specified in the zoning regulation, it was calculated using the following formula. Note that the number of stories was determined to be the allowable max building height divided by 12 and then rounded down.

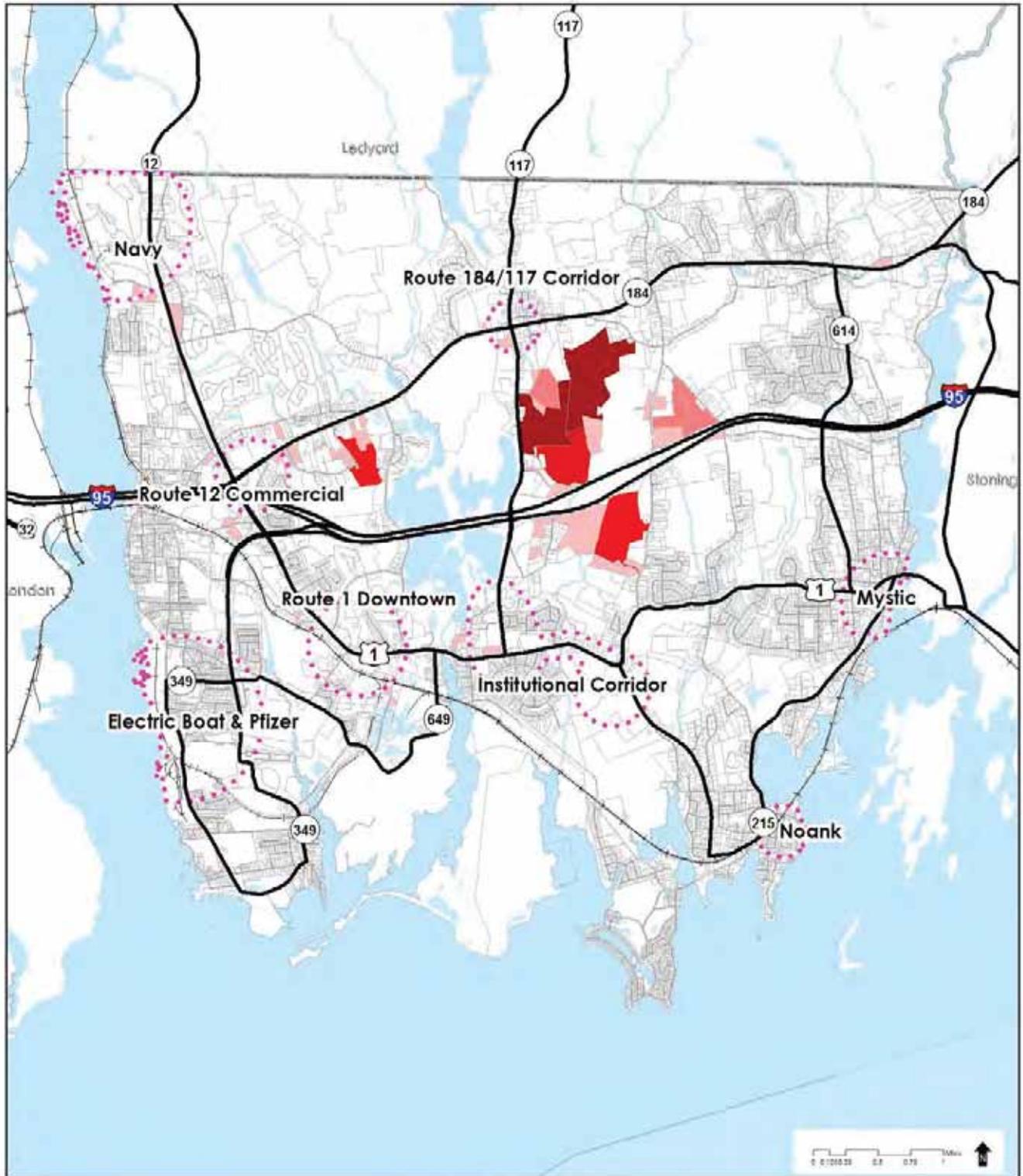
$$\text{FAR by Right} = ((\text{Minimum Lot Size} * \text{Maximum Building Coverage}) * \text{Number of Stories}) / \text{Minimum Lot Size}$$

Effective FAR assumes that existing development in each zone will strongly indicate future development

yield. It assumes that the maximum allowable FAR is rarely attained due to various physical and market forces, and therefore overestimates likely yield for new Commercial and Industrial development.¹ To contrast the maximum FAR, an effective FAR was calculated on a parcel basis for existing, developed Commercial and Industrial properties in each non-residential zone, using the assessor's reported building square footage of each parcel. The effective FAR reflects the FAR of what is currently built on the parcel. This effective FAR was calculated for each developed Commercial and Industrial parcel, then averaged for each zone to result in an effective FAR for each zone. The effective FAR assumes the historic development use reasonably reflects what would likely occur in the future.

The potential for future development is show on the Commercial & Industrial Build Out (Effect FAR) Map.

¹ In this analysis, physical constraints such as steep slope and wetlands were excluded from the calculations; however the resultant Net Buildable Area is often non-contiguous. For example if a river bisects a parcel, the river and its floodplain are excluded, however, the half of the parcel cut off from road access by the river would be considered as part of the net buildable area, and therefore the square footage calculation would include both halves of the parcel including the half of the parcel that is not useable for development. In Groton, the Commercial and Industrial zones are defined tightly, therefore the effective FAR is assumed to account for the topography and geography of each zone.



Commercial & Industrial Build Out (Effective FAR)

Potential Building Square Footage (1000 sq ft)



Sources:
 * Street Centerline: Town of Groton/CID/Deer
 * State Roads: Streetsnap USA (2011)
 * Base Map Data: Cartographix (2011) & Geographic Information Center (2012)
 This map was developed for use as a planning document. Delineations may not be exact.

April 2014



TRANSPORTATION 119

**COMMUNITY FACILITIES &
INFRASTRUCTURE 137**



Mystic Bridge, *Library of Congress*

TRANSPORTATION

ENHANCE TRANSPORTATION OPTIONS

Groton's internal roadway system has been influenced by Route 1, Interstate 95, the location of historic coastal villages such as Noank and Mystic, and the Town's two bordering rivers, the Mystic and the Thames. The roadway network in Groton is comprised of a series of interconnected corridors with varying levels of functional classification. According to the Connecticut Department of Transportation (CT DOT), as of December 31, 2010, Groton was served by 169.72 miles of public roads, 76% of which were Town roads (128.77 miles) and 40.95 miles were State roads. Since 1989, the Town has added 10.55 miles of Town-maintained roadway to its inventory.

As shown in the *Average Daily Traffic on Major Routes in Groton, 2002-2011* table, traffic volumes on State highways in Groton can be significant. However, traffic volumes have been declining slightly, down 8.3% from 2002 to 2011.

Average Daily Traffic on Major Routes in Groton, 2002-2011

Route	2011	2008	2005	2002	Change (#)	Change (%)
Rte 1	240,200	238,700	256,100	254,200	-14,000	-5.5%
Rte 12	173,300	182,100	192,200	196,900	-23,600	-12.0%
Rte 117	94,900	98,200	108,000	105,700	-10,800	-10.2%
Rte 184	108,200	112,200	120,400	93,700	14,500	15.5%
Rte 215	41,400	40,800	55,900	61,300	-19,900	-32.5%
Rte 349	73,000	77,800	71,400	78,900	-5,900	-7.5%
Rte 614	61,900	65,400	68,400	70,800	-8,900	-12.6%
Rte 649	29,500	33,800	34,500	35,600	-6,100	-17.1%
Sum of all ADT	822,400	849,000	906,900	897,100	-74,700	-8.3%

Source: *CTDOT*

Groton is served by four interchanges on Interstate 95 and this interstate highway provides an important east-west travel route for Groton residents. Traffic volumes on Interstate 95 range from 68,100 vehicles per day at the Stonington line to 117,000 vehicles per day on the Gold Star Bridge.

OVERALL CIRCULATION

Groton has a well-established hierarchy of roads to meet the needs of residents and businesses. Historical development patterns have resulted in a greater number of north-south roads versus east-west roads. East-west traffic is restricted to Routes 1, 184 and Interstate 95. The 2002 POCD Transportation Plan identified several major east-west connections between Route 117 and Flanders Rd. Although not major east-west connectors, Great Brook Rd and Ledgeland Dr. are newly constructed local roads that create connections identified in the 2002 POCD.

The Town has budgeted funds in the 2014 Capital Improvement Program to study four Town managed intersections: at Military Highway/ Crystal Lake Road, Gungywamp Road/ Briar Hills Road. Poquonnock Road/Village Lane, and Route 1/ Harry Drive. Each intersection will be studied, and if it is determined a signal is necessary, replacement or upgrades to the signals will occur. Other budgeted actions include work to dead-end Vergennes Court at Route 1.

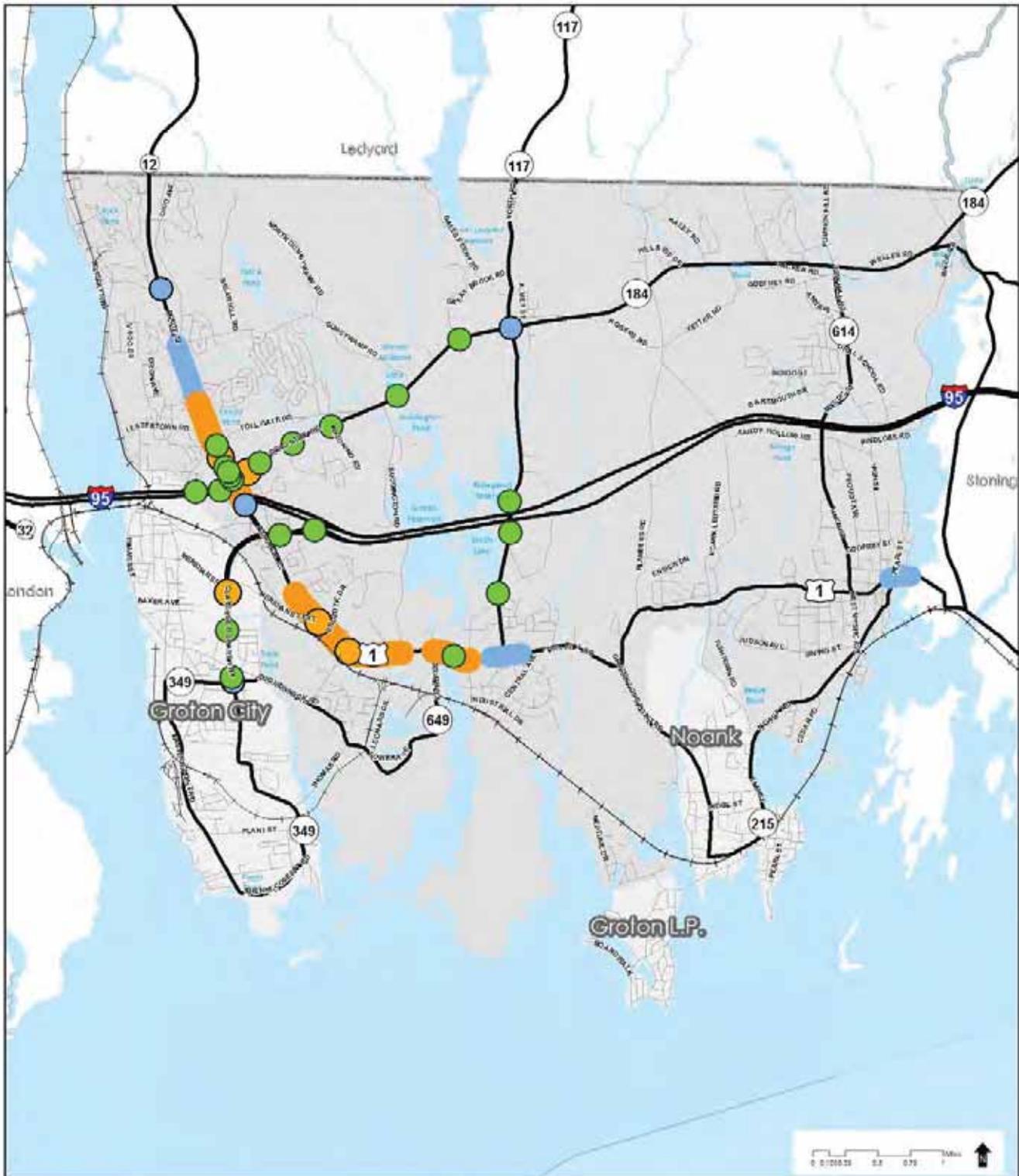
CAPACITY, CONGESTION, ACCIDENTS, AND ACCESS MANAGEMENT

SLOSSS Locations (2007- 09)
Route 1
At Rt. 1 off-ramp
Between Wayne Rd. and Meridian St.
At Meridian St. Ext.
Between Meridian St. Ext. and Drozdyk Dr.
Between Drozdyk Dr. and Poquonnock Rd.
Between Poquonnock Rd. and Plaza Ct.
Between shopping center drive and Laurelwood Rd.
Between Laurelwood and Buddington Rd.
Between Depot Rd. and North Rd.
Route 12
At Rt. 1/ King's Hwy
Between King's Hwy and Route 184 ramps
Between 184 ramp and Pleasant Valley Rd. S
At Pleasant Valley Rd. S
Between Tollgate Rd. and Hickory Dr.
Route 184
At Rt. 12 N ramps
At Pumpkin Hill Rd.
Route 349
At Meridian St. Ext.

Source: CT DOT

Traffic congestion can be measured by the ratio of traffic volumes to roadway capacity. Intersections or roadway segments with ratios of volume to capacity of greater than one routinely suffer from delays and the breakdown of traffic operations; the SCCOG *Long Range Transportation Plan, 2011-40* identified 37 such sites in the region. These included nine locations in Groton, including along Route 117, Route 184, Route 349 and Route 12. An additional 13 sites within Groton have traffic to volume ratios between .8 and .99, which indicates congestion. These additional sites are along Interstate 95, Routes 1, 12, 117 and 184. These locations are shown on the *Congestion and Accidents* map.

Frequent accidents in specific locations may indicate problems with the road network, such as congestion or inadequate roadway geometry. The CT DOT maintains a database of accident data on state and federal roadways. While accidents can be expected to occur anywhere, when a location experiences more accidents than the average similar roadway, it is included on the Suggested List of Surveillance Study Sites (SLOSSS) for further investigation. Since the 2002 POCD, there has been a reduction in the number of SLOSSS spot locations from eight to five, but an increase in roadway segments from nine to twelve. Overall, the SLOSSS locations identified in the 2007-09 SLOSSS update impact the same State Routes 1, 184, 12 and 349, however, some of the locations have changed.



— Interstate, US, and State Highways
— Local Roads

Sources:
* Street Centerlines: Town of Groton GIS Dept.
* State Route: Streetmap USA (2011)
* Base-map Data: Connecticut DEP M&D & Geographic Information Center (2012)

Congestion & Accidents

- SLOSS Intersection
- No Longer SLOSS Intersection
- SLOSS Segment
- No Longer SLOSS Segment
- New SLOSS Intersection
- Traffic to Volume Ratio > .8

This map was developed for use as a planning document. Delineations may not be exact.

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FUNCTIONAL CLASSIFICATION OF ROADWAYS

Transportation officials classify roadways based on traffic volumes, accessibility and function. CT DOT has identified six different levels of roadway classifications in Groton: Principal Arterial - Interstate, Principal Arterial - Expressway, Principal Arterial - Other, Minor Arterial, Collector and Local Road. In some cases, the actual classification of a road may change along its length or may operate differently than its assigned functional classification. Federal, state and regional transportation planning organizations use regional road classifications to identify and prioritize road projects for funding under the Transportation Improvement Program.

The highest functional roadway classification in Groton is Principal Arterial - Interstate. Roads in this class provide limited-access, multi-lane, high volume, high capacity facilities intended to provide for and accommodate high speed travel, over long distances with relatively few points of access to the local street system. Within Groton, Interstate 95 is classified as Principal Arterial - Interstate.

Groton's second highest functional roadway classification is Principal Arterial - Expressway. This classification of roadway is similar in many ways to Interstate Arterials, without the interstate designation. The Clarence B. Sharp Highway (Route 349) from its junction with Interstate 95 to Meridian Street is classified as an Expressway in Groton.

The next order of roadway classification is Principal Arterial - Other. This roadway type connects major development and activity centers within Groton to each other as well as to activity centers in other towns and to accessible expressways. The design of this type of road typically accommodates higher speeds and greater traffic carrying capacity, with enhanced horizontal and vertical geometry. To maintain the road's thru-traffic carrying capacity and higher design speeds, this road type would ideally provide a more restrictive level of access control to adjacent land uses than do other roads. The only Principal Arterial - Other roadways within Groton are a portion of Route 1, from its intersection with the Clarence B. Sharp Highway to Route 184, and Route 12.

Minor Arterials are ranked next within the hierarchy of roadway classifications. This type of roadway connects principal arterials and augments the traffic carrying capabilities of the entire roadway system. Minor Arterials provide for a greater degree of access to abutting land uses and typically do not provide the same level of through mobility of the higher classifications. Groton's minor arterial streets include the following roads or portions thereof:

Town of Groton Minor Arterial Streets

Allyn St.	High Rock Rd.	North Rd.
Benham Rd.	John St.	North St.
Bridge St.	Kings Highway	Poquonnock Rd.
Chester St.	Long Hill Rd.	Rainville Ave.
Clarence B. Sharp Highway	Mitchell St.	Route 27
Eastern Point Rd.	Mystic St.	South Rd.
Fort Hill Rd.	New London Rd.	Tower Ave.
Gold Star Highway	Newtown Rd.	West Main St.

Source: *Town of Groton Department of Public Works (2013)*

The next classification of roadways, Collector Streets, provides a higher degree of access to abutting land uses and a somewhat diminished level of through mobility than the higher classifications. Groton's collector streets, or portions thereof, include the following:

Town of Groton Collector Streets

Brandegge Ave.	Fairview Ave.	Noank Rd.
Bridge St.	Flanders Rd.	Poquonnock Rd.
Buddington Rd.	Groton Long Point Rd.	Shennecossett Rd.
Colonel Ledyard Highway	Gungywamp Rd.	Shewwill Rd.
Cow Hill Rd.	Meridian St.	Thames St.
Crystal Lake Rd.	Meridian St. Ext.	Thomas Rd.
Drozdyk Dr.	Military Highway	Water St.
Elm St.	Mystic St.	

