



Master Plan for Tyngsborough Massachusetts



Prepared for the
Tyngsborough Master Plan Committee

By
Brian K. Barber, City and Town Planning Consultant

In Association with
Daphne Politis, Optimal Solutions and
Bill Giezentanner, Giezentanner Associates

With financial assistance provided by
The Town of Tyngsborough, and the Commonwealth of Massachusetts through Executive Order 418,
administered by the Massachusetts Department of Housing and Community Development, the
Massachusetts Executive Office of Environmental Affairs, the Massachusetts Executive Office of
Transportation and Construction, and the Massachusetts Department of Economic Development.
With the cooperation, review and participation of the Northern Middlesex Council of Governments.

A Vision Statement for Tyngsborough

In twenty years the Town of Tyngsborough will be a destination community that attracts visitors to the community to tour its Village Center with its historic and cultural places and sites, utilizes its recreational facilities and nature trails along the Merrimack River, Mascuppic Lake and Flint Pond and shops at its enhanced commercial center in the Village Center and along Middlesex Road. Tyngsborough will also be a family-oriented community that retains its rural past, while providing high-tech jobs for its residents, affordable homes for families and an enhanced and protected quality of life. It youth will be provided with an excellent education and quality recreational and community programs, while it senior citizens will enjoy the new Cultural Center and access to quality health care in the region.

The Vision for Tyngsborough would incorporate the following components as well:

- An enhanced village setting for its Town Center and commercial nodes throughout the Town that ties together the history of the community with the specialty shops of the region;
- An improved transportation network that benefits from a widened Route 3, the establishment of the Park and Ride facility, improved public transportation to surrounding towns, placement of the historic Bridge on the National Register and increased use of the new Bridge to expedite traffic to Route 3, upgraded arterial streets and new bicycle pedestrian paths;
- Linked improvements connecting open spaces in the expanded Town Center with the Merrimack River, as well as enhancing the scenic views along the roadways bordering the river;
- High technology industrial parks that provide jobs for local residents and help diversify the tax base;
- Affordable housing opportunities for diverse economic and cultural groups that maintain the rural quality of life in the community;
- Enhanced usage of Middlesex Road as a gateway to the community that strengthens its commercial sector, while maintaining its scenic appeal and connection to the Merrimack River;
- Enhancement and protection of natural and cultural resources within the community to reinforce its rural past and history;
- Improved access to the Merrimack River, Mascuppic Lake and Flint Pond to generate new recreational and environmental activities; and
- Protected agricultural land that retains its prominence within the community.

This vision statement was prepared through an open participatory process and expresses the desires of Tyngsborough residents about future development of their Town. The Master Plan that follows is an elaboration of this vision in terms of the goals and objectives embedded in the Vision Statement, and the actions that should be taken to realize the vision. The Master Plan contains information about each of the topics important for future development, an analysis of that information, and recommendations for future actions to achieve the vision.

Acknowledgements

The Vision Statement and an associated set of Town Assets and Liabilities were prepared with the assistance of the Northern Middlesex Council of Governments (NMCOG). This Master Plan Report was prepared by Brian K. Barber, City and Town Planning Consultant, with the assistance of Daphne Politis of Optimum Solutions and Bill Giezentanner of Giezentanner Associates, and was guided by the Tyngsborough Master Plan Committee, and supported financially by an appropriation from the Town of Tyngsborough and a grant from the Commonwealth of Massachusetts, under Executive Order (EO) 418. The EO418 funds also supported the work of NMCOG in preparing the Vision Statement, Statement of Assets and Liabilities and a Scope of Services for the Master Plan preparation. Guidance and participation in both the visioning work and preparation of the Master Plan was received from the Tyngsborough Town Planner, Mark Whitehead.

The following are members of the Tyngsborough Master Plan Committee.

Name	Representative of:
Rich Lemoine, Co Chairman	Board of Selectmen
Mark Pease, Co Chairman	Planning Board
Peter Nicosia, Co Vice Chairman	Board of Selectmen
Darryl Wickens, Co Vice Chairman	Planning Board
Rick Flanagan	Highway Department
Deputy Chief Rich Burrows	Police Department
Will Mercier	Fire Department
Carol Devaney	Board of Health
Christine Chisolm	Community Preservation Committee
Lucy Gertz	Conservation Commission
Mindy Boyd	Recreation Committee
Christine Mechalides	Zoning Board of Appeals
Thomas Ives	Tyngsborough Water District
Denise Ziemplak	School Committee
Mary Calandrella	Historical Commission
Jeff Hannaford	Sewer Commission
Doria Sylvester	Tyngsborough Housing Authority
Fran Eagle	Finance Committee
Eric Spear	Library Trustees
Corliss Lambert	Capital Program Committee
Vacant	Member-At-Large
Linda Bown	Member-At-Large
George Geisenhainer	Member-At-Large
Jacqueline Schnackertz, Clerk	Board of Selectmen
Vacant	Member-At-Large

Master Plan Summary—Putting It All Together

Tyngsborough is at an important stage of its development. It still retains its open, semi-rural, historical character, both in its landscape and buildings. It still provides unobstructed and naturalistic views of the Merrimack River, unlike some of the surrounding cities and towns. There are extensive institutional and recreational land holdings in Tyngsborough that are coming under development pressures. Land is less expensive in Tyngsborough than in some surrounding communities, adding to the economic pressures for development. Tyngsborough has grown rapidly since 1980, and continues to grow, owing to the availability of moderately priced land and the Town's location on two important regional highways between two major cities, Lowell and Nashua. Moreover, Tyngsborough provides good quality town services and facilities, especially schools that attract new residents.

The vision that townspeople have for their future emphasizes the desire to retain the town's rural and village character, and preserve and enhance its natural and historic resources. A one and one-half year visioning and master planning process has produced a set of goals and objectives for the town that stress keeping its existing character, while balancing the tax base through further economic development, and continuing to provide high quality town facilities and services. The process involved public meetings, meetings with the Master Plan Committee and town officials, and dissemination of materials at meetings and electronically via the Internet. People of all ages were drawn into the process, which included meetings at Town Hall, at schools and the Senior Center. School children and Master Plan Committee members completed written and graphic assignments related to defining the town's future development.

The Master Plan developed through the activities of the last one and one-half years contains the goals and objectives, assessments of existing and likely future conditions, analyses of conditions and resources relative to sound community development planning principles, and recommendations for town actions to achieve its goals and objectives. The material is interrelated as is appropriate for a comprehensive Master Plan. It covers the topics of housing, economic development, transportation, open space and recreation, natural and cultural resources, land use and zoning, and town services and facilities. It also covers the desire of many townspeople to enhance the existing Town Center, to make it a more important commercial, cultural and social gathering place. Principal recommendations of the Master Plan are to:

- Create an expanded Town Center via three development nodes,
- Locate the proposed new Merrimack River Bridge in the Town Center area,
- Relocate Pawtucket Boulevard and use it with the new and existing bridge to create a loop circulation route for the Town Center,
- Emphasize and use historic resources,
- Develop mixed use commercial, residential, cultural village nodes,
- Carefully plan commercial corridors to minimize strip development impacts,
- Extend sewer service along Middlesex Road,
- Preserve the golf courses and institutional lands,
- Provide incentives for open space residential developments,
- Develop an open space corridor/ trail system,

- Provide a range of housing choices for existing and new residents, including affordable housing,
- Define an I-2 Zone to attract jobs,
- Improve the existing Multi-Service (Senior) Center, and
- Develop a Teen Center.

A build-out analysis was completed for Tyngsborough by the Northern Middlesex Council of Governments (NMCOG) which showed various impacts of development if all the developable land in town were used, as currently allowed under existing zoning bylaws. These data are compared with impacts of following the Master Plan recommendations and action program.

Category	Build-out	Master Plan
Additional Residents	5,166	4,838
Total Population	16,247	15,919
Additional Residential Units	1,700	1,582
Additional Comm./Ind. Floor Area	14,108,838 sf	497,100 sf
Additional Residential Water Demand	387,505 gpd	362,850 gpd
Additional Comm./Ind. Water Demand	1,058,163 gpd	27,231 gpd
Additional School Students	799	744
Additional Roads	38.1 miles	35.5 miles
Additional Solid Waste – Recyclable	1,885 tons/yr	1,754 tons/yr
Additional Solid Waste – Non-recyclable	766 tons/yr	713 tons/yr

At foreseeable rates of development residential build-out could occur between the years 2010 and 2015. The Master Plan has a significantly lower level of commercial and industrial development than the build-out analysis, principally because there is now a substantial amount of land zoned for commercial and industrial uses that is not likely to be developed.

Significant conditions that affect development planning are:

- Population has more than doubled since 1980 and continues to grow,
- 55% of Tyngsborough residents live east of the Merrimack River,
- Almost all of the town’s business and commercial services are west of the river,
- Over one-half of Tyngsborough’s land is open,
 - 47% Forest
 - 4% Agriculture
 - 28% Residential
- 10% of the town’s surface area is water and wetlands, and river and ponds are important focal points for development and recreation,
- Sewer service limits commercial and industrial growth,
- There are substantial environmental constraints to development,
- There are under-utilized historic buildings that could contribute to town needs.

To meet town needs the following recommendations are made:

- Consider acquiring additional land for the Highway Department,
- Support development of a new Senior Center,
- Support development of a Teen Center,
- Work with developers to extend sewer lines along Middlesex Road,
- Implement a Town Storm-water Management Plan,
- Implement the Water System Master Plan,
- Reuse historic buildings in Town Center to meet town needs and add to the vitality of the Center,
- Explore the need for future Police Department facilities,
- Continue the work of the Master Plan Committee and this Master Plan by preparing more detailed plans for:
 - The Town Center,
 - A trails and pathway system,
- Develop new enrollment projections for schools to reflect recent growth trends.

An implementation program is proposed consisting of zoning actions, other growth management tools, public investments and administrative actions. Specific actions recommended are:

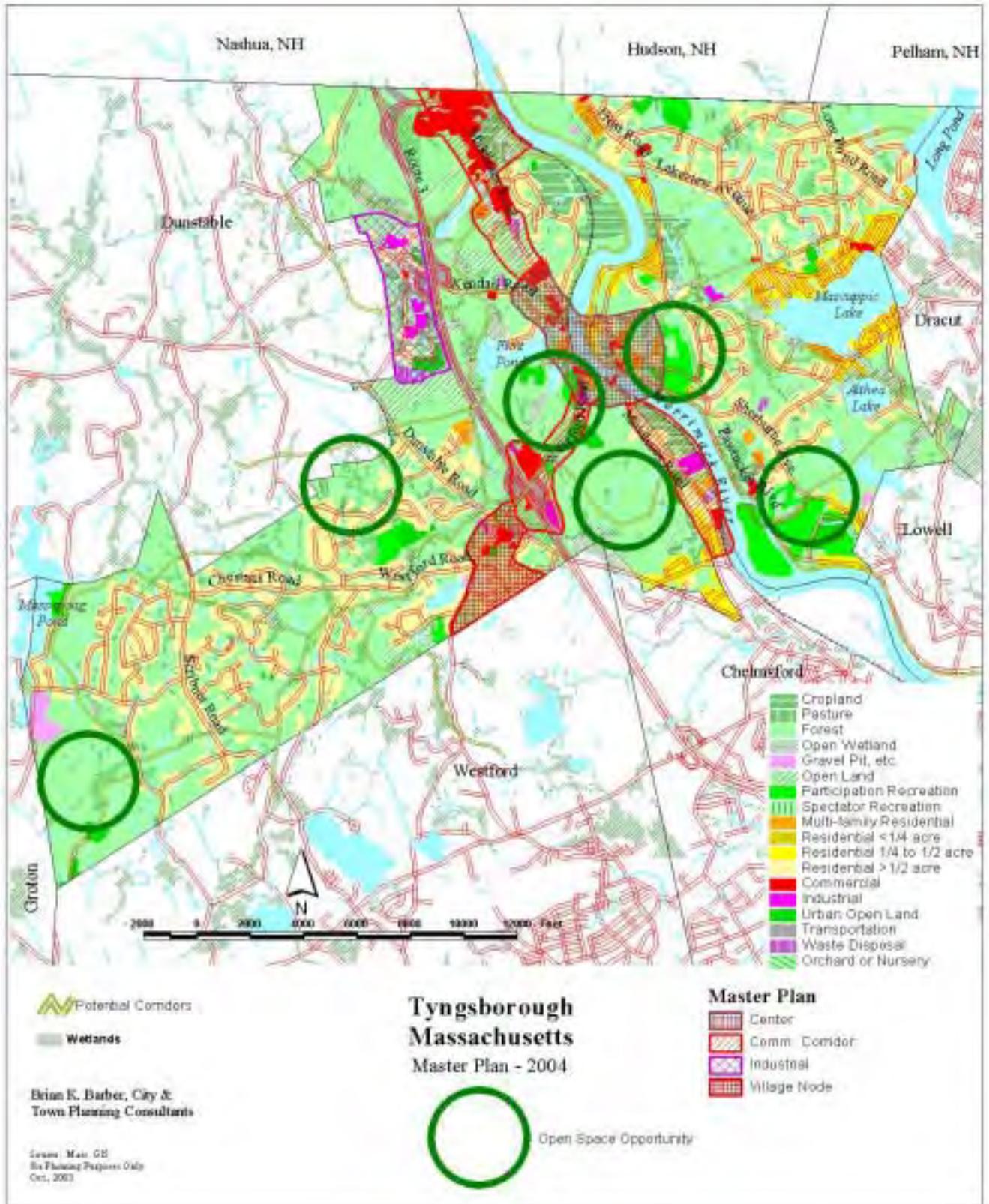
Specific Action	Lead Agency	Timing
ZONING ACTIONS		
Establish an Institutional/Open Space Zoning District for golf courses and other open lands with owner consent	Planning Board	2004 Town Meeting and Continuing Negotiations
Establish I-2 District on Zoning Map	Planning Board	2004 Town Meeting
Remove requirement that Town Meeting approve each Open Space and Recreation Development	Town Meeting	2004 Town Meeting
Provide density bonus in Open Space and Recreation Developments to encourage use	Planning Board	2004 Town Meeting
Remove Requirement that Town Meeting Approve each Multi-family Residential Development	Planning Board	2004 Town Meeting
Reduce R-3 Zoning District from 20,000 sq. ft. to 15,000 sq. ft. for Multi-family Development	Planning Board	2004 Town Meeting
Create Mixed-use Zone between River & Relocated Pawtucket Boulevard	Planning Board	2005 Town Meeting
Pass a "Corridor Protection Overlay District" along Kendall, Westford, & Middlesex Roads	Planning Board	2005 Town Meeting

Specific Action	Lead Agency	Timing
Pass an “Inclusionary Zoning” By-law for Multi-family Housing	Planning Board	2005 Town Meeting
OTHER GROWTH MANAGEMENT ACTIONS		
Work with Economic Development Committee or Commission to attract new jobs	All Town Departments	2004 & Continuing
Support location of new bridge just south of the existing bridge	All Town Government	2004 & Continuing
Support relocation of Pawtucket Boulevard before a new bridge is built	All Town Government	2004 & Continuing
Work to eliminate “Paper Streets”	Planning Board, Highway Dept., & Assessors Office	2004 & Continuing
Establish 300’ riparian buffer areas for wildlife habitat	Conservation Commission	2004 & Continuing
PUBLIC INVESTMENT ACTIONS		
Construct sidewalks along arterial roads	Highway Department	2004 & Continuing
Include bike lanes in arterial road improvements	Highway Department	2004 & Continuing
Establish multi-purpose trails around Town Center and along roads leading to schools	Conservation Commission	2004 & Continuing
Build boat ramps and associated parking for access to the Merrimack River	Board of Selectmen	2005 & Continuing
Acquire land adjacent to the highway department	Town Meeting	2004
Construct a Multi-service Center and a Teen Center	Town Meeting	2004 & Continuing
Continue exploring options for a new Senior Center	Board of Selectmen	2004
Continue exploring options for new Main Police Station	Board of Selectmen	2004 & Continuing
Continue expansion of sewer service along Middlesex Road	Sewer Commission and Planning Board	2004 & Continuing
Implement Water Resources Plan and Storm-water Management Plan	Newly Created Dept. of Public Works	2004 & Continuing

Specific Action	Lead Agency	Timing
Implement existing traffic control recommendations	Highway Dept. and State Highway Dept.	2004 & Continuing
ADMINISTRATIVE ACTIONS		
Develop Town-wide Trail Plan	Conservation Commission	2004 & Continuing
Negotiate easements for a town-wide trail system	Board of Selectmen	2004 & Continuing
Identify appropriate locations for All Terrain Vehicles (ATVs) and Snowmobile use	Conservation Commission	2004 & Continuing
Pursue Designation of Historic Districts—Tyngsborough Center & James Butterfield Mill Area	Historic Commission and Board of Selectmen	2004 & Continuing
Prepare New School Enrollment Projections	School Department	2004
Create Master Plan Monitoring Committee	Board of Selectmen	2004
Create Town Department of Public Works	Board of Selectmen	2004

Most of these actions should be started in 2004. Many of them continue into following years, in recognition that master planning is an ongoing process, especially in its implementation phases. To oversee and prompt plan implementation actions it is recommended that a Master Plan Monitoring Committee be established to carry out the work the Master Plan Committee has identified as being needed in this Plan. The Master Plan Monitoring Committee should include a significant number of Town Officials including board, committee and commission members who manage town programs affecting future development. Town citizens should also be represented to ensure that public input continues to guide planning and management decisions.

Tyngsborough's future can simply result from the continuation of existing trends and practices, or it can be determined through community consensus and civic action. This Master Plan defines the consensus that has been reached and the actions necessary to achieve the vision reached through consensus. Implementing the Plan is up to community leaders and public officials, using normal powers and practices of government. In summary, the citizens of Tyngsborough can have the kind of town they would like if they are willing to adopt and practice the procedures and actions described in this Plan. The following pages report the Plan in text, tables, and maps and other graphics. Map 0-1 on the following page graphically summarizes major features of the Plan.



Map 0-1

The Full Plan: Table of Contents

Chapter	Page
A VISION STATEMENT FOR TYNGSBOROUGH	i
ACKNOWLEDGEMENTS	ii
MASTER PLAN SUMMARY—PUTTING IT ALL TOGETHER	iii
MASTER PLAN MAP 0-1	vii
TABLE OF CONTENTS	ix
1 ESTABLISHING GOALS AND OBJECTIVES	1
1.1 Goals	1
1.2 Objectives	2
2 HOUSING.....	7
2.1 Population	7
2.2 Housing Stock	9
2.3 Vacancy Rates	11
2.4 Growth Trends	12
2.5 Affordable Housing	17
2.6 Further Recommendations for Affordable Housing	21
3 NATURAL RESOURCES	23
3.1 Geology, Topography, and Soils	23
3.2 Water Resources	25
3.3 Wildlife Resources of Tyngsborough	30
3.4 Natural Resources Observations	36
4 CULTURAL RESOURCES.....	38
4.1 Brief History of Tyngsborough	38
4.2 Historic Resources	41
4.3 Historical Organizations	44
4.4 Cultural Resources	45
4.5 Historical and Cultural Observations	45
5 OPEN SPACE AND RECREATION.....	47
5.1 Tyngsborough Open Space and Recreation Plan – 2002-2007 Update	47
5.2 Recreation	52
5.3 Open Space and Recreation Observations	54
5.4 Open Space Plan	55
6 ECONOMIC DEVELOPMENT	60
6.1 Employment and Wages	60
6.2 Labor Force	63
6.3 Unemployment	63
6.4 Size of Employers	63
6.5 Job Training	64
6.6 Property Taxes	65
6.7 Market Considerations	67
6.8 Economic Development Recommendations	71
7 TOWN CENTER DEVELOPMENT	73
7.1 Multi-Nodal Development	73

7.2	Creation of Village Environments	74
7.3	Maintenance of River Views	76
8	TRANSPORTATION.....	79
8.1	Traffic Safety	79
8.2	Traffic Level of Service	80
8.3	Roadway Classification and Traffic Volumes	82
8.4	Traffic Flow	84
8.5	Recommendations for Roadway Improvements.	86
8.6	Special Transportation Needs Improvements	86
8.7	Public Transportation	88
8.8	Commuters	88
8.9	Nashua Commuter Rail Extension	89
8.10	Boston-Montreal High Speed Rail	91
8.11	Other Public Transportation Services	92
8.12	In-Town Needs	93
8.13	Walking, Bicycling and Other Network Needs	93
8.14	Pavement Management	94
8.15	Determining Status of Roads	94
8.16	Establishing a Department of Public Works	94
8.17	Transportation Recommendations	95
9	PUBLIC FACILITIES AND SERVICES.....	97
9.1	Schools	97
9.2	Library	102
9.3	Meeting Facilities	103
9.4	Town Offices/Town Hall	104
9.5	Teen / Community Center	104
9.6	Multi-Service/Senior Center	105
9.7	Police Department	106
9.8	Fire Department	108
9.9	Multi-Service/Senior Center/ Fire Station/Police Sub-Station	109
9.10	Highway Department	110
9.11	Wastewater Disposal	111
9.12	Municipal Sewer System	111
9.13	Septic Systems	112
9.14	Water Supply and Distribution	113
9.15	Gas and Electricity	119
9.16	Telephone and Cable TV	119
9.17	Community Services and Facilities Observations	119
9.18	Decisions and Potential Opportunities	119
9.19	Recommendations	120
10	LAND USE IN TYNGSBOROUGH.....	123
10.1	Distribution and Density of Land Uses	124
10.2	Business Land Use and Zoning	127
10.3	Tyngsborough's Neighborhoods	129
10.4	Planning Treatment for each Neighborhood	129
10.5	Build-Out Analysis of Tyngsborough's Land	133

11 IMPLEMENTATION	137
Zoning	137
Other Growth Management Tools	137
Public Investments	138
Administrative Actions	139
APPENDIX A -- PRIORITIZING ASSETS AND LIABILITIES.....	137
APPENDIX B -- TRAFFIC ACCIDENTS BY ROADWAY IN	
TYNGSBOROUGH: 1998 - 2002.....	145
APPENDIX C -- PROPOSED COMMUTER RAIL EXTENSION FROM	
LOWELL TO NASHUA, NH.	147

1 ESTABLISHING GOALS AND OBJECTIVES

Goals and objectives for Tyngsborough were established through an open and extensive process of public meetings, surveys and exposure of plan ideas in media such as newspapers and the internet. The process began with a series of visioning meetings held with the assistance of the Northern Middlesex Council of governments (NMCOG). These meetings were held in late 2002 and resulted in a statement of assets and liabilities and a vision statement. A draft scope of services for completion of the Master Plan also was prepared through this process. The listing of assets and liabilities statement is included as an appendix to this plan. These documents were used in public meetings to prepare a set of goals and objectives for various elements of the master plan for the Town, summarized below.

