
Tyngsborough 2018 Open Space and Recreation Plan Update



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SECTION 1: PLAN SUMMARY

The 2018 Open Space and Recreation Plan (OSRP) builds upon the Town's 2009 Plan. The document inventories open space and recreation resources, assesses community needs, establishes goals and objectives, and outlines a seven-year action plan. The Open Space and Recreation Plan Advisory Group, which consists of representatives of town boards and committees, and interested citizens, have prepared this update. Advisory Board members include Town Administrator Matt Hanson; Assistant Town Administrator, Justin Sultzbach, Conservation Director Danielle Muccairone, Conservation Commission Member and CPC Member Ed Smith, Conservation Commission Member Ed Derby, Recreation Department Director Alison Page and Board of Selectmen Representative Ron Keohane.

Resident preferences were solicited through a survey, an interactive public visioning session, open meetings of the Advisory Group and a presentation of the draft plan at a public meeting. The Plan follows the Massachusetts Division of Conservation Services (DCS) guidelines and format, and focuses upon the following goals:

- Increase the quantity and quality of recreation space and open space facilities;
- Improve maintenance and management of existing recreation and conservation areas;
- Revitalize the Town Center;
- Educate residents on the value of open space in the Town and the region;
- Increase accessibility of all recreational resources, facilities and programs;
- Promote land use and permitting practices that foster sustainability and protect historic assets, open space, cultural assets and resource areas;
- Improve the overall quality of the Town's surface water and wetland resources;
- Establish regional greenways; and
- Implement Complete Streets policies and projects that foster and enhance bicycle and pedestrian accommodations.

The first five sections of the Plan Update provide an overview of Tyngsborough's natural and cultural environment, detail the town's development history and demographic trends; and present an inventory protected and unprotected lands of recreational or conservation interest. Based on this information, and on community opinion solicited through the survey and public meetings, the Advisory Group developed the community needs analysis, outlined the plan's goals and objectives, and delineated a seven-year action plan aimed at achieving these goals and objectives.

The Tyngsborough Open Space and Recreation Plan Update is consistent with the goals in the Commonwealth's previously issued *Massachusetts Outdoors 2017: Statewide Comprehensive Recreation Plan* (SCORP), as discussed in Section 7.D, particularly in its emphasis on greenways and trails, improved public awareness and stewardship of open space resources, and public access to water resources. The Plan is also consistent the *Greater Lowell Open Space and Recreation Plan*.

SECTION 2: INTRODUCTION

A. Statement of Purpose

Tyngsborough's first OSRP was completed in 1990. An updated plan based on State open space planning principles was prepared in 1996 by the Open Space and Recreation Plan Advisory Group, with assistance from the Northern Middlesex Council of Governments (NMCOG), Tyngsborough's regional planning agency. The 1996 Plan was later updated in 2002 and 2009.

The 2018 Update serves as a source of information on the Town's environmental, open space, and recreation resources, reviews progress since the 2009 plan update, updates and revises the goals and objectives of that plan, and articulates a policy agenda and action plan for the next seven years. The updated plan is intended to serve as a guide for Tyngsborough citizens and local officials as they work together over the next seven years to protect the town's resources for future generations and to provide recreational opportunities for current residents.

The Plan was crafted to guide future decision-making, while providing the flexibility needed to respond to changing conditions, opportunities, programs and constraints. Through adoption of the Plan, the Town recognizes that protection and stewardship of its natural, cultural and historic resources is essential to the overall quality of life, health, economic vitality and sustainability of the community.

B. Planning Process and Public Participation

This update was developed by the Tyngsborough OSRP Advisory Group, with technical assistance from NMCOG. The Advisory Group included representation from the Conservation Commission, Recreation Department, Board of Selectmen and interested residents. The Town's Conservation Director/Planner, Recreation Director, Town Administrator and Assistant Town Administrator participated fully throughout the development of the Plan.

Public participation efforts included a visioning session, public meetings on proposed projects, and other public outreach actions, including a written survey distributed through the Tyngsborough Tax Collector's Office. Approximately 350 respondents returned the completed survey.

An interactive public visioning session was held on March 19, 2018, to solicit input and assist in developing the Plan's goals and objectives. The visioning session emphasized brainstorming and open discussion in the areas of open space, recreation, nature, and wildlife. Participants were asked to address the following questions:

- What are the Town's strengths and assets in terms of its open space and recreation facilities and programs?
- What are the community's weaknesses and liabilities in this regard?
- What opportunities does the Town have to improve upon or expand its existing open space and recreation facilities and programs?

- What challenges lie ahead? What concerns need to be addressed in order to move forward to meet the Town’s open space and recreation needs?

Participants also discussed past actions and future goals and priorities, and made suggestions about specific action items that the town could focus on in the coming years. The Open Space and Recreation Plan was presented to the Board of Selectmen and Planning Board in February 2020. In addition, the draft Plan was posted for public review and comment in March and April 2020.

C. Accomplishments Since 2009

Accomplishments since the adoption of the 2009 Open Space and Recreation Plan include the following:

Goal 1: *Increase the quantity and quality of recreation space and facilities.*

- Renovated the former Campground property as Frost Park provided public access to the Merrimack River.
- Appropriated \$100,000 in Community Preservation Act (CPA) funding for the replacement of the playground equipment at Wicasse Park, the installation of playground equipment at the Town Beach, and the installation of adult exercise stations at Bicentennial Fields, and the creation of a dog park.
- Expended \$155,000 to purchase an 8-acre parcel at 68 Bowers Ave. as open space.

Goal 2: *Develop maintenance and management plans for existing recreation and conservation areas.*

- In 2010, the Field Use Committee created a development plan for the recreational areas at the Elementary School.

Goal 3: *Revitalize the Town Center.*

- Developed a “Town Center Master Plan” incorporating open space and recreation elements into the overall redevelopment of the Town Center.
- Restored and renovated the historic Old Town Hall with in CPA funds in 2013 (\$2.5 million)
- Purchased the historic First Parish Meeting House in the center of town and began renovations. In May 2016, Annual Town Meeting (ATM) approved \$9,913.75 to repair/replace fence on property. ATM also approved \$4,000 for an artifact cabinet to preserve historical artifacts provided as a part of sale. In June 2016, Special Town Meeting (STM) approved additional \$178,000 of which \$128,000 was for exterior renovations and \$50,000 was for study and design for interior renovations. In 2017, the Town appropriated \$1.7 million for renovations including complete electrical, mechanical and plumbing replacements, as well as all Americans with Disabilities Act (ADA) compliance requirements. An additional \$10,000 was appropriated to submit a National Register application for the Meeting House.
- In 2018, the Town received a \$400,000 Complete Streets grant to increase the walkability of the downtown, including adding bike lanes, sidewalks, crosswalks, street lights, and to reconfigure an intersection.

Appropriated CPA funds to erect signs in the historic town center.

- In 2017, the town appropriated \$2,000 in CPA funds to paint the historic flagpole at the Winslow School.
- The Historical Commission presented the Winslow School and the Littlefield Library buildings to Massachusetts Historical Commission (MHC), as having significant historic value. Further, the Commission worked with the MHC to get the buildings included in the Massachusetts and National Registers of Historic Places.

Goal 4: *Educate the residents on the value of open space in the Town and region.*

- The Town has published updated brochures on Conservation Lands in the Town, with maps and guides for those that are accessible to the public.
- Informational programming for local cable was developed to provide information to residents relative to the town's conservation and recreation activities.

Goal 5: *Increase accessibility of all recreation resources, facilities and programs.*

- At the 2018 STM, the Town voted to allow the creation of a Commission on Disability. The Commission began meeting in January of 2019.
- Constructed a boardwalk through Sherburne Nature Center to improve access.
- In 2011, the town established five (5) playing fields, tennis courts, basketball courts, and a walking path at the Elementary School.
- Received an \$80,000 Land and Water Conservation Grant in 2019 to add an ADA trail and conduct trail improvements at Long Pond Shores.
- ADA improvements to Town Beach are planned for 2020.

Goal 6: *Promote land use and permitting practices that foster Smart Growth and protect historic assets, open space, cultural assets and resource areas.*

- Installed bluebird houses at conservation properties in various locations throughout the community.
- Expended CPA funds to organize and preserve historical town documents.
- Expended \$10,000 to restore the historic Colonel Tyng Crypt at the Housing Authority Building on Middlesex Road.
- Became a designated Green Community by MA Department of Energy Resources.
- In 2011, the Wannalancit Rock was re-dedicated, and a plaque and new informational kiosk were added.
- In 2012, the town established an Agricultural Commission and adopted a Right to Farm Bylaw.
- In 2014, the Town implemented a mandatory recycling bylaw.
- In 2015, the Town approved a special permit to allow for the construction of a 2.4 MW solar array at the former Charles George Landfill.
- In 2018, the Town passed a ban on plastic bags, effective on May 1, 2019.
- Tyngsborough received a Gold Designation from the SolSmart Program for promoting solar energy development.

Goal 7: Improve the overall water quality of the Town's surface water bodies and wetland resources.

- Coordinated stormwater education and outreach events throughout the year.
- In 2010, the Town updated and improved its Flood plain and Floodway Bylaw.
- Adopted a Stormwater Management Bylaw and updated regulations in 2019.
- Initiated a rain barrel discount purchasing program available to town residents.
- Expended CPA funds to treat and improve water quality issues at Flint Pond in 2016, and to control invasive weeds on town water bodies, including Lake Mascuppic.
- Organize an annual Clean-Up Day and a Hazardous Waste Collection Day.
- In May 2019, the Phase 1 West sewer construction project was completed. In July 2019 Phase 2 sewer construction project was initiated.

Goal 8: Establish greenways for recreation and habitat networks, with a focus on creating local and regional links.

- Tyngsborough is collaborating NMCOCG on a potential regional trail, and is working with a developer to create a trail linking to Westford.
- In 2017, the Town submitted a Tier 2 a Complete Streets Project Prioritization Plan to Massachusetts Department of Transportation (MassDOT) to improve bicycle and pedestrian accommodations.

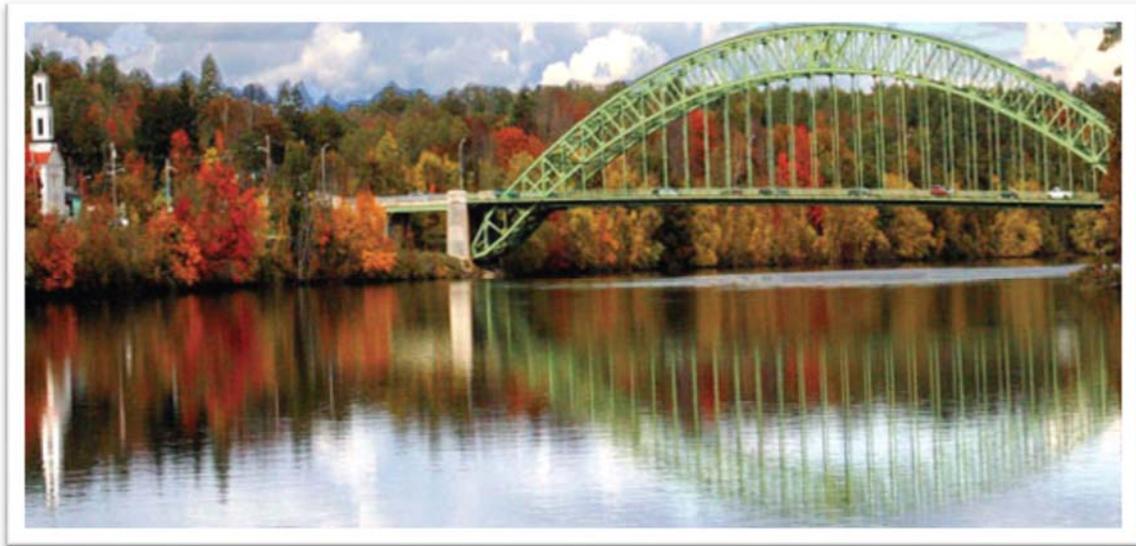
As can be seen from the information provided above, the Town has a strong record of accomplishment as evidenced in the implementation of many of the items listed in the 2009 Action Plan. Furthermore, many of the remaining action items contained in the 2009 Plan will continue to be implemented over the next seven years as long-term projects contained in the 2020 Update.

SECTION 3: COMMUNITY SETTING

A. Regional Context

The Town of Tyngsborough is a suburban community located 30 miles northwest of Boston in Middlesex County. The Merrimack River and U.S. Route 3 bisect the community. The town contains eighteen (18) square miles of land and surface water, and borders the municipalities of Dunstable, Groton, Westford, Chelmsford, Lowell, and Dracut, Massachusetts; as well as Nashua, Hudson and Pelham, New Hampshire, as shown on Map 1 on the following page.

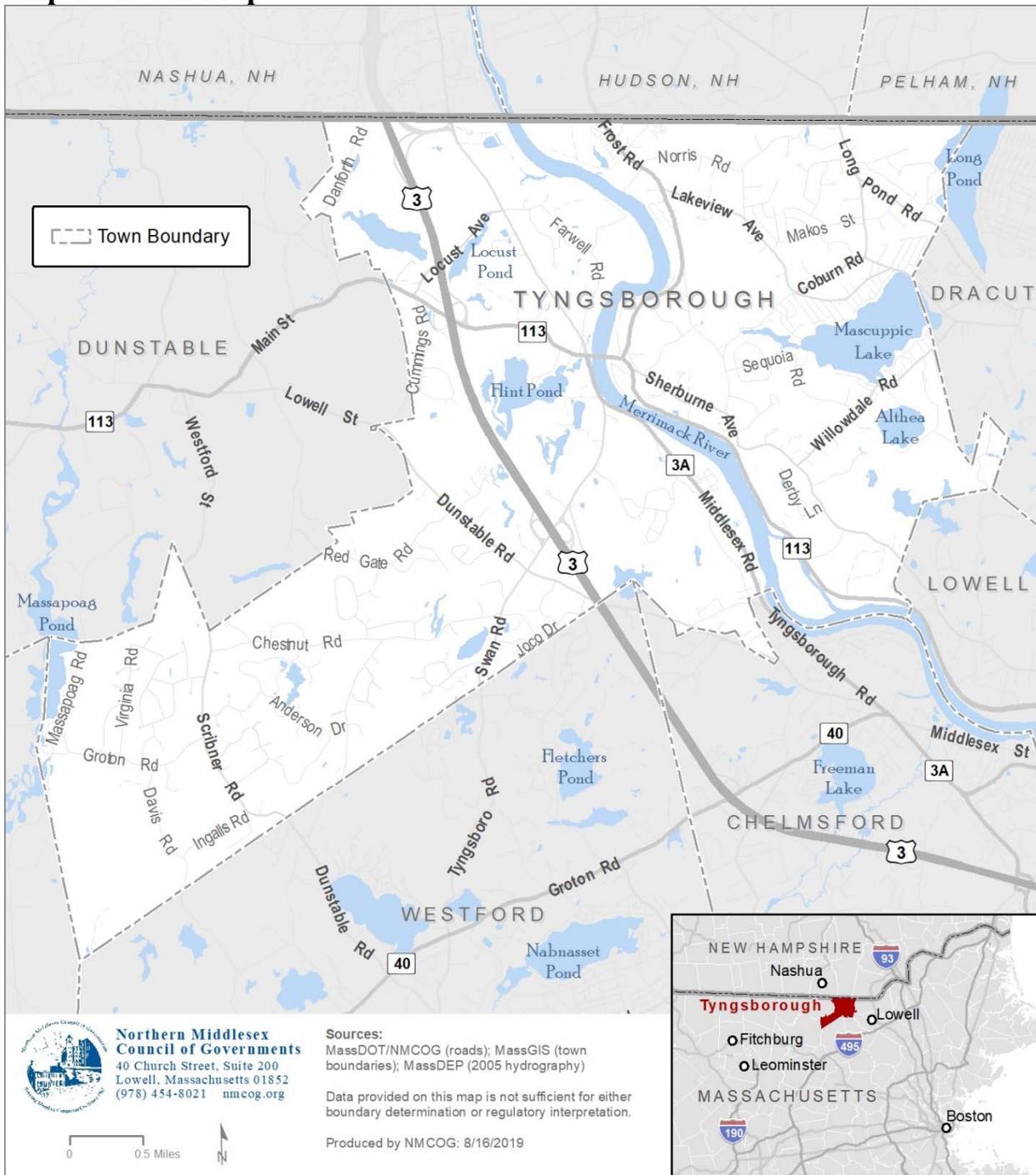
Tyngsborough's idyllic location on the Merrimack River, which is 300 to 500 feet wide in its course through town, as well as its convenient access to Route 3, make the community a desirable location for both young families and long-time residents. The Tyngsborough Bridge, which carries Route 113 across the Merrimack River, is shown below and is the best-known and most widely photographed iconic symbol of the town.



Tyngsborough has changed in response to the relatively rapid growth that has occurred throughout the region. The town's natural resources and vacant land remain vulnerable to development, and conservation presents one of the Town's greatest challenges.

Tyngsborough's continued residential and commercial growth will place added pressure on the Town to provide adequate recreation opportunities. It is important to direct active and passive recreation toward appropriate lands, to continue to protect the Town's natural resources.

Map 1 - Locus Map



Northern Middlesex Council of Governments
 40 Church Street, Suite 200
 Lowell, Massachusetts 01852
 (978) 454-8021 nmco.org

Sources:
 MassDOT/NMCOG (roads); MassGIS (town boundaries); MassDEP (2005 hydrography)

Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.

Produced by NMCOG: 8/16/2019

While residents largely support protecting open space, the Town recognizes that it must focus on appropriately managing the land that it already owns. Open space and recreation facilities comprise an important part of the green infrastructure system of the community, support and link the built and natural environments, and enhance quality of life.

Regional Open Space Resources

There are several open space resource areas in Tyngsborough of regional importance, although some have limited or unpublicized access. The most notable is the Lowell-Tyngsborough-Dracut State Forest. Approximately 223 acres of the 1,140-acre state forest are located within the southeastern corner of Tyngsborough. The state forest is under the jurisdiction of the Massachusetts Department of Conservation and Recreation (DCR), which manages and operates the facility. Near Massapoag Pond, the Massachusetts Department of Fish and Game owns and manages the Elbow Meadow Natural Heritage Area (197.5 acres). Additional permanently-protected conservation and/or recreation land include the 6.5 acre Dunstable Brook Wildlife Management Area.

Large institutional holdings include significant natural undeveloped areas at the Massachusetts Institute of Technology's (MIT's) Haystack Observatory property (265 acres), Notre Dame Academy land (120 acres), and the Innovation Academy Charter School (178 acres). In addition, the Tyngsborough Country Club (93.45 acres), which is open to the public, offers golf, hiking, hunting, nature observing, and picnicking. The Greater Lowell Regional Technical High School grounds (72.3 acres) accommodate baseball/softball, basketball, football/soccer, and other team activities. A private country club, the Vesper Country Club, has 178 acres of land, partly on an island in the Merrimack River.

Lowell-Dracut-Tyngsborough State Forest

The 1,140-acre State Forest, owned and managed by DCR, includes approximately 223 acres within Tyngsborough, while the remaining acreage lies within the City of Lowell and the Town of Dracut. This forested area provides a wide variety of recreational opportunities including walking, hiking, jogging, nature observation, picnicking, horseback riding, bicycling, cross-country skiing, snowmobiling, and hunting. The Dracut-Lowell-Tyngsborough State Forest contains an important ecosystem, adds to the quality of life for area residents and provides much-needed habitat for wildlife that are dependent on the forest for at least part of their lifecycle. The forest has become increasingly more important, as development has led to fragmentation of forested areas throughout the region. Detailed information regarding the trail network and landforms within the forest can be found at the following link:

<http://www.nemba.org/trails/massachusetts/lowell-dracut-tyngsboro-state-forest>

B. History of the Community

Before the coming of the European settlers, generations of Native Americans frequented the Merrimack River. They foraged, hunted, and lived in what is now Tyngsborough. Passaconaway was a great chief of the Pawtuckets and the Pennacooks, who lived much of the time at Wiscasee (now Tyng's Island). By 1644, Passaconaway signed an agreement placing his tribes under the authority of the colonial government.

First settled by Europeans in the 1660s, Tyngsborough was part of the Town of Dunstable until its separate incorporation in 1809. Land grants originally acquired by the Tyng family were settled after the 1660s and the Pawtucket and Pennacook Indians, who lived and fished along the Merrimack River, were eventually driven out of the area as the pioneers staked their claim to land. The area subsequently grew into a community of scattered farmsteads, as more settlers were attracted to the area.

During the period from the mid-1600s to the late-1700s, fur trading, land clearing, mill construction, and occasional hostilities from the Native Americans occupied the community. In 1760, the county ordered two new roads, one on each side of the river, to be constructed and connected by a ferry. Also during this period, many of Tyngsborough's men participated in the Revolutionary War. By 1790, the town had 382 inhabitants.

In 1789, Sarah Winslow, a daughter of Eleazer Tyng, set up a trust with Harvard College to benefit the Town. The trust helped fund the Winslow School and still provides annual income to the Town. A condition of her bequest was that the district, be known as Tyngsborough in honor of her father and his family. By 1800, Tyngsborough was a flourishing farm town with a few stores, craftsmen, and small mills to serve the local community's needs.

The opening of the Middlesex Canal in 1809 and the Middlesex Turnpike (Middlesex Road) in 1811 connected the town to the Lowell and Boston markets. Starting in 1819, steamboats on the Merrimack River gave Tyngsborough a direct river connection to Lowell and Concord, NH. Tyngsborough grew slowly during the early nineteenth century, becoming known for its ferries, quarries, and box companies. By 1835, the Boston and Lowell Railroad had begun operations, which brought the economies of the Boston and Lowell area even closer together, effectively making the Middlesex Canal obsolete and ultimately forcing its closing.

The proximity of the industrial centers of Lowell and Nashua, made even more accessible through these transportation improvements, provided jobs to Tyngsborough throughout the late nineteenth century. By 1849, Tyngsborough took advantage of its proximity to Lowell and Nashua and began providing boxes and barrels for shipping the finished products produced in these industrial centers. The completion of the Iron Bridge across the Merrimack River in 1871, and the installment of an electric railway system between Tyngsborough and Lowell in the 1890s, allowed Tyngsborough residents access to work in Lowell.

Before the turn of the next century, Tyngsborough became a popular recreation area. River steamers, trains, trolleys, and early automobiles brought visitors to Harmony Grove on the River, Willowdale on Lake Mascuppic, Mount Rock on the western shore of Lake Mascuppic, and a variety of other resorts. Many of these resorts catered to vacationers from Boston and New York. Until the late 1960s, the town continued to be a vacation community with a large seasonal population.

After the automobile became the preferred mode of transportation, roadway improvements dispersed Tyngsborough's working population. By the late 1960s, Route 3 had been constructed, connecting Tyngsborough and southern New Hampshire with Route 128 and later I-495 and I-93. This catalyzed the development of Tyngsborough as a bedroom community for those commuting to employment centers, such as Nashua (NH), Lowell, the Route 128 technology belt, and Boston.

Historic Resources

The Old Town Hall, First Parish Meeting House and Winslow School are listed on the National Register of Historic Places. Table 1 below contains a listing of other historic resources within the Town Center.

Table 1: Town Center Historic Resources

Historic Name	Address	Date	Uses
Tyngsborough Bridge	Rt. 113 (Kendall Road)	1930	Bridge
Parsonage	12 Kendall Road	c. 1832	Residential
Rev. Lawrence House	16 Kendall Road	c. 1800	Residential
Gordon-Barry House	20 Kendall Road	c. 1800	Residential
C. Worcester House	27 Kendall Road	c. 1860	Commercial
J. Kendall House	45 Kendall Road	1814	Residential
J. Kendall House	51 Kendall Road	1808	Residential
Swallow Farm	54 Kendall Road	c. 1890	Residential
	62 Kendall Road	c. 1900	Residential
J. Farwell House	63 Kendall Road	c. 1797	Residential
	64 Kendall Road	c. 1855	Residential
M. Kendall House	69 Kendall Road	c. 1818	Residential
	70 Kendall Road	c. 1875	Residential
	75 Kendall Road	c. 1850	Residential
	76 Kendall Road	c. 1900	Residential
War Memorial	Middlesex Road	1955	
Capt. J. Farwell House	201 Middlesex Rd.	1803	Residential
Farwell-Richardson House	208 Middlesex Rd.	1824	Residential
	259 Middlesex Rd.	c. 1895	Residential
Bennett & Perham Duplex	260 Middlesex Rd	c. 1870	Day Care Center
Bither Building	261 Middlesex Rd.	c. 1890	Offices
	266 Middlesex Rd.	c. 1888	Residential
	269 Middlesex Rd.	c. 1889	Offices

In addition to the Town Center, an important complex that includes the 1838 Butterfield House and mill buildings, now known as Sherburne Lumber, can be found at 54 Coburn Road. Jonah Parham operated a sawmill at this site in 1775. By 1821 James Butterfield was the owner and the mill included both a gristmill and sawmill. Around 1830 the gristmill was replaced with a cider mill. The site is unusual because it retains the sluiceways that powered the mill, pond, and collection of outbuildings. The house is a locally rare example of granite construction. In addition to the house, pond, and sluiceway, the complex includes a barn, c. 1900; the former mill building, c.1923, is now the lumber sales office; a c. 1900 lumber shed; a c. 1923 sawdust shed; and a low stonewall. Other properties with historic significance are shown in Table 2 below.

Table 2: Historic Assets Outside of the Town Center

Historic Name or Style	Address	Date	Uses
M & B Sherburne House	46 Coburn Road	c. 1932	residence
Daniel Parham House	126 Coburn Road	c. 1860	Residential
William Parham House	149 Coburn Road	1831	Residential
Littlehale-Holt Duplex	23 Farwell Road	1905	Residential
Rev. N. Lawrence House	28 Farwell Road	c. 1795	Residential
Stick Style House	33 Farwell Road	c. 1898	Residential
Oliver Farwell House	60 Farwell Road	c. 1715	Residential
Deacon Waldo Cornelius House	80 Farwell Road	c. 1683	Residential
Town Farm	102 Parham Road	c. 1852	Residential
Parham House	91 Sherburne Ave.	c. 1803	Residential
St. Joseph's Novitiate	72 Tyng Road	1924	Education
Vesper Country Club House	Tyng's Island	1924	Recreation
Bungalow	52 Mission Road	c. 1910	Residential
Queen Anne Style House	26 Pawtucket Blvd.	c. 1900	Residential

C. Population Characteristics

During the past fifty years, the population of the Town of Tyngsborough has grown faster than the region as a whole. According to the *Regional Strategic Plan for Greater Lowell (2011)*, the population in the Greater Lowell region grew by 70% between 1960 and 2010 from 169,403 to 286,901, or an average of 14% per decade. During the same time, Tyngsborough's population increased from 3,302 residents in 1960 to 11,292 residents in 2010, or by 21% per decade. As reflected in Table 3 below, Tyngsborough's growth rate decreased from 28% between 1990 and 2000 to 1.9% between 2000 and 2010. This growth rate was slightly behind the regional growth rate of 2%. Tyngsborough's 2010 population represented 3.9% of the total population for the NMCOG region, which was the same as in 2000. According to the 2013-2017 American Community Survey, there were 12,232 residents in Tyngsborough. That said, the populations density remains relatively low, at 673 people per square mile, according to the U. S. Census . By way of contrast, neighboring Lowell has a population density of 7,842 people per square mile. The population projections developed by the UMass Donahue Institute for MassDOT show an increase in Tyngsborough's population of 11,292 in 2010 to 12,487 in 2040, or by 10.6%. However, the projections between 2030 and 2040 show a 1.9% decrease in Tyngsborough's population and a 1.3% decrease in the Greater Lowell population. Projected growth rates suggest that Tyngsborough will grow by nearly three times the rate of the Greater Lowell region between 2010 and 2020. Tyngsborough's population is projected to grow slightly from 3.9% of the region's population in 2010 to 4.2% in 2040.

Table 3: Actual and Projected Population (2000-2040)

Year	Tyngsborough	Growth Rate	Greater Lowell region	Growth Rate	Percent of Region
2000	11,081	28.2%	281,225	6.7%	3.9
2010	11,292	1.9%	286,901	2.0%	3.9
2020	12,595	11.5%	299,617	4.4%	4.2
2030	12,731	1.1%	298,889	-0.2%	4.3
2040	12,487	-1.9%	295,061	-1.3%	4.2

Source: 2000 and 2010 US Census; Projections developed the UMass Donahue Institute for MassDOT in 2018

Households and Household Types

Similar to their population projections, the UMass Donahue Institute developed household projections for MassDOT as part of the long-range transportation planning process. As outlined in Table 4 below, the number of households in Tyngsborough is projected to increase from 3,999 households in 2010 to 5,622 households in 2040, or by 40.6%. For the same time period, the Greater Lowell household growth rate is projected to be 18%, which is less than half Tyngsborough's growth rate. The overall household growth rate has slowed considerably from the 1990-2000 period, yet the period from 2010-2020 shows the greatest projected household growth for Tyngsborough (25.5%) and the Greater Lowell region (11.8%). Tyngsborough's share of the region's households is projected to increase slightly from 3.8% in 2010 to 4.6% in 2040.

Table 4: Total Number of Households (2000-2040)

Year	Tyngsborough	Growth Rate	Greater Lowell region	Growth Rate	Tyngsborough Households as Percent of the Region
2000	3,731	31.2%	99,342	10.2%	3.8
2010	3,999	7.2%	104,022	4.7%	3.8
2020	5,020	25.5%	116,271	11.8%	4.3
2030	5,505	9.7%	121,559	4.5%	4.5
2040	5,622	2.1%	122,740	1.0%	4.6

Source: 2000 and 2010 US Census; Projections developed the UMass Donahue Institute for MassDOT in 2018

Race and Ethnicity

In assessing changes to the racial and ethnic composition of Tyngsborough's population, The table on the following page breaks down the Town's population by race and Hispanic origin for 2000, 2010 and 2013-2017. While the overall population increased by 10.39% between 2000 and 2013-2017, there were slight changes to the community's racial and ethnic composition. Even though the share of the White population decreased from 95.6% in 2000 to 92.01% in 2010 and to 87.62% in 2013-2017, the White population actually increased by 1.14% between 2000 and 2013-2017. The major changes occurred with the Asian population increasing by 258.55% between 2000 and 2013-2017 and the Some Other Races and Two or More Races increasing by 264% during this time period. Residents identifying themselves as Black or African American only increased by 11 residents between 2000 and 2013, while the American Indian and Alaska Native population decreased by 52% during this time period. The Hispanic population increased from 123 residents in 2000 to 374 residents in 2013-2017, or by 204.07%. Environmental equity is discussed in Section 4.G.8.