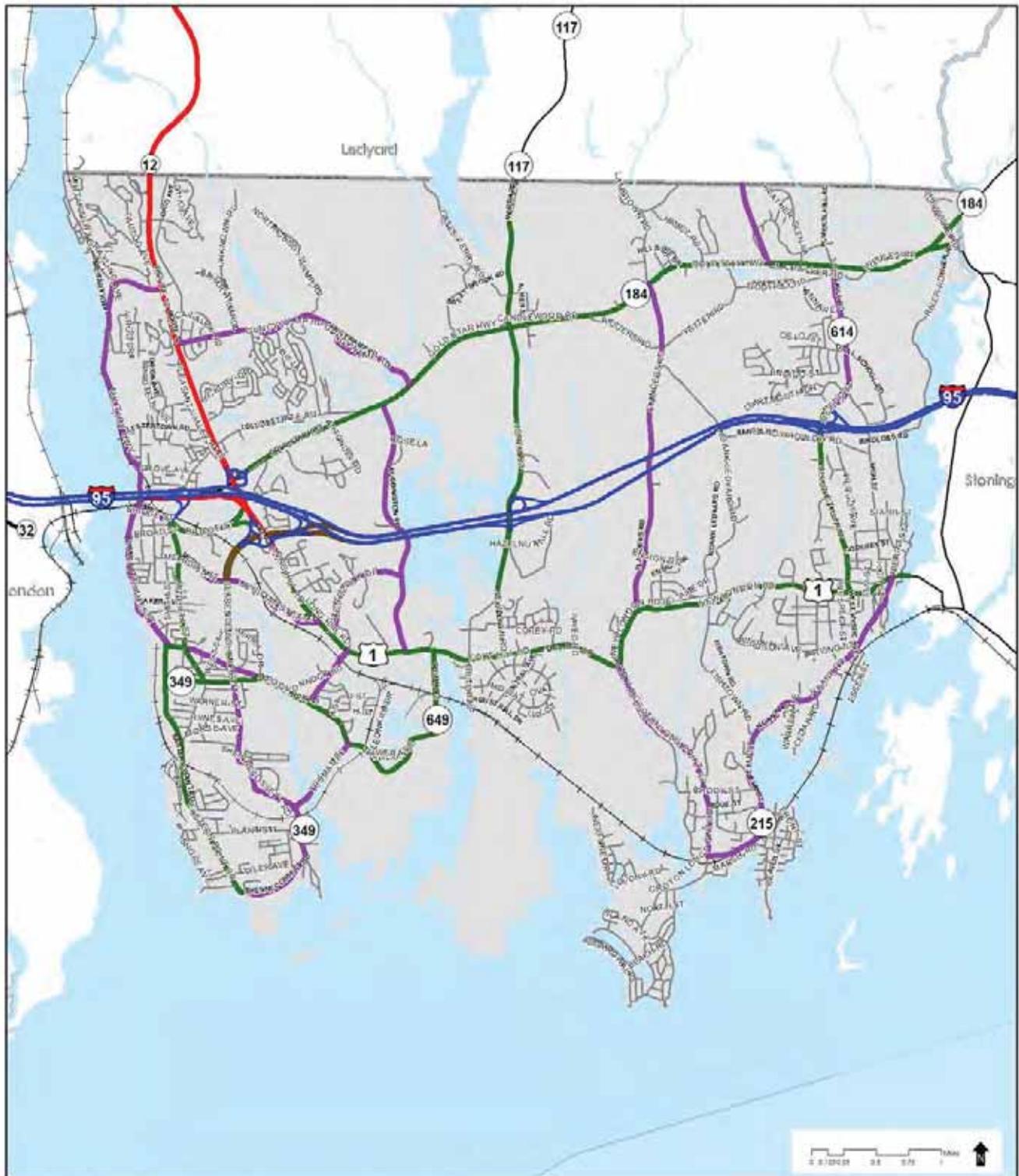
Source: *Town of Groton Department of Public Works (2013)*

In addition to the State's Classification, the Town has established a local roadway classification.

Town of Groton Local Collectors

Antonino Road	Grove Avenue (Mystic)	Ocean View Avenue
Bridge Street	Gungywamp Road	Ohio Avenue
Brook Street (portion)	High Street (portion)	Pearl Street (Mystic) (portion)
Buddington Road	Irving Street (portion)	Poquonnock Road (portion)
Central Avenue (portion)	Judson Avenue	Pumpkin Hill Road
Colonel Ledyard Hgwy	Kings Highway	River Road
Cow Hill Road (portion)	Lambtown Road	Sandy Hollow Road
Crystal Lake Road	Main Street (portion)	Shewville Road
Depot Road (portion)	Marsh Road	South Pleasant Valley Road
Drozdyk Drive	Meridian Street	Terrace Avenue (portion)
Fishtown Road	Midway Oval	Thomas Road
Fitch Avenue	Military Highway	Toll Gate road
Flanders Road	Mosher Avenue	Walker Hill Road (portion)
Gales Ferry Road	Nooank-Ledyard Road	West Mystic Avenue (portion)
Groton Long Point Road (portion)	North Pleasant Valley Road	Winding Hollow Road

Source: *Town of Groton Department of Public Works (2013)*



Groton
PLAN OF CONSERVATION + DEVELOPMENT

State Functional Road Classifications

- Principal Arterial - Interstate
- Principal Arterial - Expressway
- Principal Arterial - Other
- Minor Arterial
- Collector
- Local

Sources:
 * Street Centerlines: Town of Groton GIS Dept.
 * State Routes: Streetmapz USA (2011)
 * State Road Classifications: CT DOT (2011)
 * Esri/Map Data: Connecticut DEEP Map & Geographic Information Center (2012)

This map was developed for use in a planning document. Definitions may not be exact.

April 2014

MILONE & MACBROOM

Local Roadways, the final classification of roadways, includes all remaining streets. This classification contains a high percentage of street mileage, with roads that provide the highest level of access to abutting land uses and the lowest level of through mobility.

A review of the State Functional Classification from the 2002 POCD revealed the following changes:

- Route 349 from Meridian St to Rainville Ave – Principal Arterial-Other to Minor Arterial
- Meridian St. and Meridian St. Ext. – Local to Collector
- Route 117 North of Route 184 – Collector to Minor Arterial
- Route 215 – Minor Arterial to Collector
- Poquonnock Rd. – Minor Arterial to Collector
- Shennecosett Rd. – Local to Collector
- Eastern Point Rd. – Collector to Minor Arterial
- Drozdyk Dr. – Local to Collector
- Bridge St. (City) West of interchange – Minor Arterial to Collector



Route 1 at South Road

COORDINATE WITH STATE AND REGIONAL AGENCIES FOR ROAD MAINTENANCE AND COASTAL RESILIENCY IMPROVEMENTS

Regular roadway maintenance minimizes the total amount and cost of work required, while deferred maintenance means that significant efforts and expenditures are required to restore the original integrity. Groton should continue to make regular road improvements on local roads. Incremental maintenance (as and where needed) helps to efficiently and cost-effectively maintain road conditions and helps avoid expensive road reconstruction projects that can result from deferred maintenance.

Groton should continue to work closely with state and regional agencies, such as the Southeastern Connecticut Council of Governments (SCCOG) and Connecticut Department of Transportation (CTDOT), regarding transportation issues and improvements in town. Continued spot improvements on state highways should be encouraged, in terms of general maintenance. This includes the work currently budgeted in the Capital Improvement Program to study and upgrade the Main Gates of the SUBASE. This work is in conjunction with SCCOG and is scheduled to receive State and Federal funding.

Various sections of road in Groton were also identified as being vulnerable to climate change impacts in the Municipal Coastal Program (MCP) update. Impacts such as sea level rise, increased storm frequency, and increased storm intensity can have major consequences for transportation in Groton. Strategies to adapt Groton’s roadways to become more resilient may also require coordination with CTDOT and other agencies. As outlined in detail in the MCP, alterations can include:

- Elevation of roadways above the base sea level, which has been done in many coastal communities along the East coast over the last century. However, abutting private properties often remain at their original, lower elevation. The higher road surface can then further impede the drainage of floodwater off properties, requiring cross culverts to facilitate drainage. Roads can also be elevated on piers or bridges at greater cost.
- Abandonment of roads may become acceptable if the cost of elevating or maintaining a road becomes excessive. If complete abandonment is not feasible, lesser levels of maintenance may be effective, such as having the road revert to an unpaved condition.
- Evaluation of emergency access and routes may become necessary.
- Developing alternate egress could also be used in connection with abandonment of roads and/or reassignment of emergency access.

Transportation Vulnerable to Climate Change
Poquonnock Road
Fort Hill Road
Groton Long Point Road
Route 649 Amtrak railroad underpass
Route 117 at Fishtown Road
Route 1 at Poquonnock Bridge
Route 27 at Mystic River Bridge
Mystic River Bridge

Source: MCP, workshop participants

BRIDGES

Groton is fortunate in having the responsibility for the maintenance of only a few bridges. While the Town has many bridges within its boundaries they are located on the State Highway network and therefore are the responsibility of the Connecticut Department of Transportation.

However, two local bridges require replacement within the timeframe of the POCD. The North Stonington Road Bridge has been closed since mid-2012 and requires replacement. Nearby alternative routing has been used to maintain access in vicinity of this bridge.

The replacement of the Groton Long Point Bridge is the primary bridge issue facing the Town in the near future. The bridge is the only ingress/egress point for Groton Long Point and Mumford Cove and it also carries a water line. The bridge presents a potential serious public safety issue given the approximately 1,200 to 1,300 residents living in GLP during the winter and the 3,000 to 4,000 residents in the summer and the increased frequency of severe weather events. The overall condition of the bridge was rated as poor by CTDOT in a September 2012 inspection report. An engineering analysis of options to replace the bridge was conducted and the Town is currently evaluating how to proceed.



Bridge Replacement Option, URS

SCENIC ROADS AND COMPLETE STREETS

Transportation engineering has typically focused on removing road hazards and moving cars as efficiently as possible. This can result in roads that are wide, flat, and straight – characteristics that may encourage speeding and detract from community character by emphasizing automobile traffic flow over pedestrian safety or aesthetic concerns.

Traditional scenic roads emphasize aesthetic and cultural resources. Efforts to make roads in Groton more scenic attempt to balance traffic efficiency with community character. Scenic road elements include narrow road width, tree canopies, stone walls, scenic vistas, agricultural lands, historic buildings, and notable natural features. Scenic roads, in rural or historic areas, are one element that significantly contribute to Groton’s character. As development of the community continues, scenic roads may be increasingly threatened by adjacent development or increasing traffic volumes. Groton adopted a scenic road ordinance in 1989 and River Road and Sandy Hollow Road have since been designated by the Town Council as scenic roads.

Complete streets design approaches emphasize the safety and comfort of people of all ages and abilities

DRAFT

engaging in different modes of transportation – walking, biking, and transit as well as cars. Complete streets elements include sidewalks and American with Disabilities Act (ADA) compliant facilities (such as curb cuts for wheelchairs), traffic calming measures such as center medians and narrower roads, bicycle accommodations such as protected bike lanes and bike parking, and transit accommodations such as bus shelters. Complete streets design often has many benefits: health and safety benefits for pedestrians and bikers, who are more easily able to exercise and are more protected from potential traffic collisions; environmental benefits from reduced car use and reduction in emissions; aesthetic benefits from the addition of more street trees, plantings, benches, and other streetscaping; and economic benefits from increased foot traffic and aesthetic benefits.

Scenic roads and complete streets are not mutually exclusive (for example, both suggest narrowing traffic lanes to reduce speed), and both include design recommendations that value aesthetic improvements that would benefit the community character of Groton. Both design approaches should be incorporated into road standards in Groton where appropriate and feasible. However, one design approach may be more appropriate than the other in the specific context of each individual road. For example, adding an extra bike lane and a sidewalk may not be appropriate for a rural scenic highway, and a separate multi-use trail may be a better approach.



Top: East Shore Ave; Bottom: River Road

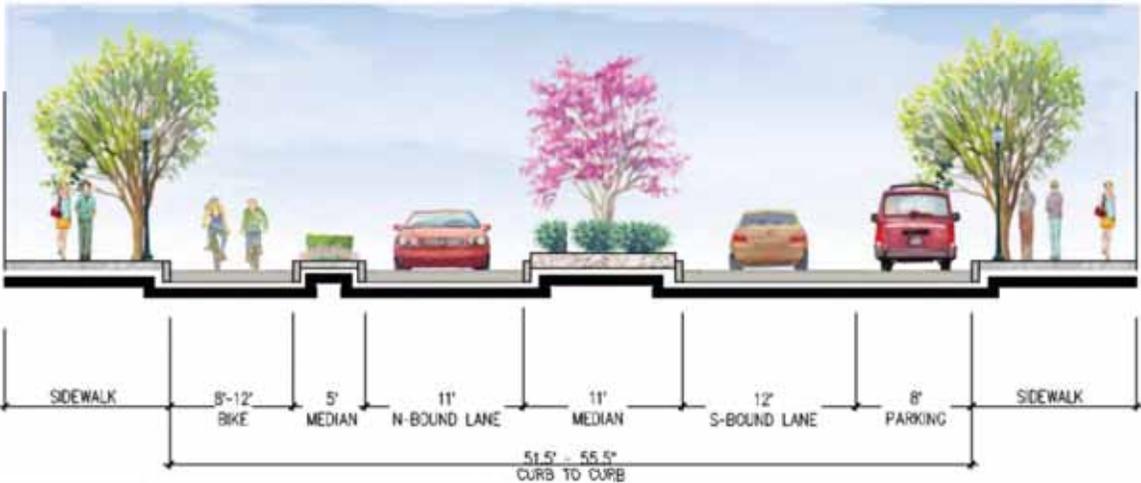
Future roads and redevelopment/repaving of existing roads should be made as scenic and safe for pedestrians as possible while providing for safe and efficient circulation. The best way to do this is through modifying the road construction standards, primarily design speed and paved width.

The design speed of a road is the speed that the road is designed to be capable of handling. It is typically higher than the posted speed limit. A higher design speed results in roads that are wider, flatter, and straighter. As a result of the road design speed, motorists often feel that it is safe to exceed the posted speed limit. Existing scenic roads show that minimum design standards for traffic safety can be used in conjunction with scenic road criteria to create roads that are scenic and safe. The Scenic Road Standard Recommendations table shows recommendations from the 2002 POCD.

Scenic Road Standard Recommendations

	Current Design Speed	Current Right-of-Way Width	Current Pavement Width	Proposed Recommendations
Arterial (Thoroughfare)	50 MPH	60-100'	40-44'	None
Collector	45 MPH	60'	34-40'	Reduce design speed to 35 MPH and allow paved width of 30'
Access	30 MPH	50'	30'	Reduce design speed to 25 MPH and allow paved width of 24'
Village Road	25 MPH	50'	26'	Reduce design speed to 20 MPH and allow paved width of 22'
Sub-Village Road	25 MPH	40'	20'	Reduce design speed to 20 MPH and allow paved width of 18'

In future CIP projects including any street reconstruction, also include provisions for a complete streets design review. The design review should gauge suitability of the street for improvements that will make the street safer, easier, and more pleasant for residents to walk and bike instead of drive. Improvements such as sidewalk widening, adding sidewalk buffers, adding bike lanes, and adding sidewalk furniture such as benches, and clearly marked and lighted crosswalks should be considered.



Example cross section of a Complete Street

PROMOTE MULTI-MODAL TRANSPORTATION

CREATE AN OVERALL PEDESTRIAN/BIKE NETWORK

Non-motorized modes of transportation provide alternatives for those who cannot, or choose not, to drive for some or all trips. Walking and biking are the most common and practical modes of non-motorized transportation, as well as being the most healthy and sustainable. Sidewalks, multi-use trails, bike routes and greenways form the foundation of the non-motorized transportation network and can attract and maintain users. The Town of Groton has long supported improvements to pedestrian and bicycling facilities: the *Groton Bikeway Proposal* was completed in the 1970s, and several other pedestrian and bike plans have been completed in recent years.

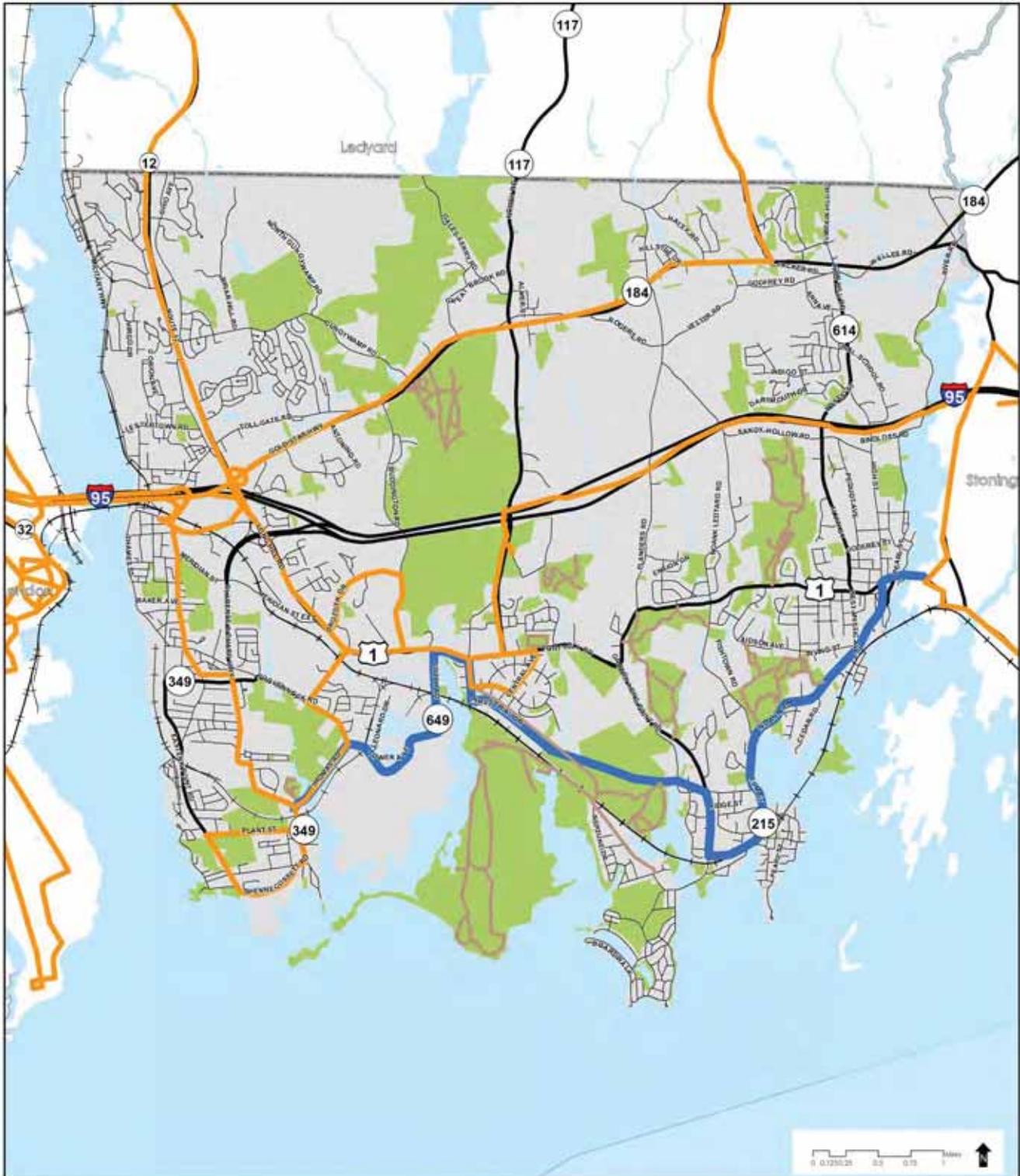
There are established bike routes through southeastern Groton along Route 215, through Haley farm State Park to the G & S Trolley Trail into Poquonnock Bridge and along South Road and Tower Ave to Shennecossett Road. The trails depicted on the map are recreational trails located primarily in Town or State Parks, and privately owned open space parcels.

The *Groton Bicycle, Pedestrian & Trails Master Plan*, completed in 2005, established the following goals for all forms of non-motorized transportation in Groton: 1) to interconnect neighborhoods, 2) develop commuter routes, 3) develop recreational trails that provide access to open space, and 4) to build facilities that are safe and attractive. In addition, the 2002 Plan of Conservation and Development recommended creating an overall pedestrian network, including improving and extending the sidewalk network, developing and improving the trail network and establishing a bikeway network. In addition to the recommended routes outlined in the 2002 Plan of Conservation and Development, the Southeast Connecticut Council of Governments (SCCOG) Long Range Transportation Plan, 2011-2040 recommends two additional pedestrian/bike routes through Groton.