1.1 Goals

Housing

- Encourage new housing development to fit into the existing design and character of the community.
- Maintain existing housing stock in good condition.
- Provide a diversity of housing types affordable to people with a wide range of socio-economic backgrounds.
- Recognize Tyngsborough's DHCD approved Affordable Housing Comprehensive Plan as a tool to provide systematic growth and new housing opportunities.

Natural and Cultural Resources

- Protect, promote and improve appropriate access to natural and cultural resources with special emphasis on the Merrimack River.
- Control non-point pollution and other activities that affect water quality and quantity.

Open Space and Recreation

- Protect existing open space and increase recreational facilities and opportunities.
- Preserve key open space parcels.
- Improve public awareness of open space and access to it.
- Maintain and manage recreational resources efficiently.
- Develop trails and greenways to link open space and provide access.
- Improve the Town Center with open space elements.
- Protect upland buffers to water and wetlands.
- Protect and enhance wildlife habitat in and around water resources
- Identify the adequacy of recreation fields for youth sports.

Economic Development

- Expand the economic base in order to provide additional employment opportunities, and to broaden the property tax base.
- Provide for the sale of goods and services currently lacking.
- Make Tyngsborough more of a destination location instead of a “pass-through town.”
- Specifically look at Middlesex Road for prudent build out opportunities.

Transportation

- Improve access among locations within the Town and enhance access and connections to surrounding communities.
- Provide additional cross-river access.
- Improve traffic safety.
- Provide appropriate pedestrian and bicycle facilities.
- Increase public transportation options.

Community Facilities and Services

- Provide excellent public services and facilities; improve the relationship between schools and the community.
- Increase the number and type of social gatherings, community events and cultural activities.
- Identify if additional public buildings or capital improvements are required (i.e., senior center, fire station, and land for the Highway Department).

Land Use

- Preserve the town’s rural character.
- Enhance the town center.
- Provide buffers between residential and other land uses.
- Maintain existing overall residential and commercial densities.
- Reference the towns present Zoning Bylaws and make recommendations for update

1.2 Objectives

Objectives are further elaborations of goals, defining the policies and actions necessary to achieve the goals.

Housing

Provide a diversity of housing types affordable to people with a wide range of socio-economic backgrounds.

- Provide programs to assist first-time homebuyers.

- Develop grant structures to encourage the restoration and maintenance of older homes.
- Continue with the current CPA program.
- Consider limiting “tear downs” and rebuilding of very large homes (“mansionization”).
- Consider zoning and other land use regulations to help increase housing densities in locations identified as desirable for such housing (e.g. inclusionary zoning, incentive zoning, cluster zoning, encouraging accessory apartments)
- Delineate areas of town where multi-family housing is appropriate and desirable.
- Develop a pro-active plan for 40B housing to guide such development in a way that is best suited to the Town.

Natural and Cultural Resources

Protect, promote and improve appropriate access to natural and cultural resources with special emphasis on the River.

- Maximize the potential of the River as a recreational resource, focal point of the Town, and explore its potential commercial benefits.
- Support plans to develop bicycle/walking paths along the River’s edge.
- Work with the GLTS to develop a plan to increase access to the River.
- Promote recreational uses of the River.
- Acquire new property along the river while improving management of currently owned property.
- Develop an outreach plan and expand media programs to educate citizens on the Town’s history and heritage.
- Promote/provide information about existing natural resources.
- Develop a natural and cultural resource management plan.

Open Space and Recreation

Protect existing open space and increase recreational facilities and opportunities.

- Increase access to the River and develop a bicycle/walking path.
- Develop a system of open spaces linked by bicycle and walking trails.
- Improve public awareness and access of existing resources by providing information regarding existing resources.
- Develop a plan that prioritizes open space parcels in terms of their desirability for protection measures.

- Explore various means of protecting open space including alternatives to purchasing.
- Create more open space in the Town Center.
- Protect remaining large parcels, scenic and cultural landscapes.
- Ensure environmentally healthy water and wetland resources.
- Ensure efficient management and maintenance of open space and recreational areas.

Economic Development

Expand the economic base in order to provide additional employment opportunities, goods and services currently lacking and to make Tyngsborough a destination location instead of a pass through Town.

- Increase cultural and artistic venues to attract visitors.
- Develop a marketing plan identifying natural and cultural resources and their connections so that visitors are given the sense of multiple reasons to come to Tyngsborough.
- Develop a plan to identify and encourage the type of businesses that would make the Town a destination location.
- Make better use of existing resources including open space, the old Town Hall and other resources as a way of attracting visitors.
- Identify and develop necessary infrastructure to support business growth.
- Consider developing commercial clusters in neighborhood locations.
- Expand, improve and promote historic district as a way to attract more businesses and shops as well as visitors.
- Develop business-friendly policies.
- Attract anchors and long-term establishments.
- Review potential economic development role of Middlesex Road area.

Transportation

Improve access among locations within the Town and enhance access and connections to surrounding communities.

- Establish a railroad train station.
- Enhance LRTA services.
- Improve transportation connections with Lowell and Nashua.
- Develop a sidewalk plan prioritizing needed links between public facilities, schools, and other centers of activity and neighborhoods.
- Support plans for constructing a second bridge.

- Improve traffic flow by improving signage, enforcing traffic laws, introducing traffic calming measures and other means.
- Plan for temporary traffic problems by requiring that developers submit projected traffic impacts of construction projects.
- Identify problem areas and upgrade major secondary roads that need improvements.

Community Services and Facilities

Provide excellent public services and facilities; improve the relationship between schools and the community; increase the number and type of social gatherings, community events and cultural activities.

Schools

Increase/improve the relationship between the schools and the community

- Increase community involvement in the schools.
- Incorporate local history into the school curriculum.
- Involve students in community activities.
- Open schools after hours for use by the community.

Meeting Space

Increase the number and vary the type of social gatherings, community events and cultural activities.

- Provide appropriate space for social and community events.
- Increase the number and types of activities available.

Services and Facilities

Provide efficient and effective services and well-maintained facilities.

- Improve water and sewage services and infrastructure.
- Improve emergency response time in some neighborhoods.
- Support proposal to combine Senior Center, Fire Station and Police sub-station.

Land Use

Preserve the town's rural character and enhance the town center.

- Preserve rural character.
- Retain farmland; support local growers and producers
- Hold events of traditional rural character (i.e. bean suppers, 4-H clubs)
- Have annual town day
- Identify those features of the Town which make it unique and define its character

- Enhance the town center
- Connect the various components of the center with walking paths and green space.
- Consider creating a denser town center.

2 HOUSING

This chapter covers the topics of population, income, and household growth as related to the housing stock in Tyngsborough. Population by age is very important because it determines the size of homes most appropriate for a town. Income is an important determinant of housing price and affordability. Age and size of housing units are tabulated, as are housing densities and the number of subsidized housing units in town. Also included are vacancy rates, owner/renter housing tenure, and housing market indicators. The issue of housing affordability is also covered because of it has been identified as a policy concern in town, and is a requirement under the EO418 state program supporting this plan. Tyngsborough's Affordable Housing Comprehensive Plan, dated December 9, 2002, has been approved by the State as being in compliance with 760 CMR 31.00. Materials from that Plan are included in this chapter, and the entire plan, submitted and approved by the Tyngsborough Board of Selectmen and Tyngsborough Community Housing Partnership, is available in the Office of the Tyngsborough Town Planner.

2.1 Population

Table 2-1 shows Tyngsborough's population from 1960 to 2025, as forecast by the Northern Middlesex Council of Governments (NMCOG). Existing and past data are from the U. S. Census. Tyngsborough is expected to continue to grow considerably because it has excellent transportation access, good schools and infrastructure, and a substantial amount of vacant developable land. From 1990 to 2000 Tyngsborough's population grew by 29%. A build-out analysis showed that the population could grow by 5,166 people (in 1,700 housing units) under current zoning. This would yield a build-out population of 16,247. The build-out analysis is explained in Chapter 10 (Land Use).

Table 2-1: Population Growth 1960 – 2025

	1960	1970	1980	1990	2000	2005	2010	2015	2020	2025
Total Population	3,022	4,204	5,683	8,642	11,081	12,340	13,430	14,610	15,400	16,200

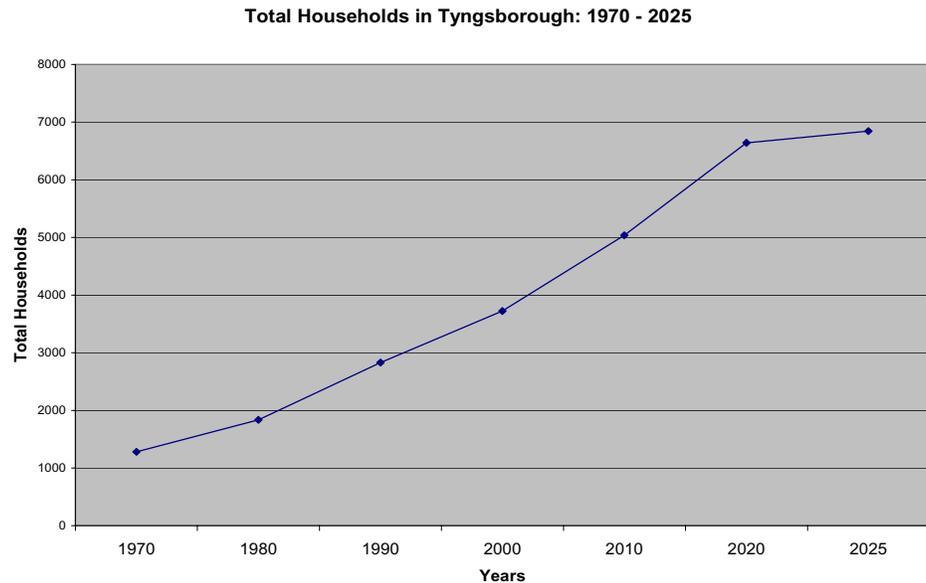
Source: U.S. Census of Population and NMCOG

2.1.1 Current/Projected Population

NMCOG has projected a population of 13,430 for 2010. Year 2000 population was 11,081 according to the U.S. Census. This is a strong future growth rate (2% per year), but slightly less than experienced between 1990 and 2000 (2.9% per year). As mentioned, there is considerable vacant land (2840 acres) for new residential development. Households, which are better indicators of housing demand than population, are expected to grow by about 3% per year,

from 3,741 (2000 U.S. Census) to 6,845 in 2025. This represents a demand for about 1,300 new housing units in 2010, and an additional 1,600 new units in 2020. The residential build-out analysis indicates that there is room for only about 1,700 new dwelling units, given Tyngsborough’s existing zoning. This indicates that sometime between 2010 and 2015 Tyngsborough will be completely built out for residential development. Figure 2-1 shows the growth of households. Households are expected to grow more quickly than population because household size is expected to continue to decline.

Figure 2-1: Past and Projected Number of Households



Source: U.S. Census Bureau and NMCOC (forecasts)

Table 2-2 shows U. S. Census data on Tyngsborough’s households in 1990 and 2000. During this period average household size dropped from 2.88 to 2.75 persons per household, a 4.5% decline.

Table 2-2: Households by Type in Tyngsborough: 1990 - 2000

	Year 1990	Year 2000	% Change
Total households	2844	3731	31.2
Family households	2274	2949	29.7
With own children under age 18	1147	1665	45.2
Married couple families	1932	2517	30.3
With own children under age 18	1147	1455	26.9
Female householder, no husband present	247	318	28.7
With own children under age 18	132	164	24.2
Non-family households	518	782	51.0
Householder living alone	426	602	41.3
Householder over age 64	184	183	-0.5
Households with individuals under age 18	1332	1755	31.7

	Year 1990	Year 2000	% Change
Households with individuals over age 64	579	565	-2.4
Average household size	3.04	2.97	-2.3
Average family size	3.43	3.37	-1.7

Source: Year 1990 and 2000 U. S. Census of Population and Housing

A key housing indicator in this data is the 51% increase in non-family households. This is an indicator of the need for smaller 1 and 2 bedroom housing units. The increase in households with children under age 18 is also significant for school facilities. These are discussed in the chapter on public facilities and services. Decreasing average family size (now slightly over 3 persons per family) indicates there is, and will continue to be, a market for 2 and 3 bedroom houses in the future.

Table 2-3 shows NMCOG population projections by age group to the Year 2025. Aggregating age groups into life cycle groups related to housing needs is shown in Table 2-3.

Table 2-3: Life Cycle Groups of Tyngsborough’s Projected Population

Age Group	Life Cycle Group	1990	2000	2010	2020	2025
0-4 Years	Pre-school	841	987	927	1,029	1,307
5-19 Years	School age	1,971	2,572	3,429	3,373	3,488
20-29 Years	Young Adult	1,176	1,042	1,450	1,956	2,021
30-54 Years	Household Formation	3,522	5,016	5,136	4,885	5,058
55-64 Years	Empty Nesters	544	732	1,791	2,248	2,333
65 and over	Retirement	588	732	697	1,909	1,993

The housing group that needs the largest homes, household formation, peaks in 2010. One implication is that Tyngsborough will continue to need only about 120 more 3 and 4 bedroom housing units. Future needs will primarily be for 1 and 2 bedroom units to meet the demands of the growing young adults and empty nester groups. Numbers of people in the empty nester and young adult age groups are expected to grow by 145% and 40% respectively between 2000 and 2010. The retirement group is expected to decline by about 5% over this time period, but then increase dramatically (173%) by 2020 as the empty nester group becomes retirees. The empty nester group is expected to grow by 25% from 2010 to 2020 as the large number of people in the household formation group age.

2.2 Housing Stock

According to the 1990 U.S. Census of Housing there were 3,032 housing units in Tyngsborough. There were then 2,822 occupied units, divided between 2,318 owner-occupied and 504 renter occupied

units. According to the 2000 U.S. Census of Housing, there are 3,806 housing units in Tyngsborough, a 25.5% increase from 1990). In 2000 there were 3,731 occupied units, with 3,144 being owner occupied and 587 being renter occupied units. In 2000 there were 75 vacant units and 22 units for seasonal, recreational or occasional use. In 2000 the following age of housing was reported.

Table 2-4: Age of Housing

Year Housing Structure Built	Number of Housing Units
1939 or earlier	371
1940 – 1959	501
1960 – 1969	426
1970 – 1979	601
1980 – 1989	961
1990 – 1994	381
1995 – 1998	413
1999 – March 2000	152
Total Reported in 2000	3,806

Most of the housing (2508 units or 66% of the stock) has been built in the last 30 years.

Table 2-5 shows housing size by number of rooms in 2000.

Table 2-5: Size of Housing Units by Number of Rooms

Number of Units	Number of Rooms
8	1
42	2
294	3
295	4
665	5
898	6
551	7
558	8
495	9+
3,806	Total

Most of the housing has 6 or more rooms (66%). Table 2-6 shows how many units are in each size or type of structure for owners and renters.

Table 2-6: Number of Housing Units, by Size

Type (Size) of Structure	Units in Structure	% of Housing Stock
One Unit – Detached	2,913	78
One Unit – Attached	224	6
Two Units	101	3
Three or Four Units	104	3
Five to Nine Units	61	1
Ten or More Units	352	9

Seventy-eight percent (78%) of Tyngsborough’s housing was in single-family detached units in 2000.

2.2.1 Abandoned/Substandard Housing

There is virtually no abandoned housing in Tyngsborough. According to the 2000 Census there were 19 units that lacked complete plumbing and 9 units that lacked complete kitchens. There are several ponds in Tyngsborough that have summer cottages on them. According to the 2000 Census there are still 22 housing units for seasonal, recreational or occasional use.

2.3 Vacancy Rates

According to the 2000 U.S. Census Tyngsborough has a homeowner vacancy rate of 0.4% and a rental vacancy rate of 3.1%. These figures are both very low and indicate a tight housing market.

Tyngsborough’s housing stock is overwhelmingly owner-occupied (84%). There are only 587 units of renter-occupied housing in town.

2.3.1 Unique Housing Factors



The most distinctive feature of Tyngsborough’s housing is the difference between low density newer development west of Route 3 and the older somewhat higher density development along Route 3A (Middlesex Road) and on the east side of the Merrimack River. The character of development is quite different, with large new homes set on large lots (65,000 sq. ft. and over) in the west,

and more modest homes in the east. Most of the land on the east side of the river is zoned R-1 (65,000 sq. ft, minimum lots), as is all of the residentially zoned land on the west side (except for



two small multi-family zoning districts). However, much of the housing on the east side of the river was developed before zoning was instituted. There is an area of summer cottages; most converted to year-round occupancy, around Lake Mascuppic that is zoned R-2 (20,000 sq. ft. minimum lot size).

Household income is quite distinct between the east and west sides of the river, as shown on the Household Income Map. On the more newly developed west side annual household income (\$82,821) is 36% higher than the east side (\$60,838) (2000 U. S. Census of Population). Median household income for Tyngsborough as a whole is \$69,818, and for the Lowell Metropolitan area it is \$57,152 (U. S. Census of Population).

There are important historical buildings, some of which are homes, in Tyngsborough Center and in other locations. These should be protected with historic district designations in the future. They are discussed in the chapter on cultural resources. Except for a small area along Flint Road and Upton Drive, all of Tyngsborough Center is zoned B-2 (Office and Professional Uses).

Tyngsborough has three multi-family zones, two along the river, and one just west of Route 3 on the Westford town line. There is also a multi-family development in Tyngsborough Center, in the B-2 zone, and a condominium multi-family development (Cannongate) in the R-1 zone off of Dunstable Road, just west of Route 3. Multi-family development is firmly established in Tyngsborough and will be a continued feature of future development, given the need for smaller 1 and 2 bedroom units.

2.4 Growth Trends

2.4.1 Building Permits

Building permit data from 1990 to 2003 show the same growth pattern as population growth, except that building activity has somewhat diminished since 2000. It seems to have recovered a bit in 2003. All of the permits for new residential structures are for single-family units as shown on Table 2-7. The 14-year total is 1000.

Table 2-7: New Residential Building Permits in Tyngsborough

1990	1991	1992	1993	1994	1995	1996
52	33	45	101	146	95	87
1997	1998	1999	2000	2001	2002	2003
109	84	84	62	33	20	49

Source: U. S. Census Bureau and Tyngsborough Building Department

2.4.2 Housing Densities

Tyngsborough has relatively low housing densities, about 0.8 of an acre per housing unit. The smallest lot permitted is 20,000 square feet, about half an acre. The largest minimum lot size is 65,000 sq. ft. (about an acre and one-half) in the R-1 Zoning Districts. The highest permitted densities are in the R-3 Zoning Districts which permit multi-family development. The most densely developed residential areas are north and south of Lake Mascuppic. These are older cottage areas whose development pre-dates zoning, and are presently zoned R-2, requiring 20,000 sq. ft. lots. Overall densities are low, with a few pockets of moderate densities.

The objectives of increasing densities and creating more affordable housing could be met by reducing the equivalent minimum lot size requirements for multi-family unit construction in the R-3 Districts. Currently this figure is 20,000 sq. ft. which makes it equivalent to the minimum amount of land required for single-family homes in the R-2 and R-3 Districts. If 15,000 sq. ft. per dwelling unit were used a density of about 3 dwelling units per acre could be achieved, rather than the current density of about 2 dwelling units per acre. To better ensure that the character of the residential structure and the neighborhood would be maintained, a design review board could be established to issue such permits, rather than the Town Meeting. A design review board would consist of design professional such as architects, landscape architects, engineers and land planners.

2.4.3 Assessment of Housing Demand

Demand is high as indicated by the number and price of sales shown in Table 2-8. About 5% of the housing stock is sold each year. Table 2.8 shows average prices of single-family and condominium housing in Tyngsborough for the period 1988 to 2002.