Table 5: Racial and Ethnic Diversity of Residents (2000, 2010 and 2013-2017)

Racial/Ethnic Category	2000		2010		2013-2017		Percent Change 2000-2013/ 2017
	Population	Percent	Population	Percent	Population	Percent	
White	10,597	95.63	10,390	92.01	10,718	87.62	1.14
Black or African American	55	0.50	120	1.06	66	0.54	20.00
Native American and Alaska Native	25	0.23	14	0.12	12	0.10	-52.00
Asian	275	2.48	535	4.74	986	8.06	258.55
Native Hawaiian or Pacific Islander	4	0.04	0	0.00	0	0.00	NA
Other or Multiple Races	125	1.13	233	2.06	450	3.68	264.40
Hispanic or Latino (All races)	123	1.11	265	2.35	374	3.06	204.07
Total Population	11,081	100.01	11,292	99.99	12,232	100.0	10.39

Source: 2000 and 2010 U.S. Census and 2013-2017 American Community Survey

Residents with Disabilities

Tyngsborough residents with disabilities can be analyzed through information provided in the 2013-2017 American Community Survey. The following page provides information on the age and disability breakdown for the Tyngsborough disabled community.

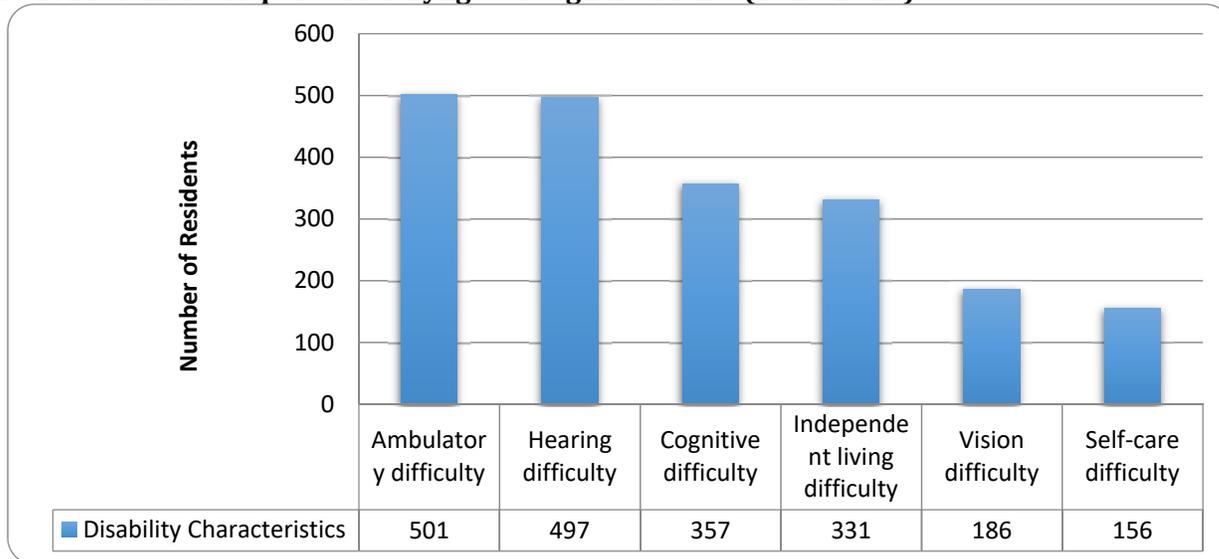
Approximately 3.6% (1,127 residents) of Tyngsborough's population in 2013 - 2017 were reported to have a disability. More than fifty-five percent (56.7%) of these residents were between the ages of 18 and 64, more than thirty-five percent (36.1%) were 65 years or older and 7.2% were between the ages of 5 and 17.

Table 6: Characteristics of the Disabled Community in Tyngsborough: 2013-2017

Age Group and Disability Status	Total Number	Percent of Residents with Disabilities
Under 5 years old	0	0.0
5-17 years old	81	7.2
18-64 years old	639	56.7
65+ years old	407	36.1
Total Number of Disabled Residents	1,127	(3.6%) 100.0
With an ambulatory difficulty (all ages)	501	44.5
With a hearing difficulty (all ages)	497	44.1
With a cognitive difficulty (all ages)	357	31.7
With an independent living difficulty (all ages)	331	29.4
With a vision difficulty (all ages)	186	16.5
With a self-care difficulty (all ages)	156	13.8

Source: 2013-2017 American Community Survey. Residents may report more than one disability.

Figure 1: Disabilities Reported for Tyngsborough Residents (2013-2017)



Source: 2013 - 2017 American Community Survey

Ambulatory difficulty was the most prevalent disability (44.5%), followed by hearing difficulty (44.1%), cognitive difficulty (31.7%), independent living difficulty (29.4%), vision difficulty (16.5%) and self-care difficulty (13.8%). Disabled residents often have unique housing needs in terms of the physical design and/or accessibility of their homes, access to services, and the cost relative to a fixed or limited income. For these reasons, a comprehensive Open Space and Recreation Plan should be sensitive to the specific needs of the disabled community and incorporate their issues into the goals and strategies for future opens space acquisition and property improvements.

In terms of the needs of special groups such as persons with disabilities, the Town is actively working to bring all town facilities into compliance with the Americans with Disabilities Act. This is a stated goal and objective of the Town in Sections 8 and 9 of the Plan. The Town is committed to making sure all citizens can fully partake in community events and activities. No complaints were filed as of December 2008 concerning accessibility issues at Town. The Section 504 Self-evaluation is included in Appendix A.

One of the themes that did emerge during the public participation process, and in consultation with the Town staff, was the need for more neighborhood-based playgrounds and parks. Expanding the neighborhood-based park and playground opportunities is the first objective, under the first goal of the Town’s seven-year action plan.

While the needs of the elderly specifically did not arise during this process, the Tyngsborough Council on Aging, was consulted during the preparation of this Update. The Council offers recreational programs designed for the elderly population in Town such as art, kitting, drawing, quilting, bowling, art, card games, bingo and Tai Chi. The Council sponsors day trips and overnight bus trips as well as walking groups, and offers health services involving blood pressure screenings, fitness programs and podiatrist services.

Household, Family and Per Capita Income

Over the past twenty years, Tyngsborough saw a significant increase in median household, median family, and per capita incomes. The 2000 U.S. Census provided income figures based upon 1999 data, however the most recent data came from the 2013-2017 American Community Survey (ACS). The 2013-2017 ACS data is based on a five- year average and has largely replaced the decennial Census data. There was no income data available in the 2010 U.S. Census. Additional income data in the 2020 U.S. Census is not expected.

Median Household Income

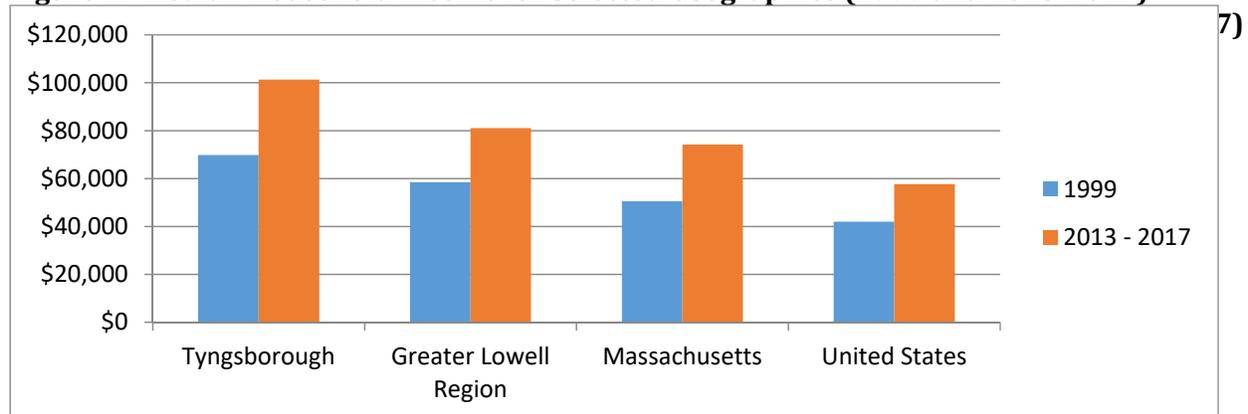
Median household income is based on the income of the householder and all other individuals 15 years old and over in the household. The table and figures below show the change in median household income for Tyngsborough, the Greater Lowell region, the Massachusetts and the United States. Based upon the data provided, Tyngsborough’s median household income increased by 45.1% between 1999 and 2013-2017, which is much higher than the Greater Lowell region (38.6%) and the United States (37.4%), but lower than Massachusetts (46.9%). When one applies the inflation factor, whereby \$ 1 in 1999 equals \$ 1.44 in 2015, the median household income still increased by 1.1% in Tyngsborough and by 2% in Massachusetts. The median household income in the Greater Lowell region (-3.7%) and the United States (-4.7%) did not keep up with inflation.

Table 7: Median Household Income for Selected Geographies (1999 and 2013-2017)

Geographic Area	1999	2013-2017	Percent Increase	% Inflation Adjusted
Tyngsborough	\$69,818	\$101,303	45.1	1.1
Greater Lowell Region	\$58,472	\$81,061	38.6	-3.7
Massachusetts	\$50,502	\$74,167	46.9	2.0
United States	\$41,994	\$57,652	37.4	-4.7

Source: 2010 U.S. Census and 2013-2017 American Community Survey

Figure 2: Median Household Income for Selected Geographies (1999 and 2013-2017)



Source: 2010 U.S. Census and 2013-2017 American Community Survey

Residents Living In Poverty

Every year, the U.S. Department of Health and Human Resources and the Census Bureau establish Federal Poverty Guidelines. They use a set of income thresholds that vary by family size and composition to determine who is living in poverty.

If a family’s total income is less than the threshold, then that family and every individual in it is considered to be living in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps). The table to the right shows the Federal Poverty Guidelines for 2019.

Table 8: Federal Poverty Level Guidelines for 2019

Number of Persons in Family	Poverty Guideline
1	\$12,490
2	\$16,910
3	\$21,330
4	\$25,750
5	\$30,170
6	\$34,590
7	\$39,010
8	\$43,430
For each additional person	\$4,420

Source: Department of Health and Human Resources, Federal Register, Vol. 84, No. 22, February 1, 2019, pp. 8831-8832

Based upon the 2013-2017 American Community Survey, 860 Tyngsborough residents, or 7% of the population were living in poverty according to the Federal Poverty Guidelines. These populations may receive benefits, such as public housing, Medicaid, and food stamps.

As shown in the table and figures below there were 222 individuals under the age of 17 (27.6%) living in poverty. Those individuals between 25 and 64 years of age comprised 67.8% of the poverty population. There were only five individuals in the 65+ category in poverty. In terms of a gender break out, 65.8% of these residents living in poverty were female and 34.2% were male. It will be important to consider this group when prioritizing housing types that will meet the diverse needs of an aging population.

Figure 3: Age of Residents Living in Poverty: 2013-2017

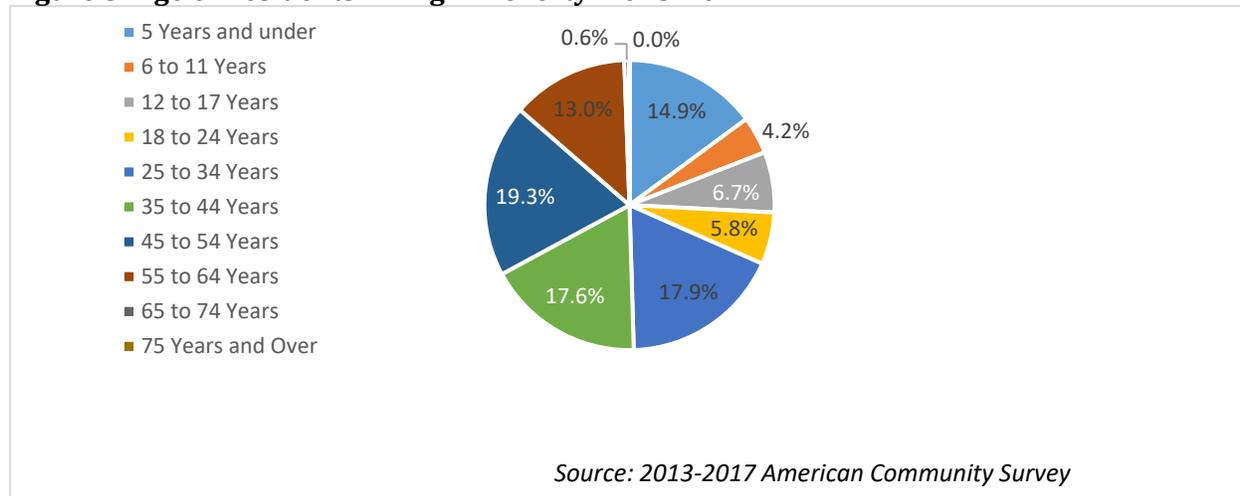


Table 9: Characteristics of the Population Living in Poverty (2013-2017)

Age	Number Below Poverty Level	Percent of those in poverty
5 Years and under	128	14.9
6 to 11 Years	36	4.2
12 to 17 Years	58	6.7
18 to 24 Years	50	5.8
25 to 34 Years	154	17.9
35 to 44 Years	151	17.6
45 to 54 Years	166	19.3
55 to 64 Years	112	13.0
65 to 74 Years	5	0.6
75 Years and Over	0	0.0
Total Individuals Living in Poverty (7% of total population)	860	100.0
Gender		
Male	294	34.2
Female	566	65.8
Total Individuals Living in Poverty	860	100.0
Population for Whom Poverty Status is Determined	12,232	

Source: 2013-2017 American Community Survey

D. Growth and Development Patterns

1. Patterns and Trends

Tyngsborough has undergone many changes since its early farm and homestead beginnings. The town has had many identities: a small agricultural community, a summer resort town, and today, a suburban bedroom community. Tyngsborough's population more than doubled between 1980 and 2000, with the greatest population increases occurring during the 1980s, when the population grew 52.1 percent, and again in the 1990s, when it grew 28.2 percent. Actual and projected population totals are presented in the table above. Although the population grew at a slower rate during the 2000s, particularly during the economic crisis of the 2008 to 2018, the loss of open space and other naturally vegetated areas continues to decline.

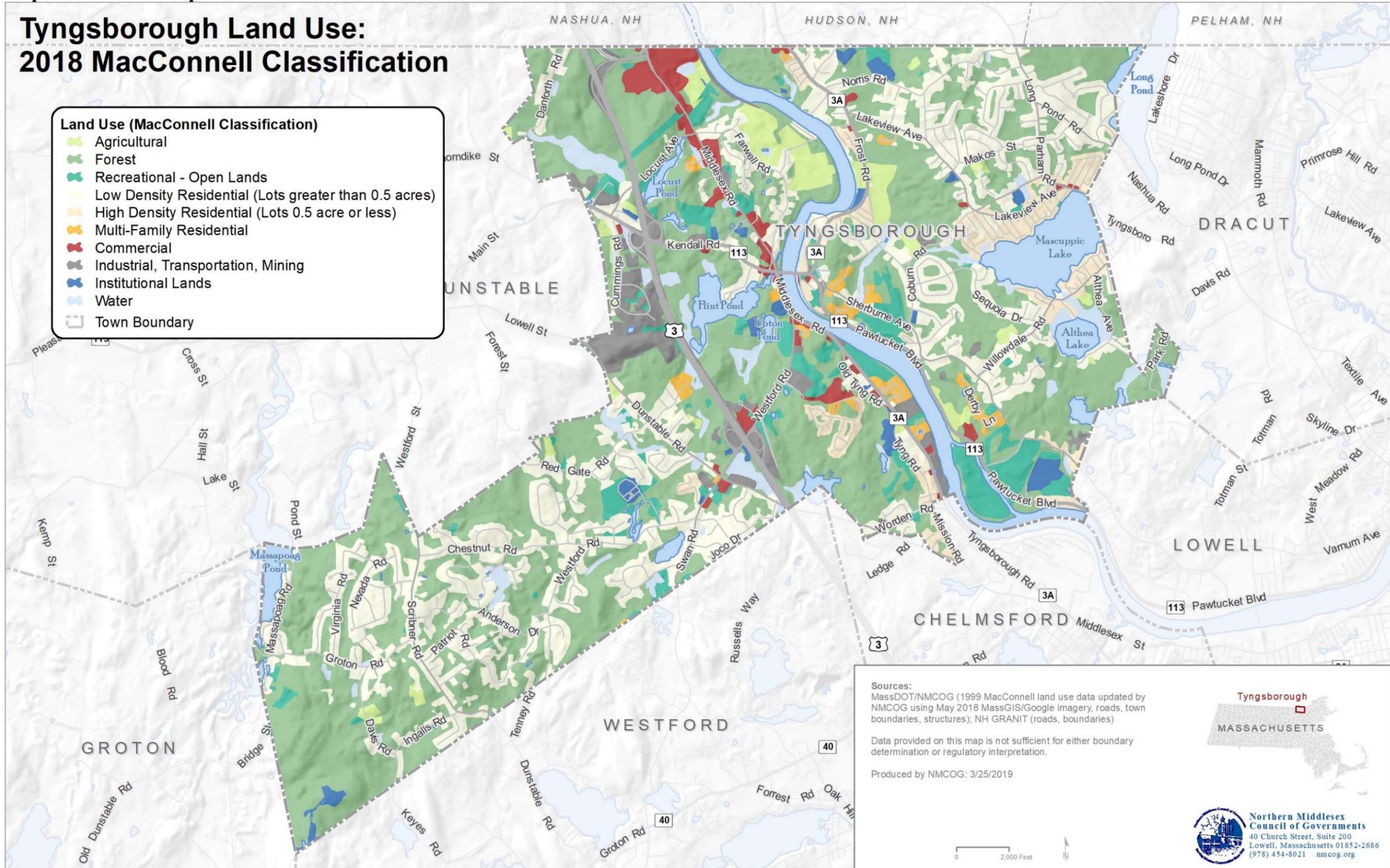
Map 2 on the following page and Table 15 on page 25 provide a summary of Tyngsborough's 2019 land use by land use category and calculates the changes in land uses from 2008 to 2019. The categories of land use are based on data compiled by MassGIS and are based on statewide, standardized land use classifications interpreted from 1:25,000 aerial photography.

Map 2 - Land Use Map

Tyngsborough Land Use: 2018 MacConnell Classification

Land Use (MacConnell Classification)

-  Agricultural
-  Forest
-  Recreational - Open Lands
-  Low Density Residential (Lots greater than 0.5 acres)
-  High Density Residential (Lots 0.5 acre or less)
-  Multi-Family Residential
-  Commercial
-  Industrial, Transportation, Mining
-  Institutional Lands
-  Water
-  Town Boundary



Sources:
 MassDOT/NMCOG (1999 MacConnell land use data updated by
 NMCOG using May 2018 MassGIS/Google imagery, roads, town
 boundaries, structures); NH GRANIT (roads, boundaries)

Data provided on this map is not sufficient for either boundary
 determination or regulatory interpretation.

Produced by NMCOG: 3/25/2019



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Table 10 – Tyngsborough Land Use Changes 1971 – 2018

Land Use Category	Acres 1971	Acres 1985	Acres 1999	Acres 2005	Acres 2018	Change 1971 - 2018	Change 2005- 2018
Crop Land	478	426	348	277	206	-57%	-25%
Pasture	232	155	87	93	111	-52%	19%
Forest	7,545	6,597	5,528	5,247	5,121	-32%	-2.4%
Non-forested Wetlands	415	413	410	416	427	2.9%	2.6%
Mining	204	288	55	27	14	-93%	-48%
Open Land	253	185	285	352	279	10%	-21%
Participation Recreation	259	278	264	276	303	17%	10%
Spectator Recreation	6	0	0	0	0	-100%	0%
Water-based Recreation	1	1	1	1	1	0%	0%
Multi-family Residential	0	68	92	100	135	100%	35%
High Density Residential	28	28	34	28	93	232%	232%
Medium Density Residential	360	368	387	388	383	6%	-1.3%
Low Density Residential	673	1,307	2,556	2,783	2,829	320%	1.7%
Commercial	53	115	199	207	245	363%	18%
Industrial	0	29	64	106	158	100%	49%
Urban Open	78	237	143	136	144	85%	5.9%
Transportation	196	217	237	260	270	38%	3.9%
Waste Disposal	23	78	104	96	81	252%	-15%
Water	750	768	774	781	774	3%	-0.9%
Woody Perennial	24	21	14	6	6	-75%	0%
TOTAL	11,581	11,581	11,581	11,580	11,581		

Source: MacConnell 2018 Land Use Summary data

Additional information on the environmental characteristics of Tyngsborough is found in Section 4. The current inventory of opens space is discussed in Section 5.

2. Infrastructure

Transportation

Tyngsborough is bisected by Route 3, which runs north-south, and is approximately 5 miles north of Interstate Route 495. Tyngsborough’s three interchanges on Route 3: Westford Road, Exit 34; Kendall Road, Exit 35; and Middlesex Road, Exit 36, provide the community with outstanding highway access. In addition, Route 3A parallels the Merrimack River and connects Tyngsborough with Lowell to the south and Hudson, NH to the north. Route 113 also parallels the Merrimack River from Lowell to the intersection with Route 3A, where it crosses the River and continues west into Dunstable. There is a regional park and ride lot located on Route 113 near Exit 35 on Route 3.

All roadways are classified by State and Federal transportation agencies according to the road's function. Principal Arterials carry high volumes of traffic and provide connections to other major roadways and adjoining communities. Route 3 is classified as Urban Principal Arterial, while Routes 113 and 3A are classified as Urban Minor Arterials meaning that their function is secondary to the Principal Arterials and serve primarily as links between

distinct urban geographic and/or economic regions or as links between two Principal Arterials.

The Tyngsborough Bridge, constructed in 1932, provides an important crossing of the Merrimack River for residents of Tyngsborough and neighboring communities. The bridge provides the only river crossing for approximately five miles to the north and six miles to the south and carries nearly 25,000 vehicles per day. In recent years, traffic congestion in the bridge has increased due to population growth and increased retail development in South Nashua. In 2009, the *New Tyngsborough Bridge Transportation Study* was completed by MassDOT to assess the need for a second river crossing. The study identified two possible locations for a new crossing: Alternative 5/6, which would align with Westford Road, and Alternative 14 which would cross the river further north at the Pheasant Lane Mall. Reconstruction of the existing bridge was completed in 2012.

The Lowell Regional Transit Authority provides fixed route bus service and paratransit for the elderly and disabled. The Dracut-Tyngsborough route runs along Lakeview Avenue up to Frost Road and Madeline Terrace, and up to Ayotte's Market near the New Hampshire state line. Tyngsborough residents can access commuter rail service to Boston at the Gallagher Intermodal Center in Lowell. New Hampshire DOT is studying the feasibility of extending commuter rail service beyond Lowell, through Chelmsford and Tyngsborough, to Nashua and Manchester, New Hampshire. There are limited dedicated bicycle lanes in Tyngsborough and few sidewalks, which makes commuting by bicycle and on foot difficult. However, cycling for pleasure on Tyngsborough's back roads is relatively common. Bike New England lists two rides through Tyngsborough and surrounding areas: the 21-mile Nashua River Ramble (<https://bikenewengland.com/2015/07/26/nashua-river-ramble/>), and the 32-mile Pepper and Maple Tour, which is detailed on the "Ride GPS" website (<https://ridewithgps.com/routes/5058355>).

There is one large off-road hiking and biking area in Tyngsborough: the Lowell-Dracut-Tyngsborough State Park trails (see page 9 above). In addition, there are several smaller properties with well-maintained trails. The Conservation Department maintains a list of hiking trails on their website, which includes the Sherburne Nature Center, Long Pond Shores, Shady Glade, the Hunter Trail, and Bell Trail (<http://www.tyngsboroughma.gov/residents/open-space-and-recreation/#recreational-locations>). The lack of off-road bicycle and hiking paths and trails, along with the lack of sidewalks, have been identified as issues of concern in the survey results gathered as part of the public input process for the OSRP update. Tyngsborough is working to address this issue through its involvement in the Complete Streets program and the Safe Routes to School program.

Water Supply

Approximately thirty percent of the town is served by public water. The remaining seventy percent (70%) is served by on-site private wells. Within the Town of Tyngsborough, three water districts operate a total of five water distribution systems that access various supply sources in neighboring communities, including Dracut, Chelmsford, Lowell and Nashua.

Management of the water supply infrastructure and the related contractual agreements is relative complex.

The largest water distribution network is comprised of three separate water systems and operated by the Tyngsborough Water District (TWD). The TWD is the only Town-based provider of public water, which is supplied through the communities of Dracut and Lowell, and through the Pennichuck Water Works Corporation of Nashua. The water demand for the TWD is estimated at 200,000 gpd, according to the Comprehensive Water Resources Management Plan prepared for the Town by SEA Consultants. In 2018, TWD began design and permitting work to install a 1,000,000 gpd public water supply well on town-owned land located on River Road.

The Dracut Water Supply District (DWSD) has one water system serving the area north of Mascuppick Lake. A smaller distribution system operated and maintained by the Tyngsborough Water District is located within this same area and is connected to the larger DWSD System. The water supplies for these two systems have been via a connection in Dracut to a distribution line in Lowell, a wellfield site in Dracut, and during peak demands, a wellfield operated by the DWSD that is located off Larsen Avenue on the northwest bank of the Merrimack River in Tyngsborough. The current inter-municipal agreement between the TWD and DWSD, for water furnished to the TWD-operated system, provides an initial maximum allowance of 100,000 gpd, with increases for each new unit of residential housing and commercial service.

The North Chelmsford Water Supply District (NCWSD) services a small area along the western bank of the Merrimack River near Tyng's Island. The water supply is just capable of meeting current demands, although additional water supplies are potentially available through neighboring districts in Chelmsford.

Sewer System

Tyngsborough's wastewater management system was first developed in the 1970s and has continued to expand through subsequent decades. Public sewer currently services 25% of the town. The remaining 75% are served by Title V on-site septic systems, which are overseen by the Board of Health. Currently, the most extensive sewage collection area in the town surrounds Mascuppick Lake. Sewers were originally constructed in this area in the late 1970s, in response to failing septic systems that were found to be degrading water quality. In 1999 and 2000, a major addition was constructed to provide sewers to the Norris Road School complex.

A second sewage collection area is situated along the eastern shore of the Merrimack River adjacent to Tyng's Island. This sewer area is relatively small, accounting for only about twenty connections. West of the Merrimack River, the primary basis for the construction of sewers was to give the U. S. Environmental Protection Agency (EPA) Superfund site at the Charles George Landfill a means for discharge of industrial wastewater generated onsite. The majority of sewers in this area lie on Dunstable Road. In December 2004, two developers, Maple Ridge Estates Development and Merrimack Landing Trust extended sewer to their planned affordable housing developments located on Middlesex Road and

Old Tyng Road, and more recently additional sewer infrastructure was constructed along Middlesex Road in the Town Center area.

Wastewater treatment is provided at the Greater Lowell Wastewater Utility via connections with Chelmsford, Dracut and Lowell. The Town received EEA approval of its Comprehensive Wastewater Management Plan (CWMP) in January of 2009. The CWMP is a 20-year plan that identifies environmentally sustainable treatment and disposal alternatives that respond to the community's needs while meeting water quality and public health standards. After examining twenty-three (23) study areas in the report, the final plan prioritized six (6) areas of need, as identified below, with construction updates obtained in summer 2019 from the Town's website:

- *Sewer Phase 1 East* – East of the Merrimack River close to the Hudson, NH border (Sunset Park area) COMPLETE;
- *Sewer Phase 1 West* – West of the Merrimack River in the center of Town COMPLETE;
- *Sewer Phase 2* – West of the Merrimack River along Middlesex Road. IN PROCESS;
- *Sewer Phase 3* – East of the Merrimack River along Frost Road from Lake View Avenue to Sherburne Avenue. PLANNED;
- *Sewer Phase 4* – East of the Merrimack River along Pawtucket Boulevard and Sherburne Avenue. PLANNED;
- *Sewer Phase 5* – East of the Merrimack River along Althea Ave and Dracut town line, along Pawtucket Boulevard south of Phase 3 and north of Phase 4. PLANNED;
- *Sewer Phase 6* – West of Merrimack River off Middlesex and Farwell Rd. PLANNED.

Until the entire sewer phases are implemented, three-quarters of the town residents will continue to rely upon on-site septic systems. The Town requires that subsurface wastewater disposal systems be set back at least 100 feet from wetlands and 200 feet from wells. Even within the public sewer system, there are a number of available connections that aren't being utilized by property owners abutting the sewer line.

Current initiatives include an Inflow and Infiltration Study, which focuses on the integrity of the infrastructure and identifies sources of infiltration in an effort to improve efficiencies and reduce operating costs and replacement of the Willowdale Pump Station. The town has three Inter-municipal Agreements with Chelmsford, Dracut and Lowell. The capacity for each is as follows:

- Chelmsford: Tyngsborough is currently granted 350,000 gallons per day (approximately 127,750,000 gallons per year) and with latest data is using approximately 33,614,083 gallons per year, or approximately 26% of the capacity allowed through Chelmsford. With full build out of Phase I West, which is currently underway, the town will be using a majority of its allowed capacity. The Sewer Commission is currently trying to work with the town of Chelmsford to increase the amount of capacity Tyngsborough is allowed.
- Dracut: Tyngsborough is currently granted 1,000,000 gallons per day (approximately 365,000,000 gallons per year) through Dracut, and with latest data

it is using approximately 109,103,248 gallons per year, or approximately 30% of the current capacity available through Dracut.