A further SCCOG report, the Tri-Town Trail Master Plan in 2009, recommended connecting a bike trail from Bluff Point in Groton north through Ledyard to Preston. The largest stumbling block in this effort has been resistance from Groton Utilities to allowing bike trail access through water utility lands. Continued collaboration and working toward common goals of access and water quality protection should be pursued to establish this regional trail.

Groton should strive to interconnect all sidewalks, multi-use trails, and bikeways into a cohesive, useful overall network, integrated with nodal development. Residents will not extensively use such a network unless it is safe, comfortable, aesthetically pleasing, convenient, and useful, connecting to various destinations in town for shopping and errands. Sidewalks and trails can also further other sustainability goals, such as incorporating pervious paving in sidewalks to allow for greater stormwater infiltration and less storm runoff, or treating sidewalk buffers as bioswales for further water infiltration. This work has been budgeted for each of the next five years in the Capital Improvement Plan.





Existing Bus Routes, Trails, and Bikeways

- SEAT Routes
- State Roads
- Local Roads
- Established Bikeway
- Recreation Trails

Sources:
 * Street Centerlines: Town of Groton GIS Dept.
 * State Roads: Streetmaps USA (2011)
 * State Road Classifications: CT DOT (2011)
 * Basemap Data: Connecticut DEEP Map & Geographic Information Center (2012)

This map was developed for use as a planning document. Delineations may not be exact.

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ENHANCE BUS SERVICE

Public transit is a more sustainable option than driving in individual cars, as the number of passengers on a full bus or train result in less fuel expended per passenger, as well as freeing up congested roadway space. Groton’s public transit is currently served through South East Area Transit (SEAT), which provides some local and regional routes with hour or every-other-hour headway times from roughly 6:30 AM to 8:00 PM. While the railway runs through Groton, the nearest train station is in New London for Amtrak and Shoreline East service. Since the development of casinos in the region, the role of transit in the region has expanded to accommodate new commuting patterns, with the support of the federal Jobs Access and Reverse Commute programs.



SEAT Route 11 Service on Route 1

MONITOR RAIL, FREIGHT, AND AIRPORT OPERATIONS

Rail

While the Amtrak rail corridor traverses Groton, there is no local passenger station in Town. However, Union Station in New London connects to Amtrak and Shoreline East commuter service to New Haven, and a train station in Mystic on the Stonington side is part of Amtrak's northeast line to Boston. As opportunities for augmented commuter and passenger rail service arise, it is important to Groton residents and businesses that intermodal opportunities also increase in order to facilitate commuting and travel into and out of Groton.

Amtrak has had a maintenance yard on Industrial Drive in Groton since about 2000, and recently purchased adjacent properties to expand this yard. Amtrak's long-range plans for the Northeast Corridor include reconfiguration of tracks to include two high-speed center tracks and two outside regional/local route tracks. Given the coastal route of the tracks in Groton, and coastal management concerns, Amtrak's evolving plans should be mentioned.

With nearly a thousand people commuting into Groton from Westerly, RI every weekday, the Town should encourage CTDOT to extend the Shoreline East route to Westerly and open a station in Groton. Such a large structural investment will take many resources and take years to come to fruition, but the Town of Groton should start planning for ways to effectively lobby for an expansion.

Freight

The Providence and Worcester Railroad Company provides short-line freight service in Groton with tracks running along the eastern branch of the Thames River and with trackage rights along the Northeast Corridor tracks through Groton. The Company interchanges freight traffic with several Class I railroads thereby having a nationwide reach. Through an operating agreement with New England Central Railroad on the western branch of the Thames River, it can reach Canada.

Airport

The Groton-New London Airport located in southwestern Groton was established in 1929. The State of Connecticut owns the general aviation airport and it is managed by the CT Airport Authority (CAA). The Groton-New London Airport was once classified as a commercial airport, but in 2003, U.S. Airways ceased operations, and the Federal Aviation Administration (FAA) reclassified the airport as "general aviation."

A general aviation airport supports unscheduled, non-military, private and commercial flights, and a certain amount of activity (usually 10 locally based aircraft). However, the general aviation classification does not preclude other uses, and the Groton-New London airport handles a number of military flights. According to the SCCOG Long Range Transportation Plan, the airport handled 38,582 flight operations in 2009, when 54 aircraft were based there. Approximately 580 full- and part-time personnel worked at the airport in 2009.

The Groton-New London Airport has two paved runways, one that is 5,000 feet long, and a second that is 4,000 feet long. The airport recently installed Engineered Material Arresting Systems (EMAs), the first in the State, to achieve runway end safety standards. The airport has a terminal building and control tower, built in 1963. According to the most recent Airport Master Plan, the terminal building is underutilized since scheduled commercial air service ceased. Two fixed-base operators (FBOs) also maintain several hangars at the airport: Columbia Aviation and Lanmar Aviation. Several additional hangars are located at the airport, most under private ownership. Current and forecasted demands do not indicate a need for additional hangars; however, hangar development is a large source of revenue for general aviation airports.

The *Groton-New London Airport Master Plan Update Alternatives Analysis*, prepared in 2011, identified several landside and airside opportunities for upgrades and further development, from upgrading airfield lighting to upgrading landside facilities. The Alternatives Analysis compares three scenarios: no changes, minimal development and maximum development. The preferred alternative identified is full build out in order to maximize revenue opportunities through additional hangar space. However, the Analysis acknowledges that full build out will take years of planning to implement. Therefore, in the short-term, the alternatives analysis recommends maintaining the facilities current high standards, which would include upgrading lighting, snow removal and firefighting equipment.

The new CAA, established in 2011 to develop, improve and operate Bradley International Airport and the state's five general aviation airports, including Groton-New London, appointed an Executive Director in the summer of 2012. The role of the CAA and its new administration will be critical to the future of Groton-New London Airport.

Due to the low-lying coastal nature of the airport, the Municipal Coastal Program (MCP) has an extensive area plan for the airport and surrounding areas. More frequent flooding due to rising sea levels could prevent access



to and reduce the function of the Groton-New London Airport in the future. The MCP recommends providing space for marsh advancement as base flood elevations and sea level rises to become more resilient to coastal hazards. Details of the MCP, as well as the Airport Master Plan and the hazard mitigation plan should be considered and consulted before any major development occurs in the airport area.

SUPPORT MARINE TRANSPORTATION SERVICES

Groton has a strong tradition of maritime operations. The United States Navy Base and the Electric Boat Corporation (a military contractor that constructs Navy submarines), both on the Thames River, make Groton the Submarine Capitol of the World.

The Thames River has been dredged to provide adequate depth for submarines, and is also heavily used by other operations such as Hess Oil Terminal, along with ferry service out of New London servicing Block Island, Long Island, and Fisher's Island.

The Mystic River was also heavily used by maritime operations in Groton's history. Historically used for shipbuilding and fishing, the Mystic River today is primarily used for moorings and marinas for recreational craft today.

The 2002 POCD recommends the development of water taxi services for recreation and other purposes. The resurrection of a plan for the Thames River Heritage Park may create these water taxi linkages from a Heritage Park Plan originally proposed in 1987. The plan proposes linking various historical and cultural sites on both sides of the Thames River, such as the Submarine Force Library and Museum, the Coast Guard Academy, New London City Pier, Fort Trumbull, and Fort Griswold Battlefield State Park. All travel between New London and Groton is currently restricted to the Gold Star Memorial Bridge, an 11-lane highway, so a water shuttle service can also serve to create a more diverse transportation system as well as serving tourism needs.



Fort Rachel Marina

COMMUNITY FACILITIES & INFRASTRUCTURE

ENHANCE AND MONITOR COMMUNITY FACILITIES

An important component to the Plan of Conservation and Development is reviewing the distribution, availability, condition and capacity of the Town's community facilities and municipal infrastructure to meet the current and projected needs of residents and businesses. For the purposes of the Plan, community facilities are defined as public buildings, including schools, police and fire stations, libraries, public housing, senior citizen centers and general government facilities that serve the general or specific needs of the public and are the responsibility of the Town to maintain. Municipal infrastructure includes sanitary and storm sewers and flood control structures, public water supply, dams and solid waste disposal. Refer to the *Municipal Facilities* Map for the location of Town facilities.



War Memorial

PUBLIC SCHOOL SYSTEM

The Groton Public School system currently operates seven elementary schools, two middle schools and one high school. The system closed a third middle school, Fitch Middle, for the 2012-13 school year. The location of active school facilities and their current enrollments, as of October 1st, 2012, are shown in the following table. Current public school enrollment, for PreK to 12th grades is 4,815 students. Total enrollments are about 900 students fewer than in 2002-03.

School	Location	Grades Served	2012-13 Enrollment
Catherine Kolnaski Elementary School	500 Poquonnock Rd.	PreK-4*	418
Charles Barnum Elementary School	68 Briar Hill Rd.	PreK-5	401
Claude Chester Elementary School	1 Harry Day Dr.	K-5	350
Cutler Middle School	160 Fishtown Rd.	6-8	462
Fitch High School	101 Groton Long Point Rd.	9-12	1,211
Mary Morrison Elementary School	154 Toll Gate Rd.	PreK-5	363
Northeast Academy Elementary School	115 Oslo St.	K-5	403
Pleasant Valley Elementary School	380 Pleasant Valley Rd. South	K-5	340
SB Butler Elementary School	155 Ocean View Ave.	PreK-5	352
West Side Middle School	250 Brandegee Ave.	6-8	506

* Normally, a PreK-5 facility, but because of overcrowding, moved 5th grade to Claude Chester in 12-13.

Over the past decade, elementary enrollments have decreased 14%; however, for the last six years, they've remained fairly stable. Middle school enrollments have declined by 24% over the last decade, and high school enrollments have fluctuated, but are currently down 12% from a decade ago. The following table shows enrollments in the Groton Public School system over the last decade.



Except for Catherine Kolnaski and North East Academy, the elementary schools date back to the 1950s and 1960s. There are currently 13 portable classrooms in use across the elementary system. The Board of Education has identified over \$24 million of high priority capital improvement needs for the elementary schools. In addition, enrollment trends have resulted in overcrowding in some schools, such as Catherine Kolnaski, from which an entire grade was moved this year.

The middle schools also date back to the 1950s and 1960s, and the Board of Education has identified about \$10 million of high priority capital improvement needs. With the closing of Fitch Middle School in the summer of 2012, the middle school attendance boundaries were redrawn to redistribute middle schoolers evenly amongst the two schools. Already, there is a 40 student difference between the size of the middle schools, and enrollment projections indicate that size difference will expand over the next five years, with Cutler enrollments decreasing.



The former Fitch Middle School

The High School underwent a major renovation from 2006 to 2008, with construction of a large addition and tear-down of some of the existing building. The facilities remain in good condition.

The Board of Education has recently had enrollment projections prepared, based on live birth data, recent trends in enrollment and current enrollments. Those projections are shown in the following figure, and indicate that total enrollments in the school system can expect to experience a small decline of approximately 5%. However, the majority of the enrollment decline will result from decreases in high school enrollments. The military family population in Groton helps to maintain relatively steady elementary enrollments.

The Town Council and Board of Education are undertaking a long range school facilities planning process that will guide the school system into the future. Additionally, the Town has budgeted significant funds in each of the next five years for removal of asbestos from Claude Chester, SB Butler, Cutler Middle, West Side Middle, and the Administration building. Other capital improvement items that have been budgeted are replacement of lighting fixtures in the Fitch High School auditorium and security enhancements in all schools.

PUBLIC SAFETY/FIRE PROTECTION/EMS

POLICE PROTECTION

The Groton Police Department is staffed by 72 full-time employees. Police headquarters are located at 68 Groton Long Point Road. The Police Department is organized in four divisions: Administration, Patrol, Detective and Animal Control. The Administrative Division is responsible for daily operations, youth programs and all recording and licensing functions. The Patrol Division is responsible for the prevention of crime and responding to emergencies (including Marine Patrol), as well as leading community-oriented policing efforts. The Detective Division is responsible for investigations of major crimes. The Animal Control Division is responsible for the operation and maintenance of the animal shelter, enforcing animal control laws and investigating nuisance and/or damage claims. The building also houses a regional dispatch center.

The Police Department Building, originally constructed in 1977, is in need of several improvements, including modernizing the prisoner processing and detention centers to meet recent State statute and code changes, replacing firing range equipment, and making structural and building envelope improvements to withstand a Category 3 hurricane. Preliminary design has been completed on the project with cost estimated at \$5.6 million. Additional funds have been budgeted to replace failing boilers, to modernize the prisoner processing and detention areas, and to upgrade IT systems.



Groton Town Police

OFFICE OF EMERGENCY MANAGEMENT

The Town has an Office of Emergency Management (formerly Civil Preparedness) that is responsible for planning for, responding to, and recovering from natural and man-made disasters, including accidents at the Millstone Nuclear Power Station. The department works with regional partners, including neighboring towns, the Department of Emergency Management and Homeland Security, and the Federal Emergency Management Agency (FEMA) to prepare for hurricanes, floods, acts of terrorism, or other catastrophic events.

The Town of Groton's Emergency Communications Center (ECC) is located within the Town's Public Safety Building at 68 Groton Long Point Road. The center is a regional 9-1-1 emergency communications center or Public Safety Answering Point (PSAP) serving the Town of Groton, all political subdivisions as well as North Stonington.

In addition to being responsible for community preparedness through planning, mitigation, response and recovery, the Town also has an emergency outreach service. CT Alert is a service provided by the Town notifies residents by landline, cell phone, and email of impending emergencies or emergency instructions.



Hurricane Evacuation Route

FIRE PROTECTION AND EMERGENCY MEDICAL RESPONSE

Fire protection and fire marshal services are provided by nine independent fire districts, each of which has its own governing board and authority to raise taxes. The Town collects taxes on behalf of the fire districts, but has no authority over these independently controlled facilities. Volunteer staffing continues to be an issue in fire districts. The fire districts are as follows:

- Center Groton Fire District – 163 Candlewood Road
- City of Groton – 295 Meridian Street
- Groton Long Point Association – 5 Atlantic Avenue
- Mumford Cove Association – 3 Halyard Road
- Mystic Fire District – 34 Broadway, Mystic
- Noank Fire District – Ward Avenue

DRAFT

- Old Mystic Fire District – 295 Cow Hill Road, Mystic
- Poquonnock Bridge Fire District – 13 Fort Hill Road
- West Pleasant Valley Fire District – 140 Broad Street

In addition, Groton has two ambulance services. Refer to the *Public Safety Facilities Map* for locations of facilities and fire districts.



Groton Ambulance

Police Facilities

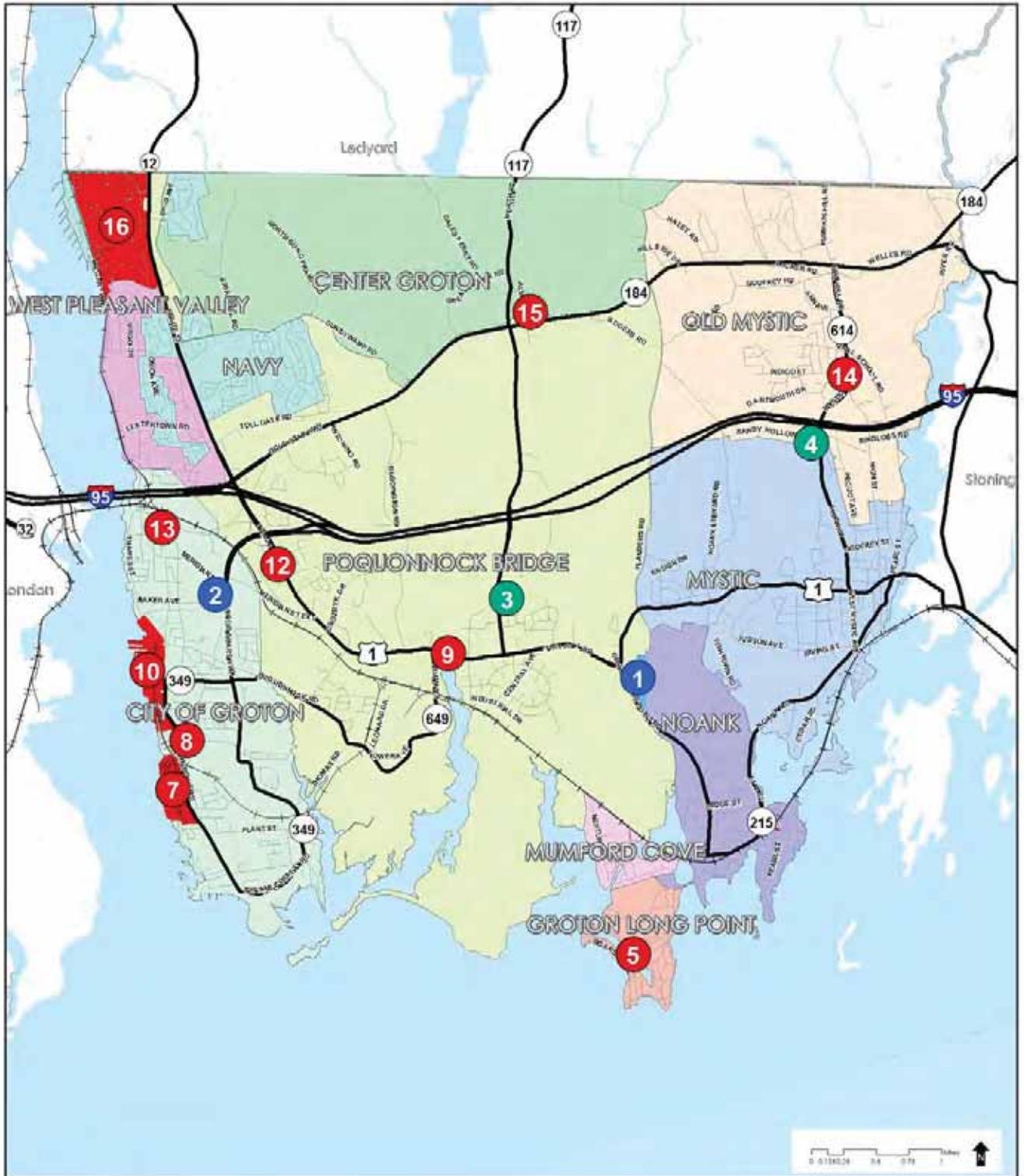
- 1 Town of Groton Police Department
- 2 City of Groton Police Department

Ambulance Facilities

- 3 Groton Ambulance Association
- 4 Mystic River Ambulance

Fire Facilities

- 5 Groton Long Point Police and Fire Station
- 6 Noank Fire Department
- 7 Pfizer Inc, Protective Services
- 8 Eastern Point Fire Station
- 9 Poquonnock Bridge Fire Headquarters
- 10 Electric Boat Fire Protection
- 11 Mystic Hook and Ladder Company
- 12 Poquonnock Bridge Fire Station
- 13 Groton City Fire Headquarters
- 14 Old Mystic Fire Department
- 15 Center Groton Fire Department
- 16 Submarine Base Fire Headquarters Fire Protection



Public Safety Facilities & Fire Districts

Source:
 * Street Centerlines: Town of Groton GIS Dept.
 * State Roads: Esri/Mapbox USA (2011)
 * Streetmap Data: Connecticut DEEP Map & Geographic Information Center (2012)
 This map was developed for use as a planning document. Distortions may not be exact.