Table 2-8: Residential Sales in Tyngsborough

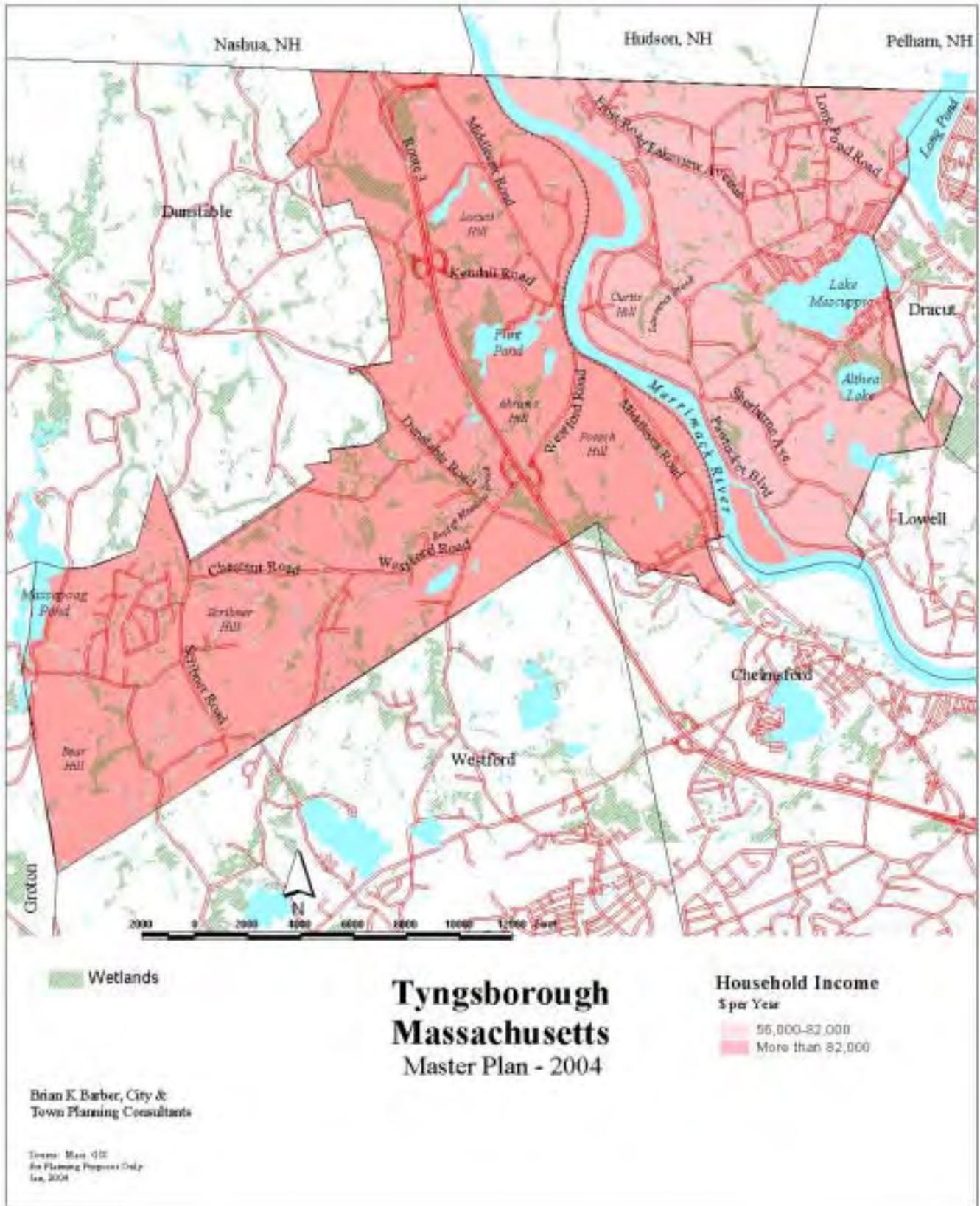
Year	Number of Sales			Median Sales Price		
	1-Family	Condo	Total	1-Family	Condo	Total
2003	135	51	186	\$315,000	\$177,900	\$283,350
2002	81	29	110	\$296,910	\$148,900	\$262,000
2001	110	62	172	\$250,000	\$112,450	\$219,375
2000	120	78	198	\$239,000	\$113,900	\$209,900
1999	153	53	206	\$187,500	\$82,050	\$199,900
1998	166	68	234	\$185,175	\$81,250	\$140,000
1997	122	55	177	\$163,500	\$67,900	\$149,850
1996	133	46	179	\$146,900	\$65,450	\$124,700
1995	133	38	171	\$142,000	\$55,200	\$122,500
1994	151	39	190	\$150,000	\$48,500	\$140,500
1993	97	27	124	\$125,000	\$60,000	\$116,850
1992	86	27	113	\$130,000	\$12,200	\$50,000
1991	78	17	95	\$135,000	\$71,070	\$119,450
1990	69	15	84	\$160,250	\$113,900	\$145,000

Year	Number of Sales			Median Sales Price		
	1-Family	Condo	Total	1-Family	Condo	Total
1989	80	45	125	\$182,175	\$98,000	\$150,000
1988	69	25	94	\$166,000	\$118,000	\$153,000

Source: *The Warren Group, Banker and Tradesman*

Since 1996 the price of housing has risen by an average of about 12% to 13% per year.

Current (March, 2004) housing rental prices in Tyngsborough are \$1,200/month for a 2-bedroom townhouse and \$1,500/month for a 3 bedroom single-family detached house, according to newspaper listings.



Map 2-1

2.5 Affordable Housing

An important goal for Tyngsborough is to move toward meeting the objective of having 10% of its housing stock affordable. The Town has taken a major step toward that objective in approving two Chapter 40B Projects (Merrimack Landing and Maple Ridge) and, as mentioned, having a state approved Affordable Housing Comprehensive Plan (sometimes referred to as a Housing Productivity Report). Currently only 3.12% or 118 units are considered affordable, using Commonwealth of Massachusetts standards. Merrimack Landing and Maple Ridge, shown on the Future Housing Areas Map (Map 2-3) will add 264 units of affordable housing. Tyngsborough has 3,784 year-round housing units according to the 2000 Census. Ten percent would be 378 units. The town has 118 units of affordable subsidized units. Subtracting these yields a figure of 260 new units needed to achieve the 10% objective.

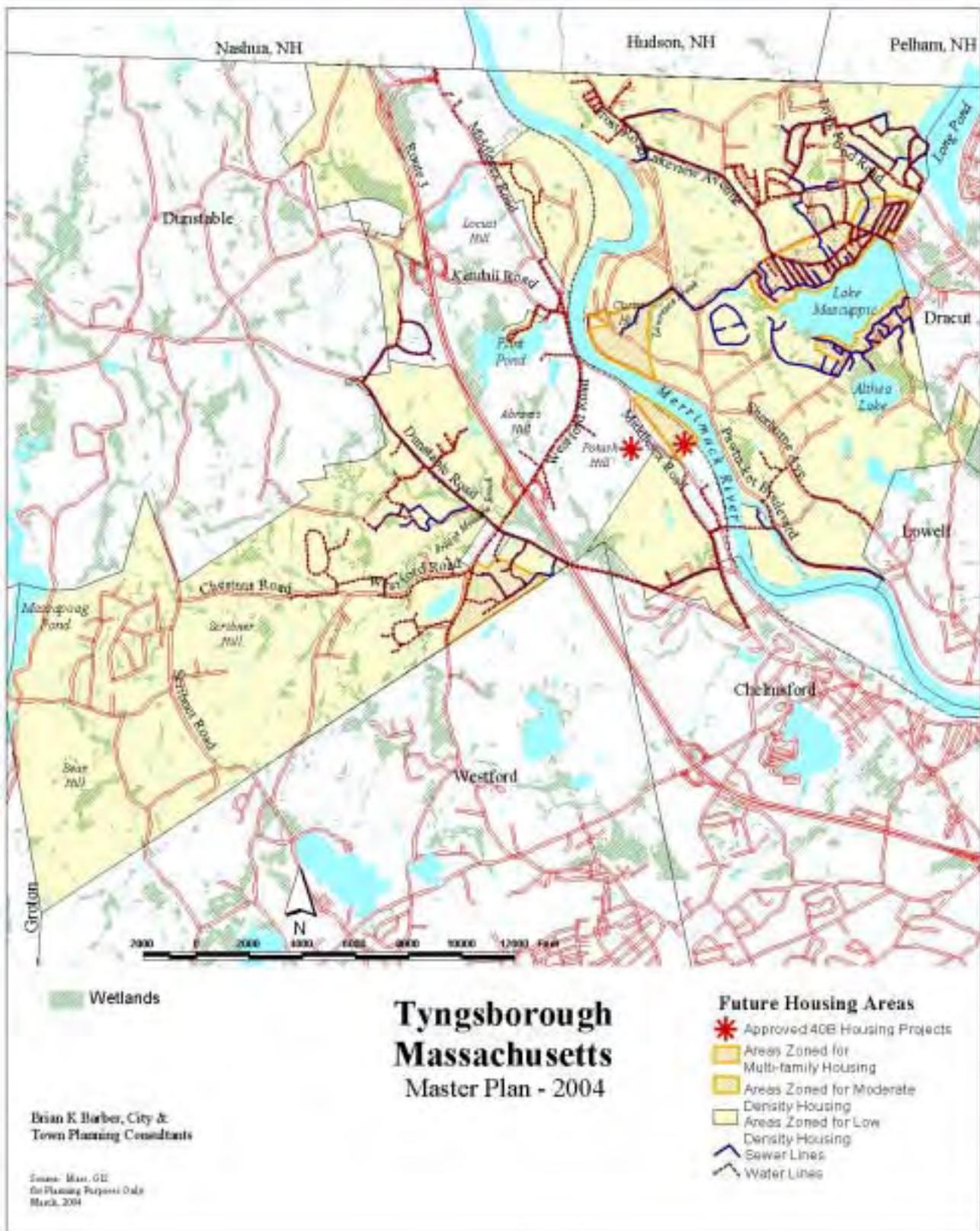
There is space in Tyngsborough, given current zoning, for 1,700 new units of housing. Only 15% of the new units would have to be affordable to meet the 10% criterion. Tyngsborough offers a zoning bonus of 25% increase in multi-family housing units if between 20% and 50% of units in a development are made affordable. Currently multi-family housing is permitted only in the R-3 Zoning Districts, and only with a special permit granted by Town Meeting.

Projected population growth means there will be some opportunities to create affordable housing through inclusionary zoning, and other market oriented means such as density bonuses. As mentioned, Tyngsborough needs 15% of its new growth to be affordable, if it is to realize the 10% affordability goal. Another way to help meet the goal is to create new rental housing which can be counted as affordable under state guidelines.

2.5.1 Subsidized Units

The Tyngsborough Housing Authority owns 118 units of subsidized housing at its three locations, Brinley Terrace, Red Pines Terrace and Live Oak Terrace. These are comprised of 94 elderly units, 14 family, 8 geriatric and 2 congregate units. There is a waiting list for elderly housing of 18 to 36 months for town residents and 7 to 8 years for non-town residents.





Map 2-3

2.5.2 Income/Affordability Gap

2000 Census data can be used to estimate relative income distribution by quartiles. Table 2-9 shows numbers of Tyngsborough's households in income groups in 2000. 4.0% of Tyngsborough's families and 4.7% of individuals not living in families were below the poverty level in 2000.

Table 2-9: Households and Household Income, 1999

Income	Number of Households
Less than \$10,000	120
\$10,000 to \$14,999	187
\$15,000 to \$24,999	189
\$25,000 to \$34,999	194
\$35,000 to \$49,999	589
\$50,000 to \$74,999	724
\$75,000 to \$99,999	859
\$100,000 to \$149,999	580
\$150,000 to \$199,999	169
\$200,000 or more	130
Number of Households	3,741
Median household income (dollars)	\$69,818

Source: 2000 U. S. Census of Population

These data indicate the following income brackets by quartiles (rounded to the nearest \$100).

Table 2-10: Income Quartiles

Quartile	Income
First quartile	\$0 to \$39,200
Second quartile	\$39,200 to \$69,800
Third quartile	\$69,800 to \$94,300
Fourth quartile	\$94,300 and over

The average price of single-family homes and condominium units in Tyngsborough was \$241,200 in 2002 (first eight months data). The annual income needed to buy the average priced house or condominium is \$81,000, based on a 10% down payment, 30% of income dedicated to house purchase, and a 7% 30 year mortgage. This means that about 60% of the households in Tyngsborough cannot afford to buy an average priced single-family home or condominium in the town.

2.5.3 Implementation of an Affordable Housing Program

A detailed Affordable Housing Study and Master Plan Update was prepared by RKG Associates and Land Use Inc. in 1998. The study did not have the benefit of the 2000 U.S. Census of Population and Housing but used needed estimates of data that have proven to be relatively accurate. That report recommended an implementation

program for affordable housing that is still valid and should be implemented to achieve the town's affordable housing objectives.

Major recommendations from that report are:

1. Shift Orientation – become more receptive to working with affordable housing developers and advocates.
2. Gain more control over the affordable housing development process by combining local and non-local resources to create housing through local initiatives.
3. Explore using the HOME funding program, using federal money administered through the state.
4. Establish a “friendly” atmosphere for dealing with “Comprehensive Permits” (Chapter 40B projects). Include local desires for site location and densities in the amiable negotiations involved in “Comprehensive Permits.”
5. Explore using the Local Initiative Program, which typically involve home ownership of units. Local preference can be given to as many as 70% of the units in such developments.
6. Use Community Development Block Grants (CDBG) for needed infrastructure that supports affordable housing.
7. There may be some potential in converting some existing housing to affordable housing.
8. Form partnerships with appropriate organizations, including:
 - a. The Merrimack Valley Housing Partnership that works with first time homebuyers.
 - b. Recruit local landowners to make sites available for affordable housing.
 - c. Examine the possibilities of finding suitable development sites on private non-profit or public lands.
 - d. Partner with affordable housing developers.

An emphasis should be put on creating rental housing because it can be counted as meeting affordability goals. An alternative means of meeting the target under the provisions of Chapter 40B is to have 1 1/2 % of all residentially, commercially and industrially zoned land dedicated to affordable housing. In Tyngsborough this means about 120 acres of land, (using the standard of 20,000 sq. ft. per dwelling unit) exclusive of needed infrastructure, devoted to affordable housing.

- The most effective means would be to establish a fund for purchase of land for affordable housing. This would include the recent passage of the Community Preservation Act with dedication of at least the required 10% of the funds to affordable housing. Open space and historical preservation would need their minimums of 10% each. Other resources in the fund could be donations of land expressly for affordable housing, and creation of a land trust with annual donations from the town and other interested parties to

the resources of the trust. The land trust could include open space acquisition as an objective with land set aside for affordable housing. This would be appropriate where there are larger tracts of land.

- One means of assembling land for affordable housing is for the town to buy existing land and prepare it for site assembly for new multi-family rental housing. The land could be resold to developers willing to carry out a program to create affordable housing on the site(s).
- Incentive zoning through density bonuses is another means of creating affordable housing. Tyngsborough has such a provision in its zoning bylaws.
- Inclusionary zoning is the requirement to include affordable housing in each development. A number of Massachusetts' cities and towns, including Ipswich, Lexington and Newton have passed such provisions. Density bonuses or other incentives are not necessarily involved, although they can be combined with inclusionary provisions. Inclusionary zoning also can be required in commercial development, where it is commonly called "linkage," on the grounds that employers should bear some responsibility toward creating nearby housing for their workers. Linkage is more commonly used in large cities where large commercial developments produce enough revenues to enable payments for housing.
- As mentioned, one of the problems of inclusionary zoning (and incentive zoning) in Tyngsborough is the limited amount of suitable developable land zoned for multi-family residential development. Because both types of provision typically create no more than 20% affordable units in developments (assuming they are sales and not rental units), they are not likely to create the 260 units needed. Creating the 1,300 market-rate multi-family units needed to carry along the 20% affordable units would alter the character of Tyngsborough and impact school and other town budgets. A proactive approach in obtaining affordable housing sites and developing properties that are 100% affordable will better meet the objective of creating enough affordable housing to move substantially toward the 10% goal for the entire housing stock.

2.6 Further Recommendations for Affordable Housing

Shift Orientation – become more receptive to working with affordable housing developers and advocates.

Gain more control over the affordable housing development process by combining local and non-local resources to create housing through local initiatives.

Explore using the HOME funding program, using federal money administered through the state.

Establish a “friendly” atmosphere for dealing with “Comprehensive Permits” (Chapter 40B projects). Include local desires for site location and densities in the amiable negotiations involved in “Comprehensive Permits.”

Explore using the Local Initiative Program, which typically involve home ownership of units. Local preference can be given to as many as 70% of the units in such developments.

Use Community Development Block Grants (CDBG) for needed infrastructure that supports affordable housing.

Form partnerships with appropriate organizations, including:

- The Merrimack Valley Housing Partnership that works with first time homebuyers.
- Recruit local landowners to make sites available for affordable housing.
- Examine the possibilities of finding suitable development sites on private non-profit or public lands.
- Partner with affordable housing developers.

Emphasize creation of rental housing because it can be counted as meeting affordability goals.

Establish a fund for purchase of land for affordable housing, including Community Preservation Act funds.

Pass “Inclusionary Zoning” requiring any new multi-family development to include affordable housing.

3 NATURAL RESOURCES

One of the primary goals of the Master Plan is to determine ways to help preserve Tyngsborough's character. Natural resources and the wildlife found in the town's open spaces and residential areas are defining aspects of that character. Tyngsborough is fortunate to still have extensive woodlands a network of streams and wetlands and some important remaining natural resource areas—including Massapoag Pond, a portion of the Lowell Dracut State Forest, and the Merrimack River. Being designated as a part of the Petapawag Area of Critical Environmental Concern (ACEC) has recognized the importance of Massapoag Pond, Cow Pond Brook and its associated uplands and wetlands.

3.1 Geology, Topography, and Soils

3.1.1 Surficial Geology

Surficial geology is the underlying basis for both natural systems and human development and provides important information about an area's environmental and economic potentials and vulnerabilities. The glaciers that covered New England 12,000 years ago left their mark on Tyngsborough. The advance of the mile-thick layer of ice scraped some hills down to bedrock and its retreat left deposits of till, a mixture of stones, clay, and other material. Glacial till tends to have moderately or poorly drained soils with many stones and rocks. Areas of sand and gravel, which were deposited as outwash as the glaciers melted and retreated, lie between most of these till deposits and areas of bedrock. Floodplain alluvium deposits settled out onto flat areas or wetlands, like the Merrimack River valley, after the glaciers retreated. These low-lying, water-borne deposits are general not suitable for development. Because of the town's glacial legacy, many of the soils in Tyngsborough tend to be poorly drained or rocky with the exception of those soils that developed over the sand and gravel and some till deposits. Map 3-1 shows surficial geology.

3.1.2 Topography and Slope

Tyngsborough has a maximum elevation of about 393 feet at a point near the MIT Haystack Observatory. The lowest point is about 98 feet where the Merrimack River flows into the City of Lowell. In general slopes are gentle to moderate and provide interest by offering views and variety in the landscape. Slopes tend to be more severe in the western part of town, which has many areas of 15% or greater slopes on the sides of its hills.

3.1.3 Soils

The Natural Resources Conservation Service is in the process of finalizing an update of the soil survey for Middlesex County. The final maps are not currently available. However, draft maps show that there are only a few remaining undeveloped areas in Tyngsborough that have soils that do not have some form of limitations for construction. The largest areas without major limitations are over the sand and gravel deposits shown on the Surficial Geology Map (Map 3-1). They include the Vesper Country Club; portions of the Tyngsborough Country Club; and some of the undeveloped land off of Sherburne Ave., Lakeview Ave., Middlesex Road, Kendall Road, Dunstable Road, and Westford Road. Since these areas overlie sand and gravel deposits they may present a hazard for contamination of ground water if they are used for septic tank absorption fields. Many of the soils in these areas readily absorb but do not adequately filter septic system effluent. Most other undeveloped land in Tyngsborough is on soils with some degree of limitations for construction. The limitations include high ground water, which may limit the installation of septic systems and basements; stones or boulders, which may increase construction costs; or shallow soils over bedrock, which may limit construction and increase costs.

3.2 Water Resources

3.2.1 The Merrimack River and Other Surface Water Resources

One of Tyngsborough's prize natural resources is the Merrimack River. More than five miles of the river run through the town. As shown on Map 3-2, this river corridor offers Tyngsborough and other adjacent towns opportunities for active and passive recreation, education, and habitat preservation. Importantly, it also serves as water supply for much of Tyngsborough, Dracut and several other communities along its course. For many rivers in Massachusetts water withdrawals can result in a low-flow problem in summer and winter months. This has not been such a problem with the Merrimack because of its large watershed. Water quality is another concern. The river passes through urban areas where storm run-off and other sources of pollution are issues. Protection and conservation of the water resources of the Merrimack River requires regional cooperation.

The Scenic and Recreational River Protection Act administered by the Massachusetts Department of Environmental Management establishes a protected two hundred feet wide corridor along each side of major rivers. This corridor limits certain activities and uses within the corridor in order to protect private and public water supplies; to provide flood control; to prevent storm damage; to prevent pollution; to protect wildlife habitat; and to protect fisheries.

Streams in Tyngsborough include: Bridge Meadow Brook, which 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 and into the Merrimack River after passing the regional vocational school; and Locust Brook flows from Locust Pond along Locust Avenue into the Merrimack River near Farwell Road.