- Lowell: Tyngsborough is currently granted 80,000 gallons/day (approximately 29,200,000 gallons per year) and with the latest data it is using approximately 7,850,000 gallons per year, or approximately 27% of the current capacity available through Lowell.

Phase I West sewer system infrastructure expansion was approved at Annual Town Meeting on June 2, 2015, and became operational in May 2018. The Phase I West sewer line will service 145 parcels under its Intermunicipal Agreement via Chelmsford to Lowell Regional Wastewater Utility. The sewer system consists of 16,500 linear feet of sewer pipe and two new and one upgraded pump station. Sewer infrastructure was installed along Middlesex Road from the Applewood Plaza through the Town Center to just north of Tyng Road, portions of Old Tyng Road, Westford Road to Potash Hill, and Kendall Road to just before Flint Road including Flint Road and Upton Drive.

Phase 2 Sewer Project was approved at Annual Town Meeting on May 15, 2018, and construction began in July 2019. Construction will continue through fall of 2020. The Phase 2 Sewer Project will bring municipal sewer to approximately 64 parcels concentrated in the Town's largest expanse of commercial/industrial zoned area along northern Middlesex Road to the New Hampshire border. The Project includes approximately 5,400 linear feet of new sewer; 3,250 linear feet of new water main, 12,200 linear feet of new force main, 2 wastewater pumping stations, and a force main crossing of the Tyngsborough Bridge (south side of sidewalk), within portions of Northern Middlesex Road, Sherburne Avenue/Tyngsborough Bridge, Parker Lane, Curtis Road, Curtis Hill Road, Lawndale Road, Park Road, Coburn Road, and Maplewood Avenue. The Water Main portion of the Project will construct approximately 2,800 linear feet of water main to connect the existing two dead end mains, which will bring municipal water to all parcels in the Project area. This provides not only water quality, but ensures adequate fire protection to all parcels in this geographic area of Town.

Sewer will provide opportunity for two major multi-unit housing developments, address environmental issues with failing or improperly operating septic systems and provide economic development on Middlesex Road in the Town Center and where the Town adopted a Special Overlay Mixed Use Village Zoning. Without sewer infrastructure, this development cannot occur. Tyngsborough is investing in public sewer in this area, identified as a growth area along Middlesex Road, to complement the existing planning in place to create a viable, walkable Town Center, support the two Special Permits in place for multi-housing, and provide economic development in an area that will not come to fruition without the sewer.

3. Long-Term Development Patterns

Tyngsborough continues to be a town in transition. Since 1980, the Town has lost much of its rural landscape and character. As land and housing became increasingly costly throughout eastern Massachusetts, Tyngsborough's location along Route 3 and the availability of land make it attractive for residential development. With a current

population of expected to exceed 12,000 in 2020, the Town continues to face challenges in absorbing growth, providing and upgrading services and infrastructure, retaining open space, and preserving the community character that attracted many residents to the Town in the first place.

In 2000, NMCOG prepared a build-out analysis for Tyngsborough, using a methodology developed for a statewide initiative by the Executive Office of Energy and Environmental Affairs. The build-out analysis, as shown on the table below, provides order-of-magnitude numbers as to the development capacity within Tyngsborough under the zoning that existed in 2000. However, communities rarely reach 100 percent buildout, zoning regulations have changed since 2000, and the timeframe in which total build-out might occur depends on economic conditions and other factors. Taking into account these caveats, the build-out information provides a useful estimate of the residential and nonresidential development that could potentially be built in Tyngsborough.

Table 11: Summary Build-out Statistics - Additional Development and Impacts

Measure	Potential Impact	
Total Developable Land Area	Square feet	Acres
• Residential	192,336,537	4,415.4
• Commercial	5,165,538	118.6
• Industrial	<u>19,721,680</u>	<u>452.7</u>
	217,223,680	4,986.8
Total Residential Lots/Dwelling		3,134/3,686
Total Commercial/Industrial Buildable Floor Area		
• Commercial		1,659,603 sq. ft.
• Industrial		<u>15,692,918 sq. ft.</u>
		17,353,521 sq. ft.
Total Water Use (gallons/day)		
• Residential		718,729
• Commercial/Industrial		<u>1,301,439</u>
		2,020,168
Total Municipal Solid Waste (MSW) in tons/year		1,420
• Recycled or composted MSW		<u>3,496</u>
• Non-recycled/non-composted MSW		4,916
Students (Grades K-12)		1,437
New Roadways (linear miles)		61.8
Vehicle Trips per day		34,123
• Residential		7,017
• Commercial		<u>113,401</u>
• Industrial		154,541

Source: Northern Middlesex Council of Governments Buildout Analysis for Tyngsborough (2000)
For notes on Table 20, see page 34

The following information was used for the above table:

1. Residential water use is based on 75 gallons per person per day.
2. Commercial/Industrial water use is based on 75 gallons per 1,000 square feet of floor space.
3. Municipal solid waste is based on 1,206 pounds per person per year. All waste estimates are for residential uses only and assume that 730 pounds of waste per person

are disposed of in a landfill or incinerator. The remainder is assumed to be recycled or composted.

4. The number of students at buildout is based on a student to household ratio of 0.3 as ascertained through the 2000 U.S. Census.

With 77.4% of all *developed land* in Tyngsborough used for residential purposes, the Town is primarily a bedroom community with single-family houses being the predominant residential use in the community. According to the Tyngsborough Assessor’s parcel data (June 2018), 46.2% of the Town’s *total land area* is classified as residential. Single-family residences, by far the largest residential use, account for 40.8% of the total acreage in Tyngsborough and 88.2% of Tyngsborough’s residential acreage. Two family dwellings account for just 0.6% of Tyngsborough’s land area, and multi-family dwellings account for 4.8% of total land area.

There are several parcels within the community that the Tax Assessor classifies as residential mixed with commercial or residential mixed with agricultural. Together, these parcels comprise approximately 277.8 acres, or 2.8% of the Town’s land area, with 244 acres being residential mixed with agricultural and the remaining 33.8 acres being residential mixed with commercial. Table 21 on the following page summarizes the allowed uses by residential zoning district – Low Density (R-1), Medium Density (R-2) and Multifamily (R-3) - according to the current Zoning Bylaw.

According to the current Zoning Bylaw, single-family development is permitted by right in all residential districts, while two-family and multi-family dwellings are permitted in the R-3 District only; the former by right and the latter with special permission from the Planning Board (SPB-R) and Town Meeting vote, as noted in Table 21 on page 34. Similarly, Temporary Independent Living Quarters are permitted in all three residential zoning districts by Special Permit from the Planning Board (SPB). Finally, the Town’s Zoning By-Law prohibits residential uses in all Commercial and Industrial zoning districts.

Table 12: Permitted Residential Uses by Zoning District

Residential Use	Zoning District		
	Residential R-1 Low Density	Residential R-2 Medium Density	Residential R-3 Multifamily
Single-Family Dwelling	Yes	Yes	Yes
Two-family Dwelling	No	No	Yes
Multifamily Dwelling	No	No	SPB-R
Temporary Independent Living Quarter	SPB	SPB	SPB

Source: Town of Tyngsborough Zoning Bylaw

Table 13 on the following page summarizes the dimensional and density requirements for standard residential lot subdivisions in each of the three residential zoning districts. Within the R-1 Low Density district, the minimum lot area required for subdivision is 65,000

square feet, including a 50-foot minimum lot width, 200-foot minimum frontage, 30-foot sides and rear yards, a 36-foot maximum building height, and a 3% minimum open space requirement. Within the R-2 Medium Density and R-3 Multifamily districts, the minimum lot areas are 20,000 square feet, including a 50-foot minimum lot width, 75-foot frontage, 30-foot front yard, and 36-foot building height. Developments in R-2 districts have side and back yard minimum requirements of 20 feet each, while developments in R-3 districts have 15-foot side and-backyard minimum requirements.

A variation should be noted: single-family dwelling units in R-3 districts require 44,000 square feet of lot area and 200 linear feet of frontage, while two-family homes in R-3 districts require 88,000 square feet lot area and 400 feet of linear frontage. Additionally, the Town Bylaw mandates that at least two off-street parking spaces for any residential unit with two bedrooms or more, while one space must be designated for units with one bedroom or less.

Table 13: Dimensional and Density Requirements for Residential Subdivisions

Dimensional Requirement	Residential R-1 Low Density	Residential R-2 Medium Density	Residential R-3 Multifamily
Minimum Lot Area (Square feet)	65,000	20,000	20,000
Minimum Lot Width (Linear feet)	50	50	50
Minimum Frontage (Linear feet)	200	75	75
Minimum Front Yard (Linear feet)	30	30	30
Minimum Side Yard (Linear feet)	30	20	15
Minimum Rear Yard (Linear feet)	30	20	15
Maximum Building Height (feet)	36	36	36
Minimum Open Space (Percent of total area)	3	N/A	N/A

Source: Town of Tyngsborough Zoning Bylaw

Map 3 shows the current zoning within the community. The Middlesex Road corridor is the town’s primary business area. Office park and industrial development can be found on Westford Road near the Route 3 interchange, on Route 113 near the Dunstable line, and on Cummings Road off Route 113.

Planning Documents

In 2003, the Town completed a Master Plan that outlined the overall vision for the community and enumerated numerous goals and objectives which will help guide the Town’s future growth and development. Among the Plan’s recommendations are the following:

- Create an expanded Town Center with three development nodes;
- Develop mixed use commercial, residential, cultural village nodes;
- Extend sewer service along Middlesex Road;
- Preserve the golf courses and institutional lands;
- Provide incentives for open space residential developments; and
- Develop an open space corridor/trail system.

This sampling of the recommendations in the Plan shows that the Town is committed to actively pursuing an open space/recreational component as part of its overall development. The Open Space Recreation Plan Survey reflected desire on the part of the Town's residents to develop recreational activities emphasizing pedestrian facilities and hiking trails (See Section 7.) The Master Plan is currently in the process of being updated, and is being overseen by the town's Master Plan Committee, comprised of representatives from Town boards and residents at large. The Board of Selectmen has recently appointed a committee to imitate the process.

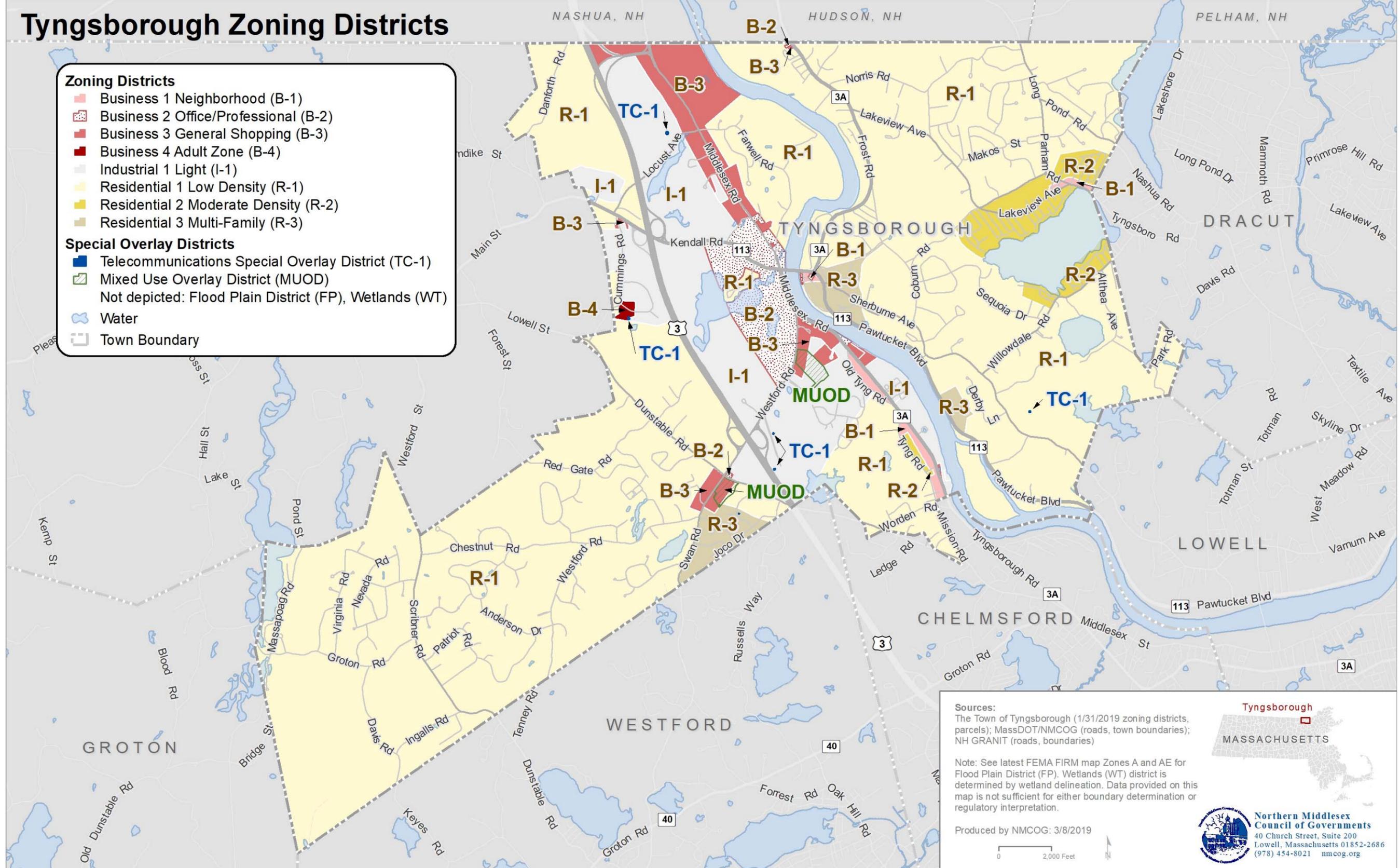
The Town completed the *Town Center Master Plan* in September 2008, which builds upon several prior planning efforts, and focuses on creating a vibrant and dynamic town center. The plan examines the re-use of town-owned properties within the center, explores open space and pedestrian improvements, and assesses opportunities for new development and infrastructure improvements. The master plan recommends that town greens be established at two locations along Middlesex Road: just south of the First Parish Meeting House and at the site of the former Flint Box Factory. The land that lies between the church and the property of the Tyngsborough Housing Authority was formerly used as a town common. Improvements to the existing open space along Winslow Drive are also detailed within the document. These improvements include extending the green space onto portions of Winslow Drive, streetscape improvements and providing additional pedestrian amenities.

The Town Center Plan also advocates creating a park on land between Flint Pond and the Old Town Hall, with improved pedestrian connections to Kendall Road, and identifies a second location for a potential park behind the Winslow School. It may be possible to connect the new park behind the Winslow School with the New Town Hall by constructing a walking path through the woods.

This project is a huge priority for the Town. The Town recently applied and received for Complete Streets funding to renovate this area to allow for multi-modal transportation. The project was successfully completed in fall of 2019. In addition, the Town is working to establish a new Town Common. The Town has restored and renovated Old Town Hall, and is renovating the historic First Parish Church. The dilapidated and unsafe Adams Barn has been demolished, and left as open space. In its place the Town is establishing a park and footpath. They are also working to renovate Winslow School and the historic Littlefield library.

In 2017 the Town hired its first Town Planner since the early 2000s. The Town Planner was hired at 17.5 hours a week to staff the Planning Board. At Town Meeting in 2018, the Town allocated funding to increase the Town Planner's schedule to 35 hours per week. In 2019, the Town hired their first Town Engineer. The town is currently working to update the Master Plan.

Map 3 - Tyngsborough Zoning Map



SECTION 4: ENVIRONMENT INVENTORY AND ANALYSIS

A. Geology, Soils and Topography

The Merrimack River divides Tyngsborough into two topographic regions. The eastern part of Town is characterized by gently rolling hills, while the western part of Town has higher elevations and steeper slopes. The highest elevations in Tyngsborough are found west of the river atop Scribner Hill (400 feet), at the MIT observatory (400 feet), and atop Bear Hill (373 feet). The lowest point in town is at about 98 feet in elevation, where the Merrimack River flows across the town line into Lowell.

The topography of Tyngsborough was formed by glaciation during the Cenozoic era (beginning 65 million years ago and including the present) in the Pleistocene age - the most recent dramatic geological event. The sharply accented hills and valleys of the pre-glacial landscape were modified by glacial abrasion and outwash deposits (alluvium) caused by the huge ice formations. Glacial till, alluvium made up of clay, sand, silt, and gravel deposited by glaciation, covers the bedrock formations of the Paleozoic era (beginning 600 million years ago and ending 230 million years ago) in the pre-Cambrian age.

Surface bedrock, or "ledge", is very evident in the western hills of Tyngsborough. Drumloid hills, a rounded yet asymmetrical landform relic of the glaciers composed of highly compressed clay and till, are obvious near Flint Pond. The western edge of Flint Pond shows evidence of eskers, caused by the buildup of sand and gravel left by the streams that flowed under glaciers. Flint Pond and other water bodies in Tyngsborough are the legacy of glaciers that carved out huge depressions in the ground as they came to rest, slowly melting over a period of years and leaving their melt water in the remaining cavities. Alluvial sand and gravel deposits left by running water are found along the shores of the Merrimack River.

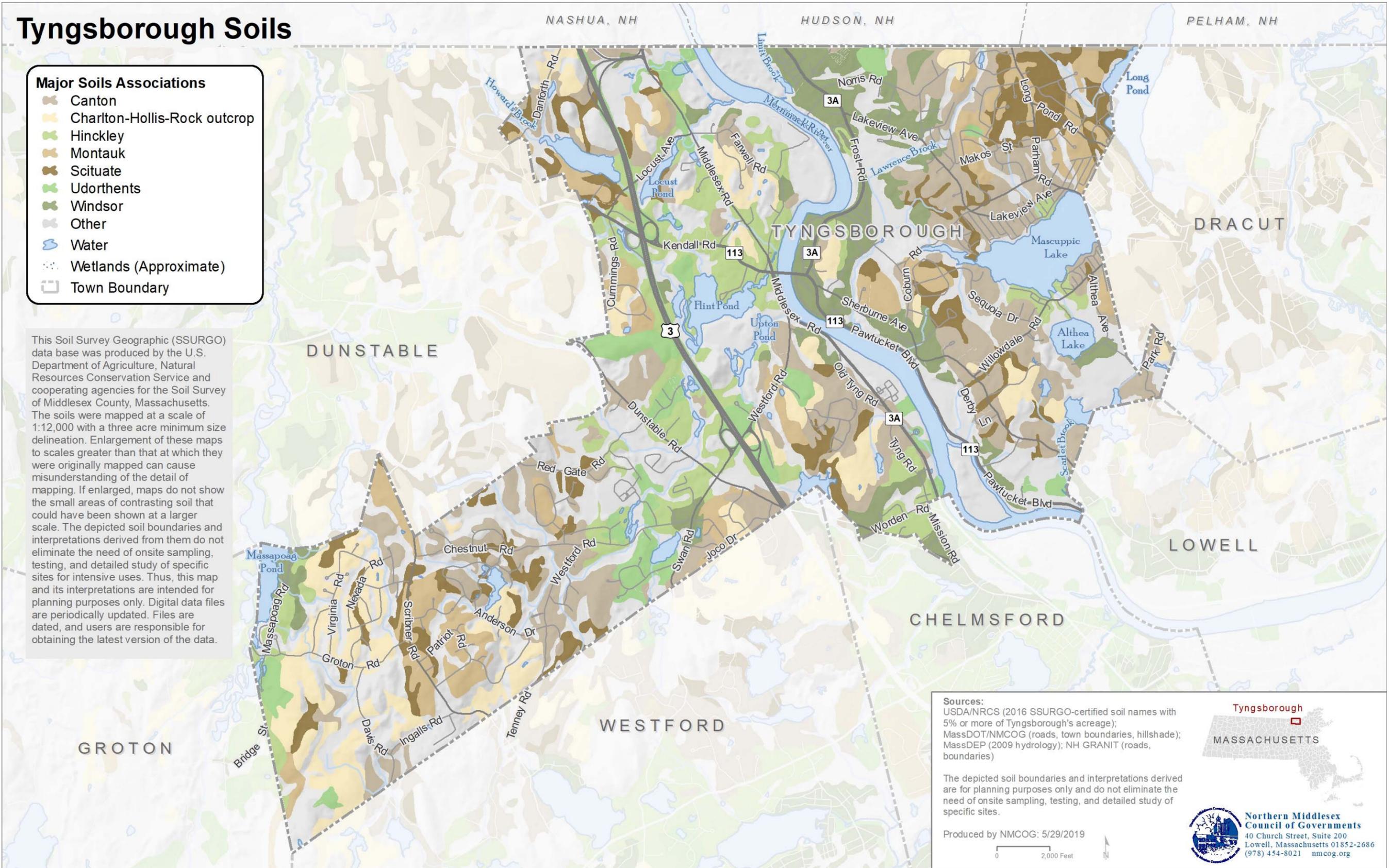
Two main soil associations are found in Tyngsborough, as show on Map 4. The dominant soil association is the Hollis-Canton-Scituate (51% of all soils) and is most prevalent in the hilly western and northeastern sections of Town. Stony and sandy, these soils have slight or moderate limitations for wildlife and recreation uses, moderate to severe limitations for woodlands, and severe constraints for construction and agricultural activity. The Hinckley-Windsor-Deerfield soil association (24% of all soils) and is found near the Merrimack River and other waterways. These sandy and gravelly soils have slight limitations for construction, as sources of sand and gravel, and for sanitary landfill areas and moderate limitations for agricultural uses. The remaining 18% of all soil deposits are comprised of the Muck-Scarboro-Whitman (9%), Hadley-Suncook-Winooski (6%), and Millis-Paxton-Hollis (3%) associations, which generally have slight limitations for wildlife and recreational uses, slight to moderate limitations for agricultural uses, and severe limitations for construction. It should be noted that 7% of the Town is water.

Map 4

Tyngsborough Soils

- Major Soils Associations**
-  Canton
 -  Charlton-Hollis-Rock outcrop
 -  Hinckley
 -  Montauk
 -  Scituate
 -  Udorthents
 -  Windsor
 -  Other
 -  Water
 -  Wetlands (Approximate)
 -  Town Boundary

This Soil Survey Geographic (SSURGO) data base was produced by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies for the Soil Survey of Middlesex County, Massachusetts. The soils were mapped at a scale of 1:12,000 with a three acre minimum size delineation. Enlargement of these maps to scales greater than that at which they were originally mapped can cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soil that could have been shown at a larger scale. The depicted soil boundaries and interpretations derived from them do not eliminate the need of onsite sampling, testing, and detailed study of specific sites for intensive uses. Thus, this map and its interpretations are intended for planning purposes only. Digital data files are periodically updated. Files are dated, and users are responsible for obtaining the latest version of the data.



Sources:
 USDA/NRCS (2016 SSURGO-certified soil names with 5% or more of Tyngsborough's acreage);
 MassDOT/NMCOG (roads, town boundaries, hillshade);
 MassDEP (2009 hydrology); NH GRANIT (roads, boundaries)

The depicted soil boundaries and interpretations derived are for planning purposes only and do not eliminate the need of onsite sampling, testing, and detailed study of specific sites.

Produced by NMCOG: 5/29/2019



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The composition and landscape of Tyngsborough's geology and soils have played an important part in development and land use in the Town. Hollis-Canton-Scituate soils in the western and northeastern part of Town, difficult for housing construction because of their poor drainage characteristics and shallow depth to bedrock (ledge outcroppings), delayed residential development in these areas. Hinkley-Windsor-Deerfield soils, generally located near waterways, are poorly drained soils with high water tables and have tended to restrict land development along rivers, streams, and low areas of Town. The excavation of these same sandy and gravelly soils in central Tyngsborough created the mines and quarries present in that area of Town.

B. Landscape Character

Tyngsborough's landscape provides a diversity of terrain and scenery. The gently rolling topography east of the river contrasts with the complex of prominent drumloid hills in the west. The town is bisected by the Merrimack River, dotted with lakes and ponds, and overlaid with a network of meandering streams, brooks, and wetlands.

Tyngsborough's identity is closely linked to the Merrimack River, which cuts a wide swath through the heart of the Town. The Tyngsborough Bridge, high above the river, is the most well-known symbol of the town, and roads along the river shore in several locations provide long river views. Mascuppic Lake, Althea Lake, Long Pond, and Massapoag Pond, Flint Pond, Upton Pond, as well as smaller ponds throughout the town, provide scenic recreational areas.

Several large patches of natural habitat help preserve Tyngsborough's remaining semi-rural landscape character: the MIT Observatory land (400 feet), which continues into Westford and Groton; Bear Hill (373 feet); Notre Dame Academy; Innovation Academy Charter School; the Greater Lowell Regional Vocational Technical High School; and the Lowell / Dracut / Tyngsborough State Forest. In addition, Tyngsborough still has a number of large private parcels in forest and agriculture.

C. Water Resources

1. Watersheds

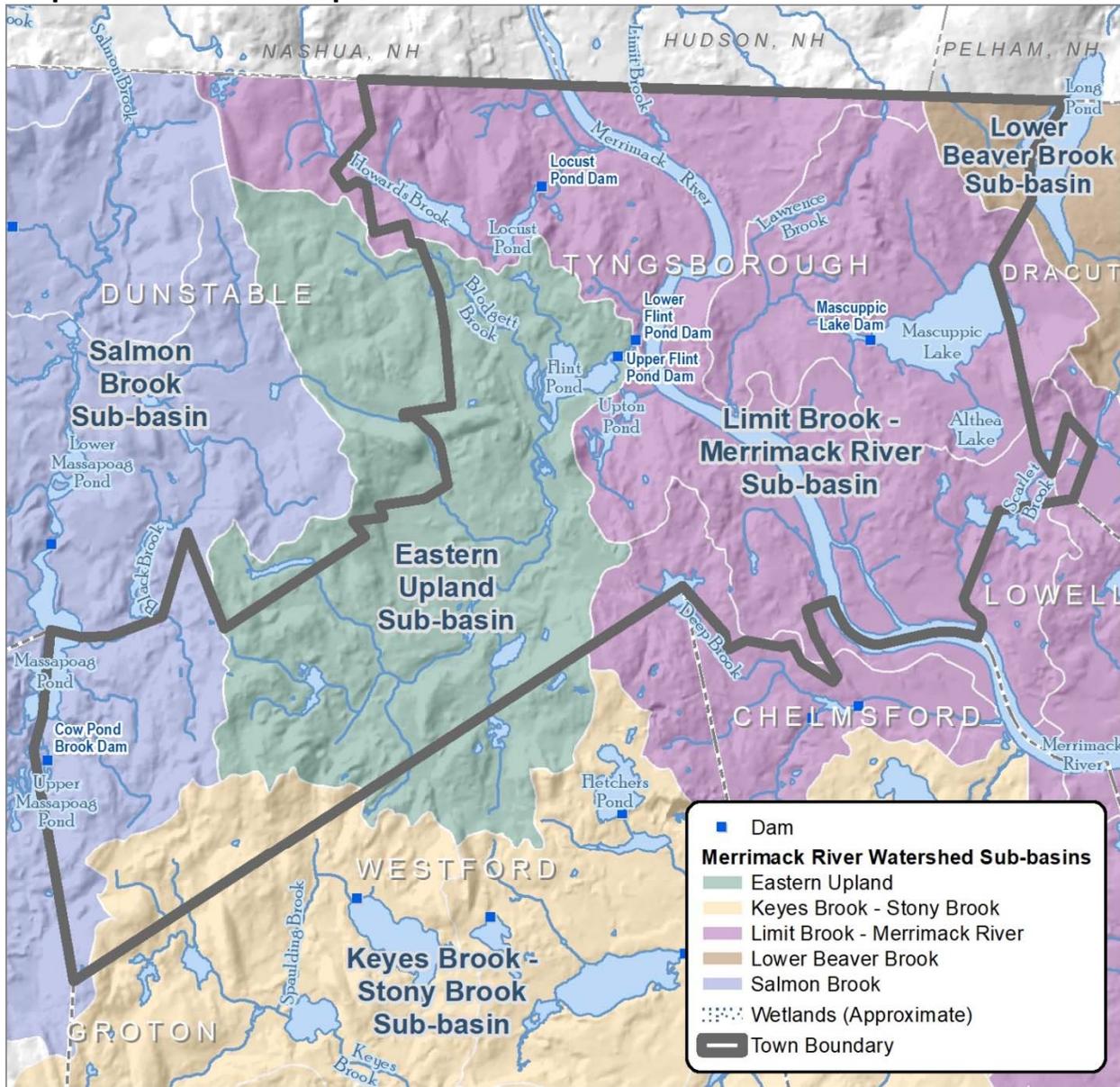
All of Tyngsborough is within the Merrimack River watershed, as shown on Map 5. Much of Tyngsborough drains directly to the Merrimack River, but Tyngsborough is part of five sub-watersheds, in order of area (greatest to least): Limit Brook/Merrimack River; Eastern Upland Brook (locally called Bridge Meadow Brook); Salmon Brook; Keystone Brook/Stony Brook; and Beaver Brook.

2. Surface Water

Rivers and Streams

According to the Massachusetts Natural Heritage and Endangered Species Program's (NHESP's), BioMap 2 report (see Appendix G), there is one Aquatic Core Habitat in Tyngsborough. This is an intact river corridor that provides important physical and ecological processes for the river or streams, for fish species and other aquatic Species of Conservation Concern. In addition, the BioMap 2 Report notes there are two Coldwater Fishery Resource Streams in Tyngsborough: Deep Brook (near the Westford and

Map 5 – Watershed Map



Sources:
 Office of Dam Safety (dams); MassDEP/NMCOG (2005 hydrography, wetlands); MassGIS/USGS (USGS NHD Flowline basin names); MassDOT/NMCOG (2012 dams, town boundaries, shaded relief); NH GRANIT (roads, political boundaries)

Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.