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TOWN SERVICE PROVIDERS/PUBLIC WORKS/INFRASTRUCTURE

PUBLIC LIBRARIES

The Groton Public Library is located at 52 Newtown Road. Additional libraries operated by the City and or Villages include the Bill Memorial Library on Monument Street and the Mystic & Noank Library on Library Street in Mystic. These facilities are not operated by the Town, and each are run independently.



The Groton Public Library currently has approximately 21,000 registered borrowers and provides residents and the general public with a variety of educational, informational, technology and reference services. The library's collection includes approximately 147,000 volumes, with an annual circulation of 380,000 items. The Library offers public access to technology through internet workstations, Wi-Fi and a hands-on computer lab, and sees about 83,000 public computer users annually. Library staff members teach computer classes, in addition to a variety of educational classes for PreK-5th graders. The Library offers approximately 670 programs annually, with an attendance of about 15,000. The Library facility's five meeting rooms are well used by community groups, with approximately 1,500 uses per year. Finally, Library staff is responsible for the Groton government cable access channel, recording and televising municipal meetings, producing educational and public service announcements and working with other Town Departments to provide technical support for audiovisual technology.

Included in the current Capital Facilities Program are plans to replace exterior walkways, interior carpeting, blinds and ceilings, as well as design and construction funds for replacing an existing roof top unit. Finally, funds are planned for rebuilding the parking lot and modifying overflow parking.

SENIOR CENTER

The Groton Senior Center, located at 102 Newtown Road and adjacent to the Public Library, is operated by the Parks and Recreation Department. The 36,900 square foot current facility was renovated and a major addition built and opened in 2010. The Groton Senior Center is accredited by the National Institute of Senior Centers, and serves as a recreational center for those over age 55. The Center features a Computer Learning Center, fitness room and full kitchen. Programs are offered in health, fitness, dance, arts and crafts, ceramics, quilting, card games, all levels of computer classes including Apple and PC computers. The Center has seen an increased demand for fitness and active recreation programs. The Center is currently open 8:30am to 4:30pm, Monday through Friday, and occasionally in the evenings and weekends. The Center also offers an extensive trip program including day trips, overnight trips, cross-country trips and trips abroad.



Groton Senior Center

While the facility is relatively new and in good condition, staff has requested funds for HVAC improvements to prevent mold, and for the installation of an automatic handicapped accessible door to the large meeting room. The Senior Center has been used as an area of refuge during recent severe weather events. The current emergency generator system needs to be upgraded if this function is to be regularly accommodated in the future.

HUMAN SERVICES

Social Services, Youth & Family Services and the Groton Family Support Center are centrally located at the Human Services Department facility at 2 Fort Hill Road. The Family Support Center offers families a variety of supportive services, including one-to-one parent education, counseling, case management, support groups, information and referrals, home visits and parent education classes. In addition, Groton Social Services offer assistance to seniors, and to any residents on issues concerning housing, food, energy, and finances.

The Human Services Building was originally built as an elementary school in 1913. It served as the Public Library for almost two decades, until 1977, when Human Services offices were relocated from the

basement of Town Hall. The Groton Food Locker is located in the basement of the building. Funds are being sought for design development to address some interior building issues, including lighting, replacement of windows, re-piping of baseboard heaters, dehumidification of the basement, staircase repair and an evaluation of the existing HVAC system.



Groton Human Services

GENERAL GOVERNMENT FACILITIES

In addition to police, public works, education and social service facilities, the Town of Groton has a number of other governmental facilities. These include, among others, the Town Hall and the Town Hall Annex. Municipal departments located in the Town Hall building located at 45 Fort Hill Road include the Town Manager and Administrative Services, Finance, Town Clerk, and the Probate Judge. The Town Hall Annex, located at 134 Groton Long Point Road houses the Office of Planning and Development Services, as well as Public Works offices. The Town's insurance carrier has concerns regarding the location of the information technology division and equipment in the basement of Town Hall. In addition, the current Capital Improvements Program recommends and funds a study of space concerns for the various departments and records located in Town Hall. The roof of the Town Hall Annex has been replaced, and the Capital Improvement Plan budgets funds to replace the existing boiler plant and make general energy efficiency improvements in the Town Hall and Annex.

One possible space for relocation or expansion of general town services would be into the recently vacated Fitch Middle School. The building is centrally located, directly adjacent to Town Hall, and within the Poquonnock Bridge node area which has been targeted as the Institutional center of the Town.

The Town has budgeted significant funding for the next six years, through its Capital Improvement Program, to upgrade computer software systems that manage permitting and asset management, and time and attendance.



Municipal Facilities

Sources:
 * Street Centerlines: town of groton GIS Dept.
 * State Roads: Streetmap USA (2011)
 * BaseMap Data: Connecticut DEP Map & Geographic Information Center (2012)

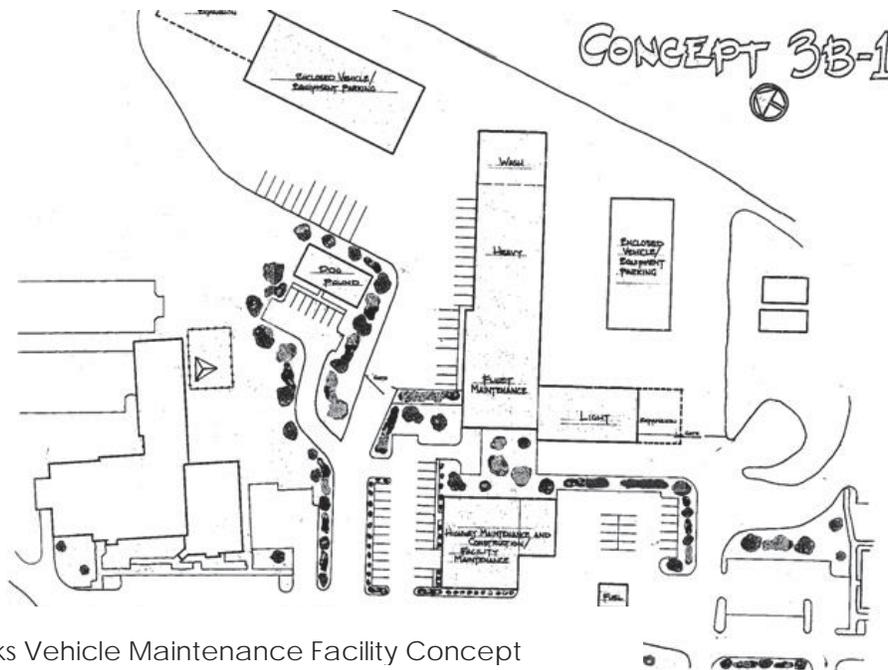
The map was developed for use as a planning document. Distances may not be exact.

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PUBLIC WORKS

PUBLIC WORKS GARAGE

The Town's Vehicle Maintenance Facility, constructed in 1952, needs to be replaced. The current facility is only 8,380 square feet, when planning guidelines suggest that a 27,000 square foot facility is necessary for the number and variety of light and heavy vehicles operated by the Town, including construction, operations and staff vehicles for general government, public safety, ambulance, Board of Education, political subdivisions, fire companies including chassis work for fire trucks, and City of Groton Police. The lack of vertical clearance in the building, the insufficient number of repair bays, the lack of lifts for trucks and a separate welding shop make the current facility inefficient for fleet maintenance, as well as an inefficient building to operate. Funds are included in the current Capital Improvement Program for new building design including a new \$5-8 million Vehicle Maintenance Facility.



Public Works Vehicle Maintenance Facility Concept

In addition, funds are budgeted to design and construct a permanent vehicle wash facility that would be part of the future vehicle maintenance facility. Currently, a temporary area was made out of four bays of the vehicle storage garage. However, that building was not designed for such a use, and as a result, is experiencing deterioration from interior moisture levels.

MUNICIPAL VEHICLE FLEET

The Town has committed to purchasing hybrid vehicles for the Town fleet, and has already added twenty-two hybrid and fuel-efficient vehicles. This is a laudable step in reducing the amount of fossil fuels being burned by the Town. In addition to continuing its current commitment to purchasing fuel-efficient vehicles, the Town can also conduct a use study or survey of fleet vehicles to determine if current usage patterns are optimal. Action steps could include prioritizing use of hybrid or fuel-efficient vehicles in each department over standard vehicles for trips, consolidating car use by car-pooling and chaining

trips, and “right-sizing” the number and type of vehicles being used based on usage patterns.

Some Town departments require heavy trucks and other specialized vehicles that have low fuel efficiencies. These vehicles should be gradually replaced with (or converted, if possible) to models that are either more fuel efficient or can burn alternative fuels such as compressed natural gas or biodiesel.

In addition to improving fuel efficiencies for vehicles in the Town fleet, the Town should also work to incorporate a bike fleet for use for short trips during cooperative weather. While unlikely to be used for a large percentage of Town employee trips, it sets a healthy example for Town residents and encourages wider adoption of biking and walking for short trips.

PUBLIC WATER SUPPLY

Four water companies operate in the Town of Groton: Aquarion, Groton Utilities, Groton Long Point and Noank Water Company. Groton Utilities directly services the majority of Town, and is operated by the City of Groton. In addition, Groton Utilities also supplies water to Groton Long Point, Noank and recently established an interconnection with Aquarion Water Company to supply their Mystic Division. There exists many private wells and community systems in the Town that also provide water to users.

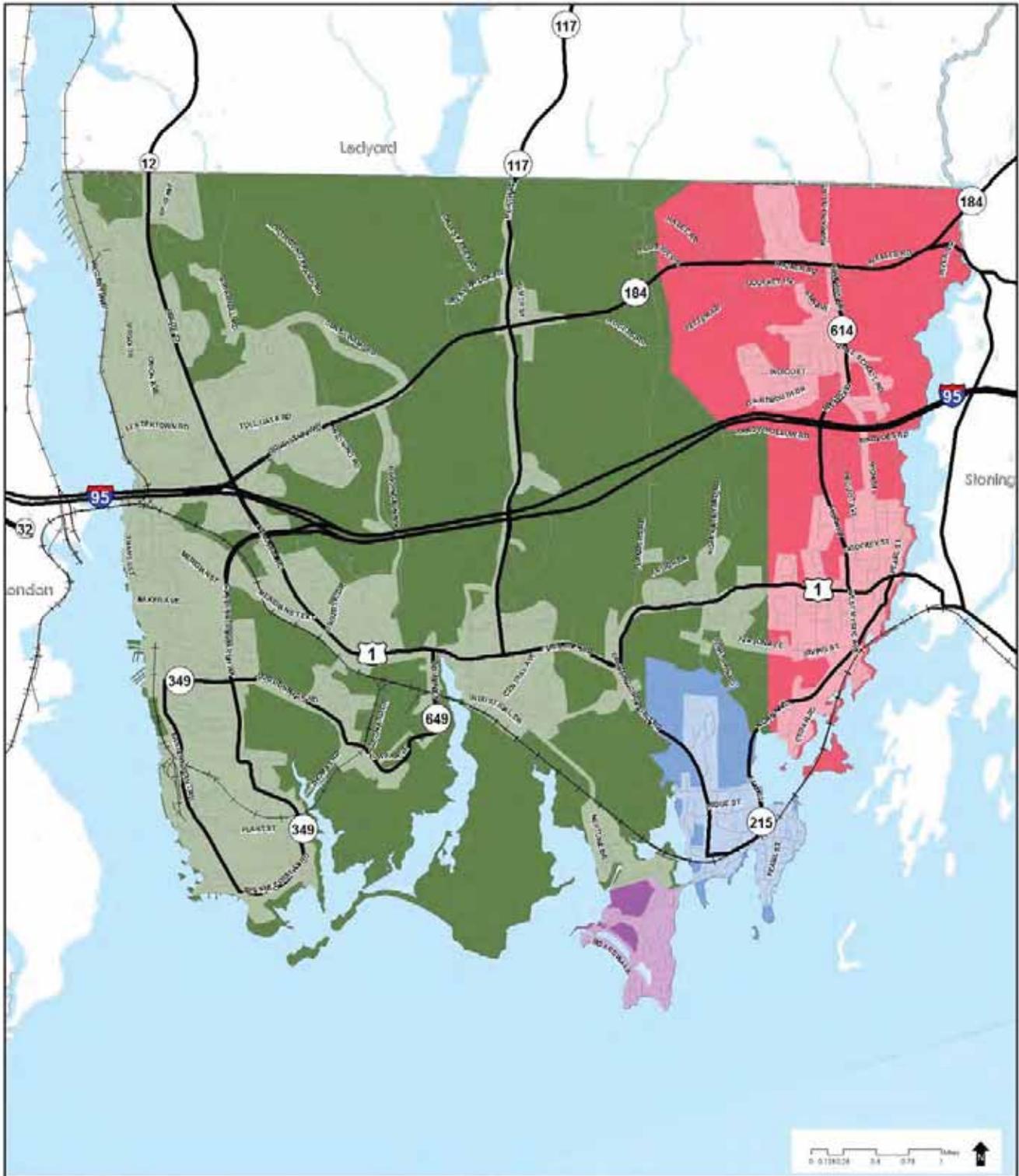
Groton Utilities relies on five reservoirs with a combined capacity of 2.5 billion gallons located in a watershed of 15.6 square miles within the Town of Groton and neighboring Ledyard, along with wells to supply its system.

A water treatment plant located off Poquonnock Road treats an average of 5.7 million gallons per day and delivers water to approximately 44,000 customers in the City and Town of Groton, Groton Long Point, Noank and parts of Ledyard and Montville through over 100 miles of water mains. Refer to Public Water Service Map on the following page.

The Southeastern Connecticut Drinking Water Quality Management Plan discusses land development practices that seek to maintain watershed hydrology for the entire region.



Groton Utilities



Groton
PLAN OF CONSERVATION + DEVELOPMENT

Water District & Service Areas

- AQUARION WATER COMPANY
- CITY OF GROTON UTILITIES
- GROTON LONG POINT
- NOANK WATER COMPANY

Overlay of Current Water Service

Sources:
 * Street Centerlines: Town of Groton GIS Dept.
 * State Roads: Esri/Mapbox USA (2011)
 * Intermap Data: Connecticut DEEP Map & Geographic Information Center (2012)

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MILONE & MACBROOM

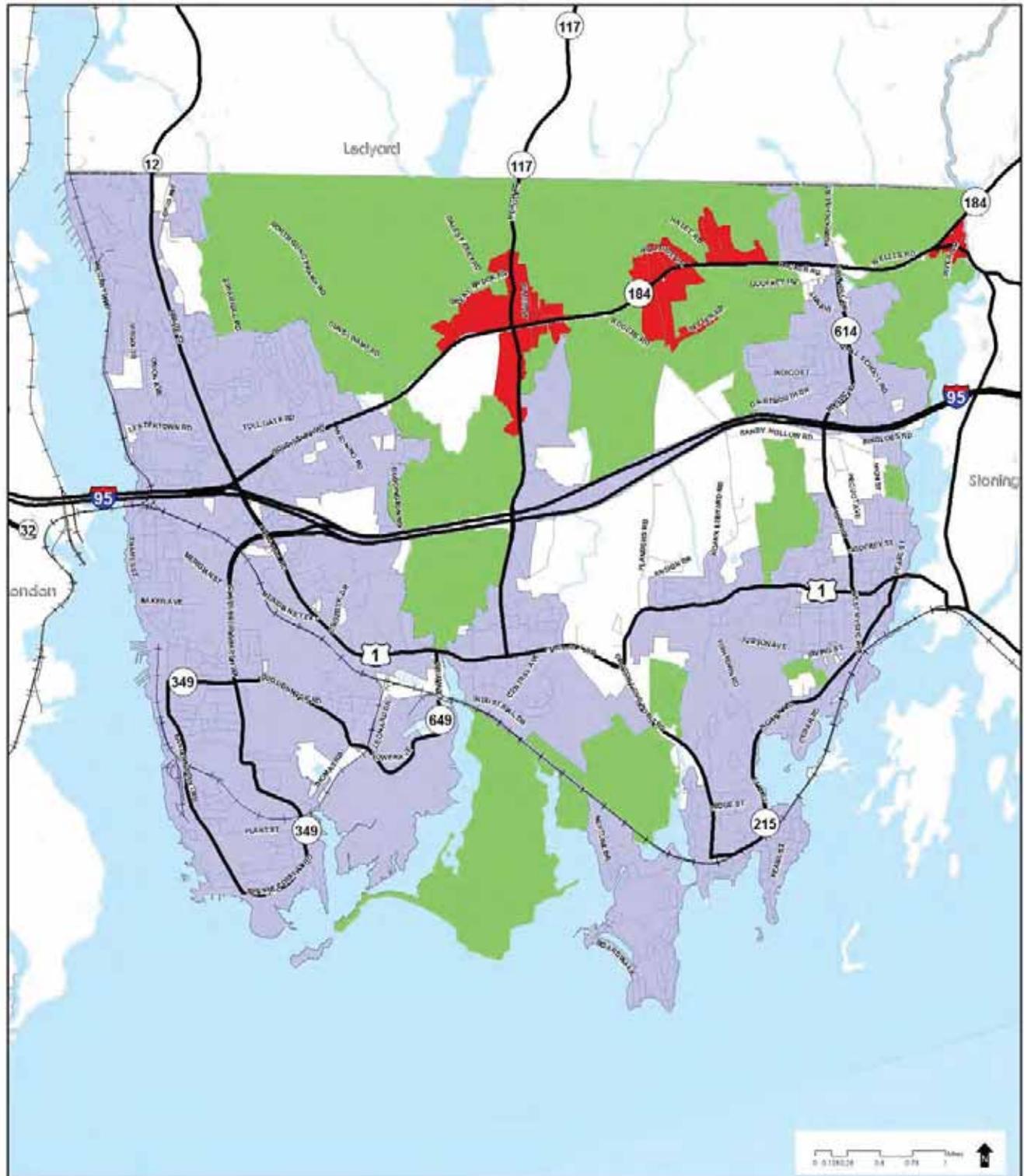
SANITARY SEWER SYSTEM

The Water Pollution Control Facility (WPCF), a division of the Department of Public Works is responsible for the operation and maintenance of the Groton sanitary sewer system which consists of approximately 136 miles of sewer line, 23 pump stations, 159 grinder pumps (town-owned individual residential sewage pump units), 6692 laterals of which 5400 are connected and a secondary treatment facility. WPCF Division employees are responsible for the repair and maintenance of all collection, treatment and instrumentation systems.

The Waste Water Treatment Plant, located at 170 Gary Court, was upgraded in 2009 to be able to treat up to 7.5 million gallons per day. The gain in treatment capacity resulted from increased treatment efficiency, rather than increased tankage. Treatment was enhanced by providing denitrification through an innovative technique called the Integrated Fixed-Film Activated Sludge (IFAS) process. IFAS technology has been used throughout the world for several decades, and is becoming increasingly popular in the U.S. as effluent standards become more stringent. Average daily flow to the treatment plant in September 2012 was 2.62 million gallons. Ample capacity exists at the Treatment Plant for the foreseeable future. Refer to the *Sanitary Sewer Service Area Map* for locations within Town with sanitary sewer service available. Industrially-zoned areas along Route 117 to Route 184 should be considered for sanitary sewer extension to serve these developable parcels.