Lake Mascuppic, once known as Tyng Lake, is another important surface water feature. Former summer cottages that have been converted to year-round residences surround most of the lake. At



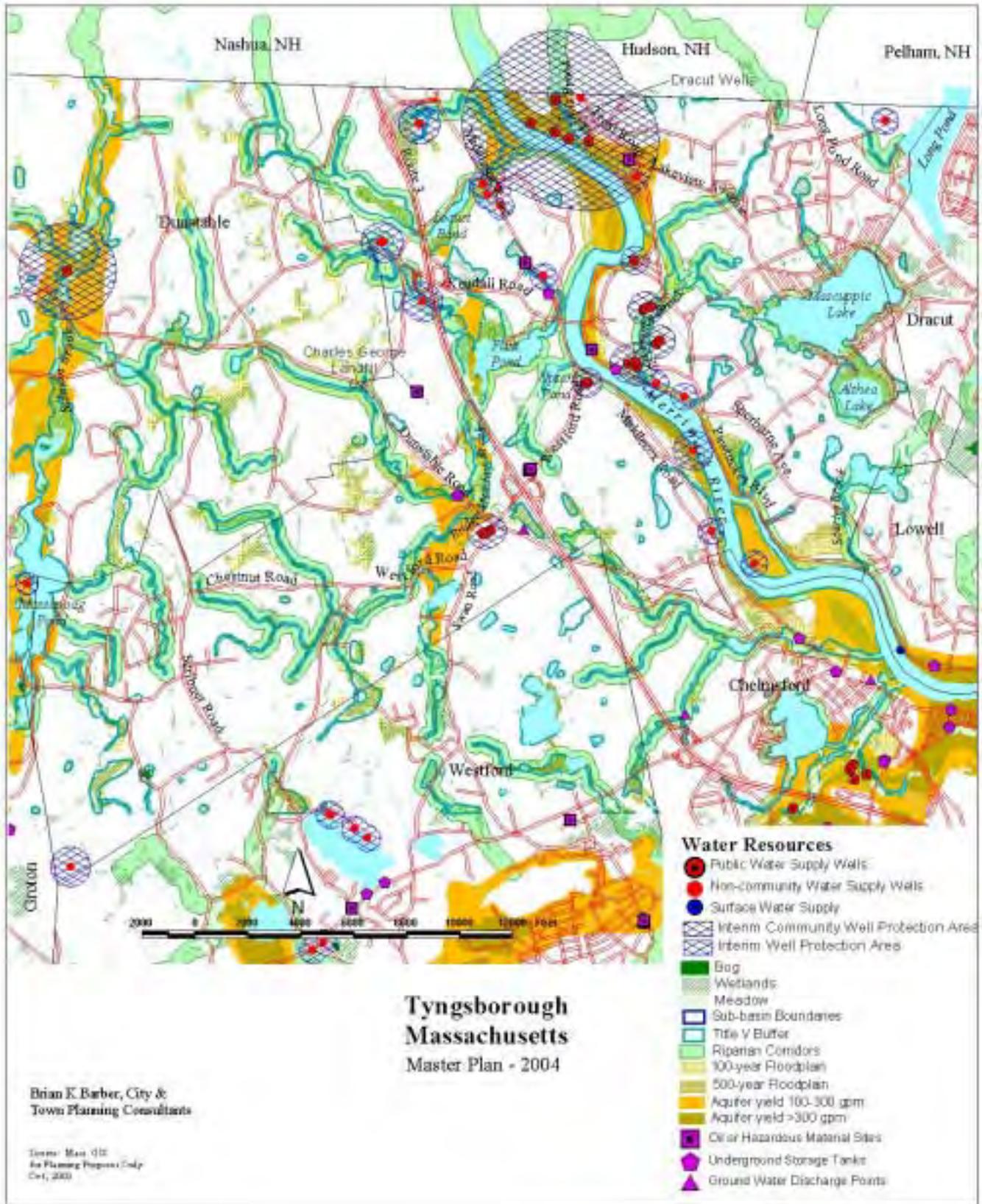
more than 205 acres it is the town's largest pond and site of the small Town Beach. A small portion of the lake is in Dracut. Lake Mascuppic is at risk because of declining water quality. Storm water run-off, yard fertilizers, fecal matter from non-migratory geese and ducks, and motor boats and jet-skis that stir up old deposits of nutrients are all contributing to high nutrient levels in the lake. These nutrient levels result in rapid plant growth and "clogging" of the pond. A

Lake Mascuppic study committee was recently formed to recommend possible solutions.



Other ponds include nearby Althea Lake; part of Long Pond, in the northeast corner of town; Locust Pond, near the intersection of Route 3 and Kendal Road; Flint Pond, near the center of town; and Massapoag Pond, at the western boundary of the town. Flint Pond with a maximum depth of 8 feet is known as a good fishing location for bluegill, brown bullhead, chain pickerel, largemouth bass, pumpkinseed, yellow bullhead, and yellow perch. Contamination from the Charles George landfill was a concern for eating fish caught in Flint Pond,

but recent monitoring results show no health reason for on-going concern—still heavy metals, one of the known contaminants, persist in the environment. Althea Lake with a maximum depth of 15 feet is also known for good fishing, as is Lake Mascuppic. American eel,



Map 3-2

black crappie, and white perch can be caught in Lake Mascuppic along with the species mentioned above.

3.2.2 Water Supply

Tyngsborough and several other communities draw water from areas along the Merrimac River. Approximate 60% of the town is served by public water. Tyngsborough can draw water from 14 DEP-permitted community wells. A community well serves at least 15 connections. A non-community water supply serves 25 or more persons at one location such as a school, factory or restaurant. Dracut also has five wells in Tyngsborough off of Frost Street. Interim Wellhead Protection areas are intended to protect water supplies. A radius based on the flow rate of the well defines these areas. Certain land uses may be either prohibited or restricted in these areas (see 310 CMR 22.00 the Massachusetts Drinking Water Regulations).

3.2.3 Title 5 Regulations

The Water Resources Map shows the Title 5 buffer areas of the Massachusetts Environmental Code (310 CMR 15.00) around streams, ponds, and wetlands. The buffer area is 50 feet around all hydrologic features and wetlands, except within the drainage basin for a public surface water supply, where the buffer zones are increased to 100 feet around wetland features, 200 feet around streams and ponds, and 400 feet around public surface water supplies. These buffer areas are intended to help prevent the contamination of water supplies from private septic systems by prohibiting construction of such systems within the buffer areas.

3.2.4 Wetlands

Wetlands, including both forested wetlands and non-forested wetlands, are an important water resource in Tyngsborough. They play a critical role in flood control and in maintaining water quality. There are no extensive areas of wetlands. Instead, smaller wetlands are found to the north of Althea Pond and to the west of Flint Pond. Other areas follow Lawrence Brook, Bridge Meadow Brook, and Locust Brook. There are also small isolated wetlands scattered around town. These wetlands provide visual variety, wildlife habitat, and help maintain a healthy environment. Carefully orchestrated access to some of these wetlands will increase community awareness of their value and interest as natural habitat. A good example is the trails at the Sherburne Land. Title V, the state provisions that regulate the construction of wastewater treatment facilities and private septic systems, also establishes a buffer zone around these wetlands and associated waterways.

3.2.5 Riparian Corridors

The Massachusetts Resource Identification Project designated “natural land riparian” corridors along waterways and wetlands. These 100-meter natural corridors are thought to provide avenues of movement for some wildlife species and fulfill other ecological functions.

3.2.6 Aquifers

Some important aquifers or ground water recharge areas are found within the boundary of Tyngsborough. A high yield aquifer (more than 300 gpm) lies under the Dracut well fields, and downstream between the river and Middlesex Road. Lower yield aquifers (100 to 300 gpm) are located along Bridge Meadow Brook, near the intersection of Westford Road and Dunstable Road, near Flint Pond, along the Merrimac River, and at Tyng Island. The town’s wells are located near these lower yield aquifers or along Lawrence Brook.

3.2.7 Hazardous Material and Underground Storage Tank Sites

The Water Resources Map also shows sites of known concentrations of hazardous materials and underground storage tanks. These sites are potential sources of contamination for water supplies. There are six oil or hazardous material sites are concentrated along in Tyngsborough. Two are located on Westford Road (Tier 2); one along Pawtucket Avenue (Tier 1C); one along Middlesex Road (Tier 1B); one along Frost Road (Tier 1C); and one, the former Charles George Landfill (Tier 1A), is located between Dunstable Road and Route 3 near Flint Pond. All of these sites are under cleanup orders or their cleanup has been completed. Tier 1 sites require a state permit and the cleanup of the Charles George Landfill site is under the supervision of the Environmental Protection Agency.

The Charles George Landfill was in operation from 1950 to 1976. From 1967 to 1976 it accepted both household and industrial wastes. From 1973 to 1976 it was licensed to accept hazardous wastes primarily in the form of drummed and bulk chemicals containing volatile organic compounds (VOCs) and toxic metal sludges. Records show that the site received over 1,000 pounds of mercury and approximately 2,500 cubic yards of chemical wastes. The State ordered closure of the site in 1983. Samples from wells serving nearby Cannongate Condominiums and some nearby private homes revealed VOCs and heavy metals in the groundwater. The site was addressed in five stages: initial actions and four long-term remedial phases focusing on providing a permanent water supply to nearby residents; capping the site; controlling the migration of contaminants, including collection and treatment of landfill gas; and collecting and off-site discharge of leachate and contaminated groundwater to a publicly owned water treatment facility. The final step in this cleanup

was completed in 1998 and the site is now in the operation and monitoring phase. Long term groundwater monitoring continues. A review of the status of the site is conducted every five years. The last review was completed in 2000 and determined that the remedies implemented at the site are protective of human health and the environment. The next review will be in 2005. For more information see www.epa.gov/region1/cleanup/index.html.

There are only three known underground storage tanks located in Tyngsborough; one on Dunstable Road, one on Middlesex Road, and one on Pawtucket Avenue.

3.2.8 Wastewater Discharge Points

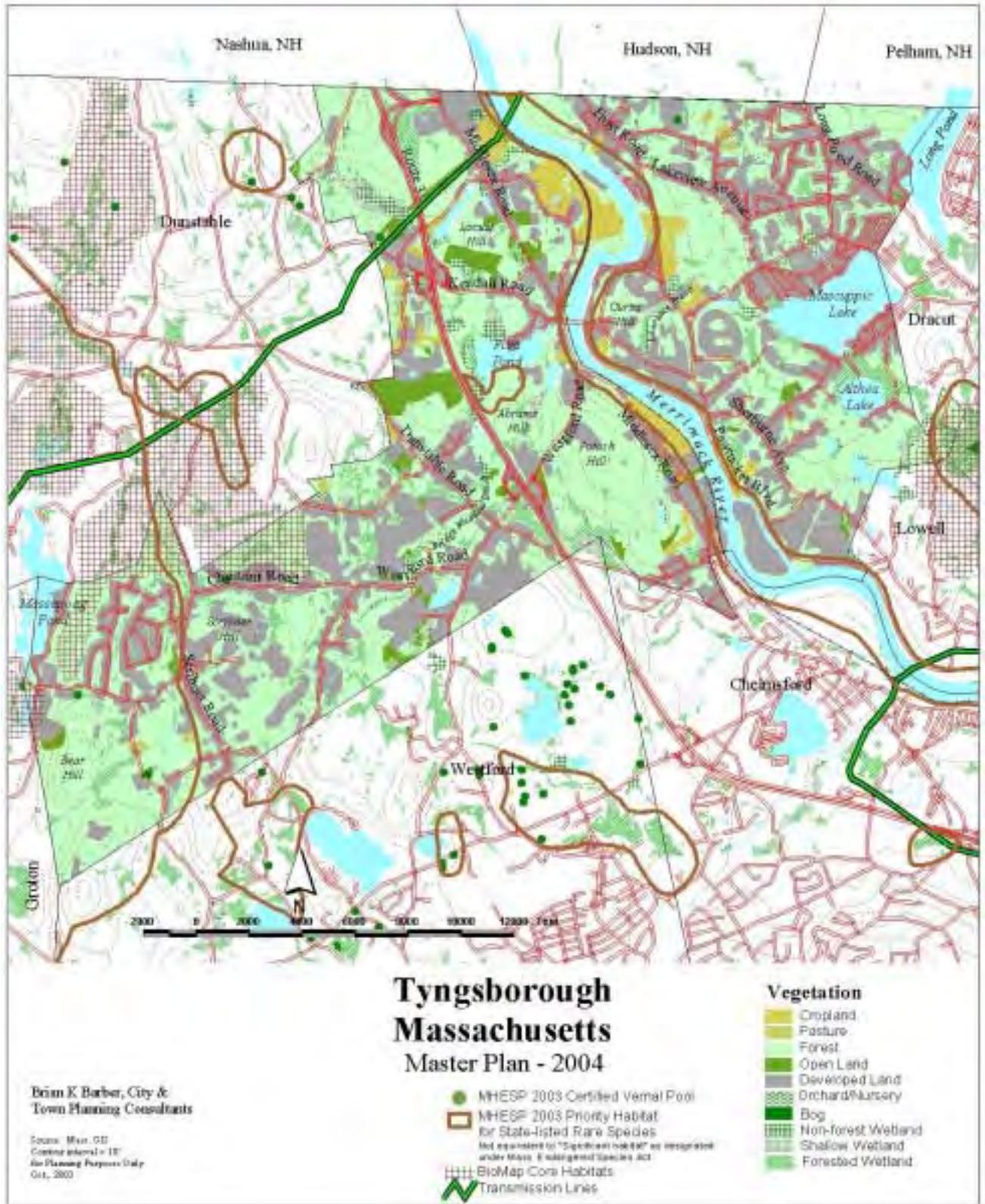
There is one known wastewater discharge point other than individual septic systems located near the intersection of Dunstable Road and Westford Road. It is an industrial site permitted to discharge in excess of 10,000 gallons per day under regulations of the Division of Water Pollution Control.

3.2.9 Floodplains

The floodplains along the Merrimack River, its tributaries, and their associated wetlands indicate the wisdom of keeping development out of wetlands and other low-lying areas. These areas serve as giant sponges that can soak up enormous amounts of water and protect downstream areas more suitable for development from more severe flooding.

3.3 Wildlife Resources of Tyngsborough

Many would look at the Town of Tyngsborough and perceive its undeveloped land, the few existing and former agricultural areas, forests, and wetlands as being the dominant land uses. In fact, this undeveloped land now constitutes less than half of the town's total area. In addition to being home to more than 11,000 human residents, Tyngsborough is home to a diversity of wildlife. In fact, Tyngsborough has two areas recently identified by the state's BioMap project as core habitats for conserving biodiversity for future generations. A diversity of wildlife is an indicator of the health of the environment and is a source of joy for children and grownups alike. As the forests of New England rebound after the abandonment of many farms in the 1800s, some species of wildlife have begun to move back into eastern Massachusetts. These include beaver, coyote, and fisher as well as others. The following describes the town's major wildlife habitats, agricultural land, open land, forests, and wetlands, and some of the more common wildlife likely to be found in them.



Map 3-3

3.3.1 Agricultural Land

In the updated land use map (Map 10-1), the 332 acres of land identified as cropland and 72 acres of pasture (a total of 404 acres or 3.5% of the town's total area) are still important resources for the diversity of wildlife in Tyngsborough. Most of the agricultural land is located along the Merrimack River. There are also small farm parcels scattered in other parts of town. Grassland birds, like eastern meadowlarks and bobolinks, may still use some hayfields, meadows, and pastures for breeding in Tyngsborough. In many other eastern Massachusetts towns, once plentiful fields are now too small and scattered to attract all but a few passing examples of these once plentiful grassland specialists. Many other bird species nest near these fields and use them as well as other habitats for hunting and feeding on seeds, insects, and small mammals. Many migrant songbirds, those that move between northern and southern latitudes with the seasons, can still be found feeding in farm fields in Tyngsborough and other nearby towns during migration. Many hawks and owls, such as American kestrels and northern harriers rely on grasslands for hunting small mammals, while other hawks and owls, such as red-tailed hawks and great horned owls, hunt in these fields as well as the town's forested areas. In addition to birds, voles, white-tailed deer, woodchucks, coyotes, and eastern cottontail rabbits often use agricultural areas. Several snakes, such as the eastern hognose snake and the northern brown snake can also be found in fields and pastures.

3.3.2 Open Land

Power line corridors and unused open land, like agricultural fields that are no longer being cultivated, are also areas used by many of the same species of wildlife that use agricultural land and some species that specialize in using these areas. There are just over 288 acres of this type of habitat in Tyngsborough (2.5% of the total area). Power line corridors are also often used as movement corridors for wildlife, providing a means of getting from one habitat to another.

The birds, mammals, and reptiles that use these open areas are likely to be the same as those that use agricultural areas in town.

3.3.3 Forest Land

Tyngsborough has an abundance of forestland, but the effect of suburban development has begun to mask the visual impact of such natural wealth as large lots are developed along the town's roadways. The vegetation map identifies 5,540 acres of forest in Tyngsborough (47% of the town's total area), including primarily Central Hardwoods-Hemlock-White Pine association and relatively small areas of the Swamp Hardwood association. The Central Hardwood Forest type is located on generally drier outwash soils and tills. The most common

trees are red oak (with mixtures of other oaks) and hemlock as well as red maple, aspen, hickories, and gray birch. White pine is common on more sandy soils. Common shrubs and herbs include blueberries, wintergreen, clubmosses, and hazel. The Central Hardwood Forest type is found in all parts of town while the Swamp Hardwood Forest type is concentrated along streams. The Central Hardwood Forest habitat type is likely to be the most threatened because it is so generally suitable for development.

Some of the common animals found in the Central Hardwood Forest include spotted salamander, redback salamander, wood frog, American toad, eastern milk snake, and eastern garter snake. Common birds include red-tailed hawk, Cooper's hawk, mourning dove, downy woodpecker, great-horned owl, northern flicker, eastern wood pewee, eastern phoebe, blue jay, American crow, white-breasted nuthatch, brown creeper, gray catbird, scarlet tanager, ovenbird, American goldfinch, yellow-rumped warbler, and Baltimore oriole. Common mammals include Virginia opossum, eastern chipmunk, woodchuck, gray squirrel, red squirrel, white-footed mouse, red fox, eastern coyote, raccoon, river otter, white-tailed deer, and striped skunk.

Swamp Hardwoods, found in the scattered wetland areas of town and along streams, are so dominated by red maples that they are often referred to as Red Maple Swamps. Other common trees include American ash, cedars, and black gum. Wetland understory shrubs are common, including alder, viburnums, blueberries, and others. Herbs are abundant and include sedges, ferns, false hellebore, and skunk cabbage. These woodlands are an important component of the town's remaining forested lands and wetland laws generally protect them.

Some of the common animals found in the Swamp Hardwood association and not in the Central Hardwood Forest include northern spring peeper, gray tree frog, bullfrog, common snapping turtle, painted turtle, northern water snake, and northern ringneck snake. Birds common to this habitat and not so likely encountered in Central Hardwood Forest include great blue heron, green heron, wood duck, eastern screech owl, barred owl, tufted titmouse, Carolina wren, black-capped chickadee, American robin, northern mockingbird, cedar waxwing, red-eyed vireo, yellow warbler, song sparrow, and common grackle. Many of the same mammals found in the Central Hardwood association are also likely to be found in Red Maple swamps.

3.3.4 Forest Fragmentation

Many ecologists agree that one of the biggest threats to natural communities and biodiversity in Massachusetts and much of the rest of New England is the fragmentation of large expanses of uninterrupted

forest habitats. Species of birds that are particularly threatened by forest fragmentation are underlined in the above lists. Many wildlife species, like these, depend on the interior of forests (areas far from an edge) for a significant portion of their life cycle and many biologists agree that the loss of large uninterrupted tracts of forest is contributing to the decline of many species of birds and mammals.

As a result, the remaining uninterrupted forests in Tyngsborough and surrounding towns are particularly valuable for a broad diversity of wildlife. Four relatively large forest areas remain. One is on Bear Hill and includes the site of MIT's Haystack 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 the Lowell Dracut State Forest. Another major area is on both sides of Route 3 including the area north of Locust Hill.

3.3.5 Non-forested Wetlands

The vegetation map identifies 347 acres of non-forested wetlands in Tyngsborough (3% of the total area) and 760 acres of water. The majority of the town's non-forested wetlands are found along Locust Brook upstream of Locust Pond and along the edges of Flint Pond. These rich wildlife resources include meadows, shallow marshes, deep marshes, shrub swamps, and ponds. Other non-forested wetlands are located along Beaver Meadow Brook, Lawrence Brook, and other small, scattered locations.

Meadows are characterized by sedges and cattails, surface water depths to 6 inches in winter and early spring, and exposed but saturated soil surface in summer, and typically provide habitat for the following wildlife species: Northern leopard frog, big brown bat, star-nosed mole, and short-tailed shrew.

Shallow Marshes are characterized by persistent emergent vegetation such as cattails and water depths to 1.5 feet, and provide preferred habitat for the following wildlife species: Northern spring peeper, painted turtle, and northern leopard frog. Common birds may include great blue heron, green heron, American black duck, mallard duck, eastern screech owl, tree swallow, red-winged blackbird, and American goldfinch. Common mammals may include Virginia opossum, little brown bat, muskrat, mink, and raccoon.

Emergent vegetation and floating-leafed plants such as water lilies (*Nymphaea* and *Nuphar*), and water depths to 6 feet characterize Deep Marshes. They typically provide preferred habitats for the following

species: Painted turtle, spotted turtle, and red-spotted newt. Common birds may include pied-billed grebe, and American coot. Common mammals include the same species found in Shallow Marshes.