Produced by NMCOG: 8/16/2019



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Chelmsford town lines, see Map 5) and Johnson Brook (south of Norris Avenue, in the Route 3A/Lakeview Avenue area, and between Waterway Place and Phalanx Street). Both discharge to the Merrimack River. The Merrimack River, second largest river in the state after the Connecticut River, winds southerly through the Town and divides it nearly in half. The River runs through town for over five miles and supports water supply via ground water recharge for much of town. Although there are no formal boat launches or fishing piers along the Merrimack in Town, public access could be provided through Town-owned land off Pawtucket Boulevard and Farwell Road on the east and west sides of the river, respectively. (Such public access was often mentioned by those responding to the Open Space Recreation Plan Survey.) The section of the Merrimack River that cuts through Tyngsborough is designated as a Class B stream to be used for propagation of fish, other aquatic life and wildlife, and for primary (swimming) and secondary (boating) contact recreation. The river has no trouble meeting the Class B requirements under low flow conditions, but sometimes does not meet them under wet weather and storm conditions due to nonpoint source pollution.

The Scarlet, Lawrence, Limit, Locust and Bridge Meadow Brooks support fishing and other light uses. Bridge Meadow Brook originates on Scribner Hill and flows into Flint Pond. Lawrence Brook flows from Norris Corner along Lawndale Road and into the Merrimack River just upstream from the Tyngsborough Country Club. Limit Brook flows out of Hudson, New Hampshire and into the Merrimack River near Frost Road. Scarlet Brook flows out of wetlands, between Althea Lake and the State Forest, into the Merrimack River. Locust Brook flows from Locust Pond, along Locust Avenue, into the Merrimack River near Farwell Road.

Ponds and Lakes

There are seven large lakes or ponds located within the Town of Tyngsborough. Lake Mascuppic is 215 acres in total area, of which approximately 209 acres are located in Tyngsborough. This is the largest lake in town and is surrounded by former summer cottages that have been converted to year-round residences. Impacts from stormwater runoff, yard fertilizers, fecal matter from non-migratory water fowl, and motor boats and jet skis, have taken their toll on the lake's water quality. Lake Mascuppic is bordered by Town-owned and privately-owned conservation land off Sequoia Drive and a Town Beach off Mascuppic Trail.

Long Pond has a total area of 163 acres, of which approximately 40 acres are located in Tyngsborough. The pond has a developed shoreline that is used extensively for recreation - particularly swimming, fishing, and boating. Massapoag Pond (153 acres total, approximately 64 acres in Tyngsborough), Flint Pond (74 acres managed by the state Department of Fish, Wildlife and Environmental Law Enforcement - DFWELE), and Althea Lake (38 acres) are primarily passive recreation areas that support fishing and canoeing, and also serve as wildlife habitat. Lake Althea is accessible from the State Forest off Althea Avenue. Locust Pond (13 acres) and Upton Pond (5 acres) have limited public access and serve mainly as wildlife habitat and conservation areas.

3. Aquifer Recharge

As shown on Map 6, aquifers are primary sources of groundwater and are found in stratified sand and gravel deposits laid down by glacial melt water, or in the post-glacial alluvium deposited as river terraces and floodplains by waterways. The recharge areas for aquifers are the wetlands and surface water bodies that form the surface of the underground aquifer, as well as the glacial deposits nearby. The pervious soils found in these places are also suitable for leaching fields and construction, so these recharge areas are often attractive to development.

Groundwater from local aquifers are a major source of domestic water for Tyngsborough residents, whether they depend on public water supplies or private wells. Some important aquifers or groundwater recharge areas are found within the town boundaries. A high yield aquifer (more than 300 gallons per minute) lies under the Dracut well fields, and downstream between the river and Middlesex Road. Lower yield aquifers (100 to 300 gallons per minute) are located along Bridge Meadow Brook, near the intersection of Westford Road and Dunstable Road, near Flint Pond, along the Merrimack River and at Tyng Island. The TWSD wells are located near these lower yield aquifers or along Lawrence Brook.

4. Flood Hazard Areas

Areas subject to 100-year floods include the banks of the Merrimack River; the shorelines of Lake Mascuppic and Althea Lake, including connecting wetlands and out flowing tributaries; the shorelines of Long Pond; the shorelines of Flint Pond and Massapoag Pond, including tributaries and associated wetlands; Lawrence Brook; and Bridge Meadow Brook and its many tributaries. Most of these shorelines are already developed, except for portions of Lake Mascuppic, Althea Lake, and Flint Pond.

According to FEMA's Community Information System, as of June 2019, there are eight repetitive flood loss structures within the Town, of which only four are insured through the National Flood Insurance Program (NFIP). As noted in the *Pre-Disaster Mitigation Plan for the Northern Middlesex Region* prepared by NMCOC, when the Merrimack River is at flood stage it overflows its bank and floods a section of Route 113 near the Vesper Country Club. The document's action plan recommends mitigating this flooding issue. Additional information on chronic flooding areas is detailed in Section G.3 below (Page 54).

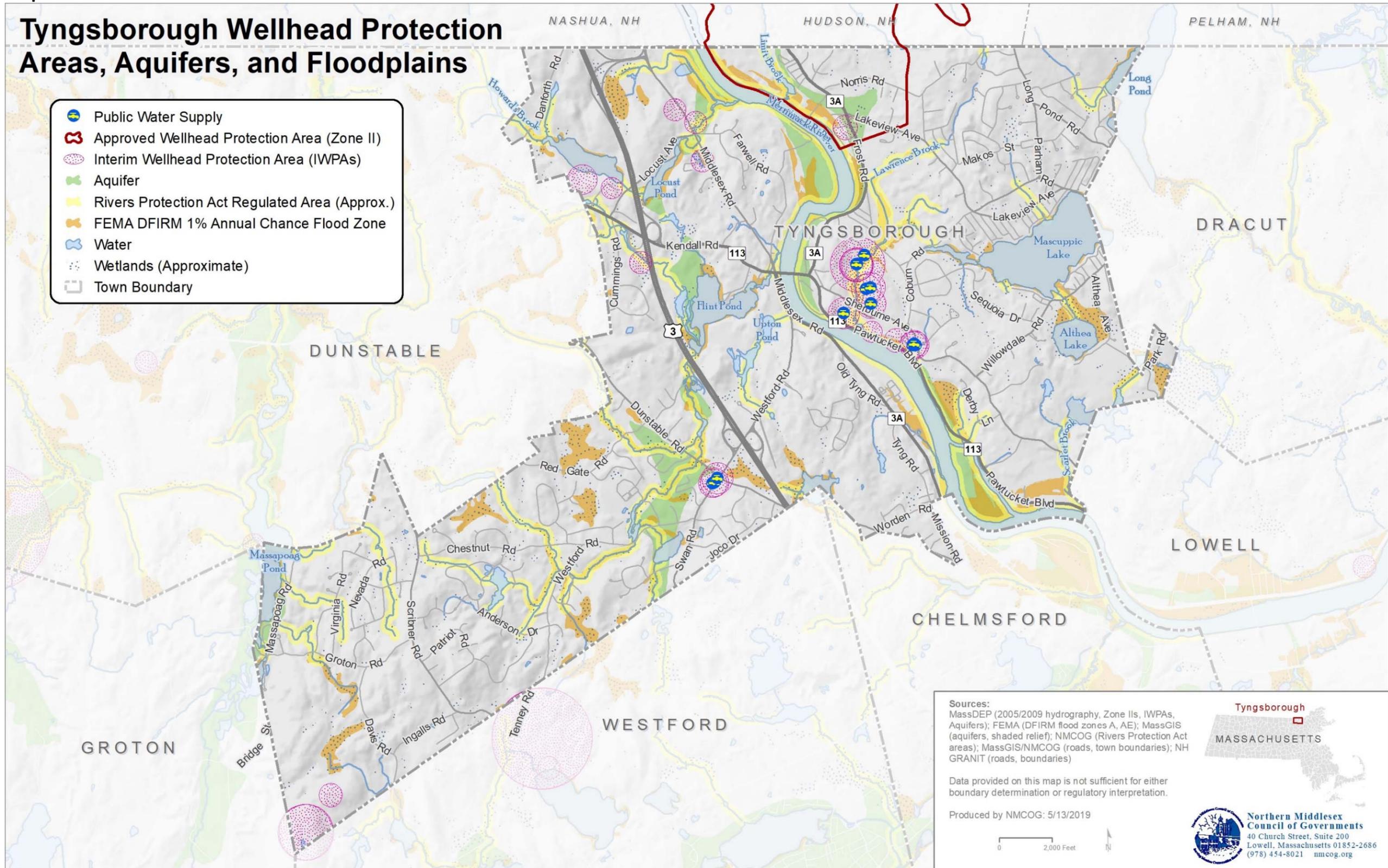
5. Wetlands

Wetlands are determined by three characteristics in Massachusetts: water at or near the surface during the growing season (hydrology), a predominance of plants that have adapted to wet conditions (hydrophytic vegetation), and soils formed under saturated conditions which develop anaerobic conditions in the upper part (hydric soils). For a wetland to be jurisdictional under the MA Wetlands Protection Act (WPA, 310 CMR 10), it must border a water body, such as a river, stream, lake, or pond, or be greater than 5,000 square feet in size. The Tyngsborough Wetlands Protection Bylaw regulates wetlands regardless of whether they border a water body, and does not have a minimum size requirement.

Map 6

Tyngsborough Wellhead Protection Areas, Aquifers, and Floodplains

-  Public Water Supply
-  Approved Wellhead Protection Area (Zone II)
-  Interim Wellhead Protection Area (IWPA)
-  Aquifer
-  Rivers Protection Act Regulated Area (Approx.)
-  FEMA DFIRM 1% Annual Chance Flood Zone
-  Water
-  Wetlands (Approximate)
-  Town Boundary



Sources:
 MassDEP (2005/2009 hydrography, Zone IIs, IWPA, Aquifers); FEMA (DFIRM flood zones A, AE); MassGIS (aquifers, shaded relief); NMCOG (Rivers Protection Act areas); MassGIS/NMCOG (roads, town boundaries); NH GRANIT (roads, boundaries)

Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.

Produced by NMCOG: 5/13/2019



The 634 acres of mapped wetlands in Tyngsborough represents approximately 5.7% of the Town's total land area. As is typical of the region, more than half of all wetlands (361 acres) appear to be non-forested. The remaining 273 acres are forested wetlands. Tyngsborough also has some perched wetlands, which are maintained by water trapped above impermeable soils or bedrock.

Tyngsborough's wetlands vary in size, from less than one acre to approximately 36 acres, and are generally associated with major waterways and water bodies including the Bridge Meadow Brook, Lawrence Brook, Scarlet Brook, Lake Mascuppic, Althea Lake, and Flint Pond. NHESP states in their BioMap 2 Report (see Appendix G), there are five wetland core habitat areas in Tyngsborough. These wetland areas are “the least disturbed wetlands in the state within undeveloped landscapes - those with intact buffers and little fragmentation or other stressors associated with development.” Core wetlands are those most likely to support critical wetland functions and most likely to maintain those functions in the future.

Wetlands are important for many reasons, including storing carbon in live and preserved (peat) plant biomass instead of releasing it to the atmosphere as carbon dioxide, thereby helping to moderate global climatic conditions. The WPA states that wetlands are significant to the protection of eight specific interests, noted below:

- Protection of public & private water supply
- Protection of groundwater supply,
- Flood control
- Storm damage prevention
- Prevention of pollution
- Protection of land containing shellfish
- Protection of wildlife habitat
- Protection of fisheries

As noted above, wetlands themselves are protected by the WPA and Tyngsborough's local Wetlands Protection Bylaw, but the appropriate management of the upland areas adjacent to wetlands is essential to conserve the integrity and function of wetlands.

The Tyngsborough Conservation Commission has established several requirements to protect wetland buffer zones:

- Fifty-foot no-build zone: No new structures or impervious surfaces may be constructed within 50 feet of a resource area.
- Thirty-foot no-touch zone: No disturbance of any kind is allowed within 30 feet of a resource area.

Where there has already been disturbance of the buffer zone, it is important to make property owners aware of practices that will protect wetlands and water resources. For example, rather than mowing up to the edge of water or wetlands, buffers of native vegetation should be conserved.

D. Vegetation

1. General Inventory

No comprehensive inventory of vegetation has been conducted in Tyngsborough. A complete list of known vascular plants is available by county in “The Vascular Plants of

Massachusetts: A County Checklist, First Revision¹”, published by NHESP. However lists of plants common to this portion of Massachusetts are included in Appendix B. In general terms, the white pine and hemlock forest association is dominant in the region, and several stands of white pine can be found in Town. Hardwood species that are present in the region, and also found in Tyngsborough, include red and sugar maple; several species of oak (red, black, scarlet, and pin); white, black, and grey birch; white and green ash; and American beech and American elm. Wetlands in Tyngsborough support a variety of typical plant life including mosses; grasses, sedges and rushes; ferns; shrubs such as dogwoods and viburnums; cattails; and many types of coniferous and deciduous trees.

Since 1980, significant development has reduced the size of large areas of contiguous woodland in Tyngsborough. This is particularly the case in the western “panhandle,” where the construction of new subdivisions, as well as development along historic roads, has fragmented the woodlands in this area of hills and ledge. In addition to the state forest and institutional lands noted earlier, substantial forest cover remains in the industrially-zoned area between Route 3 and the Merrimack River. The diversity of plant communities within the town provides food and habitat for wildlife.

2. Forest Land

The Land Use Map (Map 2), identifies 5,121 acres of forest land, which represents 44% of the town’s land area. These forests are primarily Central Hardwoods-Hemlock-White Pine association and relatively small areas of the Swamp Hardwood association. The remaining uninterrupted forests in Tyngsborough are particularly valuable for a broad diversity of wildlife. Four large forest areas remain. One is on Bear Hill and includes the site of the MIT Observatory. Another area is located between Middlesex Road, Westford Road, and Dunstable Road to the south of Potash Hill. This area also extends to the west of Westford Road to Flint Pond and includes the slopes of Abrams Hill. The third major area is located to the south of Althea Lake and joins with the Lowell-Dracut-Tyngsborough State Forest. The fourth area is on both sides of Route 3, including the area north of Locust Hill. NHESP lists on Forest Core Habitat in BioMap 2. Forest Cores are “the best examples of large, intact forests that are least impacted by roads and development. Forest Cores support many bird species sensitive to the impacts of roads and development and help maintain ecological processes found only in un-fragmented forest patches.” The Forest Core Habitat is located in the extreme southwest corner of the town.

3. Public Shade Trees

Tyngsborough does not have a shade tree by-law. The Highway Department and the Tree Warden inspect the Town’s street trees and park trees for decay, damage, disease or death. Healthy trees are not removed unless they are a hindrance to public safety. The Highway Department works with all tree trimming companies hired by utilities for line trimming of any trees in the public right of way. In addition, the Planning Board rules and regulations addresses tree planting in new subdivisions. In 2019, Tyngsborough began consideration of a Tree Preservation Bylaw, with assistance from NMCOG.

¹ Dow Cullina, Melissa & Connolly, Bryan & Sorrie, Bruce & Somers, Paul. (2011). The Vascular Plants of Massachusetts: A County Checklist, First Revision.

4. Agricultural Land

As shown in Table 15 on page 25, the Town of Tyngsborough had 370 acres of agricultural land in 2005, of which 327 acres was identified as cropland and 93 acres was identified as pasture. By 2019 that number had changed 317 acres of agricultural land, of which 206 acres was identified as cropland and 111 acres was identified as pasture. Most remaining agricultural land is located along the Merrimack River. There are also small farm parcels scattered in other areas of town. Farms include Bear Hill Farm, Willowdale Farm, and Parlee Farm.

5. Rare, Threatened, and Endangered Plant Species

As of August 2019, the NHESP has not listed any plant species in Tyngsborough as threatened, special concern or endangered. It is possible that rare or endangered plant species may exist but have not been documented. Because the NHESP office depends to a significant degree on volunteer documentation of sightings of rare and endangered species, local efforts to survey plants in town could result in additional listings.

E. **Fisheries and Wildlife**

1. General Inventory

As with vegetation, there has been no comprehensive survey of wildlife, vertebrates, or invertebrates in Tyngsborough. However, there is relatively good information on the numerous species of small fresh water fish present in Town waters. In particular, salmon and shad are returning to the Merrimack River because of a restoration program conducted by the Massachusetts Division of Fisheries and Wildlife and the New Hampshire Fish and Game Department. The Eastern Brook Trout Joint Venture, A diverse group of partners, including state fish and wildlife agencies, federal resource agencies, Indian tribes, academic institutions and non-governmental organizations, states that eastern brook trout is found within the Merrimack River watershed, including in Tyngsborough. In addition, the *Merrimack River Comprehensive Watershed Assessment Report* identified the additional fish species in Table 23 below as being present within the Merrimack Watershed:

Table 14: Fish Species in Merrimack River Watershed

<ul style="list-style-type: none">• 3-spine stickleback• 4-spine stickleback• 9-spine stickleback• Alewife• American shad• American smelt• Atlantic salmon• Atlantic silverside• Atlantic sturgeon• Banded killfish• Banded sunfish• Black crappie• Blacknose dace• Blueback herring• Bluegill• Bowfin	<ul style="list-style-type: none">• Gizzard shad• Golden shiner• Goldfish• Largemouth bass• Longnose dace• Margined madtom• Mummichog• Northern pike• Northern pipefish• Pumpkinseed• Red breast sunfish• Sand lance• Sea lamprey• Shortnose sturgeon• Smallmouth bass• Spottail shiner
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<ul style="list-style-type: none"> • Bridle shiner • Brown bullhead • Carp • Chain pickerel • Channel catfish • Common shiner • Eel • Falifish 	<ul style="list-style-type: none"> • Striped bass • Swamp Darter • Tesseliated Darter • White catfish • White perch • White sucker • Yellow bullhead • Yellow perch.
--	--

Source: Merrimack River Comprehensive Watershed Assessment Report

NHESP notes in their letter of August 27, 2019 (see Appendix G) that there are eight habitat areas for Species of Conservation Concern, including habitat for birds, reptiles, amphibians, and insects. This is an increase of 30%, or two additional habitat areas identified, over the 2012 BioMap 2 Report. Wildlife typical of suburban and semi-rural areas can be found in Tyngsborough including deer as well as small rodents and mammals such as foxes, rabbits, opossums, raccoons, squirrels, and mice. Many kinds of birds also inhabit the forested areas of Tyngsborough. The Massachusetts Audubon Society has recorded sightings of many species, from the Tree Swallow to the Rufus-Sided Towhee. Reptiles and amphibians, such as frogs, salamanders, snakes, and turtles, as well as water-dependent mammals including beavers, and muskrats are common in wet areas. Because access to clean water is a critical survival need for all animal species, streams, ponds, and wetlands are important wildlife habitat. Advisory Group members and participants in the public meetings also reported seeing mink, pileated woodpeckers, bluebirds, owls, orioles, wild turkey, bald eagles (listed as an “threatened”), and Blandings Turtles (listed as a “threatened” species).

In recent acquisitions of open space, Tyngsborough has made an effort to create large areas of contiguous open space that provide the interior forest environments needed by some species that cannot survive in fragmented open space common in suburban environments. There are four certified vernal pools in Tyngsborough, and most likely there are others that are undocumented. By definition, flooded during only part of the year, vernal pools lack fish populations and common wetlands vegetation. They support unique wildlife communities that have adapted to wet and dry cycles.

2. Vernal Pools

Biologists working on state natural heritage surveys understand that many rare and valuable species depend on vernal pools. Vernal pools, sometimes called ephemeral pools, are temporary ponds or flooded depressions in wetlands and wooded areas that typically fill with water from rain or rising groundwater in the spring or fall, but usually dry out in summer. They may also hold water in winter, but since they tend to dry up for at least part of the year in most years, fish are unable to establish permanent populations. This makes them critical to the reproductive success of many amphibian and invertebrate species that need their breeding habitats to be free of fish predators, called obligate vernal species. In addition, there are many so-called facultative species of amphibians, invertebrates and reptiles that use vernal pools for breeding, but also use non-vernal pool areas.

Vernal pools must be certified by NHESP to receive protection under the WPA. However, the Tyngsborough Conservation Commission has established a policy to consider vernal pools a resource area, whether or not they are certified by the state. Because vernal pools are intermittent phenomena, unless they are identified during the spring, they could be disturbed inadvertently. In a number of communities, identification and certification of vernal pools has become part of the school curriculum, which is encouraged in Tyngsborough. Vernal pool information and certification forms are available at the State Division of Fisheries and Wildlife website.

As of August of 2019, there are 16 certified vernal pools in Tyngsborough. This means that sufficient data has been collected and submitted to NHESP to confirm that the pools serve as breeding habitat for obligate vernal species. There are also 153 potential vernal pools, as well as three Vernal Pool Core Habitat areas. Vernal Pool Core Habitat areas “represent the top 5 percent most interconnected clusters of Potential Vernal Pools in the state”. Because many species that use vernal pools for breeding live in adjacent upland areas the rest of the year, it is important to protect areas near vernal pools. Information on Core Habitats is presented in Appendix G.

3. Corridors for Wildlife Migration

Although large patches of undeveloped woodlands remain in Tyngsborough, arterial roads in many cases function as barriers to wildlife movement. Even in these cases, waterways and wetland networks play a crucial role in permitting animal movement between the remaining areas of undeveloped land. The primary migratory corridors in Tyngsborough are along waterways. Water courses and their shores provide corridors for wildlife to move among different habitat areas. The Merrimack River, Bridge Meadow Brook and Lawrence Brook provide the framework for habitat networks in Tyngsborough, particularly because they allow wildlife to navigate through increasingly developed areas to reach wetland and forested areas. Power line corridors and unused open land, such as agricultural fields that are no longer being cultivated, are also areas used by many species of wildlife.

4. Rare, Threatened, and Endangered Wildlife Species

As of July 2018, the NHESP listed eleven animal species in Tyngsborough as threatened, special concern or endangered, as shown in the table below. Other rare or endangered animal species may exist but have not been documented. Because the NHESP office depends to a significant degree on volunteer documentation of sightings of rare and endangered species, local efforts to survey wildlife in town could result in additional listings.

Table 15: Rare, Threatened and Endangered Animal Species in Tyngsborough

Taxonomic Group	Scientific Name	Common Name	MESA Status
Amphibian	<i>Ambystoma laterale</i>	Blue-spotted Salamander	Special Concern
Reptile	<i>Emydoidea blandingii</i>	Blanding's Turtle	Threatened
Reptile	<i>Glyptemys insculpta</i>	Wood Turtle	Special Concern
Beetle	<i>Cicindela duodecimguttata</i>	Twelve-spotted Tiger Beetle	Special Concern
Dragonfly	<i>Neurocordulia obsoleta</i>	Umber Shadowdragon	Special Concern
Dragonfly	<i>Stylurus amnicola</i>	Riverine Clubtail	Endangered
Dragonfly	<i>Gomphurus vastus</i>	Cobra Clubtail	Special Concern
Bird	<i>Haliaeetus leucocephalus</i>	Bald Eagle	Threatened
Bird	<i>Caprimulgus vociferous</i>	Eastern Whip-poor-will	Special Concern
Animal*	<i>Name not released</i>	Name not released	Threatened

Source: NHESP Correspondence, August 2019. *NHESP does not release the names of some species deemed at risk for collection.

F. Scenic Resources and Unique Environments

1. Scenic Landscapes

The river, lakes and ponds, and the hills in western Tyngsborough are the most compelling scenic areas in town. The Tyngsborough Bridge, high above the river, affords magnificent views upstream and downstream. Roads parallel the river along much of its course, providing valued vistas. Scribner Hill, Bear Hill, and the MIT Haystack Observatory, in the western part of Town, provide vistas of the region from their summits. These and other scenic and unique areas are shown on Map 7 on the following page.

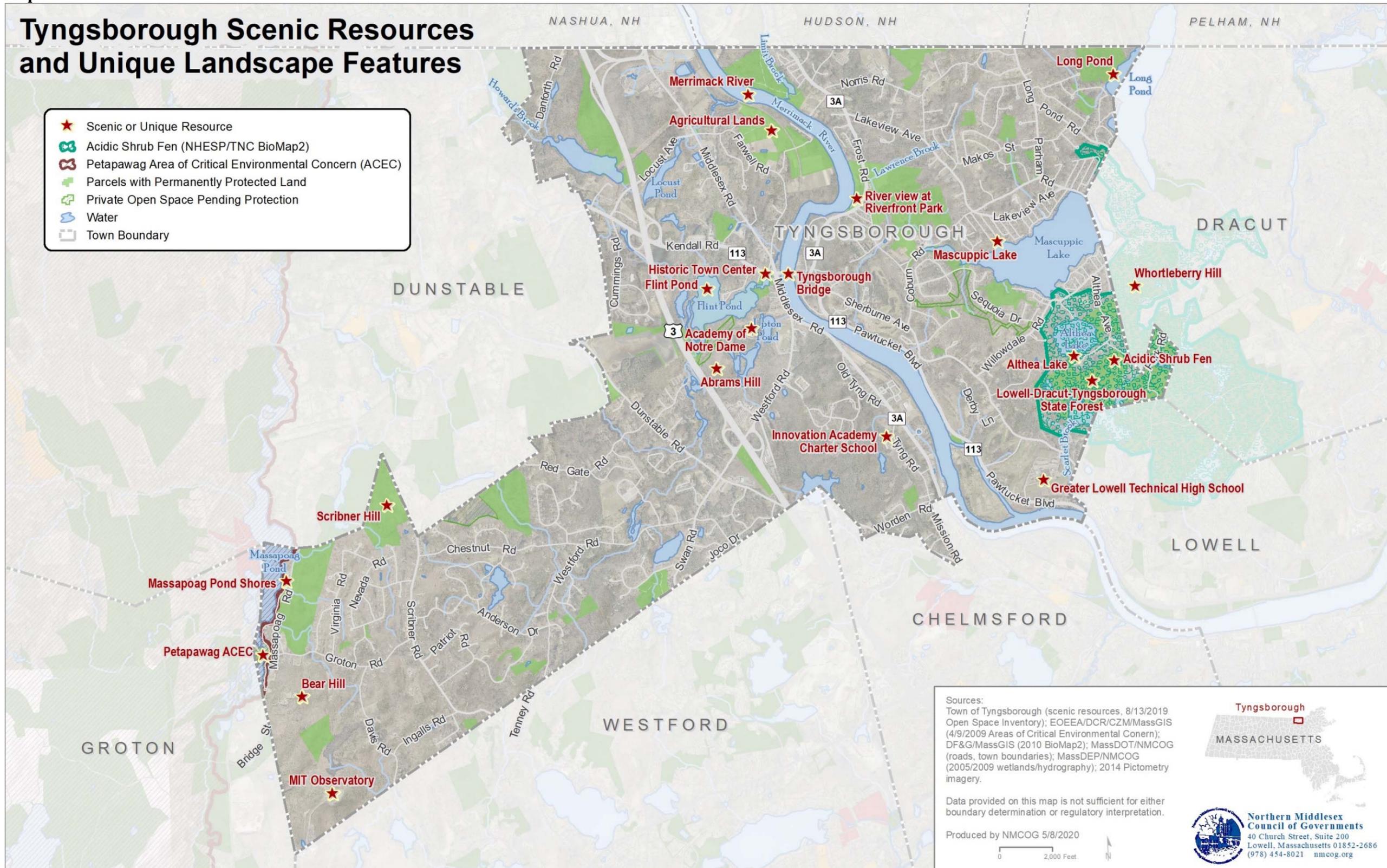
2. Major Characteristic or Unusual Geologic Features

Central Tyngsborough is a basin through which the Merrimack flows. Drumloid hills rise in the northeast and the southwest parts of town. In the southwest panhandle, complex hill formations provide a characteristic landscape of steep hills, ledge outcroppings, and small depressions, often filled with wetlands. The impacts of glaciation are evident in the landforms seen throughout Town

Map 7

Tyngsborough Scenic Resources and Unique Landscape Features

- ★ Scenic or Unique Resource
- 🌿 Acidic Shrub Fen (NHESP/TNC BioMap2)
- 🚧 Petapawag Area of Critical Environmental Concern (ACEC)
- 🌳 Parcels with Permanently Protected Land
- 🏡 Private Open Space Pending Protection
- 💧 Water
- 🗺️ Town Boundary



3. Cultural and Historic Areas

In 2009, the town hired an historic consultant to inventory its historic resources, funded in part through a grant from the Massachusetts Historical Commission. The Tyngsborough Center area was identified as being eligible for the creation of an historic district. The resources identified as part of the possible district include the following:

- Old Town Hall building (also known as the 1834 Baptist Church);
- Littlefield Library, built in 1904;
- Winslow School, built in 1890;
- First Parish Church, built in 1836;
- Evangelical Congregational Church, built in 1836;
- Fifield Box Shop, 77 Kendall Road, c. 1880;
- 1727 Farwell House, 9 Kendall Road, the former residence of ferry operators and mill owner, and the site of town meetings in the 18th century;
- Tyngsborough Bridge, built in 1930;
- Parsonage, 12 Kendall Road, c. 1832;
- Rev. Lawrence House, 16 Kendall Road, c. 1800;
- Gordon-Barry House, 20 Kendall Road, c. 1800;
- C. Worcester House, 27 Kendall Road, c. 1860;
- J. Kendall House, 45 Kendall Road, built 1814;
- Kendall House, 51 Kendall Road, built 1808;
- Swallow Farm, 54 Kendall Road, c. 1890;
- 62 Kendall Road residence, c. 1900;
- J. Farwell House, 63 Kendall Road, c. 1797;
- 64 Kendall Road residence, c. 1855;
- M. Kendall House, 69 Kendall Road, c. 1818;
- 70 Kendall Road residence, c. 1875;
- 75 Kendall Road residence, c. 1850;
- 76 Kendall Road residence, c. 1900;
- War Memorial, Middlesex Road, 1955;
- Captain J. Farwell House, 201 Middlesex Road, built 1803;
- Farwell-Richardson House, 208 Middlesex Road, built 1824;
- 259 Middlesex Road residence, c. 1895;
- Bennett and Perham Duplex, 260 Middlesex Road, c. 1870;
- Bither Insurance, 261 Middlesex Road, c. 1890;
- 266 Middlesex Road residence, c. 1888; and
- 269 Middlesex Road residence, c. 1889.

The Tyngsborough Historical Commission is the official town body charged with the identification of historic properties and sites in town, and is the principal advisor on matters related to historic preservation. Such issues include zoning changes, the re-use of municipally-owned historic buildings, and the planning and preservation of historic areas and landscapes. The six-member board is appointed by the Board of Selectmen.