The operation of the sanitary sewer system is completely funded through user fees. Capital construction is funded through a sewer district tax. While the collection system is in relatively good condition, planned improvements include systematically identifying sections of large diameter collection piping in need of repair or replacement and performing the work. In addition, the Fishtown Road Pump Station is in need of rehabilitation, with design funds and construction funds budgeted in the Capitol Improvements Budget. Additional funds are budgeted to complete a conditions analysis for 8 major and 14 minor pump stations in Town, as well as, rehab of the Gravel Street Station and Goss Cove Station. Funds are also budgeted to upgrade the Effluent Pump Station, which transfers treated effluent to the Thames River for discharge. The discharge location is more than four miles from the WPCF. If the effluent pump station were to fail, effluent would discharge into the environmentally sensitive Mumford Cove. Upgrades to the WPCF operations building are also planned.

In general, the sanitary sewer system is well-maintained and operated. With continued investments, the system will continue to provide ample treatment capacity for the Town.



Groton
PLAN OF CONSERVATION + DEVELOPMENT

Sewer Service Area

- Existing Sewer Service Area
- Areas without Sewer Service
- Planned Sewer Avoidance
- Outside Sewer Service area recommended to be sewered when need arises

Sources:
 * Latest Cartelines: Town of Groton GIS Dept.
 * State Roads: Streetmaps USA (2011)
 * Esri/Map Data: Connecticut DEP Map & Geographic Information Center (2012)
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April 2014

MILONE & MACBROOM

STORM WATER MANAGEMENT

The town maintains a storm water system that is completely separate from the sanitary sewer system. The Department of Public Works maintains approximately 3,285 catch basins throughout Town. The Town has an adopted Storm Water Management Plan that meets CT Department of Energy and Environmental Protection (CT DEEP) standards and focuses on the following areas:

- Public Education and Outreach
- Public Involvement / Participation
- Illicit Discharge Detection and Elimination
- Construction Site Stormwater Runoff Control
- Post-construction Stormwater Management in New Development and Redevelopment
- Pollution Prevention / Good Housekeeping for Municipal Operations

In addition, Groton's Zoning Regulations require submission of a storm water management plan for any site plan application that would result in disturbance of one or more acres.

Funds have been budgeted in the *Capital Improvement Plan* for improvements to storm water discharge facilities, particularly those located in the public water supply watershed. Improvements will include retrofitting catch basins, storm water quality basins, channels, leakoffs and other storm water improvement structures located in Town properties, easements and roads. Comprehensive improvements to the drainage systems on Judson Avenue and planning for the redesign of the storm water system on Fishtown Road have also been budgeted. Routine storm water management is within the capability of the Department of Public Works. The major storm water management issue facing the Town is to adequately manage flooding from severe storm events such as the March 2010 rain event and Storm Sandy.

Another aspect of management of storm water is to address the quantity and quality of storm water runoff before it reaches the piped systems. The Southeastern Connecticut Drinking Water Quality Management Plan discusses land development practices that seek to maintain watershed hydrology through reduction of the quantity of runoff and the extent of pollutants on an individual site basis before the runoff reaches piped storm water systems. Using a site's natural hydrology to reduce runoff and the natural pollutant removal mechanisms of vegetated and pervious land are recognized as best land development design practice. For the Town to continue to develop on a sustainable basis incorporation of these principles into development and redevelopment activities within the Town should be pursued.

The Town can take simple steps to encourage the community to become more involved in sustainable storm water management by taking some of the following steps, such as:



Bioswale Example

- Promoting rain barrel sales through Town events. Collecting water in rain barrels for use in yard irrigation can alleviate pressure on local water supplies.
- Promoting the use of Rain gardens and bioswales in new development. Both can help absorb water runoff during storms and help prevent inland flooding. The connection between impervious area and flood risk is important to consider, and pervious or porous paving types should be encouraged along with planting types that allow for fast absorption of rain water.
- Educating the public regarding chemical-free gardening and reducing the use of fertilizers that will drain into Fisher's Island Sound.
- Painting simple logos near stormwater catch basins, such as "Dump no waste, drains to Fisher's Island Sound," in order to educate residents about where their stormwater goes.
- Develop a permanent site to store and process street sweepings and catch basin cleanings.

ENHANCE SOLID WASTE HANDLING

The Solid Waste Division of the Department of Public Works is responsible for the disposal of approximately 33,000 tons of solid waste generated in Groton annually. The Town operates a leaf composting facility and a residential bulky waste transfer station.

Through an agreement with the Southeastern Connecticut Regional Resources Recovery Authority (SCRRA), the Town disposes municipal solid waste at the Preston waste-to-energy facility. The waste-to-energy facility is a 743 ton per day, mass burn plant operated by Covanta Energy. The Town's solid waste disposal agreement with SCRRA has been extended to November 2017. The Town should review options and agreements to ensure that the disposal of waste continues after 2017 in a cost effective and environmentally sensitive way.

The Town mandates that all commercial solid waste collection be handled by the Town's selected hauler. This includes all commercial, industrial, institutional, fraternal, religious and public service organizations which use a dumpster at least one cubic yard in size; however, facilities located within the City of Groton or Groton Long Point are excluded from the program. The Groton Resource Recovery Authority (GRRRA) competitively selects a hauler and determines waste disposal rates on a pay-as-you-throw basis for commercial solid waste collection. Part of this service includes mandatory recycling of cardboard, mixed paper and bottles and cans.

Curbside residential waste and recycling collection is handled by the various Fire Districts in Groton and/or private haulers. The Town does not provide any residential solid waste collection services directly. Providing municipal residential collection of household waste from the curbside would add a valuable amenity for residents.

The Transfer Station, located on Flanders Road, just north of Interstate 95, accepts residential bulky and hazardous materials waste. Items accepted at no charge include: oils, batteries, electronics, pallets and leaves. Bulky waste and brush may also be brought to the transfer station with either a yearly permit or a day pass. Household appliances may also be brought for an additional fee.

PARKS AND RECREATION FACILITIES

Parks and Open Space have been discussed in the Conservation section of this document, however, many parks and recreation areas also have significant community facilities on them. Parks and Recreation Department has maintains, owns, and improves several facilities. The Spicer House, located at 27 Spicer Avenue, serves as the Parks and Recreation Department office. The House and adjacent Spicer Park and multiple barns and storage buildings were donated to the Town in 1963 to be used for recreational purposes. Funds are budgeted in the current Capital Improvements Program to make improvements to the exterior and interior of the Spicer House, as well as repairs to the large barn, including lead abatement, and replacement of the smaller garage. The Parks and Recreation Department also has a Parks Maintenance Building located at the Town Hall Annex complex 134 Groton Long Point Road. Funds are budgeted for FY 2017 to design and construct an addition to the building to provide vehicle storage.

The Town-owned and operated Shennecossett Golf Course has a Club House in need of renovation, at 93 Plant Street. The Town has recently replaced windows and the oil tank at the Club House and currently is replacing the roof. Exterior repairs to the chimney and walls are needed. The building also does not have any handicapped accessible toilets. Funds for design, engineering and construction of remedies to these issues are budgeted for each of the next five years in the Capital Improvements Program. In addition, the Golf Course Maintenance Building had a vehicle wash pad and canopy constructed in the last three years. Additional funds have been budgeted to construct a chemical storage building, chemical recovery tank, chemical sump pump and an eyewash station. The Golf Course Maintenance Building roof, exterior walls and overhead and passage doors need to be replaced or repaired. Funds for these improvements have been budgeted. Further studies to evaluate the use of reclaimed water for irrigation at the Golf Course could result in a valuable sustainability measure to conserve drinking water reserves.



The Jabez Smith House, located at 259 North Road, is a 1783 colonial farmhouse owned by the Town and operated as a museum of early colonial history. The Smith House has had extensive stabilization and restoration work done over the years the Town has had control of the property. A 2006 architectural report identifying a prioritized list of repair and maintenance projects has been largely implemented. An

update to the conditions assessment and report is needed to address new issues that have arisen in the last six years, including issues with the carriage house. Funds have been budgeted for to update the report, and subsequent funding is budgeted to implement the recommendations of the updated report.

The Town also has several former school properties under its control. The Eastern Point School site has been leased to Project LEARN, which built a magnet marine sciences high school on the site. The former Colonel Ledyard School has been leased to the City of Groton. The former William Seely School is used by the Parks and Recreation Department for programming. Remaining vacant schools include Groton Heights, Noank and the recently closed Fitch Middle School. Funds have been budgeted to remove underground storage tanks at Groton Heights and Noank Schools. The ultimate disposition of these closed schools remains an unresolved issue.

PARKS AND RECREATION MASTER PLAN

In recognition of the changing needs of Groton, a comprehensive Parks and Recreation Master Plan for the Town of Groton was completed in 2009. The Parks and Recreation Master Plan included an extensive community survey and outreach process to gauge existing facilities and programming strengths, weaknesses, opportunities and threats, establish goals for the department and community, and identify gaps in service. In addition, the Plan included an extensive action agenda designed to move the Groton Parks and Recreation Department closer to its goals.

As a result of demographic changes that may occur relative to age and population composition, the need for recreational facilities, activities, and services has continued to evolve for individual neighborhoods and the Town as a whole. One of the key components of the 2009 Master Plan is to attempt to bring existing facilities into concert with these evolving recreation needs and changing demographics of the community.

As reported in the 2009 Master Plan, Federal, State and privately owned and maintained facilities complete the variety of parks and recreation facilities available to Groton residents. This wide variety of facilities in conjunction with the Town's numerous parks and school parks helped the Town achieve a better than average overall "level of service."

The National Recreation and Park Association (NRPA) developed standards to serve as basic guidance for communities in determining whether they offer adequate recreational amenities to residents. Using these basic guidelines, the 2009 Parks and Recreation Master Plan conducted a level of service analysis that factored in community and staff feedback, facilities inventories and assessments, and spatial analysis. The level of service analysis focused on active recreation facilities to determine gaps in service and facilities. Overall, the Town is above recommended levels of service on an acreage per 1,000 population basis. However, the level of service for small pocket or mini parks is below the NRPA's recommended levels. Groton is within or above recommended levels of service for neighborhood and community parks.

The analysis concluded that additional acreage is not necessary to improve levels of service; rather, the development of programmed space such as athletic fields, courts and playgrounds on already owned parcels would suffice. However, the study acknowledged that there is a balance that needs to be struck

between preserving passive recreation areas and the development of more programmed recreation facilities. In order to address these needs, the Town has budgeted funding for each of the next five years to be used towards a long term plan to bring current recreation facilities into compliance with ADA requirements and other recommendations of the Master Plan.

One of the notable changes since the 2009 Master Plan relates to the Town aquatics program. Parks and Recreation Department has changed its aquatics program venue from the Mystic Education Center, which the State is in the process of divesting itself of, to the Avery Point campus of UCONN. The lack of adequate aquatic facilities continues to be a gap in facilities, and the Town continues to address this issue through the budgeting of funds for planning in the Capital Improvement Plan.



TOWN BEACH AND DOCK

Esker Point Beach is the town's primary beach facility. Esker Point Beach occupies an exceptional site on the edge of Fisher's Island Sound providing residents and visitors with swimming, sunbathing, kayaking, picnicking and other recreational opportunities. The property includes a small parking lot, a shady picnic area on the peninsula, a coarse sand and gravel beach with a concessions stand and bathroom building, and a small sandy beach on the west side of the parking lot. The beach has an area for boat racks. The peninsula is somewhat armored on its west side, south of the small sandy beach, with riprap and a cobble shoreline. The east side of the peninsula is a wide intertidal zone consisting of cobbles. This cobble "beach" transitions into the main sandy beach at the curve of the property. All of these areas are in FEMA-designated VE zones, elevation 15 feet, with the exception of the driveway/access road running along the spine of the peninsula.

The primary parking lot is much larger and located on the north side of Groton Long Point Road. Additionally, the parking lot could be greatly improved by infilling with landscape islands that better delineate internal circulation and absorb storm water. Since the parking lot is only filled to capacity during summer concerts, reduction of the paved area in favor of other uses may be worth consideration.

This part of the park is known as the Esker Point Waterfront Park and has a short paved trail system, picnic tables, and an unpaved gravel boat launch. The banks on either side of the boat launch have eroded, and intermittent portions of the bank to the north of the launch have also eroded. The erosion may be due to occasional high-velocity flow energy (either tidal or associated with upstream flooding) given that the potential for wave action appears low. All of these areas are in FEMA-designated AE zones, elevation 12 feet. Groton Long Point Road is not in a flood zone except where it dips to meet the

bridge to Groton Long Point.

Esker Point Beach and Esker Point Waterfront Park are important recreational facilities and also important points of public access to the shoreline along a span of the town's coast that does not include many public access points. Therefore, maintaining the facilities will be important as sea level rises and coastal storms become more frequent or intense.

While Esker Point Waterfront Park is vulnerable to erosion, Esker Point Beach is likely vulnerable to loss of beach sand due to erosion coupled with a lack of a source of sand nearby. Both parts of the town property are vulnerable to inundation during coastal storm surges, and wave action is likely on the south side of the road. The surge from Storm Sandy covered the main beach with water but did not cross Groton Long Point Road. The eroding shoreline of Esker Point Waterfront Park was inundated.

Esker Point Beach will need to be maintained as a viable beach. This may become increasingly difficult over the long term. As the beach becomes narrower with rising sea level, the amount of usable space will decrease and the town may wish to identify other locations in the same park for conversion to beach. One possible strategy is to replace the adjacent cobble intertidal zone with a sandy beach. This could be done in connection with future nourishment of the sandy beach. A portion of the picnic area could be set aside as a future beach for the long term, perhaps 50+ years from now, if sea levels continue to rise.

The concession building seems to serve its seasonal purpose adequately, but suffers from an antiquated appearance of whitewashed concrete block walls. Since the backside of the building faces the street, its appearance could be improved by landscaping. The concessions and bathhouse building is vulnerable to coastal storms, and should be maintained as a simple seasonal structure that can be easily cleaned out after floods and storms. If damage becomes repetitive over time, the town may wish to replace the building with an elevated structure on pilings similar to those found at Hammonasset Beach.

Esker Point Waterfront Park is likely not an appropriate location for a sandy beach and swimming access given the potential for tidal currents in the cove between Groton Long Point Road bridge and the railroad bridge. However, boat access should be maintained. Esker Point Waterfront Park should be allowed to flood, but the shoreline should be stabilized to reduce the potential for erosion. There are a number of "bioengineered" shoreline stabilization



Esker Point Beach

techniques that could be evaluated for use at the park. The town of Groton should also keep abreast of a number of shoreline stabilization demonstration projects that are underway.

Additionally, the Town operates and maintains a town dock in Noank. Storms in 2011 and 2012 have had major negative impacts on the Noank Dock. In order to address these issues, the Town budgeted funds in fiscal year 2012 and 2015 to replace the dock structure, along with seawall, and rock rip-rap.

ENHANCE AND PROMOTE SUSTAINABLE ENERGY INFRASTRUCTURE

TOWN ENERGY USE

Energy use, especially energy derived from finite stores of fossil fuels such as coal or oil, is an area where reductions can greatly benefit the environment, public health, and the Town budget. Burning fossil fuels is not only expensive, but releases particulate matter into the air that causes pollution, which can impact respiratory health and asthma rates of residents. It also releases CO₂ into the atmosphere that scientists agree contribute to climate change. The Town of Groton has recently received a report titled “Preparing for Climate Change in Groton, Connecticut,” prepared by ICLEI-Local Governments for Sustainability and CT Department of Energy and Environmental Protection that identifies energy efficiency strategies as one of the most crucial ways to mitigate climate change impacts.

The Town of Groton has already shown a commitment to understanding and reducing energy use. The Town commissioned a limited energy audit and Energy Action Plan (EAP) for Groton from Peregrine Energy Group, Inc. that was funded by a US Department of Energy Efficiency and Conservation Block Grant Program. The EAP objectives were to create a succinct energy efficiency and conservation plan that includes short- and long-term recommendations for mitigation and adaptive strategies to reduce greenhouse gas emissions. The Energy Action Plan covers an energy audit of municipal buildings and schools, as well as a critique of current policies and plans that affect the Town as a whole. The Energy Action Plan study found that the Town has already shown leadership in addressing climate change, and taken actions to reduce energy use, energy cost, and greenhouse gas emissions. Groton Public Schools were especially applauded for having excellent energy efficiency, considering the older buildings, due to exemplary operation and management practices.

A U.S. Department of Energy Efficiency and Conservation Block Grant funded a Greenhouse Gas Emissions Inventory for the fiscal year 2009 in Groton. While the Energy Action Plan focused on Town buildings in depth, the Emissions Inventory also gathered estimates on energy use and greenhouse gas emissions from the community at large. The estimates in the Inventory provide a valuable baseline from which to make community-wide reduction goals.

The Town of Groton is served by Connecticut Light & Power (CL&P) and Groton Utilities (GU) for electricity. Groton itself does not have any power plants, and relies on its utilities to import energy from other plants in Connecticut and the greater New England area. By law, Connecticut is required to generate 20% of the State’s electricity from renewable energy sources by 2020.

According to Census estimates, the most commonly-used house heating fuel in Groton is fuel oil (58%), followed by electricity (29%), utility gas (7%), bottled, tank or LP gas (5%) and wood (1%) (2008-2012 American Community Survey 5-Year Estimates). The Northeast is the last region in the country to rely this heavily on heating oil – according to the Energy Information Administration, in 2009 only 6% of homes used heating oil in the country. In current markets, natural gas is a considerably cheaper alternative, spurring demand for oil-to-gas heating conversions in the Northeast. Although natural gas is also a fossil fuel, it produces about 30% less carbon dioxide per Btu than heating oil, making it a cheaper and more sustainable options for heating needs.

PROGRAMS AND INCENTIVES

Groton's utility providers give residents the option to choose to support sustainable, renewable energy. Groton Utilities offers Green Energy Options, which allows residents to choose to pay an additional 1.1 cent per kilowatt-hour to buy renewable energy from wind, landfill gas, and small-scale hydroelectric dams, as well as many tools for energy conservation and efficiency. Connecticut Light & Power offers many conservation programs and rebates, but does not offer customers the ability to directly buy renewable energy. CL&P offers residents the ability to choose CT Clean Energy Options, a program available through two different independent companies. Residents are not directly purchasing renewable energy for their use, but contributing money to a program that supports the development of renewable energy.

The State has also implemented incentives for the production of alternative energy. The Connecticut Clean Energy Fund (CCEF) Project 100 Initiative requires the state's electric distribution companies to obtain a diverse portfolio of energy, including "Class I" renewable energy. The CCEF also offers grants of up to \$750,000 to start-up companies to prove the effectiveness of new clean-energy technologies. Commercial and residential properties can also qualify for Connecticut Clean Energy Fund's On-Site Distributed Generation grants as well to help pay for renewable energy installations. Residential properties with renewable energy systems are also eligible for a property tax exemption on the value of the system. By tying systems back to the grid, these systems can also recoup costs by selling surplus energy back to the electric grid.

The State provides various a property tax exemptions, credits, and loans for the installation of Class I renewable energy sources installed for the generation of electricity for private residential uses. These uses must be under 1 MW and therefore are not governed by the State Siting Council. The regulation could therefore fall to the Town.

RECOMMENDATIONS

Groton should support the extension of natural gas service to unserved areas of the Town to provide a cheaper, less environmentally-damaging form of home heating in residential areas of sufficient density. Special effort should also be made to serve areas of concentrated industrial and commercial uses, along with the Water Pollution Control Facility and the Town Hall Annex Complex.