Woody shrubs such as buttonbush, alder, silky dogwood, and red maple, and white ash saplings characterize Shrub Swamps. They typically provide preferred habitat for the following species: Black-crowned night heron, common snipe, glossy ibis, common yellowthroat, common grackle, song sparrow, swamp sparrow, and American goldfinch. Common mammals include Virginia opossum, little brown bat, eastern cottontail, and raccoon.

Ponds are small bodies of water that are characterized by emergent vegetation such as cattails or floating-leafed plants, or both. Vernal pools are small ponds that are not connected to streams or other water bodies. Thus, they depend on snowmelt and rainwater and usually become dry by late summer. Certified Vernal Pools are identified on the Vegetation Map. Many more potential vernal pools may exist, but have not been documented. Ponds and vernal pools typically provide preferred habitat for the following wildlife species: Spotted salamanders, wood frogs, blue spotted salamanders, Jefferson salamanders, northern spring peepers, bullfrog, pickerel frog, eastern painted turtles, little brown bat, big brown bat, mink, and beaver.

3.3.6 Rare Species

The 2002-2003 Atlas of Estimated Habitats of State-listed Rare Wetland Wildlife published by the Massachusetts Natural Heritage & Endangered Species Program lists several occurrences of rare or endangered plants and animals in Tyngsborough. The only listed plant is New England blazing star (*Liatris borealis*). It is listed as a Species of Special Concern.

Many of the town's eight state-listed animal species have been found in and around the town's wetlands or its upland forests. These include: Endangered – two moths, the New Jersey tea inchworm (*Apodrepanulatrix liberaria*) and Persius duskywing (*Erynnis persius persius*); Threatened – Blanding's turtle (*Emydoidea blandingii*); and Species of Special Concern – wood turtle (*Clemmys insculpta*), blue-spotted salamander (*Ambystoma laterale*), a damselfly called the cobra clubtail (*Gomphus vastus*), and two beetles, the twelve spotted tiger beetle (*Cicindela duodecimguttata*) and the purple tiger beetle (*Cicindela purpurea*).

There has been no natural history inventory done in recent years and several of these rare species have not been noted within Tyngsborough for many decades. These include: New England blazing star, not

reported in Tyngsborough since 1915; the New Jersey tea inchworm, last reported in 1918; the purple tiger beetle, not reported since 1921; and cobra clubtail, not reported since 1917. Sites for these and the other listed species are identified on the Vegetation Map (Map 3-3) as “Priority Habitats for Rare Species.”

There are only four state-certified vernal pools in Tyngsborough. Vernal pools are critical habitats for salamanders, wood frogs, and a wide variety of other wildlife. Salamanders and wood frogs migrate from surrounding forested uplands to these pools in the spring to breed. Without these vernal pools we would lose these animals. It is likely that there are other important wildlife habitats and many more vernal pools in Tyngsborough. In fact, an effort to identify potential vernal pools from topography maps and photos found 153 possible sites. An effort to have volunteer amateur or professional naturalists search for rare and endangered species and vernal pools, so that they can be considered and protected as future development occurs, should be encouraged.

3.3.7 BioMap Areas

The Natural Heritage and Endangered Species Program of the Massachusetts Division of Fisheries and Wildlife has recently completed producing a map of the state’s “hotspots” for biodiversity. Called the BioMap Project, this map identifies the most viable natural communities and habitats for rare plants and animals. Tyngsborough is fortunate to have parts of two of these “Core Habitat” areas. One is the area around Massapoag Pond and to the north of Chestnut Road and the other is corner of town adjacent to the Lowell Dracut State Forest.

3.4 Natural Resources Observations

Tyngsborough has a rich natural heritage worthy of recognition and pride. The following is a summary of some of the most important considerations for the development of the master plan.

- Soil limitations mean that many areas are poorly suited for septic tank leeching fields. Wetlands, streams, ponds and water supplies need to be carefully monitored to prevent contamination from incompletely filtered septic system effluent.
- Tyngsborough still has some important agricultural areas that have not been developed and are in need of protection. These include a couple of areas to the east of Farwell Road, an area of fields to the east of Middlesex Road just north of its intersection with Farwell Road, an area to the south of Norris Road, and fields on both sides of the Merrimack River just upstream of Tyng’s Island.

- The Merrimack River is an important water supply for several towns. Regional cooperation is necessary for conserving this limited resource. High-yield aquifers are located along the river and along Bridge Meadow Brook. The river is also an important potential recreation area, but it lacks easy access.
- Several of the town's ponds and streams offer good fishing and serve as wildlife corridors. Access to these resources needs to be protected and in some cases improved.
- The site of the former Charles George Landfill is no longer deemed a health risk, but needs on-going monitoring to assure that no contaminants flow into adjacent areas.
- Protection of upland forests will help preserve the town's semi-rural character.
- Much of the town's wildlife diversity is a result of its variety of habitat types. Maintenance of that diversity requires protection of large areas like those identified in the BioMap Core Areas and in both small and large areas of different habitats; non-forested wetlands, forested uplands, open/vacant areas, and open space corridors that make connections between areas. The four large forest areas—the Bear Hill/Haystack Observatory area; the area between Middlesex Road, Westford Road, and Dunstable Road; the area south of Althea Lake; and the forested areas on both sides of Route 3 and north of Locust Hill. Route 3 bisects this last area and there are some reports that this barrier has divided a population of deer into two separate herds.
- Protection of BioMap Core Areas is an important conservation priority for the region as well as the town. These areas include already protected areas north of Chestnut Road and to the east of Massapoag Pond and the portion of the Lowell-Dracut State Forest in Tyngsborough.
- One vital aspect of retaining the town's semi-rural quality lies in retaining some of the visual impact of the town's forested land. Forests on hills are particularly desirable, since such land is both highly visible and highly vulnerable to development pressures and its concomitant erosion and runoff problems. Tyngsborough's changes in topography contribute to the importance of these hills.

4 CULTURAL RESOURCES

Tyngsborough's character is also due, in no small part, to its rich history. Historic buildings, cemeteries, and landscapes found around the town are defining aspects of that character. Tyngsborough is fortunate to still have reminders of its past and many of those reminders are worthy of our efforts to protect them for future generations. The Merrimack River has played and continues to play an important role in defining the culture of the town. Other cultural resources include the organizations and institutions that enrich the lives of the town's residents.

4.1 Brief History of Tyngsborough

4.1.1 Pre-Colonial and Early Settlement

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 Tyngs Island), his favorite planting ground and encampment. Here corn was safe from bear and deer and the Wiscasee Falls, now flooded by the dam at Pawtucket Falls in Lowell, provided fish in great abundance. By 1644, *Passaconaway* signed an agreement placing his tribes under the authority of the colonial government.

4.1.2 Colonial Period (1620 – 1775)

Meanwhile, Edward Tyng, from Dunstable, England, had settled in Boston by 1638. He lived on the corner of State Street and Merchant's Row, where he owned a house, a brewery, and a warehouse with a wharf. Settlers in Boston, Charlestown, and Concord had begun looking for land in the wilderness to accommodate their growing numbers. The government made land grants in the unsettled areas west of Concord to wealthy families who advanced funds to pay for public works. Many of the families that figured prominently in the history of the region were recipients of these grants.

Edward Tyng, still a resident of Boston, bought 3,000 acres on the west side of the Merrimack in 1660 in what is now Tyngsborough. So many of the Proprietors of the town of "Old Dunstable," including present day Tyngsborough, were from more settled areas that some of the first town meetings were held in Woburn or other towns further to the east. In 1668, Tyng deeded his holdings on the Merrimack to his son Jonathan, who built a house and began working his land.

The period from the mid-1600s to the late-1700s was filled with fur trading, land clearing, farming, mill building, road construction and

occasional hostilities with the Indians. *Wannalancet*, a son of *Passaconaway*, and his band remained friendly during the early part of this period and continued to live at Wiscasee Island or wander further to the north. There were bloody battles with other bands. In 1674 Dunstable Road was laid out. In 1760 the county ordered that two roads be built, one on each side of the river, connected by a ferry. There was also a ford-way that crossed the river on the bend, near Smoking Rock. A tavern at this river crossing was reputed to be a busy place. When the dam at Pawtucket Falls was built it was no longer possible to ford the river.

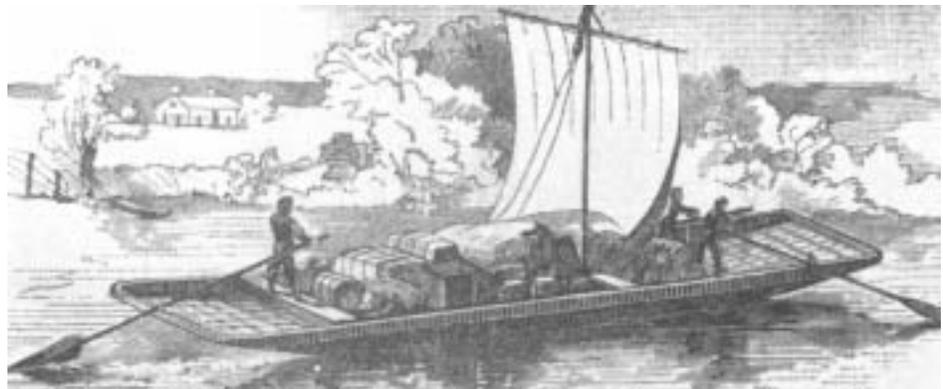
4.1.3 Federal Period (1775 – 1830)

Many of Tyngsborough's men participated in the events leading up to the Declaration of Independence and fought in the Revolutionary War. By 1790, Tyngsborough had 382 inhabitants. Sarah Winslow, a daughter of Eleazer Tyng, set up a trust with Harvard College in 1789 to benefit the town. It helped fund the construction of the Winslow School and still provides annual income to the town. A condition of



her bequest was that the district, then part of Dunstable, be known as Tyngsborough to honor her father and his family.

A gristmill and sawmill were operated at Massapoag Pond as early as 1787 and several other mills were located on streams in other parts of town. By the 1790s Lowell was becoming a manufacturing center and by 1800 Tyngsborough was a thriving town. It had three stores, a tavern, a tailor, a carpenter, a cooper, a wheelwright, a hatter, a harness maker, a saddler, two shoemakers, a blacksmith, a gristmill, a carding mill, two sawmills, a tan house, a currier's shop, and a whip shop. The Middlesex Canal was opened in 1804 and finally completed in 1811. It connected Lowell's factories to the port at Boston. Granite quarried in Tyngsborough was floated down the river and used to build some of the Pawtucket Dam in Lowell. Granite from Tyngsborough was also floated down the canal and used to build the Charlestown Prison and used for the columns for the Boston Custom House. River traffic became more and more important. In 1812 the Merrimack Boating Company was formed and ran between Concord, New Hampshire and Lowell. River cargo boats were a common sight. At first, wind and men with poles powered them up and down the river, but after 1815, they were towed by steamboats. Crossing the river was still by ferry. Regular ferry service began in 1729. By 1809 the county operated a chain ferry near the location of the present bridge.



River Cargo Boat

4.1.4 Industrial Period (1830 – 1915)

After decades of relying on ferrying across the river, an iron bridge was finally completed across the river in 1873. Tyngsborough took advantage of its proximity to Nashua and Lowell and began providing these manufacturing centers with needed boxes and barrels for shipping the products produced at these industrial centers. In 1835 the Boston and Lowell Railroad began operations, linking Tyngsborough to its neighbors and markets. By 1849 a box factory was located at the center of town near the outflow of Flint Pond at the site of an earlier sawmill and wheelwright's shop. In 1875 Flint Pond was dammed to

provide additional waterpower for the box shop. Eventually this box mill sent boxes to factories all over the eastern states. Electric trolleys began service between Lowell and Tyngsborough in 1897. Lakeview Avenue, between Lake Mascuppic and Frost Road was built as a trolley line in 1895. Trolley service ceased in 1930.

Before the turn of the century, Tyngsborough became a popular recreation site boasting several pleasure grounds and resorts. River steamers, trains, trolleys, and autos 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 and spas where they enjoyed lakeside bowling, boat rentals and picnics. In 1895 the town's population was 652 people and by 1905 the summer population was double that number. Many of these resorts catered to vacationers from Boston and New York. Summer camps and bungalows surrounded the town's lakes and the Merrimack River.

4.1.5 Modern Period (1915 – 1970)

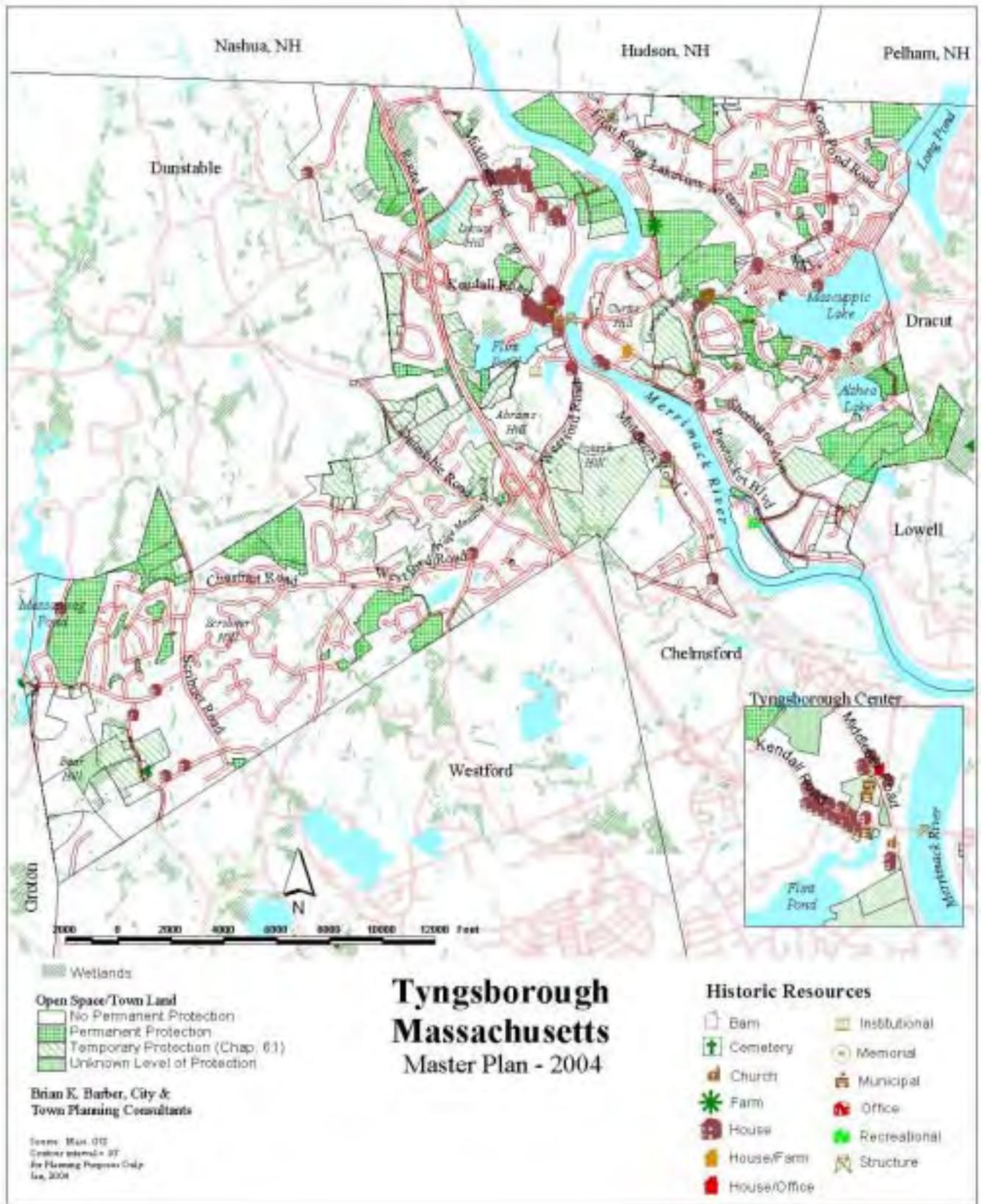
The original iron bridge was replaced with the existing Tyngsborough Bridge in 1930 and became the town's most striking landmark. Automobiles soon became the main mode of transportation as trolleys, river steamers, and finally trains were abandoned. In 1959 Middlesex Road was widened as a temporary measure to accommodate increased traffic until the New Route 3 was completed in 1961. Passenger train service finally ended in 1970.

4.2 Historic Resources

Tyngsborough's Historical Commission and office of Planning and Development have been working to identify the town's historic resources with matching support from the Massachusetts Historical Commission. In 2002 a consultant completed a survey of these resources. The survey documented the historic significance for two areas, Tyngsborough Center and the James Butterfield Saw Mill site, and 85 individual resources consisting primarily of residences but also including three structures, one object, and four burial grounds. Many of these resources were considered eligible for listing on the National Register of Historic Places.

4.2.1 Tyngsborough Center

The central residential, commercial, civic, and formerly industrial village was considered eligible as a historic district. The old Town Hall, in the 1834 Baptist Church building, has been recently renovated. It served as the town hall from 1864 until 1998. Other civic buildings include the Littlefield Library, built in 1904, and the Winslow School, built in 1890. The First Parish Church, 1836, and the Evangelical



Map 4-1

Congregational Church, 1868, continue to provide space for worship. Some small businesses in several of the former residential buildings along Kendall Road represent a continuation of the center’s role as a site for commerce.



Industrial activities ceased when the existing mills were demolished in 1930 in conjunction with the building of the bridge and realignment of Route 3A. A bridge, dam, and culvert near the former site of the Flint Box Shop are the only reminders of that industrial site. The c. 1880 Fifield Box Shop at 77 Kendall Road has been adapted for use as a residence. The 1727 Farwell House at 9 Kendall Road is the former home of ferry operators and mill owners and was the site of the town meetings in the 18th Century. An

African American named Ovid Huston also operated it as an inn for a number of years. Other important buildings and structures in Tyngsborough Center include the following:

Historic Name	Address	Date	Uses
Tyngsborough Bridge		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 Insurance	261 Middlesex Rd.	c. 1890	Offices
	266 Middlesex Rd.	c. 1888	Residential
	269 Middlesex Rd.	c. 1889	Vacant

4.2.2 James Butterfield House and Mill Area

Another important complex includes the 1838 Butterfield House and mill buildings at 54 Coburn Road. Jonah Parham operated a sawmill at this site in 1775. By 1821 James Butterfield was the owner and the

mill include both a gristmill and a sawmill under one roof. 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 stone wall. This area was considered eligible for listing in the National Register of Historic Places.

4.2.3 Individual Buildings

In addition to buildings in the two areas described above, there are a number of individual residences and other buildings that were thought to be eligible for listing as historic places.

Historic Name or Style	Address	Date	Uses
M & B Sherburne House	46 Coburn Road	c. 1932	Museum
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

4.2.4 Massachusetts Register of Historic Places

The Commonwealth has listed only one historic resource in Tyngsborough. In 1977 the Tyng Mansion was placed on the state register. Unfortunately it was demolished in 1981.

4.3 Historical Organizations

Tyngsborough has two organizations that are primarily dedicated to the protection of the town's historic resources—the Tyngsborough Historical Commission and the Tyngsborough-Dunstable Historical Society.

Tyngsborough Historical Commission

The Tyngsborough Historical Commission is established under Section 8d of Chapter 40 of the Massachusetts General Laws. It is the official town body charged with the identification of properties and sites in Tyngsborough of historical significance and the principal advisor to the town on matters relating to historic preservation. It has eight members appointed by the Board of Selectmen.

Tyngsborough-Dunstable Historical Society

The Tyngsborough-Dunstable Historical Society is an independent, non-profit organization dedicated to the preservation of local history through collecting and exhibiting artifacts relevant to Tyngsborough's and Dunstable's past. It operates a museum located in the Littlefield Library in Tyngsborough Center. The museum is open by appointment and has regular hours every other weekend. The society also operates The Little Red School House in Dunstable and owns a private residence in Dunstable, The Homestead.

4.4 Cultural Resources

Tyngsborough has a variety of nearby cultural resources including groups dedicated to theater, the arts, and music. Lowell offers an abundance of cultural facilities and events. The Tyngsborough Cultural Council awards funds provided by the Local Cultural Council Program of the Massachusetts Cultural Council to many local groups on a competitive basis each year. In the current year grants have been made to aid in the funding of Picture Us, a photography program by Everyday Joy Inc.; to the Tyngsborough Council on Aging for classes in ceramics and painting; to the Tyngsborough Recreation and Parks Department for a community movie night; and to the Tyngsborough Parent Advisory Council for a deaf awareness program. The Tyngsborough Library is a major local resource that sponsors events and exhibits.

The Camelot Players of Greater Lowell is a community theater group that makes its home at the Tyngsborough Country Club.

4.4.1 Religious Institutions

Religious institutions in Tyngsborough include the following:

- Academy of Notre Dame
- Tyngsborough Church of Christ
- Tyngsborough Evangelical Congregational Church
- First Parish Church
- Tyngsborough Baptist Church (meets in Nashua, NH)

4.4.2 Special Interest Organizations

- Tyngsborough-Dunstable Rotary Club
- Dunstable-Tyngsborough Lions Club
- Tyngsborough Council on Aging
- Boy Scouts and Girl Scouts

4.5 Historical and Cultural Observations

Tyngsborough has a rich history and an active set of cultural resources that contribute much to the life of the community and its sense of

place. The following are some of the most important considerations for the development of the master plan.