The Town's Master Plan recommends establishing a National Register Historic District in the Town Center. Kendall Road forms the principal axis of this grouping of 32 structures located near the Tyngsborough Bridge. Although residences predominate, two churches, the old Town Hall, the Littlefield Museum (formerly the library), and the old Winslow School remain as examples of 18th century Federal and Greek Revival period architecture. Resident interest to revitalize the town center is growing, and includes preserving and renovating historic structures, as evidenced in the survey results.

Although rehabilitated as recently as 2012, the Tyngsborough Bridge itself is over 80 years old, and is the second oldest of five identified steel rib through arch bridges in the state. The Tyngsborough Bridge's 547-foot main span is the longest simple steel arch span in the Commonwealth. Unfortunately, two of Tyngsborough's more famous historic buildings were lost in the 1980s, when the Brinley Mansion was demolished by Notre Dame Academy and the Tyng Mansion (the only historic building on the National and State Register of Historic Places in Tyngsborough) was destroyed by fire.

4. Unique Environments

Areas of Critical Environmental Concern (ACEC)

There is currently one ACEC in Tyngsborough, as shown on Map 7. A small area in the western part of Tyngsborough, which is in the Salmon Brook watershed, is included in the Petapawag Area of Critical Environmental Concern, designated by the Massachusetts Executive Office of Energy and Environmental Affairs in 2009. The Tyngsborough portion of this ACEC includes a 100-foot border of Massapoag Pond.

Priority Natural Community: Acid Shrub Fen

There is one Priority Natural Community in Tyngsborough: an Acidic Shrub Fen, which is located east and southeast of Althea Lake, as shown on Map 7. According to NHESP, Priority Natural Community areas are, “assemblages of plant and animal species that share a common environment and occur together repeatedly on the landscape.” An Acidic Shrub Fens is a “shrub-dominated acidic peatlands found primarily along pond margins”. This habitat type is rated as S3, meaning that it is a vulnerable community with typically 21-100 sites or limited acreage across the state.

G. Environmental Problems

1. Hazardous Waste Sites and Landfills

There are no operating landfills in Tyngsborough at present. As discussed below, the former Charles George Landfill has been capped as part of the Superfund program.

Charles-George Superfund Site

There is one Superfund site located in Tyngsborough, the Charles-George Reclamation Trust Landfill. Situated on the Tyngsborough-Dunstable border, the site started as a small municipal landfill in the late 1950s. New owners expanded the landfill to 55 acres in the late 1960s, and accepted hazardous waste from 1973 to 1976, including toxic metal sludge and chemicals, such as volatile organic compounds. Over 1,000 pounds of mercury and 2,500 cubic yards of chemical wastes were disposed of at the site. The water supply of the Cannongate condominium complex, 800 feet southwest of the site, was found to be contaminated, and in 1983, the state ordered the landfill closed. It was listed as a Superfund site in 1984. Groundwater was found to be contaminated by benzene, arsenic and other toxics. Flint Pond marsh, Flint Pond, Dunstable Brook, and nearby wetlands were threatened by migration of the contaminants. The nearest residents lived 100 feet from the site.

The site was addressed in five stages: initial actions and four long-term remedial phases focusing on providing a permanent water supply to nearby residences; capping the site; controlling the migration of contaminants, including collection and treatment of landfill gas; and collection and off-site discharge of leachate and contaminated groundwater to a publicly-owned water treatment facility. The final step in this clean-up was completed in 1998 and the site is now in the operation and monitoring phase.

The Charles George Natural Resources Trustees Council was designated by the courts as the recipient of \$1,353,440 in natural resources damage claims in 1992. The damages to natural resources that are specified in the court decision are:

- Effects on migratory birds using Flint Pond and Flint Pond marsh;
- Potential contaminant migration to the Merrimack River and effects on fisheries habitat; and
- Damage to groundwater and wetlands.

The Trustees filed a Draft Restoration Plan/Environmental Assessment in 2001. According to this document, the goal is “to compensate for impacts to groundwater, wetlands, migratory birds that use wetland habitat, and migratory fish in the Merrimack River. The role of the Trustees is to ensure that restoration funds are used to provide the maximum benefit (maximum benefit is stipulated since the damage settlement was insufficient to provide complete restoration), and to ensure that the project provides benefits to Trust Resources in perpetuity.”² The alternatives considered include on-site wetland restoration, off-site wetland restoration, acquisition of equivalent resources, on-site migratory fish restoration, and off-site migratory fish restoration. These alternatives were evaluated based on a number of criteria. The acquisition alternatives include several parcels in Tyngsborough. The site is currently being used as a solar farm.

Other Hazardous Waste Sites

The Massachusetts Department of Environmental Protection (DEP) Bureau of Waste Site Cleanup currently lists no other hazardous waste sites in Tyngsborough of the same magnitude as the one above. However, there are over 60 “reportable releases” of environmental contaminants reported to the DEP, which may be viewed at <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>, by selecting “All Sites” in the dropdown menu for “Search Type,” and “Tyngsborough” in the dropdown menu for “City/Town”, then clicking “SEARCH”.

2. Erosion, Sedimentation and Stormwater Management

Erosion and sedimentation is a natural process. However, excessive erosion and sedimentation leads to environmental degradation and decreased water quality. It has long been recognized³ that well vegetated areas are less susceptible to erosion, particularly of

² Charles-George Natural Resources Trustee Council, Draft Restoration Plan and Environmental Assessment: Charles George Land Reclamation Trust Landfill Superfund Site, October 2001, sec. 2.1. Available in the Tyngsborough Library or at <http://greatmeadows.fws.gov/charlesgeorge.html>.

³ Eric Gasser, Massimiliano Schwarz, Andrew Simon, Paolo Perona, Chris Phillips, Johannes Hübl and Luuk Dorren, A review of modeling the effects of vegetation on large wood recruitment processes in mountain catchments, *Earth-Science Reviews*, 10.1016/j.earscirev.2019.04.013, (2019).

river and stream banks. In addition, the natural process of erosion can be exacerbated by improve stormwater management, and other man-made changes to natural stream/river flow. Although the banks of the Merrimack River are subject to erosion due to the operation of the Pawtucket Dam located approximately 6 miles to the south in the City of Lowell, the largest potential source of erosion and sedimentation is related to inadequately managed construction projects in town.

Stormwater is regulated by Federal, state and local regulations. At the Federal level, stormwater is permitted under the EPA's National Pollutant Discharged and Elimination System (NPDES) program. On May 1, 2003, EPA Region 1 issued its Final General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4). The 2003 small MS4 permit covered "traditional" (i.e., cities and towns) and "non-traditional" (i.e., Federal and state agencies) MS4 Operators located in the states of Massachusetts and New Hampshire. As required by the 2003 MS4 permit, Tyngsborough drafted and finalized a Stormwater Management Program (SWMP), which describes and details the activities and measures that will be implemented to meet the terms and conditions of the permit. In addition, the Tyngsborough Conservation Commission adopted a local Stormwater Management By-law and promulgated stormwater management regulations (initially approved in 2010, and amended in 2014 and 2019) for projects that disturb more than 5,000 sq. ft. of land.

The 2003 MS4 permit expired on May 1, 2008 but remained in effect until operators were authorized under the 2016 MS4 general permit, which became effective on July 1, 2018. Tyngsborough submitted the Notice of Intent for coverage under the 2016 MS4 permit on October 1, 2018, and received authorization to discharge was granted on February 14, 2019. Tyngsborough has drafted revisions to its SWMP, and amended its stormwater By-law and regulations as required by the new permit.

3. Chronic Flooding

According to a report by the Federal Emergency Management Agency, as of July 2019 there are eight repetitive flood loss properties within the Town of Tyngsborough. All but two of the repetitive flood loss structures are residential, and most are located adjacent to the Merrimack River. As noted in Section C above, only four repetitive loss structures are insured through the NFIP. As of July 10, 2019, the NFIP paid out \$2,129,486 for sixteen repetitive loss claims. It is important to note that 38% of these losses occurred outside of the Special Flood Hazard Areas (the "100-year floodplain"). Climate experts expect that this number will increase in response to increased frequency and/or intensity of storms due to climate change. A report by FEMA finds that climate change could increase areas at risk of flood by 45 percent by 2100⁴.

Currently, when the Merrimack River is at flood stage it overflows its banks and floods a section of Route 113 near the Vesper County Club. Other areas of chronic flooding include:

⁴ AECOM, Michael Baker, Jr. Inc., and Deloitte Consulting, LLP. "The Impact Of Climate Change and Population Growth on the National Flood Insurance Program through 2100" prepared for Federal Insurance and Mitigation Administration Federal Emergency Management Agency (June 2013).

- Westford Road near Tyngsborough Elementary School (Bridge Meadow Brook crossing);
- Riverbend Road;
- River Road;
- Larson Avenue near;
- Red Gate Road near Emerald Street;
- Dunstable Road and Constantine Drive in the Bridge Meadow Brook area;
- Chestnut Road near Fire Station #3;
- Willowdale Road; and
- Massapoag Pond shores.

Increasingly, the prevalence of beaver dams has also created flooding problems in many locations. The Conservation Commission created a Beaver Management Advisory Committee tasked with developing and implementing a Beaver Management Plan for the Town.

4. New Development and Deforestation

As noted earlier, development pressures in Tyngsborough have been substantial during the last two decades. A significant proportion of the remaining forested land in Tyngsborough is located between Route 3 and the Route 3A corridor, and most of this land is in private hands. Some is owned by institutions, such as Notre Dame Academy on Middlesex Road and Innovation Academy Charter School on Tyng Road, and most is zoned for industrial or commercial use. During the next economic expansion, the non-institutional lands may become very attractive for development.

Elsewhere in Tyngsborough, residential development has fragmented much of the remaining open space. In some cases, houses have been built on steep slopes with retaining walls. The increase in impervious surfaces in the hilly western part of town has undoubtedly increased stormwater runoff to nearby streams and wetlands and may be increasing erosion. Future development may require more detailed and sophisticated regulatory tools to insure protection of natural resources and open space. Properties under the Chapter 61, 61A and 61B tax abatement programs have been evaluated and prioritized to help the town prepare for potential development of these properties.

Based on 2018 MacConnell Classification information, Tyngsborough has lost an average of 2444 acres of forest per year between 1971 and 2018. Since 2005, the closest year to the last OSRP update (2009) for which we have comparable data, an estimated 126 acres of forest has been lost. This is a significant reduction reflective of the rapid population growth evidenced in the region as a whole and the town in particular. It is estimated that forests still cover approximately 44 percent of the land area, containing a mix of hardwoods and softwoods, with understory species including cherry, honey locust, and sumac, among others. Forest areas are important in that they protect large tracts of second growth vegetation. In addition, in those areas of the town that have been more densely developed, an “urban forest” setting has begun to emerge. The “urban forest” in Tyngsborough is

composed of the small forest patches and individual trees in back yards, behind and between subdivision developments, along roads, in parking lots and in town parks. As larger woodland patches of forest become less common, management of the urban forest will become more important.

5. Ground and Surface Water Pollution

Although water quality in the Merrimack River has improved significantly over the last generation, Tyngsborough’s stretch of river is still threatened by point and nonpoint pollution impacts from upstream sources in New Hampshire and from the nonpoint sources in Tyngsborough itself. Lake Mascuppic and Long Pond, two of the largest water bodies in Tyngsborough (both shared with the Town of Dracut), support a variety of recreational pursuits, including fishing, swimming, and boating. When the seasonal vacation communities became permanent residential areas, owners winterized their cottages and failing septic systems became a significant source of pollution. With the provision of town sewer in the lake and pond areas in the late 1980s, the most severe pollution threats were averted, but the relatively intense use of these waters continues to make them susceptible to pollution.

6. Impaired Waterbodies

Section 303(d) of the federal Clean Water Act (CWA) requires states to “identify waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and to prioritize and schedule them for the derivation of total maximum daily loads (TMDLs)”. According to the most recent state assessment entitled “Massachusetts Year 2014 Integrated List of Waters: Final Listing of the Condition of Massachusetts’ Waters Pursuant to Sections 305(b), 314 and 303(d) of the Clean Water Act” there are several waterbodies in Tyngsborough which are listed as impaired. These include Category 4 (Impaired or threatened for one or more uses, but not requiring the calculation of a TMDL); or Category 5 (Impaired or threatened for one or more uses and requiring a TMDL), as shown in Table 15 below.

Table 15 - Impaired Waters in Tyngsborough

Category 4	Impairment
Lake Mascuppic	invasive plants (No TMDL required)
Locust Pond	mercury in fish tissue (regional TMDL)
Deep Brook	<i>Escherichia coli</i> (<i>E. coli</i>), Habitat Assessment (Streams), Aquatic Macroinvertebrate Bioassessments, Fishes Bioassessments, Sedimentation/Siltation

Table 15 - Impaired Waters in Tyngsborough (Continued)

Category 5	Impairment (TMDL required)
Flint Pond	mercury in in fish tissue, invasive plants, and aquatic plants (macrophytes)
Long Pond	mercury in in fish tissue, invasive plants, and aquatic plants (macrophytes)
Massapoag Pond	mercury in in fish tissue, invasive plants, aquatic plants (macrophytes), and dissolved oxygen
Merrimack River	fecal coliform and mercury in in fish tissue
Upton Pond	Not yet assessed

7. Invasive Species

Upland Habitats

As noted above, no formal survey of vascular plants has been performed in Tyngsborough. However, most of northeastern Massachusetts, common invasive exotic species in upland areas include: Norway maple (*Acer platanoides*), multiflora rose (*Rosa multiflora*), European buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), Japanese knotweed (*Polygonum cuspidatum*), Winged euonymus (*Euonymus alatus*), Morrow's honeysuckle (*Lonicera morrowii*), Tatarian honeysuckle (*Lonicera tatarica*), autumn olive (*Elaeagnus umbellata*), black locust (*Robinia pseudoacacia*), Japanese barberry (*Berberis thunbergii*), Common barberry (*Berberis vulgaris*), Garlic mustard (*Alliaria petiolata*), and Oriental bittersweet (*Celastrus orbiculatus*). These plants are usually found in disturbed areas, such as roadsides and overgrown pastures. They are also found in the hedgerows and orchards, as well as re-forested landscapes. These invasive plants crowd out native species, and many offer little or no food for wildlife. No efforts are yet underway to control these invasive plants that threaten native plant communities. In order to reduce the likelihood of additional non-native invasive plants from entering the town, the state list of prohibited plants is included in Appendix C.

Aquatic Habitats

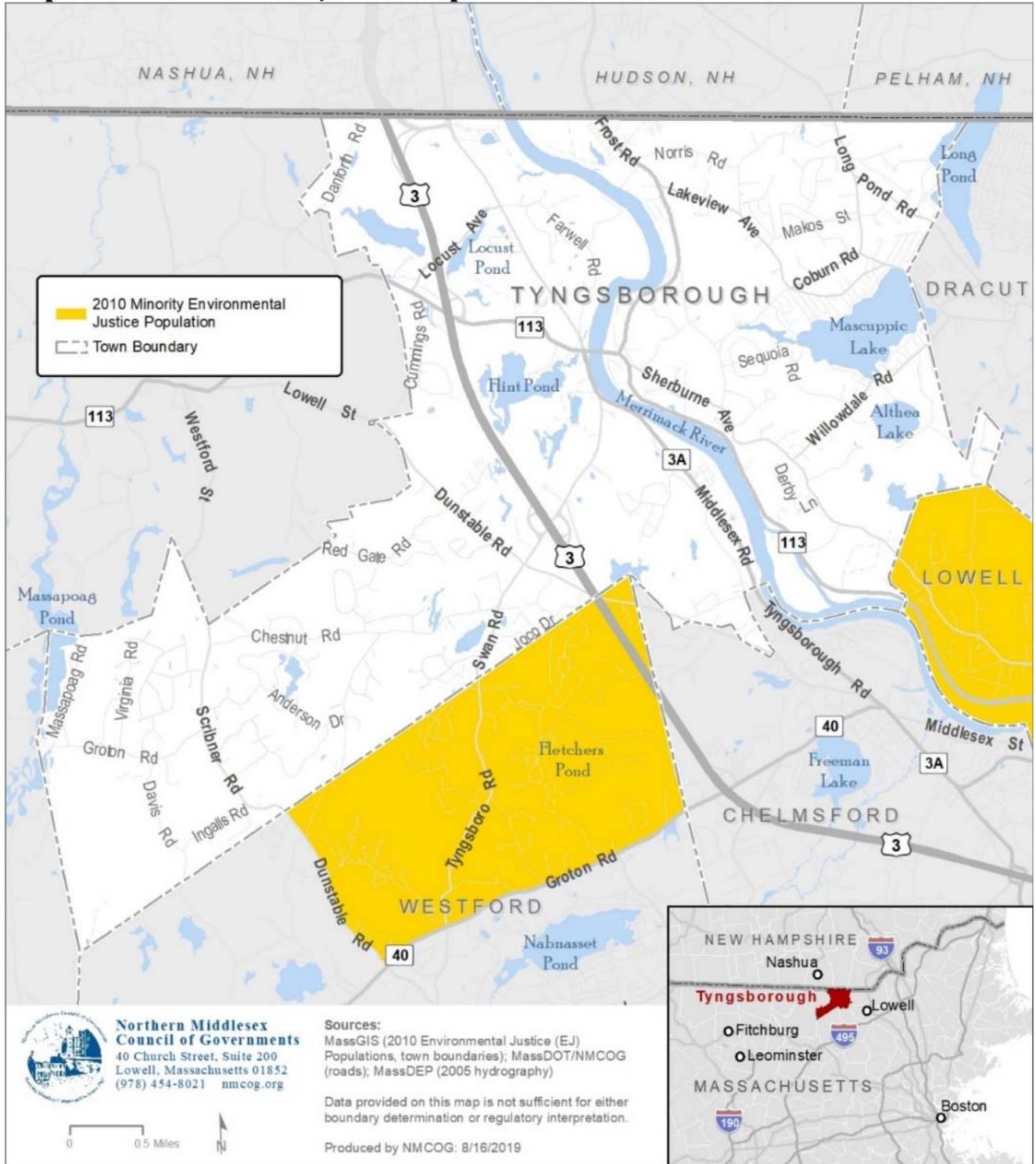
Wetlands areas of Tyngsborough are home to two extremely common non-native invasive plants: common reed (*Phragmites australis*) and purple loosestrife (*Lythrum salicaria*). No efforts are underway at this time to control these invasive plants. However, beginning in April of 2018, the Tyngsborough Board of Selectmen initiated a program to address aquatic non-native invasive plants in Lake Massapoag (Tyngsborough, Dunstable and Groton). Specially, the Selectmen issued a Request for Proposals (RFP) for the control of variable watermilfoil (*Myriophyllum heterophyllum*), fanwort (*Cabomba caroliniana*) and Eurasian milfoil (*Myriophyllum spicatum*). According to 2018 RPF, "Lake Massapoag is an open waterbody with approximately 113 acres of needed treatment area. The intent is to control the aquatic weed issue with the application of Fluridone as required for control of the specific varieties of aquatic weeds found in the lake at time of application. Systemic herbicide will be applied at the rate required to effectively achieve long term control of the above-mentioned invasive plants. Multiple applications shall be applied to maintain an effective concentration of the systemic herbicide necessary for effective control of the specific target species listed above. Monitoring and post treatment herbicide residue testing is to be included. Work will include pre-treatment inspection, post-treatment inspection and interim monitoring as required or deemed necessary by the Town." The project continues in 2019. In addition, funds from the Community Preservation Act (CPA) are provided annually to treat for control of non-native invasive plants at Lake Musscuppic. CPA funds are also used to assist in treating for non-native invasive plants at Flint Pond.

8. Environmental Equity

Since 2002 the MA Executive Office of Energy and Environmental Affairs has implemented the Environmental Justice Policy, which it believes is critical to advancing EJ in the Commonwealth. The concept of Environmental Equity is the equitable distribution of environmental assets such as parks, open space, and recreation. Although there are no EJ

Populations in Tyngsborough, there are EJ Populations nearby in Lowell and Westford, as shown on Map 8 below. As for equitable distribution of open space in general terms, as Map 8 shows, there is public and private open space throughout town.

Map 8 – Environmental Justice Populations



SECTION 5: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Open space is defined as land that, for the most part, is free of structures or other impervious surfaces. Whether under public or private ownership, open spaces provide valuable habitat for wildlife; help protect water and air quality; provide flood storage, scenic vistas and recreational opportunities; preserve historic sites; and enhance the value of abutting properties.

Despite the strong pace of residential development in Tyngsborough over the last quarter century, and continuing developmental pressure, the town is fortunate to retain substantial open space. Approximately 23 percent of the Town's total land area of 11,581 acres of land in Tyngsborough, MA acres is classified as open space. However, the semi-rural character of the town, valued by its residents, is by no means permanently protected. Only approximately 1,382 acres of the 2,727 acres classified as open space are considered permanently protected. An additional 64.53 acres are in the process of being permanently protected, which will bring the total to 1,447 acres of permanently protected land, or 12.5 percent of all land in Tyngsborough. With town meeting approval of the Community Preservation Act, residents have shown their desire to continue to fund the preservation of open space.

The following provides additional information on the various categories of open space and recreation lands in Tyngsborough. The full inventory of lands of interest can be found in Table 21 following the narrative. These parcels may be highlighted on Map 9 on the following page.

A. Permanently Protected Lands

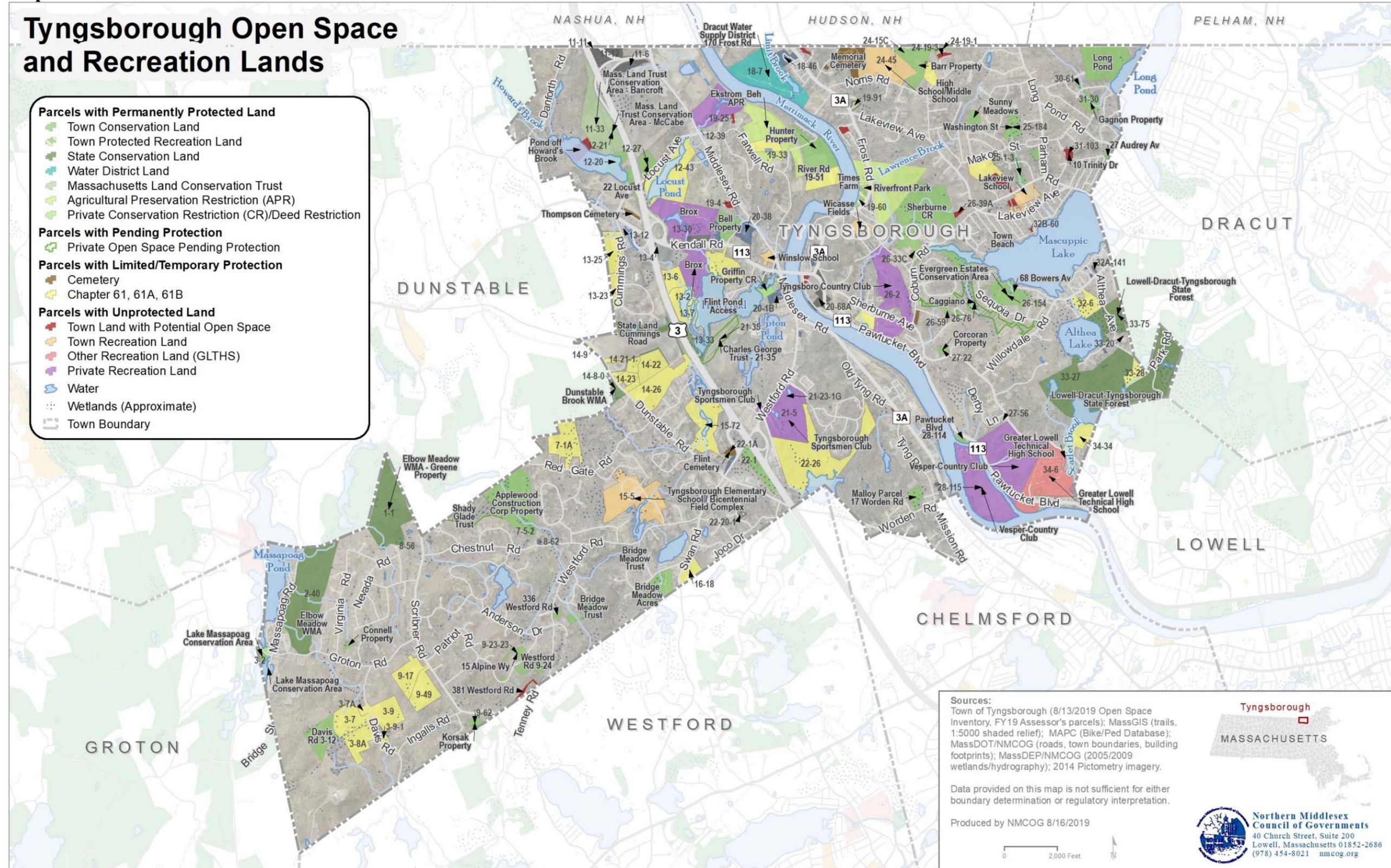
Tyngsborough has 1,382.21 acres of permanently protected open space owned by the State, the Town, and the Dracut Water Supply District, as well as private citizens. "Permanent Protected" is defined as state lands such as the parkland, State Forest, and permanently protected municipal properties subject to Article 97 or a Conservation Restriction, as well as privately-owned properties that are protected through a Conservation Restriction. The statistics regarding level of protection and ownership of the seventy-three parcels that are permanently protected are provided Table 16 on the following page, as well as an additional three parcels that are pending permanent protection. These protected properties include the following categories:

State Lands. The state owns a total of seventeen parcels comprising 528.17 permanently protected acres in Tyngsborough. The majority of this land, 223 acres, is located in the Lowell-Dracut-Tyngsborough State Forest. There are an additional 197.45 acres in the Elbow Meadow Wildlife Management Area located on Groton and Scribner Roads under the jurisdiction of the Massachusetts Division of Fisheries and Wildlife, as well as another 81.97 acres at Flint Pond on Kendall Road, 6.54 acres in the Dunstable Brook Wildlife Management Area, and 19.31 acres on Cummings Road.

Map 9

Tyngsborough Open Space and Recreation Lands

- Parcels with Permanently Protected Land**
 - Town Conservation Land
 - Town Protected Recreation Land
 - State Conservation Land
 - Water District Land
 - Massachusetts Land Conservation Trust
 - Agricultural Preservation Restriction (APR)
 - Private Conservation Restriction (CR)/Deed Restriction
- Parcels with Pending Protection**
 - Private Open Space Pending Protection
- Parcels with Limited/Temporary Protection**
 - Cemetery
 - Chapter 61, 61A, 61B
- Parcels with Unprotected Land**
 - Town Land with Potential Open Space
 - Town Recreation Land
 - Other Recreation Land (GLTHS)
 - Private Recreation Land
- Water
- Wetlands (Approximate)
- Town Boundary



Sources:
 Town of Tyngsborough (8/13/2019 Open Space Inventory, FY 19 Assessor's parcels); MassGIS (trails, 1:5000 shaded relief); MAPC (Bike/Ped Database); MassDOT/NMCOG (roads, town boundaries, building footprints); MassDEP/NMCOG (2005/2009 wetlands/hydrography); 2014 Pictometry imagery.

Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.

Produced by NMCOG 8/16/2019

Tyngsborough
 MASSACHUSETTS

Northern Middlesex Council of Governments
 40 Church Street, Suite 200
 Lowell, Massachusetts 01852-2686
 (978) 454-8021 nmco.org

Town Lands. The town owns 546.09 acres of permanently protected conservation and recreational land in 53 parcels. The largest protected areas in Tyngsborough include the Sherburne House and Nature Center and Property on Coburn Road, totaling 81.73 acres, and the Primrose Lane Conservation Area, totaling 63 acres. In addition, the town has permanently protected 8.37 acres of land at Riverfront Park on Frost Road, and 50 acres on Alden Road on the New Hampshire border.

Water Supply Lands: There are 71.70 acres of water supply lands, located on Frost Road, which are owned by the Dracut Water Supply District.

Conservation Restrictions (CR). A Conservation Restriction is a voluntary and legally binding document, recorded in the land records, through which a land owner agrees to limit the use of his or her property for the purpose of protecting the conservation value of the land. The land owner receives an immediate 50% income tax deduction, and the grantee, usually a non-profit or municipal entity, receives assurance that the land will not be developed. Conservation Restrictions protect three areas within Tyngsborough which total 7.38 acres. In addition, three privately owned-properties are currently making their way through the process of a permanent deed restriction to protect 64.53 acres. These lands are deed “Conservation Restrictions - Pending”.

Agricultural Preservation Restrictions (APR). An APR is a form of Conservation Restriction designed to specifically help farmers maintain equity in their land, retaining the agricultural potential of the land, thereby preventing the farmer from having to sell the land to development interests out of economic necessity. There are five Agricultural Protection Restrictions within Tyngsborough: the 62.5-acre parcel of farmland located on Farwell Road, which has expanded since the last OSRP; and the 89.3-acre Times Farm on Frost Road, which is new since the last OSRP.

Table 16: Permanently Protected Lands within the Town of Tyngsborough

Ownership/Protection	Number of Parcels	Total Acreage
Commonwealth of MA	7	528.17
Town of Tyngsborough Conservation	53	546.09
Town of Tyngsborough Recreation	2	8.37
Massachusetts Land Conservation Trust	2	68.70
Agricultural Preservation Restrictions	5	151.80
Conservation Restrictions – protected	3	7.38
Conservation Restrictions – pending	3	64.53
Dracut Water Supply District	1	71.70
Total	76	1,446.74

Source: Tyngsborough Open Space and Recreation Inventory 8/12/19

B. Unprotected/Limited Protection Lands

Unprotected and limited protection lands of conservation and recreation interest include public lands that are currently held as open space or historic parcels, or recreation land, but which do not have permanent protection, as well as private parcels with limited or no restrictions on development. Tables 18 and 19 provide specific information regarding the unprotected/limited protection publicly and privately-owned lands with the community.