The Energy Action Plan has already recommended that the Town should partner with Groton Utilities for renewable energy electricity infrastructure upgrades, as municipal utilities are uniquely positioned to support local renewable energy investments compared to investor-owned utilities. Such investments may improve system reliability, increase renewable energy consumption, and support local green jobs. The Town should review development regulations to include alternative energy use throughout the town. Strategies to encourage alternative energy use and generation could include standards for principal and accessory uses related to emerging alternative energy, or the addition of Pre-Approved Municipal Renewable Energy overlay districts to the zoning code.

Municipal pilot projects to showcase a commitment to renewable energy could include projects such as the installation of a photovoltaic array at the Flanders Road Transfer Station or a microturbine in the

sewer outfall line. These efforts should be combined with conservation measures, such as converting existing streetlights to LED bulbs and other actions from the Energy Action Plan, to reduce total energy consumption.

Groton should also promote sustainability as an economic development tool. Promoting Groton's industrial lands for use by potential sustainable energy companies could bring in valuable new job opportunities to the town. Other opportunities include companies that do green building retrofitting, such as adding more energy efficient insulation or windows or installing small renewable energy systems. Existing businesses should also be encouraged to consider sustainability initiatives, such as saving energy through utility company and C-PACE (Commercial Property Assessed Clean Energy) programs for financing high performance building upgrades.



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FUTURE LAND USE PLAN

The recommendations of each of the preceding chapters can be combined to present an overall Future Land Use Plan for Groton. The Future Land Use Plan is a reflection of the stated goals, objectives, and recommendations of the Plan as well as an integration of the preceding elements of the Plan of Conservation and Development.

Open Space and Parks Land Use Categories

Existing Open Space and Parks

The Existing Open Space areas represents the existing network or open space and recreation areas in the Town. These include Town-owned, State-owned, and other privately-owned active and passive recreation and open space facilities. These include parks and recreation areas that are maintained for active recreation, open space and parks in a natural state that are not maintained for active recreation, public and private parks, playgrounds, camping areas, golf courses, beaches, cemeteries, and water company holdings with no structures

Agricultural

This category identifies agriculture, aquiculture, and silvicultural uses, as well as lands with Public Act 490 Agriculture assessments.

Desirable Open Space and Parks

This category includes areas that would contribute positively to the Town's open space network and resources, in particular those properties that can be acquired would have the most potentially positive effect on the conservation of Groton's natural resources. This designation may include a part of or the entirety of the underlying parcel.

Desirable Open Space Connection

This category identifies key connections between open space resources that would have a potentially positive impact on Groton's open space network.

Residential Land Use Categories

Rural Residential

The Rural Residential category represents those areas where densities would generally be one unit per acre or less.

Low Density Residential

Areas where residential development is expected to occur at a density of between one and two units per acre and some existing residential development may occur at higher densities based on open space subdivision or historical development patterns.

Medium Density Residential

Areas where residential development is expected to occur with typical densities between 2 to 7 units per acre.

High Density Residential

Areas where the density of housing units is expected to occur at densities greater than 7 units per acre.

Commercial Land Use Categories

Commercial Retail, Sales, Service, and Professional Offices

This category includes general commercial activities, and are clustered along Route 1, on Route 184 outside of the Commercial 117 Node, and in other scattered sites throughout the Town. These commercial uses include retail operations, professional offices, standalone day care, and kennels; lodging (including commercial hotel, motel, inn, bed & breakfast and other lodging uses); marine business (including commercial and industrial uses dependent on water access, such as marinas, boatyards, commercial fishing operations, etc.).

Industrial

The Industrial land use designation is intended for parts of Groton where a variety of manufacturing, warehousing, storage, and earth processing operations are appropriate. Land use should look to maintain flexibility over the type of contemporary uses that may revitalize aging industrial structures. Such uses likely will not be traditional manufacturing, but may include light industrial, office, retail, market-rate residential and/or mixed uses.

Other Uses

Government Facilities, Institutional, and Infrastructure

Government facilities, institutional, and infrastructure includes local-government owned buildings and facilities such as schools, parks and fields not associated with schools, transfer stations, lands dedicated to flood control, that correspond to SCCOG's "Intensive Institutional" and "Extensive Institutional" categories. Institutional uses include private institutional uses such as places of religious worship, private schools, state or private universities, museums and other non-profit facilities. Infrastructure uses such as the Airport includes runways, hangars and other supportive aviation facilities. Other state facilities include state lands and facilities otherwise not classified.

Nodes are areas of more intense activity that serve as a focal point for the surrounding areas.

Noank Node

A residential mixed use node first adopted in the 2002 POCD. The node includes all parcels that lie within the node or intersect its border, excluding publically owned properties and open space.

Mystic Node

A residential mixed use node first adopted in the 2002 POCD, which allows residential multi-family conversions of up to four units. The node includes all parcels that lie within the node or intersect its border, excluding publically owned properties and open space.

Center Groton/ Route 184/117 Node

A commercial use node first adopted in the 2002 POCD. The node includes all parcels that lie within the node or intersect its border, excluding publically owned properties and open space.

Route 12 Commercial Node

A commercial use node first adopted in the 2002 POCD. The node includes all parcels that lie within the node or intersect its border, excluding publically owned properties and open space.

Route 1 Downtown Groton Node

A commercial mixed use node first adopted in the 2002 POCD. The node includes parcels that lie within the node or intersect its border.

Electric Boat and Pfizer Node

An Industrial mixed use node first adopted in the 2002 POCD. node includes all parcels that lie within the node or intersect its border, excluding publically owned properties and open space.

Naval Base Node

An institutional node first adopted in the 2002 POCD, which Include federally owned naval property. The node includes all parcels that lie within the node or intersect its border, excluding open space.

Institutional Corridor Node

An institutional node first adopted in the 2002 POCD. This corridor general spans the area from the Town Hall to the Town Hall Annex, along Groton Long Point Road and Fort Hill Road. The node includes all parcels that lie within the node or intersect its border, excluding open space.

Nautilus Memorial

The purpose of the Nautilus Memorial Design District is to permit and control development within the designated design district which will protect and enhance the primary entryway to the Nautilus Memorial. This district was created to service tourist-related and Navy needs and to provide protection to adjacent residential areas.

Downtown

The purpose of Downtown District is to encourage a concentration of commercial development with special attention paid to public amenities. This district is seen as the Town center and development within the district should be of a quality and character appropriate for the business and cultural focus of the Town and builds on the recommendations in the 2006 Groton Strategic Economic Development Plan.

Mystic

The Mystic District incorporates the Waterfront Design District of the zoning code. The purpose is to allow development which will protect and enhance the unique qualities of the Mystic area while protecting coastal resources, providing public access to the Mystic River, and providing a mixture of residential, commercial, and office uses that serve the needs of area residents and visitors.

Old Mystic

The purpose of the Old Mystic District is to permit and control development within the designated special focus area which is consistent with Village scaled uses that will continue to protect and enhance historic development patterns, including architectural styles and massing, mixed uses and a pedestrian friendly environment, while building on the recommendations in the 1996 Historic Preservation Survey and protecting the resources of Haley Brook and the Mystic River.

Poquonnock Bridge

The purpose of the Poquonnock Bridge District is to permit and control development within the designated special focus area which will protect and enhance historic village development patterns, including architectural styles and massing, mixed uses and a pedestrian-friendly environment, while building on the recommendations in the 1996 Historic Preservation Survey and protecting the resources of the Poquonnock River.

Future Land Use

Residential

- Rural Residential
- Low Density Residential
- Medium Density Residential
- High Density Residential

Open Space, Ag, & Institutional

- Existing Open Space and Parks
- Desirable Open Space
- Desirable Open Space Connection
- Government Facilities, Institutional, and Infrastructure
- Agriculture

Commercial

- General Commercial
- Industrial

Special Focus Areas

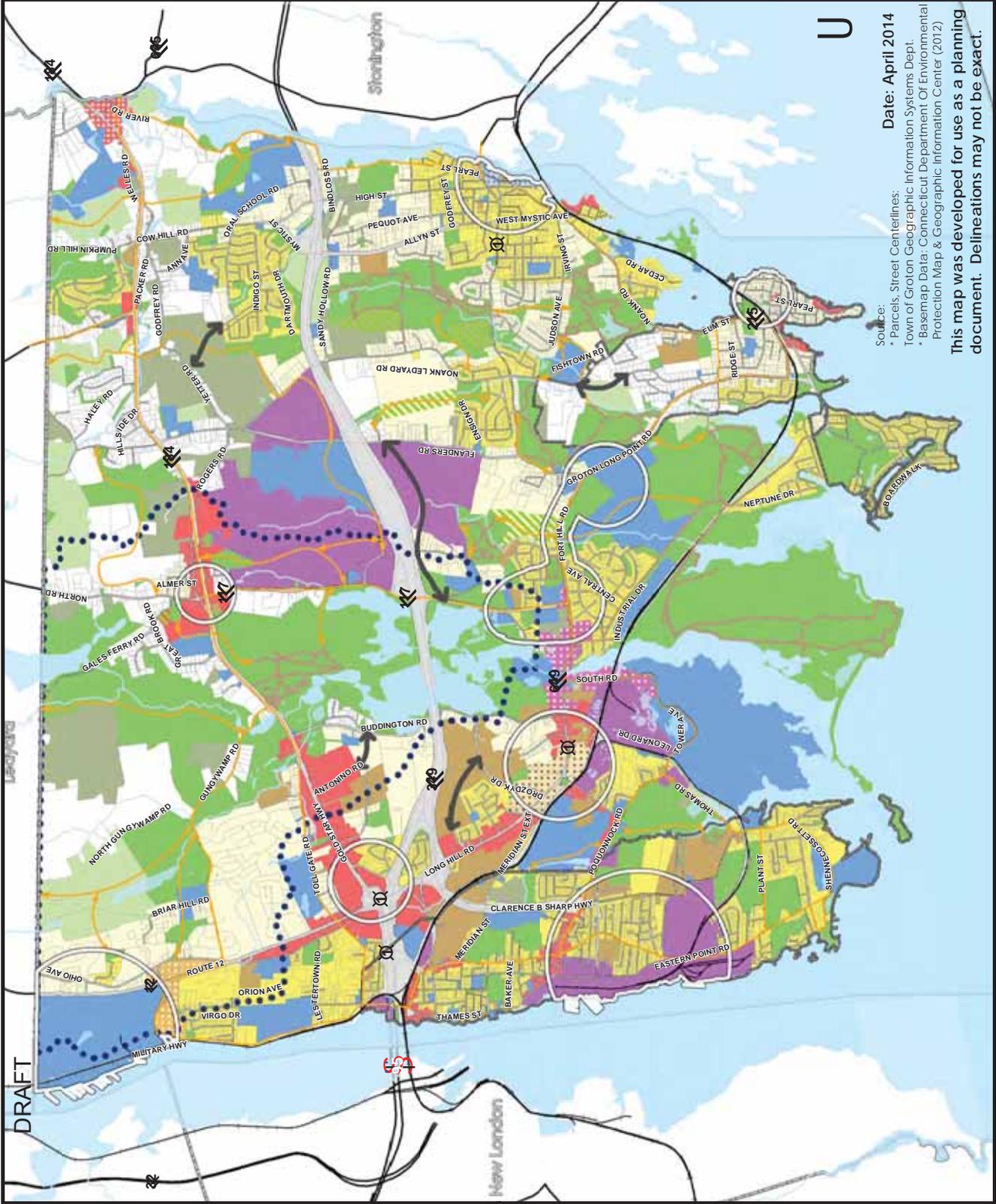
- Nodes
- Mystic
- Old Mystic
- Nautilus Memorial
- Poquonnock Bridge
- Groton Downtown

Connectivity

- Existing Trails or Bikeways
- Proposed Trails or Bikeways
- Proposed Vehicular Transportation Connections

Public Water Supply Watershed

Town and Jurisdictional Boundary



Source: Parcels, Street Centrelines;
 Town of Groton Geographic Information Systems Dept.
 Basemap Data: Connecticut Department Of Environmental Protection Map & Geographic Information Center (2012)

Date: April 2014

This map was developed for use as a planning document. Delineations may not be exact.

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PLAN CONSISTENCY

CONNECTICUT GENERAL STATUTES, SECTION 8-23

Chapter 126, Section 8-23 of the Connecticut General Statutes, as amended, provides the standards and legal requirements for the creation of or update of a municipal plan of conservation and development. The updated 2014 Groton Plan of Conservation and Development is consistent in all respects with the governing state statute. This compliance is illustrated in the following table.

2013-2018 CONSERVATION & DEVELOPMENT POLICIES: THE PLAN FOR CONNECTICUT

Section 8-23(d)(5) of the state statutes requires that municipalities take into account the State Plan of Conservation and Development and note any inconsistencies. The map titled *State Plan of Conservation & Development Areas* illustrates the Land Classifications for Groton according to the recently adopted document *2014-2018 Conservation and Development Policies: The Plan for Connecticut*.

According to the State Plan, there are six (6) Growth Management Principles with which the municipal plans of conservation and development should be consistent. It should be noted that "...the statutory mandate for consistency with the State Plan only applies to state agencies, as outlined in CGS Section 16a-31. The State Plan is advisory to municipalities, due to the fact that there is no statutory requirements for municipal plans, regulations, or land use decisions to be consistent with it."(4) Nonetheless, it is important to illustrate the ways in which Groton's updated POCD is consistent with the Growth Management Principles in the State Plan, which mirror the statutory requirements for plans of conservation and development contained in CGS Section 8-23(e)(1)(F).

Growth Management Principle #1

Redevelop and Revitalize Regional Centers and Areas with Existing or Currently Planned Physical Infrastructure

The Conservation and Development themes of this POCD contains elements that are consistent with this general growth management goal. In addition, the updated POCD, especially Groton's nodal approach to focusing mixed-use development in these areas, is consistent with the following state agency policies under this general goal:

- "Focus on infill development and redevelopment opportunities in areas with existing infrastructure, such as city or town centers, which are at an appropriate scale and density for the particular area"
- "Encourage local zoning that allows for a mix of uses 'as-of-right' to create vibrant central places where residents can live, work, and meet their daily need without having to rely on automobiles as the sole means of transport"

Growth Management Principle #2

Expand Housing Opportunities and Design Choices to Accommodate a Variety of Household Types and Needs

The Development theme of this POCD recognizes the changing demographics and the need for continued evolution of the Town's housing stock. These elements are consistent with this general growth management goal. In addition, the updated POCD is consistent with the following state agency policies under this general goal:

- "Enhance housing mobility and choice across income levels and promote vibrant, mixed-income neighborhoods through both ownership and rental opportunities"
- "Identify innovative mechanisms, utilizing decentralized or small-scale water and sewer systems, to support increased housing density in village centers and conservation subdivisions that lack supporting infrastructure."

Growth Management Principle #3

Concentrate Development Around Transportation Nodes and Along Major Transportation Corridors to Support the Viability of Transportation Options

The Development and Infrastructure themes of this POCD contain elements that are consistent with this general growth management goal through the nodal approach to revitalizing Groton's established villages and corridors. In addition, the updated POCD is consistent with the following state agency policies under this general goal:

- "Promote compact pedestrian-oriented, mixed use development patterns around existing and planned public transportation stations and other viable locations within transportation corridors and village centers."
- "Ensure that the planning, design, construction, and operation of state and local highways accommodates municipal plans, and the needs for all users, to the extent possible"

Growth Management Principle #4

Conserve and Restore the Natural Environment, Cultural and Historical Resources, and Traditional Rural Lands

The Conservation and Infrastructure themes coupled with a focus on Energy and Sustainability are consistent with this general growth management goal. In addition, the updated POCD is consistent with the following state agency policies under this general goal:

- "Continue to protect permanently preserved open space areas and facilitate the expansion of the state's open space and greenway network through continued state funding and public-private partnerships for the acquisition and maintenance of important multi-functional land and other priorities identified in the State's Open Space Plan (i.e., Green Plan)."
- "Protect and preserve Connecticut Heritage Areas, archaeological areas of regional and statewide significance, and natural area, including habitats of endangered, threatened and special concern species, other critical wildlife habitats, river and stream corridors, aquifers, ridgelines, large

forested areas, highland areas, and Long Island Sound.”

- “Encourage municipalities to build capacity and commitment for agricultural land preservation.”
- “Utilize the landscape to the extent practical and incorporate sound stormwater management design, such as low impact development techniques, in existing and new developments to maintain or restore natural hydrologic processes and to help meet or exceed state and federal water quality standards, so that the state’s waters can support their myriad functions and uses.”

Growth Management Principle #5

Protect and Ensure the Integrity of Environmental Assets Critical to Public Health and Safety

The Conservation and Infrastructure themes, guided by Energy and Sustainability principles are consistent with this general growth management goal. In addition, the updated POCD is consistent with the following state agency policies under this general goal:

- “Ensure that water conservation is a priority consideration in all water supply planning activities and regulatory decisions.”
- “Emphasize pollution prevention, the efficient use of energy, and recycling of material resources as the primary means of maintaining a clean and healthful environment”

Growth Management Principle #6

Promote Integrated Planning across all Levels of Government to Address Issues on a Statewide, Regional, and Local Basis

This POCD recognizes and address the importance of Groton’s role in its regional economy and contain elements that are consistent with this general growth management goal. In addition, the POCD is consistent with the following state agency policies under this general goal:

- “Encourage regional planning organizations and economic development districts to develop coordinated and effective regional plans and strategies for implementing projects that address the priorities of each region.”

State Plan Locational Guide Map

The Future Land Use Plan map for the 2014 Groton Plan of Conservation and Development is generally consistent with the Locational Guide Map contained in the 2014-2018 State Plan. This POCD’s Future Land Use Plan conforms closely to the State Plan Locational Guide Map, with an emphasis on guiding future development in Groton with residential, commercial, industrial, and cultural center areas generally aligning with the State identified Priority Funding Areas and/or Balanced Growth Priority Funding Areas. However, several key inconsistencies are present.

The area bounded by Flanders Road, Noank Ledyard Road, and I-95 has long been identified as a growth area. For the 2014 POCD, this area is identified for future industrial park uses which is consistent with present zoning and the 2002 POCD. This area has been identified for extension of future utility service. The State Plan has identified this area as having 1-3 Conservation Factors, and has been excluded from any Priority or Balanced Funding Plans.

The large active farm, south of Yetter Road, has been identified as desirable Open Space in the 2002

POCD, and this designation has been continued in this POCD. In this POCD, Open Space encompasses working farms, and although the State identifies this property as having 3-4 Priority Funding Criteria, this area should be identified as a conservation area. Although agriculture can be considered an industrial use, Groton considers them critical parts of the conservation network and cultural landscape.