- There are great historic resources within the town that offer residents and visitors opportunities to learn about their heritage and the history of the town and nation.
- Tyngsborough's historic resources, such as the Old Town Hall and several historic houses have no form of recognition or protection.
- Recognition and protection of the town's historic resources can help preserve the character of the town for future generations and serve as an educational resource.
- There is a relatively complete inventory of the town's historic resources but there is a need to develop a town-wide Historic Preservation Plan.
- There are no historic districts in the town. There are at least two areas that would qualify for designation as historic districts—Tyngsborough Center and the James Butterfield House and Mill Area. Design review in historic districts should include design guidelines that encourage conservation of the historic buildings and new buildings that complement the area's historic architecture.

5 OPEN SPACE AND RECREATION

Tyngsborough, working with the technical assistance of the Northern Middlesex Council of Governments, completed an excellent update of its Open Space and Recreation Plan in August 2002. The plan is briefly summarized below. A section on implications for the master plan will follow this summary of the open space plan.

5.1 Tyngsborough Open Space and Recreation Plan – 2002-2007 Update

5.1.1 General Features

The Tyngsborough Open Space and Recreation Plan (Open Space Plan) includes the results of a town-wide survey of town residents, an interactive public workshop, and a presentation of a draft of the plan at a second public meeting. The survey was done in 2002 and gathered information from 121 households on respondent characteristics, needs for recreation and open space, open space goals, use of existing open space and recreation facilities, and important landscapes, views, and buildings. The residents' overall support for open space was demonstrated by an overwhelming vote in favor of the Community Preservation Act at the maximum tax surcharge of 3 percent. This support is reflective of the town's rapid growth in the last forty years and its evolution from a low-density rural and summer vacation community to a high-growth suburb. Protection of open space and historic resources is clearly viewed as an important means to maintain some of the character of the town's more pastoral past.

The Open Space Plan reflects the residents' strong desire for more access to water resources, preservation of agricultural lands, and networks of greenways and trails. It also notes that Tyngsborough is an important link along the state's proposed greenway and trail along the Merrimack River.

5.1.2 Community Setting

The Open Space Plan notes that Tyngsborough is a fast growing community. It has doubled its population in the last 20 years. The town is in transition, facing the need to serve this larger population while attempting to retain some of the rural character of the past. The implications for open space and recreation planning include:

- Remaining large parcels should be prioritized for potential preservation.
- Corridors and links between preserved parcels are needed to avoid excessive fragmentation of open space.
- Revised development regulations can shape development to avoid damaging key resources and preserve community character.

- Opportunities and activities for children and teenagers are important for a family-oriented town.
- There is potential to attain preservation of open space, scenic and historic resources through partnerships with private owners, including businesses.

5.1.3 Environmental Inventory and Analysis

The Open Space Plan identifies Tyngsborough’s most important natural resources as its rivers, streams, ponds, and associated wetlands and the remaining large patches of natural vegetation in town. It notes that protecting and enhancing the quality of water and wetland resources also improves wildlife habitat and provides recreational amenities. Despite the increasing fragmentation of the Town’s natural areas, the existence of large patches gives Tyngsborough the opportunity to plan now to create open space linkages.

Potential environmental protection strategies include:

- Identification and protection of key remaining open space properties.
- Creation of green networks by linking isolated and fragmented open space resources.
- Management of existing protected open space as appropriate for conservation, passive recreation, or active recreation.
- Mitigation of the environmental impacts of development on remaining natural resources through more detailed regulation.
- Implementation of the environmental restoration and impact mitigation projects of the Charles George Natural Resources Trust.

5.1.4 Analysis of Needs

The Open Space Plan divides the town’s needs into three categories, natural resource needs, community needs, and management needs.

Natural Resource Needs:

- Survey of natural communities and wildlife, including documentation of rare and endangered species
- Priority protection of open space parcels meeting one or more of the following criteria;
- adjacent to existing protected open space or providing corridors between existing parcels
- river and stream corridor lands for water quality, habitat, views, recreation
- upland buffers to wetlands for water quality, flood storage, habitat, views
- Enhanced awareness among property owners of management practices that protect rather than damage natural resources
- Enhanced storm-water standards for development

Community Needs:

- Identification, evaluation and protection of critical open space to preserve views and community character through public or private preservation efforts
- Public awareness campaign
- Habitat and recreational greenway corridors to link open space
- Public access points to the river
- Recreation master plan to develop a comprehensive program of facilities and programs
- Town center improvements, including public open space such as a town common, preservation of sites and structures, linkage of town center with the river and bridge

Management Needs:

- Recreation facilities and programs master plan
- Enforcement and monitoring of open space benefits in development approvals and permits
- Identification of appropriate locations for ATV and snowmobile use
- Integrated management and maintenance plans including volunteer and staff activities for recreation areas
- Regular contact with institutional owners of open space

5.1.5 Open Space Plan Goals and Objectives

The Open Space Plan sets forth goals and objectives for open space and recreation. These are included in the following table:

Goals	Objectives
Environmentally healthy water and wetland resources	<ul style="list-style-type: none"> ▪ Control non-point source pollution and other activities that affect water quality and quantity ▪ Protect upland buffers to water and wetlands ▪ Protect and enhance wildlife habitat in and around water resources ▪ Monitor water quality of brooks, lakes, and the Merrimack River
Preservation of key open space parcels	<ul style="list-style-type: none"> ▪ Protect open space adjacent to or connecting with existing protected areas ▪ Protect remaining large parcels, scenic and cultural landscapes ▪ Preserve and enhance habitat diversity and linkages Promote historic preservation and farm preservation to preserve community character ▪ Promote private protection of open space
Improved public awareness and access	<ul style="list-style-type: none"> ▪ Multi-media public access and information on open space resources ▪ Additional marked trails and interpretive signs ▪ More public access to river recreation
Efficient management and maintenance of recreational resources	<ul style="list-style-type: none"> ▪ Recreation system planning ▪ Stewardship plans for open space ▪ Enhanced partnerships with private organizations
Develop trails and greenways to link open space and provide access	<ul style="list-style-type: none"> ▪ More walking, hiking, and biking opportunities for town residents
Improved Town Center with open space elements	<ul style="list-style-type: none"> ▪ Preserve historic structures and their settings, and create town center open space ▪ Pursue national and state register listing of historic sites

5.1.6 Five-Year Action Plan

The Open Space Plan contains the following recommendations in its Five-Year Action Plan Section. These are intended to occur in the next 5 years, between 2002 and 2006.

Table 5-1: Open Space Action Plan

GOAL: ENVIRONMENTALLY HEALTHY WATER AND WETLAND RESOURCES	Year
<i>OBJECTIVE: Control non-point source pollution and other activities that affect water quality and quantity</i>	
Take advantage of Phase II Storm-water Regulations educational efforts to connect open space protection with water resource preservation.	2003-2006
Tighten development regulations on non-point source pollution through incorporation of DEP storm-water standards in regulations.	2004-2005
Identify needs for further water quality monitoring and testing of streams, ponds, and lakes.	2002-2005
Continue participation in the Merrimack Watershed Team.	2002-2006
<i>OBJECTIVE: Protect upland buffers to water and wetlands</i>	
Educate private owners about vegetation management on river, stream, pond and lake banks through activities such as web page information and videos.	2003-2006
Give priority to preserving upland areas abutting wetlands to provide additional protection from non-point source pollution.	2002-2006
<i>OBJECTIVE: Protect and enhance wildlife habitat in and around water resources</i>	
Identify and prioritize potential sites along rivers and ponds and advocate for public acquisition of open space.	2002-2006
Transfer undeveloped tax title properties to the appropriate board or commission in coordination with open space priorities	2003-2006
Pursue inclusion of local wildlife and vegetation inventory projects in the school curriculum	2003-2006
Explore legislative or judicial action to expedite Charles George Trustees expenditure of restoration funds	2002-2004
<i>OBJECTIVE: Monitor water quality of brooks, lakes and the Merrimack River</i>	
Work with Watershed Council to support Stream Team activities	2002-2006
Study water quality issues at Lake Mascuppic	2003-2004
Obtain and publicize Merrimack River water quality information from Nashua and Lowell	2003-2006
GOAL: PRESERVATION OF KEY OPEN SPACE PARCELS	
<i>OBJECTIVE: Protect open space adjacent to or connecting with existing protected areas</i>	
Develop and implement a priority ranking system for unprotected open space	2002-2006
Give priority to protection of open space parcels adjacent to existing protected areas or linking resources	2002-2006
Transfer the Greene Property to the Conservation Commission for permanent protection	2002
<i>OBJECTIVE: Protect remaining large parcels, scenic and cultural landscapes</i>	
Maintain and update Ch. 61,61A, 61B priority list to aid in meeting 120-day town purchase option (Phase 1 Priority List)	2002-2006

	Year
Develop Phase 2 priority list for on-site evaluation of potential acquisitions	2002-2003
Maintain vistas and views of the bridge and Merrimack River through acquisition of key parcels	2003-2006
Maintain vistas and views by working with MassHighway and the railroads to minimize scenic impacts along transportation corridors	2002-2006
Promote cooperation between the CPC and other boards and departments on open space acquisition issues	2002-2006
OBJECTIVE: Preserve and enhance habitat diversity and linkages	
Give priority to preservation of wildlife corridors and consolidation of open space to provide “interior” habitat	2003-2006
OBJECTIVE: Promote historic preservation and farm preservation to preserve community character	
Give priority for acquisition and/or agricultural preservation and conservation restrictions to farm lands and farm views along road corridors	2003-2006
Implement a historic plaque program	2003-2006
OBJECTIVE: Promote private protection of open space	
Develop partnerships with conservation organizations and land trusts to assist in acquisitions	2002-2006
Promote use of conservation restrictions where acquisition is unavailable or inappropriate	2002-2006
Educate landowners about tax benefits of preservation options	2003-2006
GOAL: IMPROVED PUBLIC AWARENESS AND ACCESS	
OBJECTIVE: Multi-media public access and information on open space resources	
Create a map and directory of Tyngsborough public open space for the town web site and in printed form, with information on hours, access, parking, etc.	2003-2004
Create more brochures with trail maps for individual open space areas	2002-2006
OBJECTIVE: Additional marked trails and interpretive signs	
Installing signage to identify open space resources	2002-2006
Solicit more volunteers to clear and mark trails and install signs	2002-2006
Solicit volunteers to research and prepare interpretive signs	2002-2006
OBJECTIVE: More public access to river recreation	
Identify and publicize information on existing town access points to the river	2003-2005
Expand, improve, and/or acquire additional access points	2003-2006
GOAL: EFFICIENT MANAGEMENT AND MAINTENANCE OF OPEN SPACE AND RECREATIONAL AREAS	
OBJECTIVE: Recreation system planning	
Expand the town Recreation Committee	2002
Document existing maintenance and management gaps and problems	2003
Create a management and maintenance plan with incremental steps for existing recreation land and facilities	2004-2005
Explore creation of a teen center and senior center	2004-2005
Seek funding from the Town to implement the management and maintenance plan	2006
Evaluate and identify appropriate areas for snowmobile and All Terrain Vehicle Recreation	2003-2004
Establish clear policies on handicap-accessibility, grievance procedures and reestablish the town’s ADA Committee / Disability Commission	2002

	Year
<i>OBJECTIVE: Stewardship plans for open space</i>	
Develop a stewardship program for conservation land	2004-2006
Develop a use and maintenance plan to accompany all new open space and recreation acquisitions	2004-2006
<i>OBJECTIVE: Enhanced partnerships with private organizations</i>	
Establish relationships with colleges and universities to attract student interns for special project development and implementation	2003-2006
GOAL: TRAILS AND GREENWAYS TO LINK OPEN SPACE AND PROVIDE ACCESS	
<i>OBJECTIVE: More walking, hiking, and biking opportunities for town residents</i>	
Create a town-wide trails plan to link open space and natural resources	2004
Create a plan for designated pedestrian and bicycle routes	2005
Engage volunteers in projects to create trail systems within existing town-owned open space	2003-2006
Seek creation of a trail to connect with Merrimack river trails	2003-2006
GOAL: IMPROVED TOWN CENTER WITH OPEN SPACE ELEMENTS	
<i>OBJECTIVE: Preserve historic structures and settings, and create town center open space</i>	
Preserve and expand existing town common	2003-2005
Work with state legislators and MassHighway to make existing bridge into a “bridge park” or pedestrian/bike promenade with creation of two new vehicle bridges	2002-2004
Develop town center beautification projects and preserve historic sites	2003-2006
<i>OBJECTIVE: Pursue state and national register listing of historic sites</i>	
Submit Old Town Hall for listing on the National Register	2002-2003
Develop listing submissions for other eligible historic properties	2003-2005
Pursue listing of the Tyngsborough Bridge on the National Register and documentation in the Historic American Engineering Record program	2002-2005

5.2 Recreation

The Tyngsborough Open Space and Recreation Plan noted that residents were either neutral or disappointed with the town’s recreation facilities. No detailed inventory of recreation facilities was included in the Open Space Plan. Its recommendation, that the town Recreation Committee be expanded, has been implemented and there is now a Recreation Commission that has offered a series of new programs and is working on developing other offerings.



Recreation facilities include trails at several of the town’s conservation areas, a handicapped accessible picnic area and town beach at Lake Mascuppic; athletic fields at Bridge Meadow, Wiscassee Field, and the elementary school;

and soccer fields at the Community Center on Lakeview Avenue. There are also two golf courses, the private Vesper Country Club and the public Tyngsborough Country Club. The Merrimack River is also a recreation asset although access to the river is limited. Also surrounding towns offer recreation opportunities that are used by many residents of Tyngsborough. The Open Space Plan does not include an analysis of the adequacy of these facilities. Such an analysis compares the existing facilities' areas and types to recognized standards. The accompanying chart is an analysis of Tyngsborough's existing recreation facilities compared to the standards of the National Recreation and Park Association.

Table 5-2: Recreation Standards

Type	Standard	Suggested	Existing	Needed to Meet Standard
Playgrounds	1.5 acres per 1,000 persons	17 acres	Schools = 10 acres estimate	7 acres
Playfields	1.5 acres per 800 persons	21 acres	Schools = 30 acres estimate	
Neighborhood Parks	2 acres per 1,000 persons	22 acres	0	22 acres
Community Park Min size 40 acres	3.5 acres per 1,000 persons	40 acres	Sherburne Land	
Regional Park Min size 500 acres	15 acres per 1,000 persons	166 acres	State Forest	
Baseball/Softball Fields	1 per 1,500 persons	7	15	
Trails	3 mile per 3,000 persons	12	13	
Tennis Courts	1 per 1,500 persons	7	13*	
Soccer Fields	1 per 4,000 persons	3	3*	
Football Fields	1 per 4,000 persons	3	4*	
Picnic Areas	4 acres per 1,000 persons	44 acres	State Forest Flint Pond	
Golf Course	1 per 25,000 persons	1/2	2	
Indoor Recreation Center	1 per 10,000 persons	1	Schools	
Water Sports Rowing, Fishing	1 lake or river per 25,000 persons	1/2	1	

Standards suggested by National Recreation and Park Association

* Includes facilities at Greater Lowell Vocational School and Notre Dame Academy.

Note also that a five-year implementation plan for the elementary school will add 4 soccer fields, 3 baseball/soft ball fields, and basketball and tennis courts.

A more thorough inventory of recreation facilities is needed. But based on the above estimates, Tyngsborough meets or exceeds the

majority of these standards. The deficiencies noted for playgrounds and neighborhood parks are due to the lack of land that is called “parkland” rather than to a lack of actual facilities. Many of the facilities, especially soccer fields, football fields, baseball fields, and tennis courts are located on institutional land. While the table shows more trails than suggested by the standards, many of the trails are in the State Forest. The Open Space Plan update showed strong support for additional recreation facilities, especially hiking and bike paths. While national standards are useful they should not limit the desires of residents to improve their quality of life. Adequate recreation facilities are important for good health and enjoyment. It is also important to recognize the quality of the town’s facilities. Good maintenance and management are crucial.

5.3 Open Space and Recreation Observations

The Tyngsborough Open Space and Recreation Plan provides an excellent basis for developing the Open Space element of the Master Plan. It clearly articulates goals and objectives that will help shape the future of the town. It provides criteria for prioritizing parcels of land that have conservation and open space value and it acknowledges the importance of improving access to and knowledge of the town’s natural resources and open space lands.

Tyngsborough has permanently protected 11.2% (1,292 acres) of its total area. In addition, the Massachusetts Wetlands Protection Act and the Tyngsborough Conservation Commission regulations effectively protect wetlands and a small buffer area around them. The future of Chapter 61 and institutional lands are the major open space issues that the town will face in coming years.

Ultimately, the environmental health of Tyngsborough will depend on both local decisions and the landscape of surrounding towns. Each new development will reduce the remaining patches of natural vegetation and the area available for wildlife. Corridors that currently connect natural areas may disappear, further reducing the viability and population stability of both plants and animals. These impacts are cumulative and long-term. The town’s ecosystems change over time and many impacts may be delayed and not fully realized until years or decades from now. The best strategies for maintaining the town’s character and environmental health will be:

- To protect rare landscape elements, such as wetlands, vernal pools, riparian zones (the areas along streams, rivers, and wetlands), state designated “priority habitats,” and large forested tracts.
- To retain large contiguous or connected areas that provide habitat for a diversity of wildlife. Guidelines published by the

Environmental Law Institute¹ call for at least 20% to 50% of a town to be protected natural habitat. They also recommend 137 acres (55 hectares) as a minimum contiguous size for a natural area. See the following discussion on corridors for improving connections between protected areas.

- To preserve/improve water quality and wildlife habitat protect riparian buffers. The Environmental Law Institute recommends a 330-foot (100-meter) riparian buffer to provide for wildlife habitat functions. A 25-meter buffer will provide nutrient and pollutant removal and a 50-meter buffer will provide bank stabilization.
- To minimize the introduction and spread of invasive, non-native species. Many non-native species of plants and animals are known to disrupt the functioning of native ecosystems and contribute to a decrease in biodiversity.

Tyngsborough meets or exceeds national standards for recreation facilities in most categories. There is a lack of playgrounds and neighborhood parks, but these categories are generally more important in more urbanized communities. Many of the athletic fields included in the above analysis of recreation facilities are on institutional lands and may not be as available to town residents as desired.

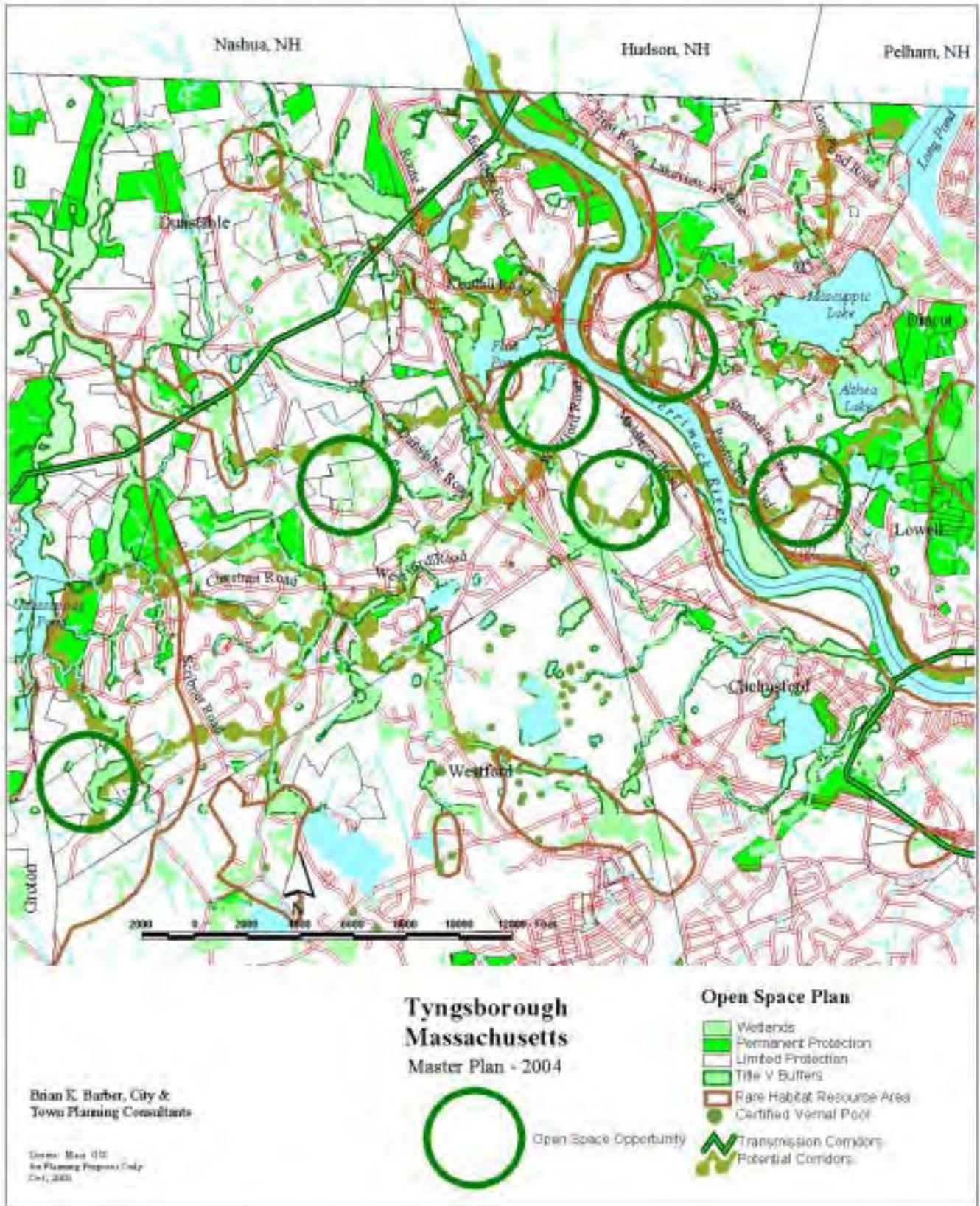
5.4 Open Space Plan

The Tyngsborough Master Plan endorses the recommendations of the 2002 Tyngsborough Open Space and Recreation Plan (Open Space Plan). Additional development will have major impacts on the town's open space unless it is carefully managed. Many of the town's protected open spaces could become isolated by future development of private and institutional lands. The Master Plan Open Space Map shows an open space system and potential corridor network. This map illustrates many opportunities and initiatives that were called for in the Open Space Plan. Many of the mapped opportunities and corridors will need further study and negotiation with private and institutional owners to become realities.