Private Lands

Tax Abatement Programs. Under Chapters 61, 61A and 61B of the Massachusetts General Laws (M.G.L.), a land owner who has 10 contiguous acres of land being actively used as forest (Chapter 61), or 5 contiguous acres in active agricultural use (Chapter 61A), or 5 contiguous acres of open space (Chapter 61B), is entitled to certain local tax abatements. These abatements are given in exchange for the property owner maintaining the use of the land as agriculture, forest or open space. Tyngsborough currently has 33 parcels representing 684.99 acres of private forest, agricultural and/or recreational lands enrolled in the Chapter 61, 61A and/or 61B tax abatement programs. Three parcels are enrolled in both Chapter 61 and in 61B, and two parcels are enrolled in both Chapter 61 and 61A. As such, the parcel totals in Table 19 exceed the total number of protected parcels (33).

Most of the land enrolled in the Chapter 61/61A/61B program is in the Chapter 61 program, which accounts for almost 64 percent of the total acreage in tax abatement programs. Should the current land owner(s) decide to sell or develop property covered under these programs, the Town of Tyngsborough can exercise right of first refusal or may elect to assign this right to a non-profit conservation organization or the Commonwealth of Mass. A land owner who has property classified in Chapter 61, 61A or 61B, must notify the Chief Elected Official, the Board of Assessors, the Planning Board, the Conservation Commission and the State Forester, when all or a portion of the land is being sold or converted to a disqualifying use. Taxes for Chapter 61B are calculated using 25% of the current assessed value.

Other Privately-Owned Land Resources

There are nine parcels of privately-owned parcels representing 451.96 acres that are currently maintained as open space for recreational use. While these lands are not permanently protected, they are included in this open space inventory, as they represent land that the town may potentially wish someday to purchase and protect. The largest of these is the Vesper Country Club consisting of 177.88 acre lot on an island in the Merrimack River. Other properties include two parcels owned by Brox Industries on Kendall Road (97 acres), two parcels making up the Tyngsborough Country Club (75.51 acres), three parcels owned by the Tyngsborough Sportsmen (58.17 acres), and Max's Country Golf located on one 42.53 acre lot.

Publicly-owned Land Resources

While these lands are not permanently protected, there is no reason to believe that they will not continue in open space and/or recreational use.

- School Resources. There are 18 parcels of school property, of which 50.47 acres are designated as open space (school athletic fields and playgrounds).
- Town Parks. Parks, playgrounds and beaches, owned by the town comprise 146.67 acres on 18 parcels of which 50.47 acres are considered open space.
- Cemeteries: eight parcel consisting of 28.15 acres of cemetery Other Recreation: There are three parcels, comprising 72.29 acres, which make up the Greater Lowell Technical High School, of which 24.47 are considered open space.

Table 18: Unprotected/Limited Protection Public Lands within Tyngsborough

Ownership	Number of Parcels	Acreage
Town of Tyngsborough	34	204.51
Tax Title Lands	34	68.48
Greater Lowell Vocational Technical High School	3	79.33
Total	71	352.32

Source: Tyngsborough Open Space and Recreation Inventory 8/12/2019

Table 19: Unprotected/Limited Protection Private Lands within Tyngsborough

Category	Number of Parcels	Acreage	Protection Status
Chapter 61	19	437.39	Partial
Chapter 61A	12	196.86	Partial
Chapter 61B	7	50.74	Partial
Recreation	9	451.96	Unprotected
Total			

Source: Tyngsborough Open Space and Recreation Inventory 8/12/2019

Despite the strong pace of residential growth from 2009 to 2018, the actual acreage of protected land of conservation or recreation interest increased by just under 355 acres, with the largest increase being reflected in Town-owned land. There were decreases in the Chapter 61, 61A and 61B acreages. Chapter 61 decreased from 501 to 437 acres. Chapter 61A decreased from 314 to 241 acres and Chapter 61B decreased from 333 to 144 acres.

Table 20: Open Space Comparison - 2009 to 2019 (in Acres)

Ownership	2009	2019	Protection Category
Commonwealth of Massachusetts	444.23	528.17	Permanent protection
Tyngsborough Conservation Land	345.86	546.09	Permanent protection
Town of Tyngsborough Protected Recreation Land	unknown	8.37	Permanent protection
Massachusetts Conservation Land Trust	68.70	68.70	Permanent protection
Agricultural Preservation Restrictions (Private)	151.50	151.80	Permanent protection
Private Conservation Restrictions	0.00	7.38	Permanent protection
Private Conservation Restrictions - Pending	112.64	107.4	Pending permanent protection
Dracut Water Supply District	71.70	71.70	Permanent protection
Town of Tyngsborough Cemeteries	28.15	28.15	Limited protection
Chapter 61 (Private)	501.77	437.39	Limited protection
Chapter 61A (Private)	314.14	241.35	Limited protection
Chapter 61B (Private)	337.43	144.17	Limited protection
Town of Tyngsborough Unprotected Recreation Land	145.52	146.15	No protection
Greater Lowell Regional Vocational School - Recreational Land	Included with private rec. land below	24.47	No protection
Other Town Open Space, including at Municipal Facility	See below	38.75	No protection

Private Recreational Land	620.35	451.96	No protection
Non-conservation State Land (Town Center Dam)	0.90	0.90	No protection
Tax Title	68.48	68.48	No protection
Total		3118.63	2,726.43

Source: Tyngsborough Open Space and Recreation Inventory 8/12/2019

* not included in total

C. Recreation Programs

Recreation Programs focus primarily on the town's youth, however, adult programs are also offered. The youth programs are well utilized, with an annual registration of 2,000 or more participants. The demand for recreational programs has grown with the influx of new residents. Youth programs offered by the Recreation Department include sports, arts, cultural and educational activities. The majority of the programs are held at the town's new Recreation Center. Some programs are held at various schools for gym usage. The Department is working on offering a wider variety of programming and increasing the adult offerings. The issue of lack of athletic field space remains a concern in town. The demand for field use has increased substantially over the last five years. A growing population and introduction of new sports has taxed the fields. Currently there are six youth organizations vying for field space. In addition, nine of the high school and two of the middle school teams also use the Recreation Department fields.

All the fields are maintained and scheduled by the Recreation Department, in coordination with the Highway Department Parks Manager. Some field maintenance is performed by the youth sport groups and while the assistance is helpful and appreciated by the town, it does not provide adequate time for field rest or cycling of fields. The Recreation Director is part of the Field Use Committee, charged with developing and constructing new fields for the town. New Facilities are being developed at the Elementary School that will provide much needed field space as well as basketball and tennis courts.

Annual events are held at minimal or no charge to the residents. In February, a Grandparents Breakfast is held at the Sportsmen's Club; in March the Shamrock Ball, a father-daughter dance, is held; April brings the start of girls youth softball; June activities include the summer camps, clinics and programs; July is the start of the track and field program; August consists of free movie nights and a Town Block Party; September starts the girls volleyball program; October is the annual pig roast and festival called the Pig and Apple Fest; October brings a jack-o-lantern display; and the year closes with the annual tree lighting festival.

The Tyngsborough Council on Aging, located at 180 Lakeview Avenue, offers recreational programs designed for the elderly population in Town. Educational programs in art, knitting and drawing are offered, along with activities that include quilting, bingo, card games, yoga and Tai Chi. The Council also sponsors day and bus trips, as well as walking groups.

Table 21 – 2019 Tyngsborough Open Space Inventory

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
State Conservation Land	Dunstable Brook WMA	14-8-0	484 Dunstable Rd	COMMONWEALTH OF MASS	Permanently Protected	Open Space	6.54	6.54
State Conservation Land	Elbow Meadow WMA	2-40	89 Groton Rd	COMMONWEALTH OF MASS	Permanently Protected	Open Space	120	120
State Conservation Land	Elbow Meadow WMA - Greene Property	1-1	202 Scribner Rd	COMMONWEALTH OF MASS	Permanently Protected	Open Space	77.45	77.45
State Conservation Land	Flint Pond Access	13-33	0 Kendall Rd	COMMONWEALTH OF MASS	Permanently Protected	Open Space	81.97	81.97
State Conservation Land	Lowell-Dracut-Tyngsborough State Forest	33-27	0 Trotting Park Rd	COMMONWEALTH OF MASS	Permanently Protected	Open Space	191.3	191.3
State Conservation Land	Lowell-Dracut-Tyngsborough State Forest	33-75	0 Althea Av	COMMONWEALTH OF MASS	Permanently Protected	Open Space	31.6	31.6
State Conservation Land	State Land - Cummings Road	13-19-1	0 Cummings Rd	COMMONWEALTH OF MASS	Permanently Protected	Open Space	19.31	19.31
							528.17	528.17
Town Conservation Land	15 Alpine Wy	9-23-23	15 Alpine Wy	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	5.22	5.22
Town Conservation Land	20 Alpine Way	9-23-26	20 Alpine Wy	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.02	0.02
Town Conservation Land	21 Descheneaux Ln	24-19-1	21 Descheneaux Ln	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.73	1.73
Town Conservation Land	22 Locust Ave	12-27	22 Locust Av	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	11.74	11.74
Town Conservation Land	25 Descheneaux Ln	24-13	25 Descheneaux Ln	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.65	1.65
Town Conservation Land	27 Audrey Av	31-32-14	27 Audrey Av	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.25	1.25
Town Conservation Land	336 Westford Rd	8-41-1	336 Westford Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.77	1.77
Town Conservation Land	375 Middlesex Rd	12-39	375 Middlesex Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.48	0.48
Town Conservation Land	43 Alpine Wy	9-23-18	43 Alpine Wy	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.8	0.8
Town Conservation Land	68 Bowers Av	26-52	68 Bowers Av	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	8.6	8.6
Town Conservation Land	Applewood Construction Corp Property	7-5-2	0 Chestnut Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	8.51	8.51
Town Conservation Land	Applewood Construction Corp Property	7-6	0 Primrose Ln	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	63	63

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Town Conservation Land	Barr Property	24-18	0 Norris Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	20.97	20.97
Town Conservation Land	Barr Property	24-15C	0 Norris Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	7.9	7.9
Town Conservation Land	Bell Property	20-21	4 Bryants Ln	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	15.12	15.12
Town Conservation Land	Bridge Meadow Acres	16-19	12 Clover Hill Cr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	26.32	26.32
Town Conservation Land	Bridge Meadow Trust	16-35	0 Paddock Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	11.15	11.15
Town Conservation Land	Connell Property	3-15E	8 Connell Dr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	2.34	2.34
Town Conservation Land	Conservation Area	12-20	0 Locust Av	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	12.36	12.36
Town Conservation Land	Corcoran Property	27-22	2 Corcoran Dr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	2.04	2.04
Town Conservation Land	Davis Rd 3-12	3-12	0 Davis Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	23	23
Town Conservation Land	Deangelis Property	25-1-3	21 Chard Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	3.15	3.15
Town Conservation Land	Deangelis Property	25-1-8	0 Chard Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.62	0.62
Town Conservation Land	Deangelis Property	25-1-10	34 Chard Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.72	1.72
Town Conservation Land	Deangelis Property	31-1-13	0 Chard Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	3.56	3.56
Town Conservation Land	Deangelis Property	31-1-17	150 Coburn Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.98	0.98
Town Conservation Land	Evergreen Estates Conservation Area	26-138	43 Coburn Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	26.77	26.77
Town Conservation Land	Evergreen Estates Conservation Area	26-154	43 Sequoia Dr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	20.62	20.62
Town Conservation Land	First Parish Meeting House (Rear)	20A-4	216 Middlesex Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.84	0.84
Town Conservation Land	Former Connell Construction Corp Property	2-187	17 Connell Dr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.66	1.66
Town Conservation Land	Gagnon Property	30-61	35 Alden St	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.16	1.16
Town Conservation Land	Gagnon Property	31-30	0 Alden St	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	10.01	10.01

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Town Conservation Land	Hunter Property	19-35	0 River Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	7.4	7.4
Town Conservation Land	Hunter Property	19-50	0 River Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	14.7	14.7
Town Conservation Land	Korsak Property	9-62	4 Fay Memorial Dr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	4.38	4.38
Town Conservation Land	Lake Massapoag Conservation Area	3-2	110 Massapoag Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	5	5
Town Conservation Land	Locust Ave 12-18	12-18	0 Locust Av	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	5.51	5.51
Town Conservation Land	Locust Ave 12-29	12-29	0 Locust Av	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.71	0.71
Town Conservation Land	Long Pond	30-12	0 Long Pond Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	48.04	48.04
Town Conservation Land	Malloy Parcel 17 Worden Rd	28-36	17 Worden Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	7.98	7.98
Town Conservation Land	Nottingham Road 26-59	26-59	14 Nottingham Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	2.74	2.74
Town Conservation Land	Nottingham Road 26-64	26-64	0 Nottingham Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	2.88	2.88
Town Conservation Land	Nottingham Road 26-66	26-66	0 Nottingham Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.51	1.51
Town Conservation Land	Patierno Property	2-42H	9 Montana Dr	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	0.99	0.99
Town Conservation Land	Pawtucket Blvd 28-114	28-114	0 Pawtucket Bv	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	1.6	1.6
Town Conservation Land	Recreation Center & Office	22-1	120 Westford Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	14.61	14.61
Town Conservation Land	River Rd 19-51	19-51	0 River Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	17.25	17.25
Town Conservation Land	Sherburne CR	26-33A	0 Coburn Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	79.02	79.02
Town Conservation Land	Sherburne House	26-33C	46 Coburn Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	2.71	2.71
Town Conservation Land	Sleepy Hollow Ln 25-58-6	25-58-6	0 Sleepy Hollow Ln	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	3	3
Town Conservation Land	Sunny Meadows	25-29	31 Robert Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	5.24	5.24
Town Conservation Land	Washington St	25-184	0 Washington St	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	13.76	13.76
Town Conservation Land	Westford Rd 9-24	9-24	0 Westford Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Open Space	10	10
							546.09	546.09

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Town Protected Recreation Land	Riverfront Park	25-8	86 Frost Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Recreation	1.5	1.5
Town Protected Recreation Land	Riverfront Park	19-60	76 Frost Rd	TOWN OF TYNGSBOROUGH	Permanently Protected	Recreation	6.87	6.87
							8.37	8.37
Water District Land	Dracut Water Supply District 170 Frost Rd	18-7	170 Frost Rd	DRACUT WATER SUPPLY DISTRICT	Permanently Protected	Open Space	71.7	71.7
Massachusetts Land Conservation Trust	Mass. Land Trust Conservation Area - Bancroft	11-33	0 Rt 3	MASSACHUSETTS LAND CONSERVATION TRUST	Permanently Protected	Open Space	56	56
Massachusetts Land Conservation Trust	Mass. Land Trust Conservation Area - McCabe	12-21	0 Rt 3	MASSACHUSETTS LAND CONSERVATION TRUST	Permanently Protected	Open Space	12.7	12.7
							68.7	68.7
APR	Ekstrom John O APR	19-34A	Rear Farwell Rd	PARLEE MARK C	Permanently Protected	Open Space	12	12
APR	Ekstrom_Beh APR	19-30	95 Farwell Rd	PARLEE MARK C	Permanently Protected	Open Space	30.5	30.5
APR	Ekstrom_Beh APR	19-33	65 Farwell Rd	PARLEE MARK C	Permanently Protected	Open Space	20	20
APR	Times Farm	25-9	91 and 93 Frost Rd	TIMES KENNETH	Permanently Protected	Open Space	78.4	78.4
APR	Times Farm	25-10	91 Frost Rd	TIMES KENNETH	Permanently Protected	Open Space	10.9	10.9
							151.8	151.8
Private CR/Deed Restriction	Griffin Property CR	20A-3	208 Middlesex Rd	LAMBERT CORLISS F	Permanently Protected	Open Space	4.83	4.83
Private CR/Deed Restriction	Lake Massapoag Conservation Area	3-2-1	0 Groton Rd	LAKE MASSAPOAG ROD + GUN CLUB	Permanently Protected	Open Space	0.11	0.11
Private CR/Deed Restriction	Lake Massapoag Conservation Area	3-2-2	0 Massapoag Rd	LAKE MASSAPOAG ROD + GUN CLUB	Permanently Protected	Open Space	2.44	2.44
							7.38	7.38
Private Open Space Pending Protection	Caggiano	26-76	40 Sequoia Dr	CAGGIANO STEVEN	Protection Pending	Open Space	27.51	27.51
Private Open Space Pending Protection	Charles George Trust - 21-35	21-35	0 Rt 3	CHARLES GEORGE 2007 IREVOC TR	Protection Pending	Open Space	15	15
Private Open Space Pending Protection	Shady Glade Trust	7-5-1	0 Primrose Ln	SHADY GLADE TRUST	Protection Pending	Open Space	22.02	22.02
							64.53	64.53

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Cemetery	Drake Cemetery	27-5A	0 Middlesex Rd	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	0.46	0.46
Cemetery	Drake Cemetery	27-5B	0 Tyng Rd	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	0.03	0.03
Cemetery	Fletcher Cemetery	18-61	0 Fletcher Dr	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	0.63	0.63
Cemetery	Flint Cemetery	22-1A	0 Westford Rd	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	2.52	2.52
Cemetery	Gould Cemetery	24-22A	0 Norris Rd	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	0.23	0.23
Cemetery	Memorial Cemetery	18-58	31 Fletcher Dr	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	22.28	22.28
Cemetery	Sherburne Cemetery	27-72	0 Coburn Rd	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	1	1
Cemetery	Thompson Cemetery	12-26A	0 Old Kendall Rd	TOWN OF TYNGSBOROUGH	Limited or Temporary	Open Space	1	1
							28.15	28.15
Chapter 61, 61A, 61B	Alexa	24-12B	86 Norris Rd	ALEXA MICHAEL J	Limited or Temporary	Open Space	7.09	6.09
Chapter 61, 61A, 61B	Ayers	32-6	95 Willowdale Rd	AYERS DANIEL R & KATHERINE G	Limited or Temporary	Open Space	14.6	13.6
Chapter 61, 61A, 61B	Charles George Trust	14-26	475 Dunstable Rd	CHARLES GEORGE 2007 IRREVOC TR	Limited or Temporary	Open Space	45.2	41.8
Chapter 61, 61A, 61B	Charles George Trust - Kendall Rd	13-6	0 Rt 3	CHARLES GEORGE 2007 IREVOC TR	Limited or Temporary	Open Space	11.02	11.02
Chapter 61, 61A, 61B	Charles George Trust - Kendall Rd	13-7	0 Kendall Rd	CHARLES GEORGE 2007 IREVOC TR	Limited or Temporary	Open Space	38.65	38.65
Chapter 61, 61A, 61B	Charles George Trust Dunstable Rd	14-22	0 Dunstable Rd	CHARLES GEORGE 2007 IRRVOC TR	Limited or Temporary	Open Space	18.31	18.31
Chapter 61, 61A, 61B	Dunstable Road Properties	14-21-1	0 Dunstable Rd	DUNSTABLE ROAD LAND PROP LLC	Limited or Temporary	Open Space	1.5	1.5
Chapter 61, 61A, 61B	Dunstable Road Properties	14-21	0 Dunstable Rd	DUNSTABLE ROAD PROPERTIES LLC	Limited or Temporary	Open Space	4.68	4.68
Chapter 61, 61A, 61B	Dunstable Road Properties	14-23	501 Dunstable Rd	DUNSTABLE ROAD PROPERTIES LLC	Limited or Temporary	Open Space	9.5	9.5
Chapter 61, 61A, 61B	Dunstable Road Properties	14-25	0 Dunstable Rd	DUNSTABLE ROAD PROPERTIES LLC	Limited or Temporary	Open Space	3	3
Chapter 61, 61A, 61B	El Kareh - 24 Old Tyng Rd	22-26	24 Old Tyng Rd	EL KAREH JOSEPH K & MARY M	Limited or Temporary	Open Space	118.09	118.09
Chapter 61, 61A, 61B	El Kareh - Dunstable Rd	14-9	0 Dunstable Rd	EL KAREH JOSEPH K & MARY B	Limited or Temporary	Open Space	2.5	2.5
Chapter 61, 61A, 61B	El Kareh - Kendall Rd	20-16	84 Kendall Rd	EL KAREH JOSEPH K + MARY M	Limited or Temporary	Open Space	26.96	26.96

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Chapter 61, 61A, 61B	Gabriel	25-159	20 Jasper Ln	GABRIEL JORGE	Limited or Temporary	Open Space	16.68	14.8
Chapter 61, 61A, 61B	Gagnon	3-7	19 Davis Rd	GAGNON MICHAEL J &	Limited or Temporary	Open Space	25.43	24.43
Chapter 61, 61A, 61B	Gagnon	3-9-1	0 Davis Rd	GAGNON MICHAEL J &	Limited or Temporary	Open Space	3	3
Chapter 61, 61A, 61B	Gagnon	3-9	14 Davis Rd	GAGNON MICHAEL J &	Limited or Temporary	Open Space	28.42	27.42
Chapter 61, 61A, 61B	Gagnon	3-7A	17 Davis Rd	GAGNON MICHAEL &	Limited or Temporary	Open Space	2.02	2.02
Chapter 61, 61A, 61B	H&G Realty	13-25	11 Cummings Rd	H & G REALTY TRUST	Limited or Temporary	Open Space	38	35
Chapter 61, 61A, 61B	Hurley	9-17	74 Scribner Rd	HURLEY FRANCIS L	Limited or Temporary	Open Space	23.8	20.79
Chapter 61, 61A, 61B	Karp	15-72	137 Westford Rd	KARP RICHARD C	Limited or Temporary	Open Space	46.2	35.1
Chapter 61, 61A, 61B	Kaufman	33-28	21 Trotting Park Rd	KAUFMAN, WHITLEY R. P. &	Limited or Temporary	Open Space	6.5	5.5
Chapter 61, 61A, 61B	Locicero	9-49	70 Scribner Rd	VINCENT R LOCICERO REVOC TRS	Limited or Temporary	Open Space	23.8	16.32
Chapter 61, 61A, 61B	Locust Pond Lot	12-43	0 Locust Av	JANET HICKS 2007 REVOC TRUST	Limited or Temporary	Open Space	62.18	62.18
Chapter 61, 61A, 61B	Merrill	16-18	22 Swan Rd	MERRILL GEORGE L	Limited or Temporary	Open Space	12.54	12.54
Chapter 61, 61A, 61B	Parlee	19-31	89 Farwell Rd	PARLEE MARK C	Limited or Temporary	Open Space	10	8
Chapter 61, 61A, 61B	Parlee	19-52	0 River Rd	PARLEE MARK C &	Limited or Temporary	Open Space	19.2	19.2
Chapter 61, 61A, 61B	Stepinski	3-8A	21 Davis Rd	STEPINSKI JOSEPH	Limited or Temporary	Open Space	24	24
Chapter 61, 61A, 61B	Tatseos	34-34	226 Sherburne Av	TATSEOS GEORGE A	Limited or Temporary	Open Space	22.24	21.24
Chapter 61, 61A, 61B	Tyngsboro Country Club	20-74	45 Sherburne Av	TYNGSBORO LTD PARTNERSHIP THE	Limited or Temporary	Open Space	9.45	9.45
Chapter 61, 61A, 61B	Tyngsboro Country Club	27-74	0 Pawtucket Bv	TYNGSBORO LTD PARTNERSHIP THE	Limited or Temporary	Open Space	2.6	2.6
Chapter 61, 61A, 61B	Tyson	13-23	33 Cummings Rd	TYSON CHARLOTTE RLE	Limited or Temporary	Open Space	12	12
Chapter 61, 61A, 61B	Wright	7-1A	89 A Red Gate Rd	WRIGHT ERIC M &	Limited or Temporary	Open Space	35.7	33.7
							724.86	684.99

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Town Recreation Land	Community Center Fields	25-48	0 Walnut Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.52	0.52
Town Recreation Land	Community Center Fields	26A-15	46 Walnut Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.69	0.69
Town Recreation Land	Community Center Fields	26A-16	0 Walnut Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.18	0.18
Town Recreation Land	Community Center Fields	26A-17	0 Lakeview Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.07	0.07
Town Recreation Land	Community Center Fields	26A-18	0 Lakeview Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.11	0.11
Town Recreation Land	Community Center Fields	26A-18A	180 Lakeview Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	1.01	1.01
Town Recreation Land	Community Center Fields	26A-19A	0 Poplar Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.05	0.05
Town Recreation Land	Community Center Fields	31A-1A	1 Mt Rock Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.11	0.11
Town Recreation Land	Community Center Fields	32B-1	186 Lakeview Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	2.3	2.3
Town Recreation Land	High School/Middle School	24-45	50 Norris Rd	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	45.1	10.72
Town Recreation Land	Lakeview School	31-42A	135 Coburn Rd	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	10.7	1.56
Town Recreation Land	Old Town Hall Park	20A-8	4 Kendall Rd	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.25	0.25
Town Recreation Land	Town Beach	26A-94A	44 Maplewood Av	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	1.05	1.05
Town Recreation Land	Tyngsborough Elementary School / Bicentennial Field Complex	15-5	205 Westford Rd	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	70.07	17.39
Town Recreation Land	Veterans Memorial Park	20A-57	0 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.23	0.23
Town Recreation Land	Veterans Memorial Park	20A-58	0 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.23	0.23
Town Recreation Land	Wicasse Fields	20-104A	17 Wicasse Rd	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	8.8	8.8
Town Recreation Land	Winslow School	20-30A	250 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	5.2	5.2
							146.67	50.47

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Other Recreation Land	Greater Lowell Regional Vocational Technical High School	34-6	250 Pawtucket Bv	GREATER LOWELL REGIONAL	Unprotected	Recreation	68.15	20.33
Other Recreation Land	Greater Lowell Regional Vocational Technical High School	34-2	0 Pawtucket Bv	GREATER LOWELL REGIONAL	Unprotected	Recreation	1.61	1.61
Other Recreation Land	Greater Lowell Regional Vocational Technical High School	34-44	0 Sherburne Av	GREATER LOWELL REGIONAL	Unprotected	Recreation	2.53	2.53
							72.29	24.47
Private Recreation Land	Brox	13-30	93 Kendall Rd	BROX INDUSTRIES INC	Unprotected	Recreation	61.71	61.71
Private Recreation Land	Brox	13-2	98 Kendall Rd	BROX INDUSTRIES INC	Unprotected	Recreation	36.16	36.16
Private Recreation Land	Max's Country Golf	12-38	383 Middlesex Rd	TWINCO REALTY LLC	Unprotected	Recreation	42.53	42.53
Private Recreation Land	Tyngsboro Country Club	26-2	46 Sherburne Av	TYNGSBORO LTD PARTNERSHIP THE	Unprotected	Recreation	56.7	56.7
Private Recreation Land	Tyngsboro Country Club	27-73	80 Pawtucket Bv	TYNGSBORO LTD PARTNERSHIP THE	Unprotected	Recreation	18.81	18.81
Private Recreation Land	Tyngsborough Sportsmen Club	21-4	81B Westford Rd	TYNGSBOROUGH SPORTSMEN	Unprotected	Recreation	2	2
Private Recreation Land	Tyngsborough Sportsmen Club	21-5	90 Westford Rd	TYNGSBOROUGH SPORTSMEN	Unprotected	Recreation	44	44
Private Recreation Land	Tyngsborough Sportsmen Club	21-23-1G	0 Westford Rd	TYNGSBOROUGH SPORTSMEN	Unprotected	Recreation	12.17	12.17
Private Recreation Land	Vesper-Country Club	28-115	185 Pawtucket Bv	VESPER COUNTRY CLUB	Unprotected	Recreation	177.88	177.88
							451.96	451.96
Town Land - Municipal Facility	14 Phalanx St Sewer Pump	19-82	14 Phalanx St	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.78	0.78
Town Land - Municipal Facility	20 Phalanx St Sewer Pump	19-81	20 Phalanx St	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.67	0.67
Other Town Land	10 Trinity Dr	31-103	10 Trinity Dr	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	2.65	2.65
Other Town Land	15 Descheneaux Ln	24-19-3	15 Descheneaux Ln	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	1.57	1.57
Other Town Land	16 Oakridge Ave	32A-66	16 Oakridge Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.17	0.17
Other Town Land	195 Lakeview Ave Adjacent	32B-46	0 Lakeview Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.08	0.08
Other Town Land	273 Westford Rd	16-11	273 Westford Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.26	0.26
Other Town Land	290 Middlesex Rd	20-39	290 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.05	0.05
Other Town Land	310 Middlesex Rd	19-2	310 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	1	1

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Other Town Land	312 Middlesex Rd	19-3	312 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.5	0.5
Other Town Land	316 Middlesex Rd	19-4	316 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	2.5	2.5
Other Town Land	33 Patricia Dr	20-100-2	33 Patricia Dr	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.33	0.33
Other Town Land	37 Patricia Dr	20-100-1	37 Patricia Dr	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.21	0.21
Other Town Land	381 Westford Rd	9-23-25	381 Westford Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	2.87	2.87
Other Town Land	4 Wintergreen Dr	18-54I	4 Wintergreen Dr	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	1.29	1.29
Other Town Land	50 Mascuppic Trail	32B-60	50 Mascuppic Tl	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.27	0.27
Other Town Land	8 Pawtucket Bv	20-61	8 Pawtucket Bv	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.39	0.39
Other Town Land	Beech St 26A-176	26A-176	0 Beech St	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.11	0.11
Other Town Land	Coburn Rd 26-39A	26-39A	0 Coburn Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	1.7	1.7
Other Town Land	Housing Authority - 130 Coburn Rd	25-44-1	130 Coburn Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	7.92	7.92
Other Town Land	Joyce Dr 19-25	19-25	0 Joyce Dr	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.71	0.71
Other Town Land	Kendall Rd 13-5	13-5	0 Kendall Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.29	0.29
Other Town Land	King David Rd 32-55	32-55	0 King David Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.11	0.11
Other Town Land	Lakeview Ave 31A-43A	31A-43A	0 Lakeview Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.1	0.1
Other Town Land	Longwood Rd 32A-141	32A-141	0 Longwood Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.82	0.82
Other Town Land	Mascuppic Trail 26A-97	26A-97	0 Mascuppic Tl	TOWN OF TYNGSBOROUGH	Unprotected	Recreation	0.15	0.15
Other Town Land	Middlesex Rd 28-84	28-84	0 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.18	0.18
Other Town Land	Middlesex Rd 28-92	28-92	0 Middlesex Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.28	0.28
Other Town Land	Palmetto Ave 32B-61A	32B-61A	0 Palmetto Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.09	0.09
Other Town Land	Patricia Dr 20-100-8	20-100-8	0 Patricia Dr	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.23	0.23
Other Town Land	Pawtucket and Cassaway Dr	20-61A	0 Pawtucket Bv	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.35	0.35
Other Town Land	Pointsetta Ave 32B-71B	32B-71B	0 Pointsetta Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.09	0.09

Map Category	Site Name	Map Block Lot	Addresses	Owner	Level of Protection	Primary Category	Assessor's Parcel Acres	Total Acres Open Space
Other Town Land	Pond off Howard's Brook	12-7	0 Rt 3	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	8.2	8.2
Other Town Land	Tyng Rd 28-120	28-120	0 Tyng Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.09	0.09
Other Town Land	Walnut Ave by Lakeview School	25-46	0 Walnut Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	1.2	1.2
Other Town Land	Walnut Ave by Lakeview School	25-47	0 Walnut Av	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.16	0.16
Other Town Land	Westland Rd 32A-144	32A-144	0 Westland Rd	TOWN OF TYNGSBOROUGH	Unprotected	Open Space	0.38	0.38
							51.04	37.3

SECTION 6: COMMUNITY VISION

The Open Space and Recreation Plan Visioning Session was held on March 19, 2018 at Tyngsborough Town Hall. The Visioning Session was also advertised on local cable television and the town's website. Finally, a notice was placed with each tax bill sent out in December 2017 of 2018 (see Appendix D for public meeting notice and agenda). The visioning session emphasized brainstorming and open discussion. Participants who attended the session were asked to address the following:

- What are the Town's strengths and assets in terms of its Open Space and Recreation facilities and programs?
- What are the community's weaknesses and liabilities in this regard?
- What opportunities does the Town have to improve upon or expand its existing open space and recreation facilities and programs?
- What challenges lie ahead? What concerns need to be addressed in order to move forward to meet the Town's open space and recreation needs?