Statutory Compliance with Chapter 126, Section 8-23 of C.G.S., as amended Town of Groton 2014 Update to the Plan of Conservation and Development		
CGS Section	Section Text	Where Addressed in POCD
8-23(d)	In preparing such plan, the commission or any special committee shall consider the following:	
8-23(d)(1)	The community development action plan of the municipality, if any,	N/A
8-23(d)(2)	the need for affordable housing,	Affordability of Housing, p. 85
8-23(d)(3)	the need for protection of existing and potential public surface and ground drinking water supplies,	Protect Water Quality and Water Resources, p. 37
8-23(d)(4)	the use of cluster development and other development patterns to the extent consistent with soil types, terrain and infrastructure capacity within the municipality,	Open Space Development Patterns, p. 89
8-23(d)(5)	the state plan of conservation and development adopted pursuant to chapter 297,	Plan Consistency, p. 159
8-23(d)(6)	the regional plan of conservation and development adopted pursuant to section 8-35a,	Plan Consistency, p. 159
8-23(d)(7)	physical, social, economic and governmental conditions and trends,	History and Trends, p. 22
8-23(d)(8)	the needs of the municipality including, but not limited to, human resources, education, health, housing, recreation, social services, public utilities, public protection, transportation and circulation and cultural and interpersonal communications,	Community Facilities and Infrastructure, p. 127
8-23(d)(9)	the objectives of energy-efficient patterns of development, the use of solar and other renewable forms of energy and energy conservation, and	Development Patterns, p.73; Communications and Energy Infrastructure, p. 149
8-23(d)(10)	protection and preservation of agriculture.	Preserve Active Farmland, p. 50
8-23(e)(1)	Such plan of conservation and development shall	
8-23(e)(1)(A)	be a statement of policies, goals and standards for the physical and economic development of the municipality,	Goals, p. 4; Action Agenda, p. 161

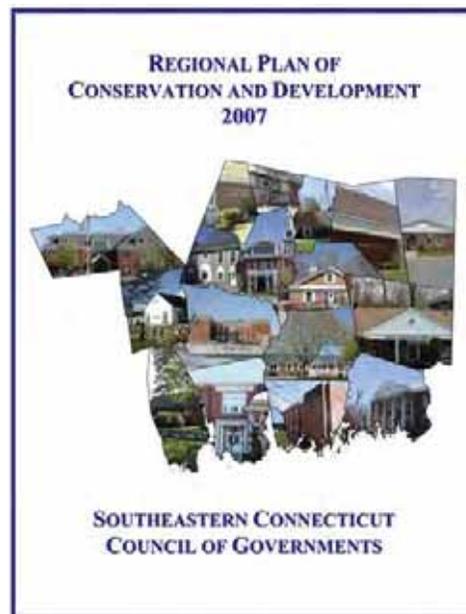
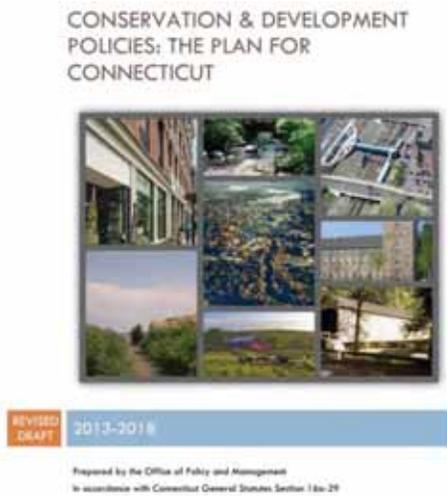
8-23(e)(1)(B)	provide for a system of principal thoroughfares, parkways, bridges, streets, sidewalks, multipurpose trails and other public ways as appropriate,	Transportation, p. 111
8-23(e)(1)(C)	be designed to promote, with the greatest efficiency and economy, the coordinated development of the municipality and the general welfare and prosperity of its people and identify areas where it is feasible and prudent	
8-23(e)(1)(C)(i)	to have compact, transit accessible, pedestrian-oriented mixed use development patterns and land reuse, and	Development Patterns, p. 73; Transportation, p. 111; Future Land Use Plan, p.153
8-23(e)(1)(C)(ii)	to promote such development patterns and land reuse,	Future Land Use Plan, p. 153; Action Agenda, p. 161
8-23(e)(1)(D)	recommend the most desirable use of land within the municipality for residential, recreational, commercial, industrial, conservation, agricultural and other purposes and include a map showing such proposed land uses,	Future Land Use Plan, p. 153; Action Agenda, p. 162
8-23(e)(1)(E)	recommend the most desirable density of population in the several parts of the municipality,	Future Land Use Plan, p. 153; Action Agenda, p. 163
8-23(e)(1)(F)	note any inconsistencies with the following growth management principles:	
8-23(e)(1)(F)(i)	Redevelopment and revitalization of commercial centers and areas of mixed land uses with existing or planned physical infrastructure;	Encourage Eact Node, p. 74; Future Land Use Plan, p. 153; Action Agenda, p. 163;
8-23(e)(1)(F)(ii)	expansion of housing opportunities and design choices to accommodate a variety of household types and needs;	Continue to Address Housing Needs, p. 90
8-23(e)(1)(F)(iii)	concentration of development around transportation nodes and along major transportation corridors to support the viability of transportation options and land reuse;	Encourage Eact Node, p. 74; Future Land Use Plan, p. 153; Action Agenda, p. 163;
8-23(e)(1)(F)(iv)	conservation and restoration of the natural environment, cultural and historical resources and existing farmlands;	Natural Resources, p. 37; Protect Cultural and Historic Resources, p. 61
8-23(e)(1)(F)(v)	protection of environmental assets critical to public health and safety; and	Conservation, p. 35
8-23(e)(1)(F)(vi)	integration of planning across all levels of government to address issues on a local, regional and state-wide basis,	Plan Consistency, p. 159
8-23(e)(1)(G)	make provision for the development of housing opportunities, including opportunities for multifamily dwellings, consistent with soil types,	Residential Development, p. 79

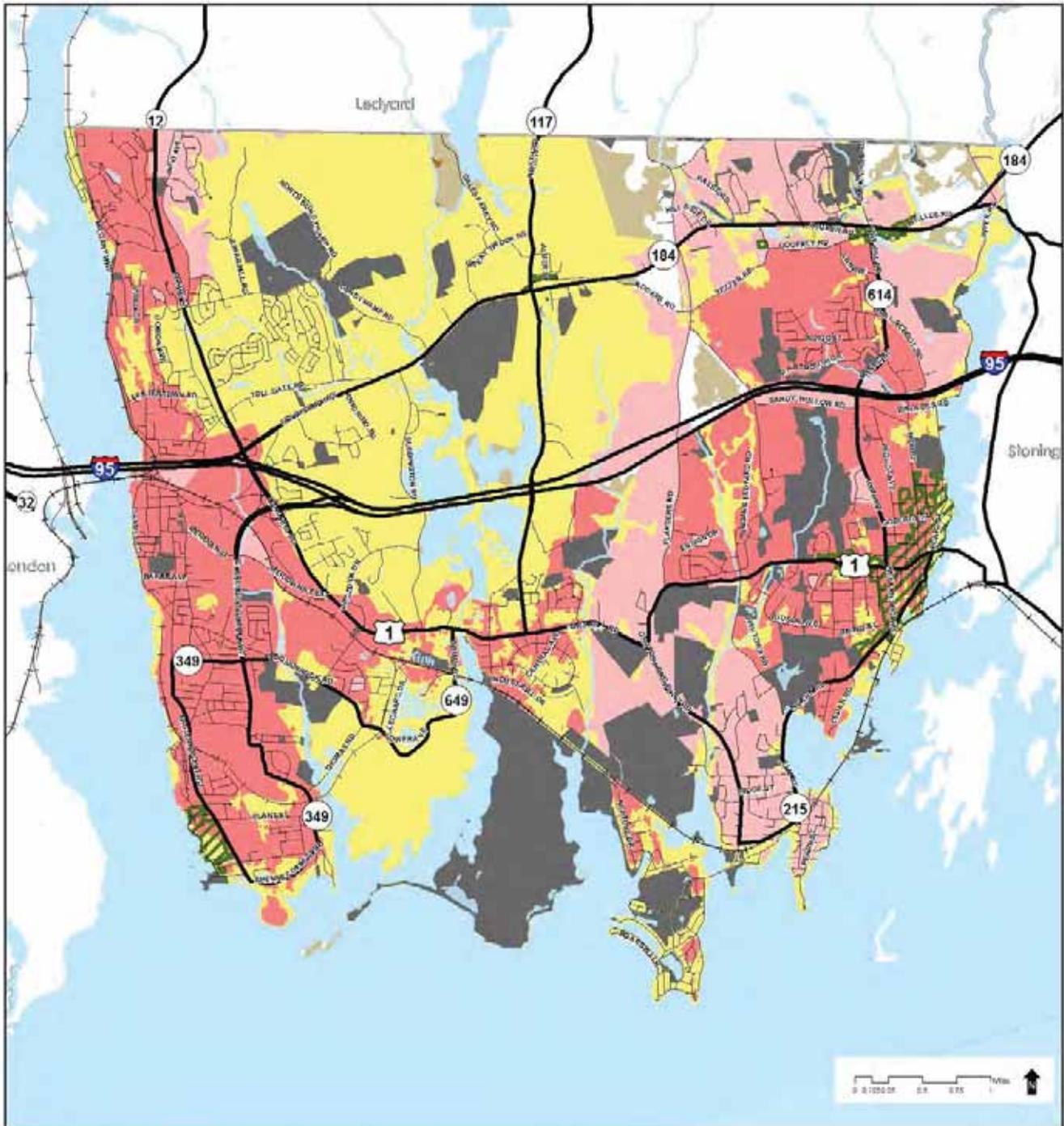
	terrain and infrastructure capacity, for all residents of the municipality and the planning region in which the municipality is located, as designated by the Secretary of the Office of Policy and Management under section 16a-4a,	
8-23(e)(1)(H)	promote housing choice and economic diversity in housing, including housing for both low and moderate income households, and encourage the development of housing which will meet the housing needs identified in the state's consolidated plan for housing and community development prepared pursuant to section 8-37t and in the housing component and the other components of the state plan of conservation and development prepared pursuant to chapter 297. In preparing such plan the commission shall consider focusing development and revitalization in areas with existing or planned physical infrastructure.	Affordability of Housing, p. 85
8-23(f)	Such plan may show the commission's and any special committee's recommendation for	
8-23(f)(1)	conservation and preservation of traprock and other ridgelines,	Promote Community Character, p. 66
8-23(f)(2)	airports, parks, playgrounds and other public grounds,	Multi-Modal Transportation, p. 121; Preserve Open Space, p. 44
8-23(f)(3)	the general location, relocation and improvement of schools and other public buildings,	Public School System, p. 228
8-23(f)(4)	the general location and extent of public utilities and terminals, whether publicly or privately owned, for water, sewerage, light, power, transit and other purposes,	Public Works, p. 142
8-23(f)(5)	the extent and location of public housing projects,	Affordability of Housing, p. 85
8-23(f)(6)	programs for the implementation of the plan, including	
8-23(f)(6)(A)	a schedule,	Action Agenda, p. 161
8-23(f)(6)(B)	a budget for public capital projects,	N/A
8-23(f)(6)(C)	a program for enactment and enforcement of zoning and subdivision controls, building and housing codes and safety regulations,	Action Agenda, p. 161
8-23(f)(6)(D)	plans for implementation of affordable housing,	Affordability of Housing, p. 85; Action Agenda, p. 161
8-23(f)(6)(E)	plans for open space acquisition and greenways protection and development, and	Preserve Open Space, p. 44

8-23(f)(6)(F)	plans for corridor management areas along limited access highways or rail lines, designated under section 16a-27,	N/A
8-23(f)(7)	proposed priority funding areas, and any other recommendations as will, in the commission's or any special committee's judgment, be beneficial to the municipality. The plan may include any necessary and related maps, explanatory material, photographs, charts or other pertinent data and information relative to the past, present and future trends of the municipality.	N/A
8-23(f)(8)		Action Agenda, p. 161

SOUTHEASTERN CONNECTICUT COUNCIL OF GOVERNMENTS REGIONAL PLAN OF CONSERVATION & DEVELOPMENT 2007

Section 8-23(d)(6) of the state statutes requires that municipalities also take into account the regional Plan of Conservation and Development for its applicable regional planning organization. In Groton's case, this would be the 2007 Southeastern Connecticut Council of Governments Regional Plan of Conservation & Development and its component Future Growth Map. In reviewing the recommendations and future growth map of the regional plan, it has been determined that the Groton Plan of Conservation and Development is generally consistent with the regional plan, including its goals regarding water supply; water resources; wastewater treatment; transportation; curbing global warming; affordable housing; sustaining the regional economy; open space and recreation; mixed land use; transit-oriented development; and pedestrian access.





Connecticut 2013-2018 POCD

- Village PFA
- Protected Lands
- Local Hist Dist
- Balanced PFA

Conservation Areas

- 1-3 Conservation Factors
- 4-5 Conservation Factors
- 6-7 Conservation Factors

Priority Funding Areas

- 1-2 Criteria
- 3-4 Criteria
- 5 Criteria

Sources:
 * 2012-2018 Plan for CT, ORM (2012)
 * Street Centerlines: Town of Groton GIS Dept.
 * State Roads: Streetmaps USA (2011)
 * State Road Classifications: CT DOT (2011)

This map was developed for use as a planning document. Definitions may not be exact.

April 2014



IMPLEMENTATION TOOLS & SCHEDULE

Many of the recommendations in the Plan of Conservation and Development (POCD) can be implemented by the Planning Commission and the Zoning Commission through regulation amendments, application reviews, and other means. These Commissions are the primary entities responsible for implementing the POCD.

Other recommendations require the cooperation of, and actions by, other Town boards and commissions such as the Zoning Commission, Town Council, Representative Town Meeting, and similar agencies. However, if the POCD is to be successfully realized, it must serve as a guide to all residents, applicants, agencies, and individuals interested in the orderly growth of Groton.

TOOLS

There are several tools available to implement the Plan's recommendations:

- Community involvement
- An annual implementation program
- Annual update program
- Activity checklists
- Zoning and Subdivision Regulations
- Capital Improvements Program
- Referral of Municipal Improvements (CGS 8-24)

COMMUNITY INVOLVEMENT

Education about the Plan recommendations is an important first step in implementing the Plan. With the dominance of the internet, cell phones and smart phones, and social media, there are many avenues available to inform residents about current issues and important community priorities.

A regularly updated community webpage and social media platform which provides information on meeting agendas and current issues and allows for various forms of communication (email, texting, social media messages, postcards, etc.) would be an important method of community involvement. Similarly, the Town should continue to record public hearings related to land use and development in Groton and make the recordings accessible on public television to facilitate community education and involvement.

ANNUAL IMPLEMENTATION PROGRAM

While the Planning Commission has the primary responsibility for implementing the Plan's recommendations, successful implementation involves participation by a number of different agencies. The implementation schedules that follow can be used by an oversight committee to develop an annual implementation program of issues to be addressed by boards and commissions.

The oversight committee could meet two to four times a year to establish priorities and guide

implementation of the Plan's recommendations. In addition, the committee could assess the status of specific recommendations, establish new priorities, and suggest new implementation techniques.

ANNUAL UPDATE PROGRAM

At the present time, it is the practice in Groton to update the Plan of Conservation and Development once every decade. However, during the intervening years there can be situations where the Plan is silent on emerging issues, does not reflect current policy objectives, or does not reflect current conditions, trends or opportunities. When a Plan is considered a reference document rather than a working document, its effectiveness in guiding the community is hindered.

Groton should consider keeping the Plan current and not waiting to update it every ten years. The Action Agenda should at least be reviewed every year to determine if goals are being met and if Action Agenda items are still current and relevant to the Town.

LAND USE REGULATIONS

The Zoning Regulations provide specific criteria for land uses and the Subdivision Regulations provide specific criteria for land subdivision, road layout, and open space. As a result, these regulations are an important tool for implementing the recommendations of the Plan.

In order to implement the recommendations of the Plan, the Planning Commission should, in the near future, undertake a comprehensive review of subdivision regulations and make revisions necessary to:

- Make the regulations more user-friendly
- Implement Plan recommendations
- Promote consistency between the Plan and the regulations

Likewise, the Zoning Commission should, in the near future, undertake a comprehensive review of the zoning regulations and zoning map and make revisions to accomplish the same objectives.

Enforcement of regulations is an important related issue. It makes little sense to develop regulations to encourage positive results if a lack of enforcement or implementation means that little progress is made. Special efforts should be made to support enforcement of local regulations and programs.

CAPITAL BUDGET

The Capital Budget (or Capital Improvement Program) is a tool for planning major capital expenditures of a municipality so that local needs can be identified and prioritized within fiscal constraints that may exist. The Plan recommends that capital expenditures be included in the Town's Capital Improvements Program and that funding for them be included as part of the Capital Budget.

REFERRAL OF MUNICIPAL IMPROVEMENTS

Municipal improvements, by statute, are to be referred to the Planning Commission for a report regarding consistency with the Plan before any Town action is taken. Town boards and agencies should be notified of Section 8-24 so that proposals can be considered and prepared in compliance with its requirements.

ACTION AGENDA

In order to implement the various recommendations contained in this Plan of Conservation and Development, the following Action Agenda is presented. The Action Agenda identifies goals, objectives, recommendations and actions under each of the Plan themes; the lead agencies proposed for implementation; and the priority for implementation during the timeframe of this Plan.

The lead agency is the agency which, by the nature of its mission and authority, is the logical party to spearhead the implementation of a particular proposal. Many proposals will of course involve multiple agencies. The nature of activity required of a lead agency will vary depending on the type of recommendation. Some activities involve budget commitments and capital expenses and some require advocacy and promotion, while others call for administrative action.

Priorities are classified as short term (1-4 years), and long-term (5-10 years). Many of the short-term items may already be activities and policies that are in place and need to be continued. Some short-term recommendations may have evolved as part of the planning and POCD update process.

Long-term priorities are activities which are considered important, but placed “down the road” in recognition of the fact that limited resources are available both in terms of time and money to implement the Plan. Long-term capital projects may also require some intermediate planning and design activity before project implementation can take place.

Abbreviations	
BOE: Board of Education	HDC: Historic District Commission
CC: Conservation Commission	PRC: Parks and Rec Commission
CL&P: Connecticut Light and Power	PRD: Parks and Recreation Dept.
ECC: Emergency Communications Ctr	IWA: Inland Wetland Agency
EDC: Economic Development Commission	PC: Planning Commission
GU: Groton Utilities	OPDS: Office of Planning & Dev Services
	PW: Department of Public Works
	TC: Town Council

GOAL: Protect Natural Resources

Protect Water Quality and Water Resources

- Short Term
 - Review and update the Water Resource Protection District Regulations including prohibited uses, impervious surface standards and consideration of tiered standards based on proximity to the reservoir or tributary streams. (ZC, OPDS, GU)
 - Continue to coordinate with the Health District to guide acceptable practices to septic design in non-sewer areas. (OPDS)
- Long Term
 - Continue to implement the recommendations of the DWQMP.
 - Continue to monitor pollution from storm drainage systems, including sediment, through town storm water permitting. (DPW)
 - Develop low impact development regulations

Protect Other Important Natural Resources

- Short Term
 - Continued to support the Inland Wetland Agency in evaluating applications regarding Inland Wetland and Watercourse regulations. (OPDS)
- Long Term
 - Work to align critical habitat areas to future development and conservation plans.
 - Hold coastal A Zones to the higher standards of the V Zones to create development that is more appropriate to flood-prone coastal areas.

GOAL: Preserve + Strategically Expand Open Space

Continue To Fund and Improve Open Space (Facility Specific Improvements are discussed in the Infrastructure Actions)

- Short Term
 - Continue to require open space to be deeded to the Town or other organization as part of subdivisions, or require payment-in-lieu. (PC)
- Long Term
 - Continue to fund an open space acquisition fund annually in the capital budget. (TC)
 - Amend the zoning map and regulations to include a new Open Space/Recreation district. (PC, ZC)
 - Develop an open space management plan for existing open spaces and to plan for future uses. (CC, PRD, OPDS)
 - Review Zoning and Subdivision Regulations open space and recreation requirements (PC, ZC)
 - Continue to use the Property Review Committee to evaluate properties to be retained as open space

Preserve Active Farmland

- Short Term
 - Work to promote the viability of farming, through promotion of locally grown products
 - Consider relaxing regulations associated with on-farm agri-tourism activities, especially those that promote local food production, such as local food festivals, or other onsite events that capitalize on Groton's agricultural amenities.