5.4.1 Open Space System

The proposed open space system shown on Map 5-1 includes all of the town's existing protected open space and recreation areas, all but a few isolated wetlands, potential corridors through currently privately owned institutional or Chapter 61 lands, linkages to state-designated priority habitats, golf courses, and additions to already protected areas both inside Tyngsborough and adjacent towns.

¹ Environmental Law Institute, 2003, Conservation Thresholds for Land Use Planners, Washington, DC. www.eli.org.



Map 5-1

5.4.2 Natural Corridors

Wetlands provide important “natural corridors” that can be enhanced by careful planning. Tyngsborough recognizes this potential by creating an additional 50-foot no-build buffer around its wetlands and the Open Space and Recreation Plan urges protection of lands adjacent to already protected areas. Another strategy for improving the value of these natural corridors would be to provide developers with incentives for protecting areas adjacent to wetlands and/or providing trails along the wetlands that pass through their developments. This would be especially valuable in situations where the corridor would serve as a link between already protected parcels.

5.4.3 Planning for Corridors

One of the Open Space Plan’s main goals is to develop trails and greenways to link open spaces and provide access. Trails can provide a healthful alternative to driving to the market or to a nearby recreation site. Trails have also been acknowledged as an important means to help improve good health. The Master Plan’s Open Space Plan Map shows numerous potential corridors. Each of these potentials links existing open space resources with other protected land and in many cases with areas that have been designated as “priority habitats” by the state’s Natural Heritage and Endangered Species Program. Many of the proposed corridors follow already protected wetlands and stream corridors. Some of these wetland corridors serve as natural linkages between larger upland and wetland areas. Not all of these wetland-based corridors are suitable for trails, but many may easily provide a trail linkage if a right-of-way were negotiated with the private owners or if the dedication of a right-of-way were made a condition of the properties’ development. In other cases trails can be routed along existing roads for part of their way.

Many of the potential corridors connect to or cross over Chapter 61 lands. These lands have been given a reduction in their property taxes as an incentive for being used for agriculture, forest, or recreation. In addition, the town has a 120-day option to buy these lands if the current owner wishes to sell. The town has prioritized these lands in terms of their importance for inclusion in the future open space system. Their role in providing potential corridors can be one more reason for the permanent protection of at least a portion of these areas.

Some of the proposed corridors pass through institutional lands that may also be subject to future development. If development proposals are submitted for these and Chapter 61 lands, the town should work with the developers to protect the corridors and where possible a significant portion of the land.

Several of these potential corridors warrant special mention. The state and the Northern Middlesex Council of Governments have proposed a trail corridor along the northern bank of the Merrimack River. This trail would connect to the Pawtucket Boulevard greenway in Lowell and potentially along the river to Nashua. The river itself is one of the “priority habitats,” designated by the state’s Natural Heritage Program. A side trail off of this corridor could also connect to the Lowell-Dracut-Tyngsborough State Forest by crossing the Vesper Country Club and Chapter 61 forestland. This would create a link to the portion of the State Forest that is a state designated “priority habitat” and provide a trail linkage to this important recreation resource. Another corridor proposed in the Open Space Plan runs from the Boston University Corporate Education Center, the site of the historic Tyng Mansion, where it could connect to the south bank of the Merrimack across private Chapter 61 forestland to Notre Dame Academy and on to Flint Pond where it could continue on along wetlands to Chapter 61 forestland at Locust Pond and on to protected open space at River Road along the Merrimack. This corridor would link to a small state designated “priority habitat” at the edge of Flint Pond and provide a potential trail linkage to the town center.

Corridors and greenways are beginning to be more recognized both as a means of providing wildlife habitat and opportunities for exercise, thus contributing to both the health of the environment and to the health of people. Research is showing that when mixed with large protected areas, corridors can play an important role in preserving a diversity of wildlife. The following is a set of design guidelines to achieve these goals:

- Wider is better. Corridors less than 150 feet wide do not provide meaningful wildlife habitat. Narrow corridors can be important for trail connections, but they may be inadequate for use by wildlife.
- Heavily used trails in corridors should be located along the edge rather than in the middle of the corridor. A wide trail in the middle of a 500-foot wide corridor can divide it into two narrow corridors and reduce its value for wildlife.
- Maintain natural cover and dead trees in corridors.

5.4.4 Major Open Space and Recreation Opportunities

Map 5-1 identifies several major open space and recreation opportunities. Institutional lands including Notre Dame Academy, Boston University’s Corporate Education Center, and the MIT Haystack Observatory provide important natural areas and contribute to the town’s character. The Greater Lowell Vocational School and Notre Dame Academy have recreation facilities that may contribute to meeting the needs of town residents. Integrating these areas and their

facilities into the open space network may require negotiations with these institutions.

Chapter 61 lands have already been mentioned. These privately owned parcels are subject to future sale and development pressures. The town will be faced with challenges and opportunities as the current owners of each one of these properties consider their options. Preserving corridors and significant open space will be important considerations. New tools for guiding development of these lands will be proposed in the master plan's section on land use and zoning.

The existing riverfront trailer park on Frost Street is another privately owned parcel that presents the town with a major open space opportunity. It would make an excellent riverfront park.

The town's two golf courses also contribute to the town's character and opportunities for recreation. Like other privately owned lands, their future use is not guaranteed.

5.4.5 The Town Center and Open Space and Recreation

Another of the Open Space Plan's prime goals is to improve the Town Center with open space elements. It calls for preservation and expansion of the town common, a "bridge park" or pedestrian/bike promenade, and rehabilitation of the center's historic buildings. See a larger discussion of the Town Center in the Town Center Development Chapter (Chapter 7).

6 ECONOMIC DEVELOPMENT

6.1 Employment and Wages

Table 6-1 shows employment by type of business in Tyngsborough from 1985 to 2003.

Table 6-1
Employment in Tyngsborough, 1985-2003 Covered in the ES-202 DET Report

Year	Total	Agr. For. Fish	Gov.	Const.	Manuf.	TCPU	Trade	FIRE	Services
1985	1950	20	647	124	299	134	390	53	283
1986	1964	16	586	183	266	128	396	86	315
1987	2096	4	601	162	323	139	472	86	309
1988	2108	2	603	148	184	166	554	113	338
1989	2172	11	627	153	122	182	539	84	454
1990	2320	11	742	119	189	169	592	84	414
1991	2316	9	740	84	218	149	557	78	481
1992	2221	7	738	107	206	148	555	44	416
1993	2459	8	767	117	272	226	568	45	456
1994	2697	7	760	135	302	236	631	61	565
1995	3004	11	771	177	265	218	692	92	778
1996	3310	5	783	237	295	220	759	97	914
1997	3549	8	819	252	314	193	787	100	1,076
1998	3721	8	827	313	327	195	871	94	1,086
1999	4021	24	895	327	344	223	909	82	1,217
2000	4293	32	978	363	380	198	1,024	74	1,244
2001	4081	45	924	423	298	222	995	79	1,104
2002	4882	35	912	464	438	168	1,232	95	1,144
2003	4609	41	906	434	389	139	1,324	88	1,288

TCPU = Transportation, Communication and Public Utilities

FIRE = Finance, Insurance and Real Estate

Source: Mass. Division of Employment and Training

Total employment more than doubled since 1985, growing by 136% to 2003. Services and trade have accounted for most of this growth.

Other employment categories have grown slowly and fluctuated slightly with general economic conditions. In 2003 trade accounted for twenty-nine percent of total employment, with services accounting for another twenty-eight percent.

Table 6-2 shows wages, number of establishments, labor force and unemployment in Tyngsborough from 1985 to 2003.

**Table 6-2
Wages, Number of Establishments, Labor Force and Unemployment in Tyngsborough
from 1985 to 2003**

Year	Total Payroll	Ave. Annual Wage	No. of Businesses	Labor Force	Unemployment Number	Unemployment Rate
1985	\$29,649,699	\$15,024	136	3,688	103	2.8%
1986	33,284,102	16,947	166	3,654	109	3.0
1987	38,905,301	18,561	183	3,689	90	2.4
1988	40,024,000	18,986	195	5,144	137	2.7
1989	45,319,551	20,865	212	5,191	206	4.0
1990	48,998,856	21,120	218	5,155	382	6.4
1991	54,512,126	23,537	208	5,157	491	9.5
1992	49,934,202	22,483	205	5,258	497	9.5
1993	58,152,508	23,649	214	5,308	413	7.8
1994	66,071,682	24,498	219	5,429	370	6.8
1995	78,272,635	26,056	241	5,311	312	5.9
1996	80,262,359	24,248	258	5,477	217	4.0
1997	90,458,414	25,488	259	5,802	203	3.5
1998	99,469,607	26,732	269	6,028	197	3.3
1999	112,778,711	28,047	293	6,281	202	3.2
2000	130,520,443	30,403	300	6,479	155	2.4
2001	123,893,276	30,292	310	6,670	256	3.8
2002	137,944,762	30,732	341	6,781	374	5.5
2003	133,585,576	28,964	355	6,857	418	6.1

Dollars in current year (not adjusted for inflation)

Source: Mass. Division of Employment and Training

Total payroll, average wages, number of businesses and labor force have steadily increased from 1985 to 2002. Total payroll and average wages took a slight dip in 2003, while number of businesses and labor force continued to rise. Unemployment has varied markedly, depending on general economic conditions. Tyngsborough has twice experienced a high unemployment rate of 9.5% (1991 and 1992), and twice experienced a low of 2.4% (1987 and 2000). The average unemployment rate over the 19-year period was 4.9%.

The number of businesses in Tyngsborough has increased by 161% since 1985, while average wages (in current dollars) increased by 93% over that period.

Most businesses in Tyngsborough are located along Route 3A (Middlesex Road) with some concentrations in the Center at the Bridge and in the north. For the most part, these are highway oriented retail and service businesses that serve sub-regional multi-town markets. Those businesses in other parts of Tyngsborough primarily serve local town-wide markets.

The Northern Middlesex Council of Governments (NMCOG) has reviewed and is using employment forecasts prepared for Tyngsborough by the Central Transportation Planning Staff (CTPS) to the year 2025. This forecast is based on an analysis of regional trends. In this forecast, by 2025 total employment in Tyngsborough is expected to be about 5,950. This represents a 39% increase over the 2000 figure. Forecast data by five-year intervals are shown in Table 6-3.

**Table 6-3
Forecasts of Total Employment for Tyngsborough: 2000 - 2025**

	Year					
	2000	2005	2010	2015	2020	2025
Total Employment	4,293	4,552	5,203	5,679	5,882	5,950

Source: CTPS Forecast of Employment reviewed by NMCOG

The forecast shows about 1,341 more employees in Tyngsborough in 2025 than there are now (2003). A build-out analysis completed by NMCOG recently shows about 15,743,000 sq. ft. (about 360 acres) of vacant commercial/industrial space that could be created on land currently zoned for those uses. 1,341 new employees could readily be fit into 360 acres. Typical employment densities for commercial and industrial space are between 200 and 400 sq. ft. per employee. This means that 1,341 new employees would require between 268,000 and 536,000 sq. ft. of building area, well within the 15.7 million sq. ft. of land available. It is unlikely that Tyngsborough will require additional commercially/industrially zoned land by 2025. The Town has ample lands zoned for commercial and industrial uses, although as discussed later, an I-2 Industrial Zone should be located and mapped.

**Table 6-4
Projected Employment in Tyngsborough, 2000-2025**

Year	Total	Ag. For. Fish	Gov.	Const.	Manuf.	TCPU	Trade	FIRE	Services
2000	4,293	32	978	363	380	198	1,024	74	1,244
2005	4,552	35	975	378	344	245	1,078	81	1,415
2010	5,203	44	1,057	445	372	267	1,235	82	1,702
2015	5,679	52	1,106	479	388	280	1,350	79	1,926
2020	5,882	56	1,107	524	387	281	1,401	75	2,050
2025	5,950	59	1,089	538	380	277	1,419	70	2,118

TCPU = Transportation, Communication and Public Utilities

FIRE = Finance, Insurance and Real Estate

Source: Regional and Town Forecasts of total employment reviewed by NMCOG and apportioned by category using ratios derived from town forecasts prepared by the Central Transportation Planning Staff in Boston.

Services and trade (principally retail trade) are expected to grow substantially, while other categories are expected to grow only modestly.

6.2 Labor Force

About 44% of Tyngsborough's workforce is in professional and other related relatively high paying occupations. Table 6-5 shows the composition of the work force in 2000. 88% of Tyngsborough's labor force worked out-of-town. Average commuting time to work, according to the 2000 Census was 31.2 minutes.

Table 6-5: Labor Force Composition by Occupation in 2000

All Employed Persons 16 Years of Age and Over	6,169
Management, professional and related occupations	2,685
Service occupations	622
Sales and office occupations	1,328
Construction, extraction and maintenance occupations	656
Production, transportation, and material-moving occupations	641
Other	237

Source: 2000 U.S. Census of Population

In 2000 there were 414 self-employed workers in Tyngsborough, while there were 712 government workers and 4,806 workers in the private sector. In 1999, as reported in the 2000 Census, median household income was \$69,818.

6.3 Unemployment

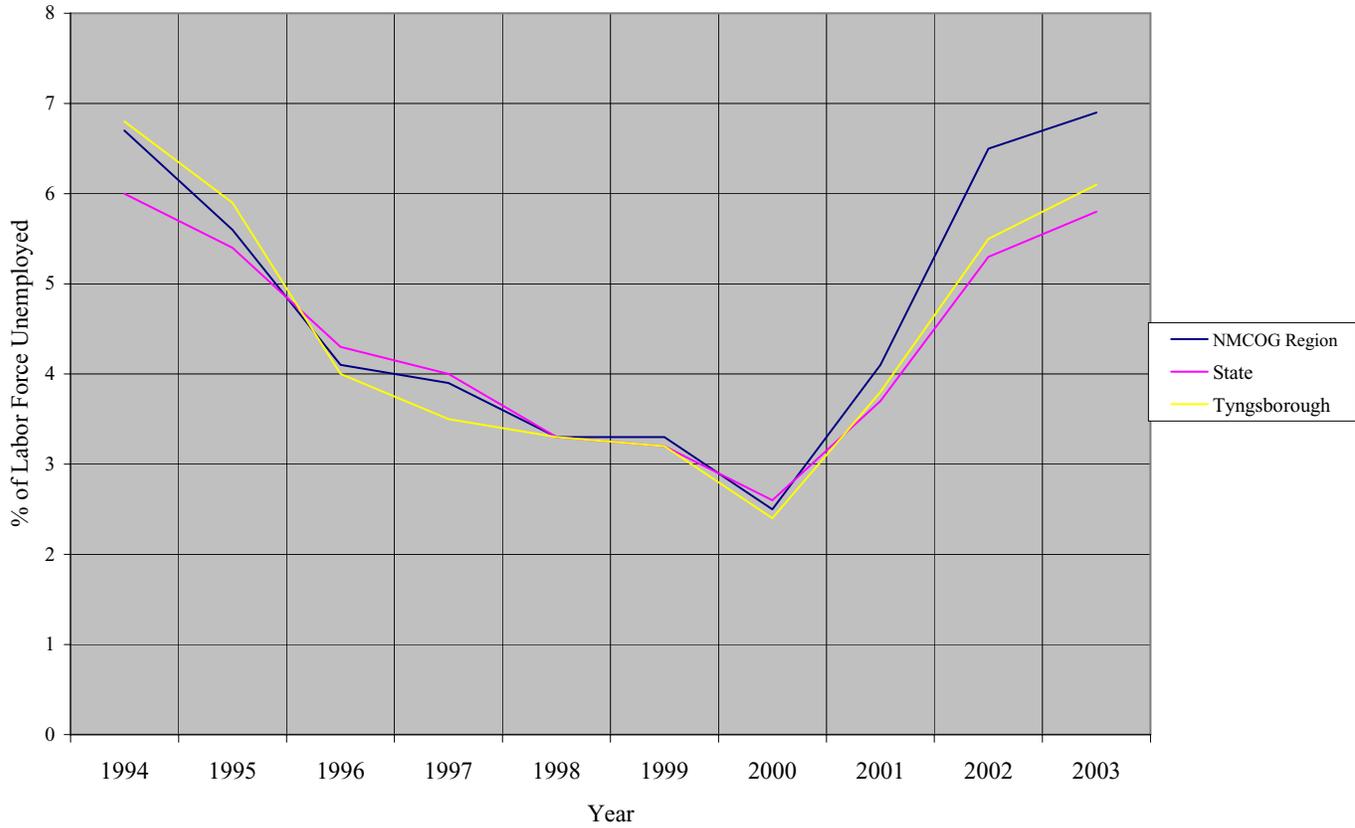
The latest reported unemployment rate in Tyngsborough is 6.1% (annual average for 2003). This represents 418 unemployed workers out of a labor force of 6,857 reported for 2003 by the Massachusetts Division of Employment and Training. Tyngsborough's unemployment rate over time shows a marked similarity to the region's rate and the state rate. This is to be expected since Tyngsborough's workers find employment throughout the Lowell metropolitan region, and beyond. Figure 6-1 shows the variations in Tyngsborough, NMCOG region and state unemployment rates since 1994.

6.4 Size of Employers

The largest employers in Tyngsborough are the institutions. These are the Town government including Tyngsborough public schools (578 full and part-time jobs), Greater Lowell Regional Technical High School (450 full and part-time jobs), Notre Dame Academy (90 full and part-time jobs), and the Boston University Corporate Education Center (currently 65 jobs and growing, possibly back to the level of 160 jobs it had several years ago). The typical private sector employer in Tyngsborough is small (10 – 20 jobs) although the larger chain restaurants near Pheasant Lane Mall employ up to 50 people, and Joan's Fabrics employs 37. The average business size is 14 employees.

Figure 6-1

Unemployment in Tyngsborough, the NMCOG Region and the State: 1994 - 2003



Source: Massachusetts Division of Employment and Training

Tyngsborough has a number of businesses that have entry-level jobs for unskilled workers, for example restaurants and small retail stores.

6.5 Job Training

To meet the needs of existing and future businesses, and to alleviate unemployment, the Town, through the recommended Economic Development Committee, should actively publicize and promote job training for Tyngsborough residents. There are several public agencies that provide job training including the Donahue Institute at the University of Massachusetts and the Massachusetts Division of Employment and Training. In addition, there are private and non-profit groups that offer job training in computer use and software development.

6.6 Property Taxes

One of the reasons to encourage further economic development is to increase the property tax base. Table 6-6 shows the position of Tyngsborough in relation to the tax rates and average tax bill of surrounding communities in Massachusetts.

Tyngsborough has the highest residential tax rate and is second only to Lowell in its commercial/industrial tax rate. However, the average single-family tax bill for Tyngsborough is in the middle of the seven towns. Only Lowell and Chelmsford have “split” tax rates (different for residential than for commercial/industrial), and Chelmsford actually has a very slightly lower rate for commercial/industrial uses. Lowell’s commercial/industrial rate is more than double its residential rate, which helps to keep residential taxes lower in that city.

**Table 6-6
Fiscal Year 2002 Tax Rates and Average Residential Tax Bills**

City or Town	FY '02 Tax Rate		Average Single- Family Tax Bill
	Residential	Commercial/Industrial	
Tyngsborough	\$17.20	\$17.20	\$3,532
Chelmsford	15.84	15.76	3,711
Dracut	15.19	15.19	2,537
Dunstable	15.24	15.24	3,522
Groton	14.10	14.10	4,291
Lowell	13.67	28.42	2,174
Westford	15.58	15.58	4,743
<i>Average</i>	<i>\$15.26</i>	<i>\$17.36</i>	<i>\$3,501</i>

Source: MA Department of Revenue

Tyngsborough's tax base was 15.0% commercial and industrial properties. Table 6-7 shows how much of surrounding town's tax base is commercial and industrial property.

**Table 6-7
Commercial and Industrial Property Percentages of Tax Bases
in Surrounding Towns – 2001**

% of Tax Base	Town/City						
	Chelmsford	Dracut	Dunstable	Groton	Lowell	Tyngsborough	Westford
Comm. & Indust.	19.3	7.8	4.1	4.6	17.8	14.8	16.4

Source: Massachusetts Department of Revenue

Tyngsborough falls in the middle of these municipalities with three higher than Tyngsborough and three lower. Tables 6-7 and 6-8 show

the tax levies and assessed values by class of taxable land (plus personal property).