In addition, a breakout session was included as part of the Visioning exercise where attendees mapped the town's scenic resources, located the open spaces and recreation areas that they visited most frequently on a map, and identified additional locations that the Town should acquire or protect in the future. A more detailed discussion of the Visioning Session can also be found in Section 7 of this document.

Public input was also gathered from a written survey, as will be discussed in detail in Section 7 of this document. In addition, the Open Space and Recreation Advisory Group and town staff assisted with the development of the Plan. Staff advertised public involvement opportunities via postings at the Town Clerk's office, on the Town's website, the public access channel, and social media. Public meetings to receive comments and feedback on the Draft Open Space and Recreation Plan was held on February 12, February 10 and February 24 at Tyngsborough Town Hall (see Appendix D for public meeting notice and agenda).

Statement of Open Space and Recreation Goals

Tyngsborough residents recognize the need to continue and expand conservation efforts to ensure that the resources they value, and that ultimately contribute to the town's quality of life, will be protected. The town recognizes that growth within its boundaries will continue and that new development must be balanced with the need to preserve valuable open spaces and natural resources. The Town also recognizes the importance of providing quality recreational opportunities for all its residents. Therefore, the Town is committed to embracing the goals and action plan established in this document.

Based on the input received through the public engagement process, the Advisory Group has established the following goals for the 2019 Open Space and Recreation Plan:

1. Increase the quantity and quality of recreation space and facilities;
2. Improve maintenance and management of existing recreation and conservation areas;

3. Revitalize the Town Center;
4. Educate residents on the value of open space in the town and the region;
5. Increase accessibility of all recreation resources, facilities and programs;
6. Promote land use and permitting practices that foster sustainability and protect historic assets, open space, cultural assets and resource areas;
7. Improve the overall quality of the town's surface water bodies and wetland resources;
8. Establish regional greenways; and
9. Implement Complete Streets policies and projects that foster and enhance bicycle and pedestrian accommodations.

SECTION 7: ANALYSIS OF NEEDS

Throughout the plan development process, many open space, conservation, and recreation needs were identified through: discussions with town staff and officials, visioning session, meetings with the Open Space and Recreation Advisory Group, the written survey. The needs assessment outlined below serves as the basis for formulating the goals, objectives and action plan.

A. Summary of Resource Protection Needs

The Town of Tyngsborough contains many natural and cultural resources, open spaces, conservation properties, and recreational facilities and assets that are at risk from future development and from the lack of maintenance and investment. The town shall work to protect areas that contain historic resources, agricultural landscapes, steep slopes, forested lands, riverfront, water bodies and water resources, wetland resources floodplains, and wildlife habitat.

Tyngsborough continues to retain many elements of small town character, such as remaining farmland, open spaces and historical areas. Of the 2,727 acres of existing open space, only 53% or 1,447 acres are fully protected. Another 26% or 713 acres are semi-protected through ownership by the Town or the State. The remaining 21% or 567 acres of unprotected open space are in jeopardy of being developed in the future.

Agricultural lands are particularly vulnerable to development because they tend to be comprised of cleared, flat land. In the past, the lack of sewer service and the prevalence of soils unsuitable for septic systems slowed development in these areas. However, the Town has been actively pursuing the installation of sewer in certain areas of town, which may increase developmental pressures on some vulnerable lands.

The analyses of the natural resources revealed other fragile lands at risk of development, such as forested areas, riverfront, wetland buffer areas, and floodplains. The Town has

protected some of these areas through acquisition and zoning changes. However, the majority of the fragile resources are owned privately.

The Merrimack River watershed extends throughout the town and is a wonderful natural asset, although flooding does occur in certain areas. Extensive development has the potential to further alter drainage patterns, due to the impermeability of structures and pavements, and siltation. As land development continues, Tyngsborough’s extensive network of wetlands is being encroached upon through building in the wetland buffers. The Wetland Protection Act and Rivers Act, coupled with the Town’s Floodplain Overlay District, Wetland Protection Bylaw, and Stormwater regulations provide the Town with the necessary legal tools to regulate development in these resource areas.

Access to the River and ponds is a priority, as only a small percentage of waterfront land is publicly-owned. Future land acquisitions, conservation restrictions, or access easements could expand these trails for greater public use.

Much of Tyngsborough’s open space is isolated and fragmented, with few connecting links or corridors. There are opportunities to acquire or protect lands adjacent to the existing conservation and recreation areas, in order to provide linked access for recreational activities and wildlife habitat. Tyngsborough is fortunate to have active agriculture and some of these properties are classified under Chapter 61A. The Town needs to be able to act quickly to exercise its right of first refusal, should this land become available in the future.

B. Summary of Community Needs

A written survey was made available to all Tyngsborough residents via Survey Monkey and hard copy. A hard copy was provided in Town Hall and in the Senior Center, and can be seen in Appendix E. This survey was promoted by an insert in the aforementioned tax bill and local cable. The input of teenagers was not specifically sought out in the survey. The survey was formulated using the State’s prototype as model and customized to fit Tyngsborough. Most respondents completed the survey online through Survey Monkey, although hard copies were also available at the Town Hall, Library and Senior Center. A total of 358 survey responses were received and analyzed. The results of the survey are summarized below.

Question 1 asked how long they have lived in Tyngsborough. As can be seen in the table below, 82% of the respondents have lived in town for at least five years, while only 40.23% have resided in town for over twenty years.

Table 22: Question 1 “How long have you lived in Tyngsborough?”

Response	% of respondents (no. of responses)
Less than 5 years	18% (62)
5-20 years	42 % (146)
20+ years	40% (140)
TOTAL	348

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

The table on the following page shows the age distribution of those residing in the responding households. Nearly 16% of the households have children under the age of 5 years, while 29% have children between the ages of 5 and 11 years. Over twenty-five percent (26%) of the responding households have children in the 12-18-year age group. Young adults (ages 19-29 years) reside in 22% of the responding households. Those in the 30-44-year age group reside in 39% of the responding households, while those in the 45-59 age group live in 44% of the households responding. Seniors age 60 years and over reside in 29% of the households responding.

Table 23: Question 2 “Which age groups reside in your household?”

Responses	% of Responses (number of responses)
4 or under	16% (55)
5-11 years	29% (102)
12-18 years	26% (90)
19-29 years	23% (79)
30-44 years	39% (136)
45-59 years	44% (155)
60 years or older	29% (102)
Total Respondents: 351	

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Respondents were asked to identify their street address. As can be seen from the street listing of respondents below, surveys were submitted by individuals residing in all areas of the town.

Table 24: Question 3 “Please provide the name of the street that you live on.”

Street Name Provided by Respondents							
Alden Street	Cannongate Rd.	Danforth Road	Hemingway Road	Longfellow Lane	Nottingham Road	Ridge Road	Trotting Park Road
Alpine Way	Cardinal Lane	Davis Road	Hemlock Lane	Long Pond Road	Oak Street	Riverbend Road	Tyng Road
Anderson Drive	Carriage House Rd.	Diamond Street	Highland Street	Mackey Drive	Old Hickory Road	Robert Road	Upton Drive
Apollo Drive	Centercrest Drive	Diaz Drive	Indian Road	Madeline Terrace	Old Stonehill Road	Robin Hood Road	Vermont Road
Appaloosa Circle	Chard Road	Dickens Lane	Indiana Lane	Magnolia Ave.	Oregon Road	Rock Road	Village Lane
Audrey Avenue	Chester Avenue	Ducharme Lane	Ingalls Road	Makos Street	Paddock Road	Scribner Road	Violet Lane
Autumn Street	Chestnut Road	Dupras Road	Jacques Road	Malvern Ave.	Palomino Drive	Sequoia Drive	Virginia Road
Ava Lane	Chisholm Road	Emerald Street	Jamie Way	Maplewood Ave.	Parham Road	Shakespeare Street	Vista Way
Beech Tree Street	Christine Avenue	Farwell Road	Joco Drive	Mascuppic Trail	Parker Lane	Sherburne Avenue	Washington Street
Belfair Lane	Clover Hill Circle	Faye Memorial Dr.	Jonathan Circle	Massapoag Road	Patriot Road	Skyline Drive	Westford Road
Beverlee Road	Colony Heights	Fieldstone Circle	Kendall Road	Merrimac Way	Pawtucket Blvd.	Sleepy Hollow Lane	Westland Road
Birchmont Street	Constantine Dr.	First Street	Kristin Way	Michigan Road	Pilgrim Circle	Snay Circle	Wicasse Road

Bishop Drive	Corcoran Dr.	Flint Road	Lakeview Avenue	Mission Road	Poe Circle	Steinbeck Street	Willowdale Avenuw
Black Oak Circle	Cricket Lane	Forest Park Ave.	Larson Avenue	Morgan Way	Poitras Ave	Strawberry Hill Lane	Willowdale Road
Bowers Avenue	Cricones Way	Frost Road	Laurel Lane	Mustang Road	Pondview Place	Summer Street	Windemere Circle
Bridget Avenue	Cypress Lane	Glendale Ave.	Lincoln Drive	Nevada Road	Primrose Lane	Swan Road	Worden Road
Bridgeview Circle	Daisy Lane	Groton Road	Linwood Ave.	Norris Road	Red Gate Road	Tower Road	Wyndbrook Lane

In Question 4, respondents were asked how important it is to preserve historic resources, and open space for water protection, conservation or recreation. Based on the responses provided, it appears that residents give highest priority to open space preservation for water protection, conservation, and passive recreation purposes, while placing a much lower value on historic preservation.

Table 25: Question 4 “In your opinion, how important is it to preserve the following? Please rank in order of importance on a scale of 1 to 6, with 1 being the most important.”

Response	1	2	3	4	5	6	Total # of responses
Buildings or places of historical value	13% (41)	14% (39)	12% (38)	15% (46)	18% (55)	30% (93)	312
Open space to meet drinking water needs	38% (119)	12% (36)	15% (47)	15% (47)	11% (33)	9% (29)	311
Open space to meet conservation needs	17% (54)	28% (87)	21% (64)	14% (45)	13% (39)	7% (22)	311
Open space for active recreation (e.g. athletic fields)	11% (35)	15% (47)	18% (57)	20% (64)	22% (68)	14% (45)	316
Open space for passive recreation (e.g. hiking)	18% (56)	22% (69)	21% (64)	19% (60)	14% (44)	6% (19)	312
Open space for other activities (e.g. fishing, boating)	7% (24)	11% (36)	17% (55)	16% (51)	19% (63)	30% (101)	330

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Respondents were asked if they would be willing to take certain actions to preserve open space, such as contributing to a trust, selling land to the town at a reduced price, donating land, supporting user fees, or paying higher taxes for open space preservation. Of those responding, nearly 88% would support open space if taxes were not raised, while 58% would vote for a town-supported land acquisition program. Opinions appear to be evenly split in terms of seasonal or yearly fees for using an area. About one-third of the respondents would sell land to the town at fair market value, while 44% would sell or donate a conservation restriction. As shown in Table 26 below and on the following page and on the following page, there appears to be an untapped pool of volunteers in Tyngsborough, with 54% of respondents indicating that they would volunteer to help the town’s lakes and ponds through events such as water chestnut pulls. Many other residents

also indicated an interest in volunteering as a trail steward, through a land trust, or as member of the Bicycle and Pedestrian Committee.

Table 26: Question 5 “To preserve open space, would you be willing to do any of the following?”

Response	Yes	No	Not Sure	Total
Donate money to the town or a local land trust to buy land for conservation purposes	23% (67)	39% (115)	38% (113)	295
Place a conservation restriction on your land to protect it from future development	44% (128)	30% (88)	26% (74)	290
Response	Yes	No	Not Sure	Total
Donate land to the town, state or land trust at a reduced cost	9% (25)	63% (181)	28% (80)	286
Sell land to the town at fair market value	30% (85)	48% (137)	22% (64)	286
Volunteer to help our lakes and ponds through events such as water chestnut pulls	54% (159)	19% (57)	27% (78)	294
Support seasonal or yearly fees for an area	37% (109)	38% (110)	25% (72)	291
Vote for a town-supported land acquisition program	58% (168)	16% (47)	26% (76)	291
Support open space preservation if taxes were not raised	88% (261)	4% (12)	8% (24)	297
Volunteer for Open Space or Trail Stewards Committee	32% (93)	28% (81)	40% (118)	292
Volunteer for Land Trust	21% (61)	37% (107)	42% (122)	290
Volunteer for Bike and Pedestrian Committee	29% (85)	37% (108)	37% (98)	291
Other	8% (8)	20% (21)	72% (75)	104

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Respondents were asked to rank the top three open space, recreational facilities, programs (public or private) or places that they use most frequently. As shown in Table 27 below and on the following page, the top four choices included the library, the river and ponds, Sherburne Nature Center, and the school playgrounds and athletic fields. Of the school facilities, the Tyngsborough Elementary School and Tyngsborough High School facilities were the most popular among survey respondents.

In Question 7, respondents were asked to identify the top five recreational facilities that they feel are needed most. The five most popular responses included bike trails, conservation areas, children’s play areas, hiking and cross-country skiing trails, and large parks with many facilities, as shown in Table 28 on the following page. Neighborhood parks and access to water bodies were also popular responses.

Table 27: Question 6 “Rank the top three open space, recreation facilities, programs

Location	Rank #1 (most frequent)	Rank #2	Rank #3	Total
Soccer fields	47% (27)	25% (14)	28% (16)	57
Football fields	43% (10)	17% (4)	39% (9)	23
Softball fields	37% (11)	40% (12)	23% (7)	30
Baseball fields	44% (8)	44% (8)	11% (2)	18
Library	47% (63)	32% (42)	21% (28)	133
Tennis courts	22% (5)	43% (10)	35% (8)	23
Basketball courts	25% (2)	25% (2)	50% (4)	8
Community Center	41% (11)	33% (9)	26% (7)	27
Town conservation land	36% (27)	39% (29)	25% (19)	75
Wicasse Park	22% (8)	36% (13)	42% (15)	36
River, lakes and ponds	37% (45)	36% (44)	28% (34)	123
Golf course	19% (3)	19% (3)	63% (10)	16
Sherburne Nature Center	13% (12)	43% (38)	44% (39)	89
Historic sites	17% (3)	28% (5)	56% (10)	18
Lacrosse field	17% (3)	61% (11)	22% (4)	18
None	37% (11)	10% (3)	53% (16)	30
Other (please specify) walking (1), Senior Center (2), Sports Center (1), Library (1), Massapoag Pond (1), Riverfront Park (6), Camp Kiwanis (1), Lakeview Town Beach (2)	50% (6)	33% (4)	17% (2)	12
School playgrounds and athletic fields: Elementary (37), Middle School (2), High School (14), Innovation Academy (1), all schools (2)	51% (37)	18% (13)	31% (22)	72

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Table 28: Question 7 “Please check the top five recreational facilities needed most.”

Response	#1	#2	#3	#4	#5	Total
Bike trails	38% (61)	18% (29)	16% (25)	14% (23)	14% (22)	160
Conservation areas	34% (48)	21% (30)	16% (22)	19% (27)	10% (14)	141
Children's play areas	35% (40)	25% (29)	20% (23)	6% (7)	13% (15)	114
Family picnic areas	4% (4)	19% (17)	25% (23)	27% (25)	24% (22)	91
ATV trails	10% (3)	31% (9)	14% (4)	24% (7)	21% (6)	29
Dog park	14% (11)	24% (19)	28% (22)	17% (14)	16% (13)	79
Splash pad	9% (4)	20% (9)	22% (10)	27% (12)	22% (10)	45
Disc golf	6% (1)	19% (3)	19% (3)	25% (4)	31% (5)	16
Softball field	28% (5)	22% (4)	17% (3)	22% (4)	11% (2)	18
Baseball field	31% (5)	25% (4)	13% (2)	13% (2)	19% (3)	16
Basketball courts	16% (3)	21% (4)	16% (3)	32% (6)	16% (3)	19

Table 28: Question 7 (continued)

Response	#1	#2	#3	#4	#5	Total
Hiking and cross-country skiing trails	16% (22)	28% (38)	20% (27)	21% (29)	16% (22)	138
Ice skating rink	2% (1)	21% (9)	26% (11)	29% (12)	21% (9)	42
Large park with many facilities	23% (31)	18% (24)	27% (36)	18% (24)	14% (19)	134
Local neighborhood parks	12% (11)	21% (19)	16% (14)	29% (26)	22% (20)	90
Outdoor amphitheater	5% (2)	20% (8)	18% (7)	20% (8)	38% (15)	40
Public access to water bodies	15% (14)	18% (17)	25% (23)	17% (16)	24% (22)	92
Soccer field	12% (2)	12% (2)	6% (1)	41% (7)	29% (5)	17
Tennis courts	13% (2)	25% (4)	25% (4)	19% (3)	19% (3)	16
Swimming pool	15% (8)	8% (4)	23% (12)	15% (8)	40% (21)	53
Other	50% (12)	8% (2)	4% (1)	4% (1)	33% (8)	24

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

In Question 8, respondents were asked how satisfied they are with recreational facilities and activities for adults and youth. Based on the survey results, it appears that residents are much more satisfied with recreational facilities and activities for youth than for adults. Approximately 48% of the respondents are very satisfied or satisfied with youth recreation facilities and programs, compared to 35% being very satisfied with recreation facilities and programs for adults, as shown in Table 29 below. Similarly, about 10% of the respondents were either very dissatisfied or dissatisfied with recreation facilities and programs for youth, compared to 16% being either very dissatisfied or dissatisfied with recreation facilities and programs for adults. In terms of facilities and activities for seniors, nearly half of the respondents were not familiar with the facilities and programs, while approximately 18% were very satisfied or satisfied. The majority of respondents (64%) were not familiar with recreational facilities and activities available to those with disabilities, while only 9% indicated that they were very satisfied or satisfied.

Table 29: Question 8 “How satisfied are you with recreational facilities and activities for adults and youth?”

	Very satisfied	Satisfied	Neutral	Dissatisfied	Very dissatisfied	Don't know/unfamiliar	Total
Adults	6% (16)	28% (71)	38% (96)	12% (29)	5% (12)	11% (27)	251
Youth	10% (26)	37% (92)	26% (65)	5% (13)	5% (12)	16% (40)	248
Seniors	6% (14)	13% (31)	23% (56)	5% (12)	5% (12)	50% (120)	245
People with a disability	2% (6)	7% (16)	17% (43)	6% (14)	3% (7)	64% (156)	242

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

As shown in Table 30 below, nearly 81% of the respondents indicated that they go out of town for open space or recreation facilities.

Table 30: Question 9 “Do you go out of town for open space or recreation facilities?”

Response	% respondents (# responses)
No	19% (49)
Yes	81% (205)
TOTAL	254

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

More detailed written responses to this question indicate that Tyngsborough residents frequent the following geographic destinations for open space or recreation (responses are not facility specific):

- Westford (18 responses)
- Chelmsford (14)
- Lowell (13)
- Nashua, NH (9)
- Dracut (9)
- White Mountains, NH (8)
- Dunstable (7)
- Groton (6)

Facilities frequented by Tyngsborough residents include the following:

- Nashua River Trail (16)
- New Hampshire and Maine beaches (16)
- Bruce Freeman Rail Trail-Lowell, Chelmsford, Westford (13)
- Mine Falls Park, Nashua (12)
- Lowell River Walk (9)
- Benson Park, Hudson, NH (9)

Activities pursued by Tyngsborough residents in other communities included the following. Respondents provided no indication of where they specifically pursued these activities:

- Hiking (29 responses)
- Visit children’s playgrounds (28)
- Visit bike trails/bike (19)
- Visit dog parks (10)
- Visit conservation lands (10)

In Question 10, respondents were asked to indicate which landscapes, views, buildings, locations or other resources most symbolize Tyngsborough’s unique character. The following responses were provided by ten or more people responding to the survey:

- Tyngsborough Bridge (148)
- First Parish Meeting House (44)
- Old Town Hall (42)
- The Merrimack River (31)
- Town Center (18)
- Lakes and Ponds (15)
- Littlefield Library (13)
- Winslow School (12)
- Sullivan Farms (11)

In Question 11, respondents were asked to indicate whether they consider Tyngsborough to be a rural town, a bedroom community, a suburb of Lowell, or a town in transition. As shown in the table below, nearly 42% consider Tyngsborough to be a town in transition, while nearly 32% feel that it is a rural, 25% consider it to be a bedroom community, and nearly 10 % feel it is a suburb of Lowell.

Table 31: Question 11 “Do you consider Tyngsborough to be:”

Response	% of respondents (number of responses)
A rural town	31.89% (81)
A bedroom community	25.59% (65)
A suburb of Lowell	9.84% 25
A town in transition	41.73% (106)
Other	5.91% (15)

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

In Question 12, respondents were asked what they like most and least about Tyngsborough’s environment and outdoor experiences and places. The following responses were provided by 10 or more people:

Most:

- Conservation land & open space (24)
- Small town feel (17)
- Athletic facilities (15)
- Trees/woods/forests (15)
- Merrimack River (15)
- Sherburne Nature Center (13)
- Lakes and beaches (12)
- Quiet and solitude (11)
- Rural character (10)

Least:

- Overdevelopment (41)
- Lack of a cohesive Town Center/Town Common (27)
- Lack of sidewalks (10)
- Loss of trees/forests (10)

Question 13 asked: “What are Tyngsborough’s greatest challenges related to open space in Tyngsborough? Include challenges associated with the lakes, ponds and water bodies in town”. The following responses were submitted by ten or more residents:

- Controlling development (26)
- Water pollution/runoff contaminated with fertilizer and other pollutants (14)
- Providing access to waterbodies (12)
- Improving the Town Center (10)

Question 14 asked respondents to select the top five most important issues that the town needs to address with regard to Open Space and passive recreation (with 1 being the most important). As can be seen in the table on the following page, respondents felt that all of the issues listed were of high importance, with access to open space and maps for trails and open space parcels receiving the greatest number of overall responses.

Table 32: Question 14 “Please select your top five most important issues for the Town to address with regard to Open Space and passive recreation (with 1 being the most important).”

Issue	1	2	3	4	5	Total
Aquatic invasive species	22% (33)	22% (32)	20% (29)	16% (23)	20% (30)	147
Access to Open Space	23% (57)	24% (46)	20% (38)	16% (30)	11% (21)	192
Signs for Open Space	8% (13)	23% (38)	20% (33)	26% (42)	23% (38)	164
Maps for trails and open space parcels	18% (33)	22% (40)	27% (51)	17% (31)	17% (31)	186
A need for new open space	35% (56)	19% (31)	14% (22)	13% (21)	19% (30)	160
Trail maintenance	16% (27)	18% (31)	20% (35)	29% (51)	17% (30)	174
Other	63% (10)	0% (0)	6% (1)	0% (0)	31% (5)	16

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Question 15 asked respondents to select the top five most important issues that the town needs to address with regard to active recreation (with 1 being the most important). As shown in the table below, field maintenance was the highest priority for respondents, followed by signs for fields and operating rules for fields.

Table 33: Question 15 “Please select your top five most important issues for the town to address with regard to active recreation (with 1 being the most important).”

Issue	1	2	3	4	5	Total
Field maintenance	54% (100)	25% (47)	13% (24)	5% (10)	2% (4)	185
Signs for fields	10 % (17)	26% (45)	42% (73)	18% (34)	2% (3)	172
Operating rules for fields	20% (35)	33% (58)	24% (42)	19% (34)	3% (6)	175
New fields	22% (35)	13% (21)	15% (24)	38% (59)	11% (17)	156
Other	20% (11)	9% (5)	6% (3)	9% (5)	56% (30)	54

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Question 16 asked residents to indicate which water bodies they use for recreation. As shown in Table 34 on the following page, Lake Mascuppig and the Merrimack River are the most widely utilized water bodies, with the Lake being the primary location for swimming, while the River is used principally for boating.

Table 34: Question 16 “Which water bodies do you recreate on?”

Waterbody	Boating	Swimming	Fishing	Other	Total Respondents
Lake Mascuppic	45% (53)	63% (74)	38% (44)	12% (14)	117
Long Pond	43% (16)	19% (7)	54% (20)	22% (8)	37
Lake Massapoag	36% (18)	26% (13)	54% (27)	26% (13)	50
Flint Pond	38% (16)	2% (1)	57% (24)	33% (14)	42
Lake Althea	17% (3)	0% (0)	47% (8)	41% (7)	17
Merrimack River	63% (54)	13% (11)	36% (31)	26% (22)	86
Other	36% (5)	14% (2)	21% (3)	64% (9)	14

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Question 17 asked whether respondents feel that there is a need to preserve open space and natural areas in Tyngsborough. As shown in the table below, 66.8% of the respondents agreed that there is a need to preserve these areas, compared to 13.93% who felt that there was no need.

Table 35: Question 17 “Do you feel there is a need to preserve open space and natural areas in Tyngsborough?”

Answer Choices	Responses
Yes	67% (163)
No	14% (34)
Not sure	19% (47)
TOTAL	244

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

As shown in the table below and on the following page, similar results were seen in the responses to Question 18 where residents were asked to rank the importance of preserving open space, historical resources and agricultural lands on a scale of 1 to 5. Preserving open space for water quality protection was the top ranked #1 response, followed by preserving open space for conservation needs.

Table 36: Question 18 “How important is it to you to preserve:”

	1 - Very important	2 - Important	3 - Neutral	4 - Less important	5 - Not important	Total
Buildings of historical value	24% (56)	30% (70)	22% (52)	11% (26)	14% (33)	237
Places of historical value	21% (49)	37% (87)	21% (50)	12% (28)	9 % (22)	236
Farms/agricultural lands	45% (107)	31% (75)	15% (37)	4% (9)	5 % (11)	239

Continued

Table 36: Question 18 (Continued)

	1 - Very important	2 - Important	3 - Neutral	4 - Less important	5 - Not important	Total
Open spaces to meet water and conservation needs	51% (121)	34% (82)	10% (23)	3% (6)	3% (7)	239
Open spaces to meet active recreation needs	29% (69)	40% (94)	19% (44)	9% (22)	3% (7)	236
Open spaces for aesthetics or passive recreation	35% (84)	46% (111)	13% (30)	3% (7)	3% (7)	239
Open spaces for water quality protection	57% (138)	27% (64)	12% (29)	2% (5)	2% (5)	241

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Question 19 asked residents to indicate specific town actions that they favor for preserving open space. As shown in the table below, nearly 64% of the respondents favored the use of programs and initiatives that result in a deed restriction, and nearly 60% favored development regulations that require mandatory of open space development. Approximately 54% of those responding favor the use of Community Preservation Act funds, and nearly half favor amending zoning regulations to include preservation provisions, such as a tree canopy retention bylaw.

Table 37: Question 19 “What town actions do you favor to preserve open space?”

Answer Choices	Responses
Use Community Preservation Act funds (Funds are raised annually through a 2% tax to be used for open space protection, historic preservation, affordable housing and outdoor recreation.)	54% (123)
Restrict development on a parcel by having it written into the deed. Examples include Conservation Restrictions (preserving land for open space) or Agricultural Preservation Restrictions (preserving land for agriculture)	64% (144)
Amend zoning by-laws (for example, create a tree canopy retention by-law)	49% (111)
Town purchase of lands	43% (98)
Purchase development rights for certain parcels	25% (57)
Require Open Space to be incorporated into residential development	59% (135)
Encourage Open Space to be incorporated into residential development	39% (89)
Other	10% (22)
Total Respondents	226

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Question 20 asked residents how often they visit various recreation areas in town. As seen in the table below, the Sherburne Nature Center, Bicentennial Field, and the Pierce Field Complex are among the most frequently visited recreation areas.

Table 38: Question 20 “How often do you visit the following areas for recreation?”

Recreation area	15+ visits/year	10-15 visits/year	5-10 visits/year	1-5 visits/year	Never	Total
Town Common	3% (7)	1% (3)	11% (25)	49% (115)	36% (83)	233
Town Beach	3% (8)	4% (9)	13% (30)	36% (85)	44% (102)	234
Bridge Meadow Fields	14% (32)	5% (11)	7% (15)	16% (35)	58% 129	222
Sherburne Nature Center	5% (11)	6% (14)	11% (26)	45% (105)	33% (78)	234
Bicentennial Field (Elementary School fields and tennis courts)	20% (46)	9% (21)	12% (27)	25% (58)	33% (76)	228
Community Center Fields (located on Lakeview Ave)	8% (18)	3% (7)	5% (12)	13% (30)	70% (159)	226
Pierce Field Complex	10% (23)	5% (11)	6% (14)	15% (34)	64% (143)	225
Wicasse Park	6% (14)	7% (15)	5% (11)	25% (57)	57% (131)	228
Riverfront (Frost Road) Park	6% (14)	7% (17)	8% (19)	30% (69)	48% (108)	227
Other, please specify:	23% (9)	5% (2)	5% (2)	5% (2)	63% (25)	40

Figures are rounded to the nearest decimal. Totals may not sum due to rounding.