Long Term

- Continue to support incentivize the keeping of land in production, through reduced tax assessments.
- Consider the adoption of a Right-to-Farm law to reduce nuisance complaints associated with production agriculture.

Establish Greenbelts

Short Term

Long Term

- Identify new potential greenbelt connections. (CC)
- Coordinate efforts with neighboring towns to create multijurisdictional greenbelts. (CC)
- Develop an action plan to establish, expand, and connect greenbelts. (CC) Implement the “water trail” element of the Trails Master Plan. (PC, PRD, OPDS)

Establish a Trail System

Short Term

Long Term

- Continue to implement the improvements defined in the Groton Bicycle, Pedestrian, & Trails Master Plan. (OPDS, PRD)
- Continue to implement the signage plan to identify coastal access points and public trails. (PRD)
- Work with private open space organizations to coordinate, sign and connect trail networks. (PRD)
- Continue to identify trail linkages as part of land use applications. (PC)
- Work to acquire additional public access points to Long Island Sound. (OPDS, PRD)
- Work with private landowners to obtain access easements that fill in gaps in the overall trail network. (CC, OPDS)
- Work with Groton Utilities to obtain public access to their properties. (OPDS, PRD)

Implement the Parks and Recreation Master Plan

Short Term

- Implement the recommendations of the Parks and Recreation Master Plan and continue to assess the gaps service

Support the Establishment of the Thames River Heritage Park

Short Term

- Continue to offer Town support for the implementation of the Park
- Evaluate connects to the Water Taxi and trail networks to create connections with existing Town infrastructure

GOAL: Protect Coastal Resources

Protect Water Quality and Coastal Resources

Long Term

- Complete Harbor Management Plans for Groton. (OPDS)
- Review the adaptation strategies outlined in the Municipal Coastal Program and develop a program to prioritize and implement the selected strategies. (PC, ZC)
- Investigate implementing living shoreline projects to restore eroded tidal marshes and provide protection. (OPDS)
- Consider acquiring additional lands for marsh advancement. (CC, TC)
- Continue to reduce the direct discharge of Storm water to coastal

waters. (OPDS)

- Require vegetated buffers if appropriate through the Coastal Site Plan Review (CSPR) process. (OPDS, PC, ZC)

Provide for Water Dependent Uses

Short Term

- Continue to encourage water dependent uses at waterfront sites (ZC, PC)
- Review the regulations to streamline approval process for water dependent uses at waterfront sites (OPDS, ZC)

Manage Coastal Development

Town-Wide

- Inventory town-owned hard shoreline structures and develop a plan to keep up with sea level rise. (PW)
- Evaluate existing roads that may be impacted by sea level rise. (PW)
- Inventory key access/egress in flood prone areas and develop a plan to reduce flooding and establish alternate egress when needed. (ECC, PW)
- Pursue flood mitigation at sewer pumping stations. (PW)
- Continue to protect public views using the Zoning Regulations and CSPR process. (OPDS, PC, PZ)
- Secure additional lands for marsh advancement and public access, including through conservation easements or acquiring land through FEMA mitigation funds when available. (PC, OPDS, CC)
- Review the exemptions from the CSPR process to increase coastal resilience. (OPDS)
- Consider requiring that development applicants describe coastal benefits in addition to describing the benefits to water dependent uses when proposing projects that are reviewed through the CSPR process. (OPDS)

Improve Coastal Public Access

Short Term

- Review public access points for improvements and parking opportunities (PC,PRD,OPDS)

Long Term

- Continue to acquire diverse and spatially distributed public access to the shoreline and water. (PC)
- Expand boating facilities at appropriate public access points. (PRD)
- Develop a master plan for Esker Point Beach and Park. (PRC)
- Identify appropriate locations to secure additional public parking spaces for the numerous public access locations in Mystic.

GOAL: Protect Cultural and Historic Resource

Continue to Identify Historic and Cultural Resources

Short Term

- Fund and complete the Town Historic Survey, beginning with the periphery of the National Register districts. (TC)
- Consider establishment of National Historic Districts, as defined in the 1996 Preservation Plan, of Groton Long Point, Prospect Hill, Old Mystic, US Submarine Base, Electric Boat, and Avery Point. (State, Federal, TC)
- Maintain designation as a Certified Local Government in order to be

- Long Term
- eligible for funding assistance for local historic preservation. (TM)
 - Review potential National Register nominations. (HDC)
 - Consider creation and Funding a Historic Resources Fund to acquire protective easements. (TC)

Protect Historic and Cultural Resources

- Short Term
- Support the surveying and documentation of archeological sites throughout the Town, in conjunction with regional institutional bodies. (TC)
 - Consider requiring notification of the town historian if a house or building with historical value is being considered for demolition, for the purposes of documentation. (TC)
 - When considering Disaster Mitigation Plans, especially with regards to sea level rise and coastal erosion, include historic assets as critical features to merit protection and/or planning. (ECC)
 - Support redevelopment and economic development in historic properties. (OPDS PC, ZC, EDC)
- Long Term
- Continue to maintain a municipal historian to preserve historic information. (TM, TC)
 - Amend zoning and subdivision regulations to allow the Commission to require archeological surveys prior to approval. (PC/ZC)
 - Consolidate the archeological and historic holdings within the Town and City to create a central repository. Work towards the creation of a Town museum and/or central visitor’s center. (EDC, TM)

GOAL: Promote Community Character

Enhance “Sense of Place”

- Short Term
- Create development guidelines based on historic development patterns and the Future Land Use Plans special focus areas (HDC, OPDS, ZC, PC)
 - Increase awareness of and continue to enforce existing property maintenance and blight codes. (Code Enforcement)
- Long Term
- Work to align and adjust development and bulk standards in critical areas to the established development pattern. (PC)
 - Promote the uniqueness of each node and special focus area as a component of the entire community. (OPDS, PC)
 - Encourage non-motorized connections between nodes and special focus areas(OPDS, PC)
 - Create pattern books and design review guidelines for various areas of the Town. (HDC, ZC, PC, OPDS)

Promote Sympathetic Design

- Short Term
- Create pattern books and design review guidelines for various areas of the Town. (HDC)
- Long Term
- Establish a design review process that focuses upon building form. (HDC, PC/ZC)

Protect Scenic Roads

Short Term

- Continue to identify and catalogue public scenic views, roadways, or other scenic resources. (CC)
- Preserve scenic resources (such as stone walls) that are visible from public right-of-ways. (DPW, PC)
- Develop appropriate guidelines for the protection of street trees from utility pruning (DPW, GU, CL&P)

Long Term

- Amend regulations to include protection of public scenic views and resources. (PC)

GOAL: Encourage Appropriate Residential Development

Continue to Address Housing Needs/ Affordability of Housing

Short Term

- Review land use regulations to encourage construction of units that will meet the needs of Groton's changing household profile so that Groton continues to offer a diversity of housing types in appropriate locations. (PC, ZC)

Long Term

- Review and revise the regulations regarding accessory apartments to include other product types to provide more flexibility for creation or conversion of housing units that meet the needs of a changing household profile. (OPDS, PC, ZC)
- Encourage higher housing densities in areas where support services, infrastructure and transit are located. (OPDS, PC, ZC)
- Expand "aging in place" and universal design components of the regulations to address senior and adaptive housing needs.
- Support mixed-use developments in the Nodes and special focus areas.

Promote Sustainable Development Patterns

Long Term

- Review and modify land use regulations to promote appropriate development patterns taking into account natural resources, infrastructure and transportation. (OPDS, PC, ZC)
- Review open space subdivision regulations to provide more flexibility, development types and lot configurations to protect sensitive land. (PC, ZC)

GOAL: Encourage Appropriate Economic Development

Maintain the Strategic Economic Development Plan

Short Term

- Evaluate and follow the objectives of the Strategic Economic Development Plan (OPDS)

Long Term

- Update the Groton Strategic Economic Development Plan (OPDS)
- Plan to update the Strategic Plan every 5 years, including actively reviewing the Policies and Strategies Implementation tables. (OPDS)

Leverage Economic Competitiveness

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none"> • Leverage the strength of Groton's manufacturing sector to strengthen or develop aligned industries. (OPDS) |
| Long Term | <ul style="list-style-type: none"> • Evaluate weaknesses in the regional Economic Competitiveness landscape to consider strengthening in Groton. (OPDS) |

Leverage Local Economic Development Strengths

- | | |
|------------|---|
| Short Term | <ul style="list-style-type: none"> • Work to connect local businesses with government agencies to sell goods and services through procurement programs. (OPDS) • Work to align regional and local tourism with economic development opportunities, though physical improvements, such as connecting the Thames River Heritage Park with local services. |
| Long Term | <ul style="list-style-type: none"> • Evaluate Groton's household expenditures and work to align industries to serve retail and service gaps. (OPDS) • Outreach to the local maritime business community to develop plans to support and link the industry. (OPDS) • Continue to evaluate regulations to allow Home Occupations where appropriate. (OPDS) |

Continue Economic Development Efforts: Physical

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none"> • Simplify the list of uses permitted in each zone by using broad classes. (ZC, PC) • Review all commercial and industrial zones and sites in order to assess if they remain appropriately zoned. (PC, ZC, EDC) • Encourage consolidated development with zoning incentives for shared access, parking, circulation and mix use. (PC, ZC, EDC) • Consider revising commercial zoning boundaries to coincide with property line boundaries. (PC, ZC) • Encourage Node development and discourage strip type development patterns. (EDC, PC, OPDS, ZC) • Encourage retrofitting existing strip commercial development. - - (EDC, PC, OPDS) |
| Long Term | <ul style="list-style-type: none"> • Review the Downtown Development District and the Route 1 corridor to streamline development and site approval (EDC, PC, ZC) • Encourage the development of neighborhood and community based retail facilities. (EDC, PC, ZC) • Review the Waterfront Design District, Nautilus Memorial Design District, Downtown Development District and the Waterfront zoning regulations to encourage commercial development that continues to support year-round residents. (PC, OPDS, ZC) |

Continue Economic Development Efforts: Structural

- | | |
|------------|--|
| Short Term | <ul style="list-style-type: none"> • Undertake a comprehensive review all uses that are allowed by special permit or that are conditional with the goal of consolidating and streamlining the process. (OPDS, ZC) • Review the existing incentive policy and revise as needed to encourage appropriate development. (EDC, OPDS, TM) • Study key industrial and commercial vacant parcels to determine developable acreage and to guide development away from sensitive resources. • Support the efforts to reuse vacant manufacturing and research |
|------------|--|

Long Term

- facilities, such as the recent Connecticut United for Research Excellence (CURE) and CT Data Center initiatives. (TM, EDC)
- Modify regulations to accommodate revised special permit or conditional uses. (PC, ZC)
- Consider options and funding for infrastructure improvements for fully serviced sites. (EDC, TC)

Continue Economic Development Efforts: Socio-Political

Short Term

- Work with State and regional organizations to promote regional economic development. (EDC)
- Encourage small scale marine-related development with direct outreach and support programs. (EDC)
- Study the airport vicinity for flood mitigation and promotion of commercial/industrial uses. (EDC, OPDS)

Long Term

- Follow the recommendations of the SEDP and look to update every five years. (OPDS)

GOAL: Encourage Each Node

Reinforce Community Structure

Short Term

- Review the existing development in the Special Focus Areas. (OPDS)
- Develop design guidelines or pattern books to encourage mixed use, pedestrian friendly , neighborhood scale development in the Poquonnock Bridge Focus Area (OPDS, TC, HDC)

Long Term

Seek a Central Focal Point for Groton

Short Term

- Revisit the plan for Downtown Groton and engage with stakeholders to adjust the plan to current opportunities for investment. (EDC)

Long Term

- Locate important civic and institutional facilities in or near the Town core to reinforce its prominence. (TC, TM)

Nodal Improvements

Short Term

- Review the Mixed Use zoning regulations to clarify and simplify the approval process. (PC, ZC)

Long Term

- Develop strategies to encourage investments within the nodes for upgrading/repurposing existing properties and for new construction. (EDC, TC, TM)
- Continue to focus infrastructure improvements in Groton's Nodes to reinforce community structure.

GOAL: Enhance Transportation Options

Coordinate With State and Regional Agencies for Road Maintenance and Coastal Resiliency Improvements

Short Term

- Encourage access management strategies along major roadways in Groton. (PW, PC)
- Develop mitigation strategies for roadways subject to coastal

inundation during storm events. (PW, OPDS)

Long Term

- Use the Pavement Management Program to consider adding bicycle and pedestrian facilities to existing roadways when significant work is proposed. (PW)
- Continue to bond for road resurfacing every five years (TC)
- Prioritize and implement roadway flood proofing measures. (PW)
- Continue to work closely with SCCCOG and CTDOT on transportation issues. (TM)
- Evaluate local roads for scenic road designation to preserve character. (OPDS, TM, TC)
- Review the subdivision regulations regarding design and classification of proposed roads. (OPDS, PC, PW)

Monitor Rail, Freight, and Airport Operations

Short Term

- Continue to monitor implementation of the Airport Master Plan (TC, EDC)
- Study and develop a plan to raise the Amtrak rail lines at South Road and Poquonnock Road in order to eliminate restrictive clearances (TM, PW, OPDS)

Long Term

- Encourage the Town’s legislative delegation to request extension of Shoreline East to Westerly, RI to link to the Mass. commuter system. (TC, EDC)
- Engage with Amtrak on protective measures under consideration to reduce coastal flooding threats to rail operations. (TM)
- Explore creation of a passenger rail platform near Downtown Groton with bus, taxi and shuttle links to major destinations. – (OPDS, EDC)

Create an Overall Pedestrian and Bikeway Network

Short Term

- Review and update the Groton Bicycle, Pedestrian & Trails Master Plan for common corridors and opportunities to create networks. (PW, OPDS, PRD)
- Review trailhead parking needs. (OPDS, PRD)
- Provide for bicycle racks and other support facilities in destination areas where appropriate (PW, OPDS)

Long Term

- Add bike lanes and sidewalks when rebuilding local roadways. (PC, PW)

Enhance Bus Services

Short Term

- Engage SEAT to review local bus transit service and ensure nodes are well served as development occurs. (TM, EDC)
- Work with major employers to encourage programs for their employees to use bus transit. (TM, EDC)
- Work with Stonington to implement transit related recommendations from the Mystic Multi-Modal Study. (TM, OPDS)

Address Parking Needs

Short Term

- Update the Mystic Parking Needs Study. (OPDS)

Long Term

- Study means of increasing parking availability near points of public coastal access and trailheads. (OPDS, PRD)

Support Marine Transportation Services

Short Term

- Support a robust water taxi service on the Mystic River. (TC)

Long Term

- Support the development of a seasonal water shuttle on the Thames River linking tourist sites. (TC)
- Support State efforts to promote full utilization of the State Pier Cargo Terminal and Foreign Trade Zone as outlined in Deep Water Port Study. (TC, EDC)

GOAL: Enhance & Maintain Community Facilities

Public School System

Short Term

- Assess the re-use of all closed school facilities. (TC, TM)
- Perform a space needs analysis for all Town Departments to guide assessment of future re-use of Fitch Middle School. (TM, PW)

Long Term

- Implement the recommendations of the School Facilities Study Committee. (BOE, TC, TM)

Public Safety/ Fire Protection/ EMS

Short Term

- Follow through with plans to upgrade the Police Building to modernizing the prisoner processing and detention centers to meet recent State statute and code changes, replace firing range equipment, and making structural and building envelope improvements to withstand a Category 3 hurricane.

Town Service Providers/ Public Works

Short Term

- Review social service needs for the community. (TM)
- Study and devise flood mitigation methods, including relocation, to provide the municipal complex at Route 1 and Depot road safe access through the 500 year flood zone (PW, ECC, OPDS)

Long Term

- Construct a new energy efficient vehicle maintenance facility (PW)
- Develop an overall strategy to identify potential facility needs. (OPDS, BOE, PRC, Housing Authority, Human Services)
- Replace the municipal vehicle fueling station with traditional and alternative fuels (PW)

Guide Infrastructure to Meet Community Goals

Short Term

- Support the extension of natural gas service to unserved areas of concentrated industrial and commercial uses as well as residential areas with sufficient density, along with WPCF and Town Hall Annex Complex. (TC)
- Continue to use best management practices to protect and improve storm water quality. (PW, OPDS, GU)

Long Term

- Develop a plan to install sanitary sewers up Route 117 to Route 184 (TM)
- Follow the recommendations of the Drinking Water Quality Management Plan. (GU)

Enhance Waste Handling and Processing

Short Term

- Provide municipal residential collection of household waste from the curbside (PW)
- Develop a permanent site to store and process street sweepings and

catch basin cleanings (PW)

- The Town should review options and agreements to ensure that the disposal of solid waste continues after 2017 in a cost effective and environmentally sensitive way. (PW)

Parks and Recreation Facilities

Short Term

- Develop a plan to establish a community center/recreation complex that serves the needs of all residents. (PRD, TC)
- Develop a plan to renovate and repair the Noank Hatchery to ensure its economic viability (CC)

Long Term

- Develop a plan to maintain Esker Point as a viable beach.
- Provide additional recreational facilities to meet growing local needs including a pool, athletic fields, fitness center and gymnasium. (PRD, TM, TC)
- Continue to maintain the Town dock in Noank (PW)
- Continue to implement the recommendations of the Parks and Recreations Master Plan
- Consider future replacement of beach facilities with elevated structures to reduce future storm damage.

GOAL: Enhance and Promote Sustainable Energy Infrastructure

Promote Alternative Energy Use and Sustainability

Short Term

- Review development regulations to include alternative energy use throughout the town. (PC, ZC)
- Develop a plan to install a photovoltaic array at the Flanders Road Landfill (TM)

Long Term

- Convert existing street lights from HPS to LED (PW)
- Promote Groton's industrial lands for use by potential sustainable energy companies as a sustainable economic development tool. (EDC)
- Study the use of reclaimed water for irrigation of the Golf Course (PRD)
- Study the installation of a micro turbine in the sewer outfall line. (PW)

IMPLEMENTATION

Implement the Plan

Short Term

- Review the POCD and Action Plan on a yearly basis. (OPDS, PC)

Long Term

- Review the Zoning and Subdivision Regulations for consistency with the POCD, update as necessary. (PC/ZC)

BACKGROUND INFORMATION

During the process of preparing this Plan of Conservation and Development, the following memos were prepared to summarize information and frame policy discussions. These background materials (as well as other materials) can be reviewed at the Groton Library or the Office of Planning and Development Services at the Town Hall Annex on Groton Long Point Road.

Demographics	October 2012
Development Patterns/Trends	November 2012
Natural Resources	November 2012
Community Character and Historic Resources	December 2012
Housing	April 2013
Transportation and Circulation	April 2013
Public Workshop #1	May 2013
Community Facilities	June 2013
Groton POCD Community Survey	September 2013
Parks, Recreation and Open Space	October 2013
Build Out	November 2013
Public Workshop #2	November 2013
Economic Development	February 2014
Energy and Sustainability	February 2014
Town of Groton Municipal Coastal Program Update	February 2014

ACKNOWLEDGEMENTS

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