Question 21 asked respondents to indicate the most important specific open space or recreation action that the Town should take in the next five years. The following responses were provided by 10 or more people:

- Maintain and improve existing open space areas, recreation facilities and trails (27)
- Stop/limit development (24)
- Acquire additional conservation land and open space (20)
- Improve the town center/common area (15)
- Prohibit deforestation and tree clearing (14)

C. Visioning Session

A Visioning Session was held on March 19, 2018 at Tyngsborough Town Hall. The visioning session emphasized brainstorming and open discussion. Participants who attended the session were asked to address the following:

What are the Town’s strengths and assets in terms of its Open space and Recreation facilities and programs? The following top strengths were identified:

1. Tyngsborough’s lakes provide significant recreational opportunities
 - a. Mascuppic Lake has been cleaned up and Flint Pond is also improved

- b. Much work is being done on Massapoag Pond (called Massapoag Lake by locals)
- 2. Tyngsborough has a plenitude of open space
 - a. Many open space areas have been purchased for recreation
 - b. The Tyngsborough Golf course is one example of quality open space
- 3. Parks are in good shape
 - a. Riverfront Park (former campground) gets a lot of use
 - b. Tyngsborough Town Beach is well used and very clean
- 4. Tyngsborough offers a variety of recreational trails
- 5. The caliber of recreational programs in Tyngsborough is great
- 6. The Recreational Building itself is a strength
- 7. Tyngsborough has quality sports fields
- 8. The Sherburne Nature Center
- 9. The Merrimack River is a top feature for recreation

What are the community's weaknesses and liabilities in this regard? The following top weaknesses and liabilities were identified:

1. Open space acquisitions and development restrictions are often incorrectly recorded or not recorded at all
2. Tyngsborough needs more recreational trails and longer recreational trails
3. Conservation opportunities not spread out evenly throughout the town
4. More trail maintenance is needed
5. Trails need more signage
6. Funding continues to be an issue
7. Weed overgrowth/invasive plants in Tyngsborough's lakes

What opportunities does the Town have to improve upon or expand its existing open space and recreation facilities and programs? The following top opportunities were identified:

1. Tyngsborough's trails continue to offer recreational opportunities
2. Creating a local land trust might provide a less expensive option for managing conserved land and easements
3. Develop trails, a beach and other resources at the former Girl Scout camp.
4. The ample water access offers recreational opportunities
5. Tyngsborough has an opportunity to develop its waterfront park
6. Develop a dog park
7. Build a modern restroom facility at the waterfront park
8. Develop an off-road ATV park or trail system
9. Develop or designate trails where mountain bikes are allowed
10. Better mapping of open space and recreational assets, including trails, would be useful
11. Install trail cameras

What challenges lie ahead? What concerns need to be addressed in order to move forward to meet the Town's open space and recreation needs? The following top challenges and concerns were outlined:

1. A lack of funding limits the town's ability to implement many potential improvements
2. Dam in the center of town is in poor condition and poses a potentially significant safety issue
3. Dam at Massapoag Pond is also in poor condition
4. The aquatic weeds in Tyngsborough's water bodies can harm aquatic wildlife
5. There are threats to upland habitats and there are few conserved upland habitat areas

In addition, a breakout session was included as part of the Visioning exercise where attendees mapped the town's scenic resources, located the open spaces and recreation areas that they visited most frequently on a map, and identified additional locations that the Town should acquire or protect in the future. Each breakout group presented the following findings.

Break-Out Group 1:

1. Concentrate on properties already owned by the Town and State (e.g. Long Pond, Lowell-Dracut-Tyngsborough State Forest, etc.).
2. Create a trail connecting the string of existing open space properties running roughly north-south to the east of Route 3
3. Create/improve access to Groton's trail network (some trail advocates in Groton hope to create a regional trail network).
4. Tyngsborough already owns a parking area and access along a paper street to Massapoag Pond and at or near Cow Pond. This could be used for accessing Groton's trail network.
5. The area near the intersection of Scribner Road and Groton Road, may already be owned by the Town.

Break-Out Team 2:

1. There is some Town-owned land around Davis Road abutting MIT's Haystack Observatory lands. It would be a good location for additional trails.
2. Put in a well to water the elementary school's fields.
3. More trail maintenance is needed on or near the Shady Glade and Applewood property trails.
4. Preserve the country club riverfront.
5. Improve signage at the Town Beach.
6. Acquire a deed restriction on the Vesper Country Club.
7. Develop or improve parking, trails and beach at the former Girl Scout camp.

D. Massachusetts Outdoors 2017: Statewide Comprehensive Outdoor Recreation Plan (SCORP 2017)

Massachusetts Statewide Comprehensive Outdoor Recreation Plan 2017 (SCORP), developed by the Massachusetts Executive Office of Environmental Affairs, Division of Conservation Services, assessed the recreation needs of the state by region. The intent of the document is to direct investment decisions in a manner that best meets the needs of the Commonwealth's citizen.

Within *SCORP 2017*, Tyngsborough is considered part of the northeastern region. According to the report, the most popular recreational activities within the region include swimming, walking, sightseeing and tours, hiking and fishing. In addition, baseball, sunbathing, horseback riding, off-road vehicle driving, snowmobiling, boating (motorized) and surfing were identified as being more popular in the northeast region than in other areas of the Commonwealth. Soccer, tot lots, and pond hockey were also found to be popular activities. The Northeast region has an abundance of water resources and conservation areas, which supports the preferences listed above.

According to the survey conducted for *SCORP 2017*, the northeast region residents strongly support improving access to recreational facilities for persons with disabilities, and support prioritizing funding for maintenance of existing facilities and new open space acquisition. A number of surveys were conducted for the SCORP, the findings of which were remarkably similar to the input provided by Tyngsborough residents.

E. Management Needs and Potential Changes of Use

Based on the input received during the plan development process, Tyngsborough residents support the future acquisition and protection of open space and are concerned about recent growth and development in the community, particularly as it relates the large multi-family complexes along the River. Residents are also concerned about the loss of forested habitat and are interested in development regulations that preserve both open space and wooded areas, such as mandatory open space development and a tree retention bylaw.

There is consensus among town residents that Tyngsborough needs to improve its town center, to more effectively reuse town-owned buildings, improve walkability, expand the town common, and create a more cohesive design character. Residents are also concerned about vacant commercial properties along Middlesex Road.

There is a desire to expand and connect the town's trail network, and to provide additional playgrounds for children. The Town is interested in working with neighboring communities to establish regional trails, including those for ATVs.

Many residents value the town's waterbodies and wish to see access and parking improved for these areas. They are also interested in seeing water quality improved through the management and removal of weeds and invasive plants.

Like many communities, Tyngsborough is faced with a limited amount of funding for land acquisitions and improvements to existing facilities. Many residents believe that the Town should focus more heavily on maintenance. There is also a desire to promote the open space areas and recreation facilities to residents, through maps, brochures and the Town's website. The survey has shown that there is an untapped pool of willing volunteers to assist the Town with its efforts. A stewardship program would be one way to leverage these volunteer resources. The establishment of a land trust would also be of value to the town in its efforts to acquire and protect open space. The Town has added professional staff capacity, by converting the Town Planner and Conservation Administrator positions from part-time to full-time in 2018 and in 2019 the town added a full time Town Engineer.

SECTION 8: GOALS AND OBJECTIVES

The goals and objectives for the Tyngsborough Open Space and Recreation Plan were determined through the analysis of existing conditions and data, and by assessing and analyzing community needs through the survey and Visioning Sessions. Input was also sought from local officials, board and committees, town departments and staff, and through local and regional organizations. The goals and objectives are outlined below, as they serve as the framework and foundation for the Seven-Year Action Plan that is presented in Section 9. Nine long-range goals have been formulated and are followed by the objectives for achieving them.

Goal 1: Increase the quantity and quality of recreation and Open Space facilities

- Create more neighborhood playgrounds and parks
- Review use of existing school facilities and maximize utilization
- Complete recreational fields at the Elementary School
- Expand adult athletic programs
- Improve and increase access to the Merrimack River

Goal 2: Improve maintenance and management of existing recreation and conservation areas

- Properly manage and maintain athletic facilities
- Properly manage open space and conservation areas
- Enhance partnerships with volunteer and private organizations
- Better maintain existing open space

Goal 3: Revitalize the Town Center

- Implement recommendations outlined in the Town Center Master Plan, including those related to open space and recreation
- Implement land use and zoning tools to enhance the Town Center
- Complete renovations of the First Parish Meeting House property

Goal 4: Educate residents on the value of open space in the town and the region

- Identify open space parcels at risk for development
- Create educational material on Chapter 61, 61A and 61B tax and open space benefits for property owners
- Preserve agricultural lands and businesses

Goal 5: Increase accessibility of all recreation resources, facilities and programs

- Make all recreational and athletic facilities fully ADA compliant

Goal 6: Promote land use and permitting practices that foster sustainability and protect historic assets, open space, cultural assets and resource areas

- Encourage development practices that preserve open space
- Develop policies for utilizing conservation restrictions (CRs) to permanently preserve open space
- Conduct a complete inventory of all town-owned land to ensure that open space was properly transferred to the town and properly recorded at the Registry of Deeds

Goal 7: Improve the overall quality of the surface water and wetland resources

- Use Best Management Practices (BMPs) to control non-point source pollution and other activities that impact water quality
- Increase public awareness relative to the importance of wetland resource areas
- Protect upland buffers to water resources and wetlands
- Preserve and protect wildlife habitat
- Monitor water quality of streams, ponds, lakes and the Merrimack River
- Monitor and treat invasive weed species in lakes and ponds

Goal 8: Establish regional greenways

- Create partnerships among the public sector, private sector, non-profits and civic organizations to promote necessary linkages
- Develop “Right of First Refusal” agreements with private property owners whose property contains land necessary for greenway linkages, especially along the Merrimack River
- Expand the recreational trail system

Goal 9: Implement Complete Streets policies and projects that foster and enhance bicycle and pedestrian accommodations

- Develop and expand bike routes throughout the town
- Implement the recommendations outlined in the Town’s Complete Streets Plan

In addition, as detailed in the letter from NHESP dated August 27, 2019 (Appendix G), the state recommends the town consider in its open space management:

- ❖ Protecting more BioMap 2 habitat areas, especially the southwest corner of town, Merrimack River shoreline, and Bridge Meadow Brook area;
- ❖ Assess its existing conservation areas for the presence of invasive plant species, and encourage owners of large conserved properties to do likewise. If invasive plants are present in large numbers or many areas, consider removing them. State habitat restoration grants are available to assist with this work.
- ❖ Have the Conservation Commission and Building Inspector notify development applicants of the presence/absence of Priority Habitat or Rare Species Habitat on the subject property. State permitting may be required for certain work.
- ❖ Develop community support for protecting biodiversity.

SECTION 9: SEVEN-YEAR ACTION PLAN

The following table outlines the Seven-Year Action Plan for implementing the goals and objectives described in previous sections of this document. Implementation responsibility is identified and the timeframe for the implementation of individual actions is specified as follows:

- Ongoing: Implementation occurs on an ongoing basis throughout the seven-year implementation period;
- Short-term: Implementation is planned within 2 years;
- Intermediate: Implementation is planned between years 2 and 3; and
- Long-term: Implementation is planned in years 4 through 7.

Based on the variability of the many factors involved in implementing the Action Plan, such as funding, the need for town meeting approval, and legal and permitting issues, the Town has concluded that structuring the schedule in the timeframes outlined above is more practical and meaningful than a year-by-year schedule that may not be achievable.

Map 10 on page 100 identifies properties and areas identified in the Action Plan.

Table 39: GOAL 1 - Increase the quantity and quality of recreation and Open Space facilities

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Create more neighborhood playgrounds and parks			
Inventory tax title parcels to identify properties suitable for parks and playgrounds	Tax Collector, Parks Department	Town budget	Ongoing
Ensure maintenance and public access to dedicated open space in new subdivisions through public access easements and maintenance agreements	Planning Board	Town budget	Ongoing
Objective: Review use of existing school facilities and maximize utilization			
Develop an inventory and utilization schedule of all school athletic facilities, including those at the regional school	Recreation Director, School Athletic Director, and Regional School Athletic Director	Town budget	Short-term
Develop and implement use schedule for all recreation and athletic facilities	Recreation Director, School Athletic Director	Town budget	Short-term
Objective: Complete recreational fields at the Elementary School			
Complete development of athletic fields	Board of Selectmen, Field Use Committee	Town budget	Ongoing/short-term
Objective: Expand adult athletic programs			
Prioritize recreation program needs for adults	Recreation Director, sports sponsors and volunteers	Town budget	Short-term
Identify land for possible expansion of athletic fields	Board of Selectmen, Planning Board, Recreation Director	Town budget; CPA	Ongoing
Pursue funding for expansion of facilities or development of new facilities	Town Administrator Recreation Commission, Recreation Director	CDBG funds, CPA funds, PARC funds	Short-term
Objective: Improve and increase access to the Merrimack River			
Improve Access to Riverfront Park	Board of Selectmen Recreation Commission, Town Administrator	Town budget, CPA	Ongoing

Table 39: GOAL 2 - Improve maintenance and management plans for existing recreation and conservation areas

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Properly manage and maintain athletic facilities			
Inventory management and maintenance needs for all athletic facilities, and develop a financing plan for addressing those needs on an on-going basis, including the possibility of utilizing well water on town fields to save money and reduce the need for fertilizers	Recreation Commission, Highway Department; Town Administrator; Youth Council, School Department	Town budget and/or state grant monies	Short-term
Implement the management and maintenance plan for athletic facilities	School Department, Highway Department, Recreation Commission, Town Administrator, volunteer athletic groups	Town budget, volunteer contributions, and/or state grant monies	Intermediate
Objective: Properly manage open space and conservation areas			
Develop management and maintenance plan for open space and recreation areas	Conservation Commission, Town Administrator	Conservation Commission funds; Town budget	Short-term
Implement management and maintenance plan	Conservation Commission, Town Administrator	Town budget, Conservation Commission funds	Intermediate
Objective: Enhance partnerships with volunteer and private organizations			
Continue to foster and support the Tyngsborough Trail Stewards	Conservation Commission, Town Administrator, Non-profit volunteer groups, and civic organizations	Town budget	Short-term
Develop a stewardship program for recreational facilities using volunteer citizens and civic organizations	Recreation Commission. Town Administrator, volunteer groups and civic organizations	Town budget	Short-term

Table 39: GOAL 2: (continued)

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Better maintain existing open space			
Add signs and trail markers to all open space properties	Conservation Commission, Tyngsborough Trail Stewards	Town budget, Open Space Fund	Short-term
Implement the Long Pond Shores renovation grant to add signs, trail markers, parking and ADA Improvements to the “former Girl Scout Camp.	Conservation Commission, Consultant	State grant fundsCPC	Short-term
Add better signage to all recreation properties and facilities	Recreation Department	Town budget, Recreation revolving Account	Short-term
Create interactive trail maps using GIS/GPS system and post the maps online	Conservation Commission, Recreation Commission, IT	Town budget	Intermediate
Create better maps for all trail systems. Distribute maps through town	Conservation Commission	Town budget , Open Space Fund	Short-term
Continue to employ a full-time Conservation Director who can dedicate time and effort to the management of open space	Board of Selectmen, Town Administrator	Town budget	Long-term
Increase the Open Space line item for each year in order to better maintain trails and open space throughout town	Town Administrator, Finance Committee, Town Meeting, Conservation Director	Town budget, Open Space Fund	Short-term

Table 40: GOAL 3- Revitalize the Town Center

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Implement recommendations outlined in the Town Center Master Plan, including those related to open space and recreation			
Continue to meet with area residents, property owners and businesses, as needed	Board of Selectmen, Recreation Director, Conservation Director, Town Administrator	Town budget	Ongoing
Continue to design and permit improvements outlined in the Town Center Master Plan	Board of Selectmen, Historical Commission, Town Administrator, Conservation Commission, Recreation Commission	Town budget, CPA funds	Short-term
Implement a downtown trail system connecting Town Hall to Flint Pond overall trail system	Town Administrator, Conservation Commission, Conservation Director, Highway Department	Town budget, CPA funds	Long-term
Objective: Implement land use and zoning tools to enhance the Town Center			
Draft Town Center Overlay District By-law and seek Town Meeting approval	Town Administrator, Planning Board, Town Meeting	Town budget	Short-term
Adopt and implement design guidelines	Planning Board, Town Engineer	Town budget	Intermediate
Objective: Complete renovations of the First Parish Meeting House property			
Finalize construction of foot path on the property and improve existing open space	Board of Selectmen, Town Administrator, Conservation Commission	Town budget, CPA and private donations	Short-term

Table 41: GOAL 4 - Educate the residents on the value of open space in the town and the region

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Identify open space parcels at risk for development			
Maintain and update the inventory of lands of recreation and conservation interest	Tax Assessor, Planning Administrator, Conservation Director, Recreation Director	Town budget	Ongoing
Pursue state and federal funding opportunities for open space preservation and acquisition	Recreation Director, Conservation Director, Community Preservation Committee, Board of Selectmen	Town budget	Ongoing
Objective: Create educational material on Chapter 61, 61A and 61B tax and open space benefits for property owners			
Promote written material on the town's website outlining Chapter 61, 61A and 61B programs and reach out to qualified landowners	Tax Assessor, Conservation Commission, Town Administrator	Town budget	Short-term
Conduct annual public meetings for property owners to provide information on Chapter 61, 61A and 61B programs	Tax Assessor, Conservation Commission, Town Administrator	Town budget	Ongoing
Objective: Preserve agricultural lands and businesses			
Educate farmers on the Agricultural Preservation Restriction (APR) program	Tax Assessor, Conservation Commission, Town Administrator	Town budget	Short-term

Table 42: GOAL 5 - Increase accessibility of all recreational resources, facilities and programs

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Make all recreational and athletic facilities fully ADA compliant			
Work with the Disability Commission to prioritize recreation facilities and Open Space for ADA compliance	Recreation Director, Recreation Commission, ADA Coordinator	Town budget	Short-term
Develop schedule and funding plan for implementing necessary accessibility improvements	Recreation Director, Town Administrator, ADA Coordinator	Town budget	Intermediate
Retrofit facilities according to schedule	Town Administrator, ADA Coordinator	Town budget and state grant funds	Long-term

Table 43: GOAL 6 - Promote land use and permitting practices that foster smart growth and protect historic assets, open space, cultural assets and resource areas

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Encourage development practices that preserve open space			
Review current bylaws, rules and regulations in light of best practices and with an objective to streamline the approval process as recommended in the town's Master Plan	Planning Board, Conservation Commission, Zoning Board of Appeals, Board of Health	Town budget	Short-term
As recommended in the current Master Plan, adopt "as of right" open space residential development regulations	Planning Board, Conservation Commission, Conservation Director, Board of Selectmen, Zoning Board of Appeals, Town Meeting	Town budget	Short-term

Table 43: GOAL 6 (Continued)

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Develop policies for utilizing conservation restrictions (CRs) to permanently preserve open space			
Educate town boards and commissions on state requirements for using Conservation Restrictions	Conservation Commission, Planning Board, Zoning Board of Appeals, Board of Selectmen	Town Budget	Short-term
Encourage developers permanently protect open space using conservation restrictions	Conservation Commission, Planning Board, Conservation Director, Zoning Board of Appeals	Town budget	Ongoing
Objective: Conduct a complete inventory of all town-owned land to ensure that open space was properly transferred to the town and properly recorded at the Registry of Deeds			
Add conservation restrictions to all town-owned open space where they are required by law	Conservation Commission, Community Preservation Committee, Town Counsel	CPA funds	Short-term
Add deed restrictions to all town-owned open space as required by Article 97	Conservation Commission, Board of Selectmen, Town Counsel	Town budget, CPA funds	Short-term

Table 44: GOAL 7 - Improve the overall quality of surface water and wetland resources

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Use Best Management Practices (BMPs) to control non-point source pollution and other activities that impact water quality			
Adopt a wellhead protection by-law	Board of Health, Water Districts, Town Meeting	Town budget	Short-term
Monitor septic systems and enforce Title V regulations	Board of Health	Part of current town budget	Ongoing
Objective: Increase public awareness relative to the importance of wetland resource areas			
Continue to take advantage of public education efforts connected with the new NPDES MS4 Stormwater Permit to protect water resources	Conservation Director, Board of Health, Conservation Commission	Town budget	Ongoing

Work with schools to develop an educational program related to the importance of wetland resource protection	Conservation Commission, Conservation Director, School Department	Town budget	Ongoing
Use social media to educate homeowners and residents	Conservation Commission, Conservation Director	Town budget	Short-term
Continue local cable TV informational programming	Conservation Commission, Conservation Director	Town budget	Ongoing
Objective: Protect upland buffers to water resources and wetlands			
Continue inspection and enforcement actions of Stormwater Bylaw	Conservation Director, Board of Health	Town budget	Ongoing
Identify and prioritize upland areas and seek protection through conservation easements or acquisition	Conservation Commission, Community Preservation Committee	Town budget, CPA funding	Short-term

Table 44 GOAL 7 (continued)

Objective: Preserve and protect wildlife habitat			
Prioritize parcels needed for establishing interconnected wildlife corridors	Conservation Commission, Planning Board	Town budget	Ongoing
Document rare and endangered species, and survey wildlife and vegetation communities	Volunteers, Conservation Commission, Natural Heritage and Endangered Species Program	Volunteers, state funding, town budget	Ongoing
Identify and prioritize key habitat areas along the River, streams and ponds, for future protection and/or acquisition	Conservation Commission, Planning Board, volunteers	CPA Funds	Ongoing
Objective: Monitor water quality of streams, ponds, lakes and the Merrimack River			
Monitor and Treat aquatic invasive species in Lakes and Ponds	Lake Groups	Town budget, State grant monies, volunteers, CPC	Ongoing

Table 45: GOAL 8 - Establish regional greenways

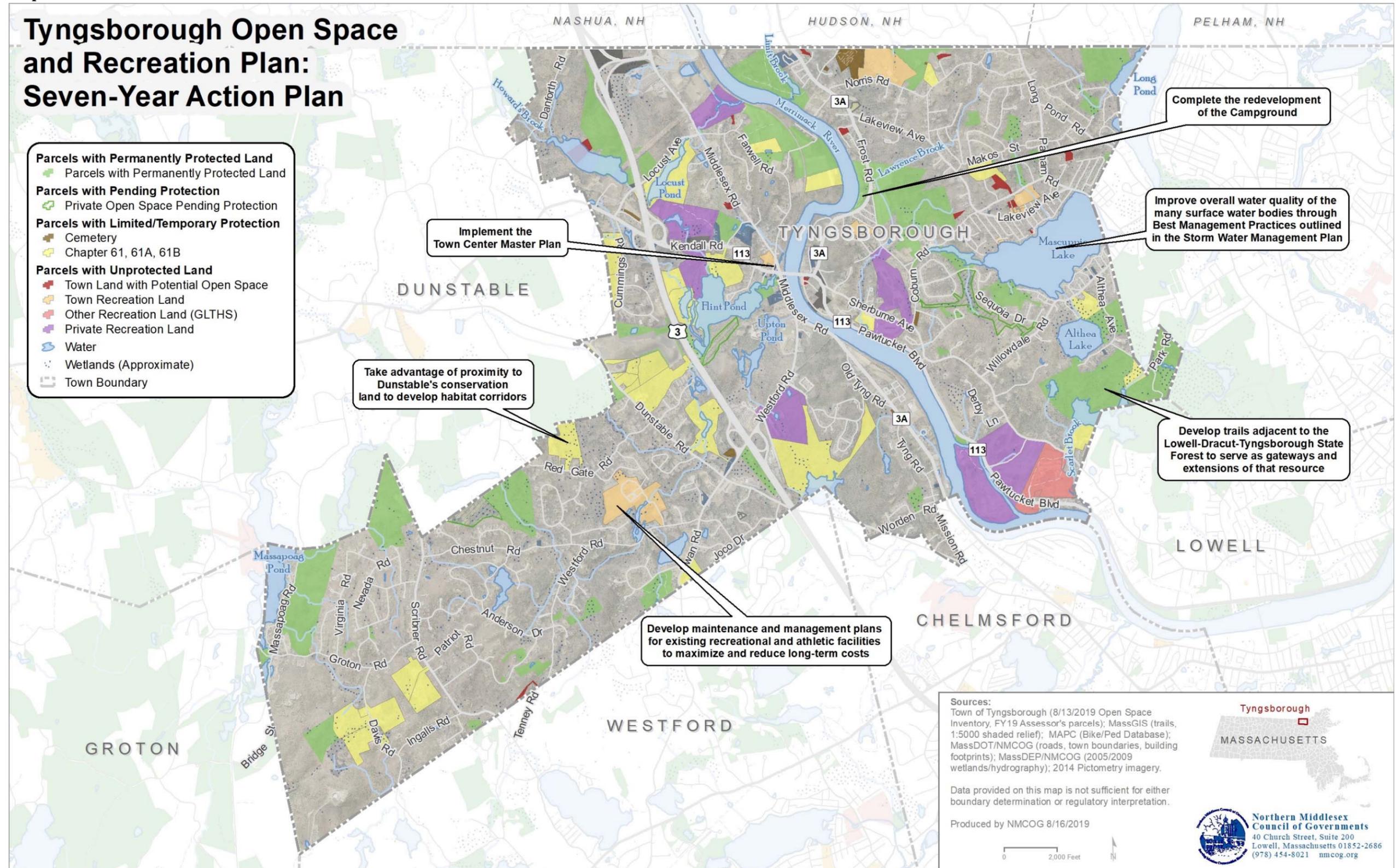
Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Create partnerships among the public sector, private sector, non-profits and civic organizations to promote the necessary linkages			
Identify stakeholders for establishing a collaborative planning effort	Town Administrator, Recreation Director, Conservation Commission	Town budget	Ongoing
Objective: Develop “Right of First Refusal” agreements with private property owners whose property contains land necessary for greenway linkages, especially along the Merrimack River			
Meet with property owners of all large key parcels along the River and throughout town to negotiate	Town Administrator, Board of Selectmen, Conservation Commission	Town budget	Ongoing
Develop necessary legal documents	Town Administrator, Town Counsel	Town budget	Short-term
Objective: Expand the recreational trail system			
Work with surrounding towns to develop regional trail linkages	Town Administrator, Conservation Commission, Trail Stewards	Town budget	Ongoing
Prioritize parcels needed to expand regional trail system, as recommended in the Master Plan	Planning Board, Recreation Commission, Conservation Commission, Board of Selectmen	Town budget, CPA	Short-term
Seek funding opportunities to continued development of the regional trail network	Board of Selectmen, Town Administrator, Recreation Commission and Director, Northern Middlesex Council of Governments, MassDOT, DCR	Town budget, state grant monies	Intermediate
Identify, map, and mark new multi-use trails on conservation and recreation land	Conservation Commission, Recreation Commission, Recreation Director, volunteers	Town budget, volunteers	Intermediate
Develop a town-wide trail plan, including a funding and implementation plan	Recreation Commission and Director, Conservation Commission, Planning	Town budget and state grant monies	Short-term
Work toward implementing the town-wide trail plan as funding permits	Conservation Commission, Planning Board, Board of Selectmen	CPA monies, town budget, state and federal grant monies	Long-term

Table 46: GOAL 9 - Implement Complete Street policies and projects that foster and enhance bicycle and pedestrian accommodations

Actions	Responsible Party	Potential Funding Sources	Implementation Schedule
Objective: Develop and expand bike routes throughout the Town			
Work with the development community to include bicycle and pedestrian accommodations within project designs	Planning Board, Conservation Commission, Zoning Board of Appeals	Town budget, development community	Ongoing
Create designated bike routes throughout town on appropriate roadways	Board of Selectmen, Highway Department	Town budget	Long-term
Objective: Implement the recommendations outlined in the town's Complete Streets Plan			
Construct pedestrian and bicycle facilities and amenities as outlined in the Complete Streets Plan	Board of Selectmen, Highway Department	Town budget, State and Federal grants	Ongoing
Pursue Safe Routes to School funding to improve pedestrian safety near the town's school facilities	Board of Selectmen, Town Administrator, School Administrators, Town Planner, Town Engineer	MassDOT funding	Short-term
Work with public safety officials to address bicycle and pedestrian safety issues as they arise	Board of Selectmen, Town Administrator, Police Department	Town budget, grant funding	Ongoing

Tyngsborough Open Space and Recreation Plan: Seven-Year Action Plan

- Parcels with Permanently Protected Land**
 - Parcels with Permanently Protected Land
- Parcels with Pending Protection**
 - Private Open Space Pending Protection
- Parcels with Limited/Temporary Protection**
 - Cemetery
 - Chapter 61, 61A, 61B
- Parcels with Unprotected Land**
 - Town Land with Potential Open Space
 - Town Recreation Land
 - Other Recreation Land (GLTHS)
 - Private Recreation Land
- Water
- Wetlands (Approximate)
- Town Boundary



Sources:
 Town of Tyngsborough (8/13/2019 Open Space Inventory, FY19 Assessor's parcels); MassGIS (trails, 1:5000 shaded relief); MAPC (Bike/Ped Database); MassDOT/NMCOG (roads, town boundaries, building footprints); MassDEP/NMCOG (2005/2009 wetlands/hydrography); 2014 Pictometry imagery.

Data provided on this map is not sufficient for either boundary determination or regulatory interpretation.

Produced by NMCOG 8/16/2019



Tyngsborough
 MASSACHUSETTS

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SECTION 10: PUBLIC COMMENTS

Public comments were solicited at a public meeting held on February 12, February 20 and February 24. Public Meeting Notices and Agendas are included in Appendix D. In addition, Community Survey and Survey Results are included in Appendix E.