Commercial and industrial properties have accounted for decreasing proportions of Tyngsborough's tax base, as residential growth has occurred faster than commercial and industrial growth. In 1992 the figure reached a high of 21.9%. By 2003 it has fallen to 15.0%. Tyngsborough could increase its commercial and industrial tax base by actively pursuing a program of attracting these uses.

As mentioned there are 15,743,934 sq. ft. (about 361 acres) of commercial and industrial space that could be developed in commercially and industrially zoned land. Development of this space would materially contribute to improving Tyngsborough's tax base. This land is generally located between Route 3 and Route 3A.

Table 6-8
Percent Tax Levy on Commercial and Industrial Property by Class in Tyngsborough: 1990 – 2003

Year	% of Tax Base- Comm. & Indust.
1990	21.4
1991	21.4
1992	21.9
1993	21.2
1994	20.3
1995	16.6
1996	15.7
1997	15.1
1998	15.8
1999	15.9
2000	16.3
2001	14.8
2002	15.2
2003	15.0

Source: Massachusetts Department of Revenue

Some infill and intensification of the business areas along Middlesex Road (State Route 3A) is possible. This should be encouraged, although its design should be controlled to create more pedestrian oriented ‘village’ type shops and offices. This could be implemented by adopting design guidelines and requiring design review.

A tax rate split is a commonly used device to balance the tax base of towns. Tyngsborough may want to consider this to increase the share of taxes paid by commercial and industrial uses. As mentioned, neighboring Lowell and Chelmsford have split rates. Age-restricted

housing is discussed further in the housing chapter. It too is becoming a more common practice in land development as a means of better balancing the property tax situation. Tyngsborough has approved some age-restricted housing already.

6.7 Market Considerations

It is clear that markets exist for future economic development in Tyngsborough. Services, which occupy office space, are expected to continue to grow in the area, as is retailing. These have been the fastest growing sectors of Tyngsborough economy. Tyngsborough is located on Route 3 between two important cities. The regional map on the next page shows existing employment levels and 10-year growth in Tyngsborough and surrounding cities and towns. Tyngsborough has three interchanges on Route 3 that are very attractive to many types of businesses. Improved travel capacity across the Merrimack River with new access points on both sides of the river will also attract businesses. Forecasts show an 82% increase in Tyngsborough's employment by the year 2025. Services are expected to grow by 123% and trade by 82% by 2025.

Sycamore Networks Real Estate, LLC, proposed a major corporate campus on Westford Road near its intersection with Middlesex Road. The proposal was withdrawn because of the recent downturn in the overall economy. When the economy recovers Tyngsborough can expect similar proposals. The Town should prepare for this increase with a strategy and guidelines that inform developers what the town wants from its economic development, in terms of location, income, jobs, wages and design.

6.7.1 Location

Many economic activities desire locations near major highway intersections with good access and adequate traffic capacity in roadways. These features are most important for industrial and warehousing and trucking activities. The most obvious locations for retail activities are along Middlesex Road. A "restaurant row" is being developed along this road, primarily in the north near the Pheasant Run Mall, with national restaurant chains building there. There are some locally owned restaurants located on Middlesex Road near the Tyngsborough Town Center and to the south of it. The national chain restaurants and many of the local restaurants are sub-regional establishments, with a substantial customer base from other towns, most notably from Nashua, N.H. It is expected that the "restaurant row" aspect of retailing in Tyngsborough will continue with new restaurant openings, and possible expansions of existing restaurants.

Office business services will seek locations similar to industrial activities, that is, near Route 3 intersections and with good local road access into their parking areas. These activities need good sub-regional and regional access because they draw on a labor pool in surrounding towns. Personal, medical, legal and finance, insurance and real estate and services generally desire locations on arterial roads, such as Middlesex Road, to serve local markets. Some of these activities are candidates for location in office parks if they are located near local arterials such as Middlesex, Westford, Dunstable and Kendall Roads.

Retail activities desire locations on local arterial roads. As mentioned, it is important to minimize strip development aspects by clustering retail activities in shopping villages with mixed uses including residential and office. Design review is essential to maintaining the existing character of Tyngsborough (discussed below). Tyngsborough Town Center is an area of special concern for retailing, because of the need to keep the historic character of the area, while adding selective small-scale retail uses to increase the activity level of the area. A map of the Town Center area with land parcel boundaries and public land ownership status is shown as Map 6-2. It will be important that any new commercial activities in the Historic Town Center be appropriate in scale and appearance to existing buildings and uses.

6.7.2 Income to the Town

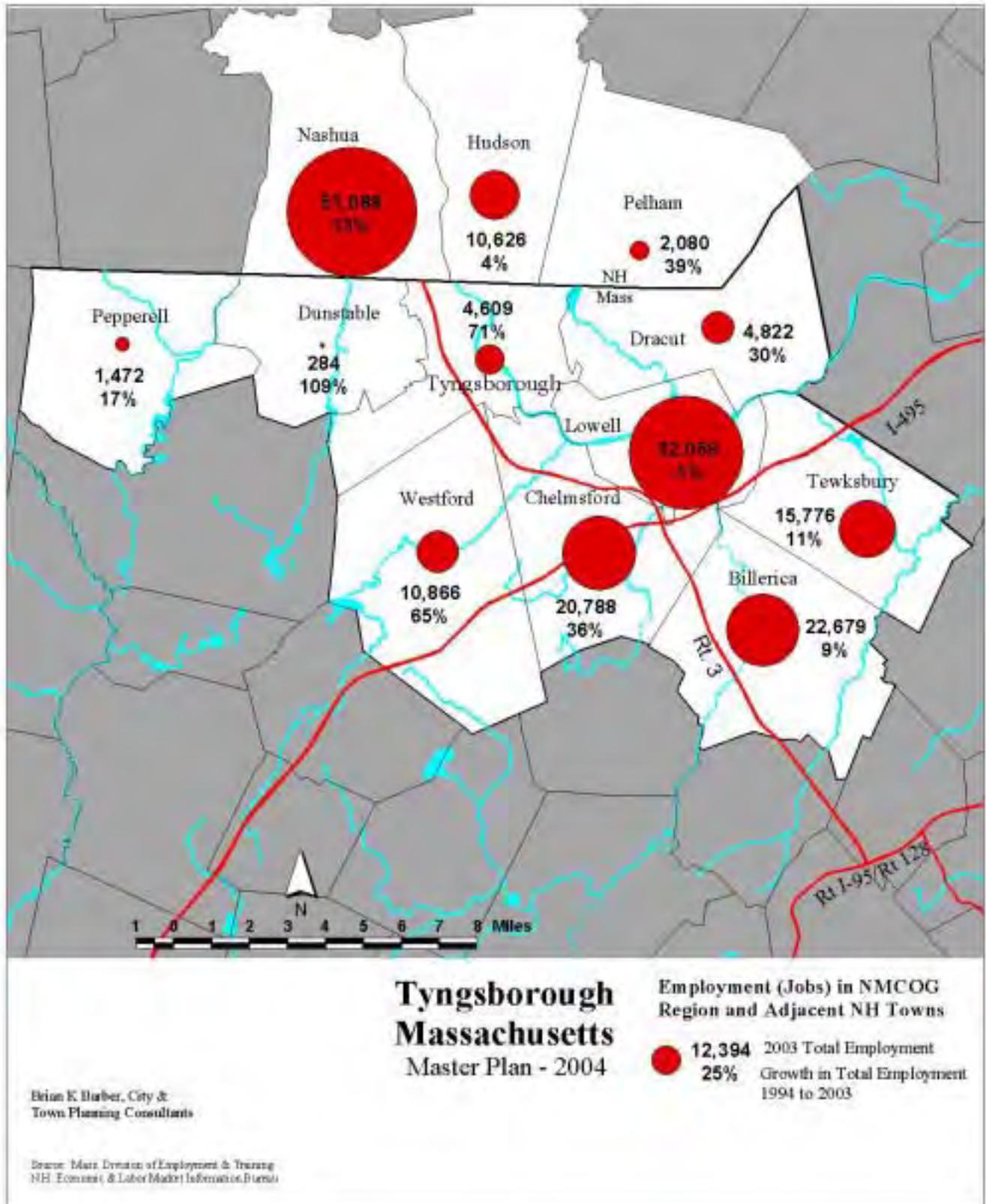
High value property and furnishings and equipment will make a significant contribution to the property tax base. This generally means manufacturing and research and development activities with high-tech machinery and equipment. Warehousing and storage and trucking activities generally have a lower relative property value.

6.7.3 Jobs

Professional, technical, clerical and sales jobs that match the Town's labor force. An ample supply of jobs for entry level and part-time job seekers is desirable for Tyngsborough and surrounding town residents seeking second or supplementary jobs to increase household income. Many town residents have expressed a desire to have a small-scale supermarket in town. Presently there are none. Tyngsborough residents shop for groceries in surrounding towns. A supermarket of appropriate scale (less than 50,000 sq. ft.), and with an appropriate mix of food products will provide entry level and part-time job opportunities.

6.7.4 Wages

It will be important to create jobs that have wage levels that permit workers to live in Tyngsborough if they choose to do so. Some of the



Map 6-1

jobs will be “second” jobs to supplement other income. The average wage in Tyngsborough in 2003 was \$28,964, down slightly from 2000 when it was \$30,403.

6.7.5 Design

It will be especially important to ensure well-designed and landscaped buildings that fit into the overall character of the Town. This means minimization of strip commercial development, and creation of well-designed signs that are not out of scale with the roadways and buildings. To the maximum extent possible town officials should strive for creation of small scale shopping village areas for retail and service activities. Mixed commercial/residential areas should be encouraged to build local markets, require less travel, and provide for activities in evening hours.

6.7.6 Transportation Access to Jobs in Tyngsborough

Workers can readily access the employment opportunities in town by automobile, since there are three state highways that traverse the town, Route 3, a limited access roadway currently undergoing substantial improvements, with three interchanges in Tyngsborough, Route 3A and Route 113. Access by other modes of transportation is not readily available. There is no bus route that traverses the entire town, or that provides public transportation access to major employment areas on Route 3A. An extension of the current LRTA North Chelmsford bus route to Tyngsborough Center is recommended to alleviate this situation. When MBTA commuter rail service is extended from Lowell to Nashua, with a station at North Chelmsford, extension of the North Chelmsford bus route further into Tyngsborough will be needed to provide bus feeder service to the commuter rail station.

6.7.7 Land Use and Zoning for Economic Development

Most of Tyngsborough’s businesses are located in a central north/south corridor on the west side of the Merrimack River. Route 3 is the western boundary of the corridor, although there are two newer retail and office areas just to the west of Route 3 along Westford Road, and one industrial/office area just west of Route 3 accessed by Business Park Drive from Kendall Road. Maps 10-1 (in the Land Use Chapter, Chapter 10) and 6-3 show land use and zoning in Tyngsborough. As noted there is ample zoning for industry in this central corridor, although there is a concern that heavier industry is excluded in the I-1 zone. To accommodate heavier industry an I-2 zone has been proposed along Cummings Road adjacent to the Dunstable Town Line, with access via Kendall Road to Interchange 35 off Route 3. This is an area with fewer environmental and institutional constraints than other land in the industrially zoned corridor, and has the potential to be more readily served by sewer.

6.8 Economic Development Recommendations

Locate an I-2 zone southwest of the intersection of Route 3 and Kendall Road, along Cummings Road and Progress Avenue. Sewer lines have been put in that area in the upgrading of Route 3. The area is currently zoned I-1.

Attract manufacturing and research and development activities with high-tech machinery and equipment. Warehousing and storage and trucking activities generally have a lower relative property value.

Attract a supermarket of appropriate scale (less than 50,000 sq. ft.), and with an appropriate mix of food products to provide more entry level and part-time job opportunities.

Minimize the appearance of strip commercial development. Create shopping villages for retail and service activities. Allow mixed commercial/residential areas in the villages to build local markets, require less travel, and provide for activities in evening hours.

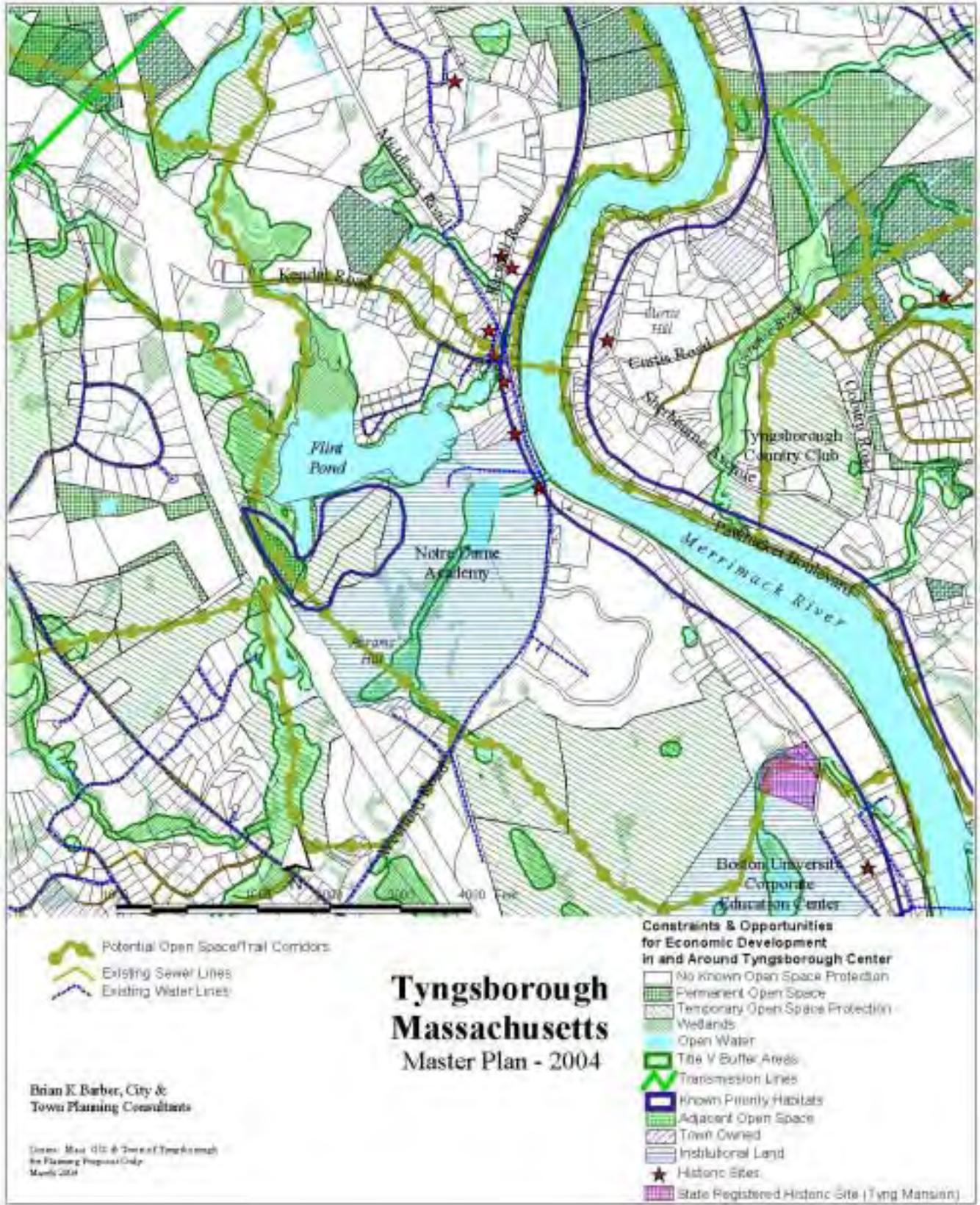
Extend controlled commercial corridors along Kendall and Westford Roads outward from the Town Center.

Pass a “Corridor Protection Overlay District” along these roads and Middlesex Road to minimize the appearance and adverse impacts of strip commercial development.

Re-establish the Tyngsborough Economic Development Commission, a group dedicated to seeking out and attracting appropriate businesses for the Town. Various economic and industrial development groups have been active in the past. Such a group should be reconstituted from past efforts and empowered to proceed with promoting economic development in the future, including both business attraction and retention.

The following types of businesses should be recruited and/or retained in Tyngsborough.

- Software Development,
- Light manufacturing and research and development, especially in the high-tech and bio-tech industries,
- Office parks with space for small and medium size service businesses,
- Small scale retail and service businesses that fit into small scale mixed use villages in the Town Center and on Middlesex Road,
- A moderate size supermarket and related store (e.g. a pharmacy),
- More restaurants to fill out the restaurant row on North Middlesex Road.



Map 6-3

7 TOWN CENTER DEVELOPMENT

7.1 Multi-Nodal Development

A tri-nodal Town Center area is envisioned in the Master Plan for the future. It would consist of the existing Historical Town Center with minimal and highly selective commercial additions. Modifying Winslow Drive to enable and encourage pedestrian use, while still enabling emergency vehicle access, could help create a Town Common. Selective design improvements would be made to the existing triangular depression area where the dammed up stream flows as a small waterfall out of Flint Pond and disappears below Middlesex Road and the railroad tracks.

A secondary minor commercial node would be created where Westford Road intersects Middlesex Road. This area would be suitable for slightly larger businesses than in the historic town center. A third commercial mixed-use area would be created east of the river south of the existing bridge along a relocated Pawtucket Boulevard. New mixed-use zoning and a historical district designation would be required to implement the plan for this area, which should feature small-scale village-type development. This is illustrated on Maps 7-1 and 7-2.

It is desirable for the new Merrimack River Bridge to be built in the Town Center area, about 800 feet south of the existing bridge, with a design similar, if not identical to the existing (repaired and renovated) bridge. It is also desirable to relocate Pawtucket Boulevard on the east side of the River, leading from the new bridge to the existing bridge in an arc that will improve traffic access and provide new commercial/mixed use development sites of the east side of the river. These features are shown on the aerial photo (Map 7-2).

Fifty-five percent of Tyngsborough's population lives on the east side of the river, while almost all of the commercial employment is on the west side of the river. Commercial/mixed use development of the relocated Pawtucket Boulevard between the bridges will help rectify that situation, as well as create an enlarged Town Center area, encompassing both sides of the river. Even if the new bridge is not built, it will be desirable to relocate Pawtucket Boulevard and create more commercial/mixed use space along it. This will require rezoning when the Boulevard is relocated.

The Town Center needs to be a place that attracts people to gather and stay awhile. Additional small shops and reinforcement of the existing village atmosphere will aid in achieving this. Creation of new attractions will contribute to greater use of the Town Center. Such attractions could consist of outdoor performance facilities and eating areas. Examples are a floating stage or pavilion on Flint Pond and a coffee/pastry shop with outdoor seating. (Many years ago there was a floating pavilion on

Mascuppic Lake.) Expansion of the existing picnic area could encourage people to bring or buy food to sit and eat. Creation of a skateboard park could attract youngsters and people to watch them.

The public building uses in the Historic Town Center, the Old Town Hall, the Littlefield Library and the Winslow School could also attract more people through reuse as public facilities. Potential reuses are discussed in the Community Facilities and Services Chapter (Chapter 9). In summary, for the Old Town Hall such uses as a community theatre and gathering space and possibly housing the Tyngsborough/Dunstable Historic Society Museum (currently housed in the Littlefield Library) are under consideration.

Ideas regarding reuse of the Winslow School include converting the building to art studios or offering the building for lease for office and/or retail space. There is space for a municipal parking lot behind. The Police Department has expressed interest in the building to use as their headquarters but they would most likely need an addition to the building.

Ideas for the use of the Littlefield Library include municipal office space or leased private office space or an art gallery, and continued occupancy of the Tyngsborough/Dunstable Historic Society Museum. Discussions for reuse of the building are ongoing and should give primary importance of the potential of the buildings to attract people to the Town Center.

One of the most important issue concerning activities in the Town Center is pedestrian safety and ease of access. Currently, automobile traffic dominates the area. It will be necessary to construct sidewalks and small off- and on-street parking areas to allow people to get out of their cars, walk around the area and access the activities there. A design study of the area should be undertaken to determine where parking could be added, and where pedestrian and bicycling facilities could be built.

7.2 Creation of Village Environments

The existing Town Center already exhibits some aspects of a village environment. As mentioned, it should be enhanced. In the other two recommended Town Center nodes village environments should be created using small-scale buildings and interconnecting pedestrian paths and landscape features. Parking areas should be small in scale and hidden to the side and behind buildings. A unified design theme for each area would contribute to village environments. Because only limited development will be possible in the existing Town Center and the intersection of Westford and Middlesex Roads, the node on the east side of the river will need to absorb most of the long-term future development. This area has multi-family housing and a carpet store now. A Town Center design study

Illustrations of improvements and design features appropriate for Tyngsborough's Tri-Nodal Town Center



A decorative gazebo in the Town Center could serve as a gathering place.



Mixe- use buildings with traditional designs are appropriate for the existing historic Town Center



Sidewalks, period lighting, sign control, storefronts at front lot lines and landscaping with decorative banners are desirable features that create village character. . .possible treatment for the Westford and Middlesex Roads intersection area.



The existing waterfall in the depression at Winslow Drive could become an emphasized design feature.



Village design example possibly for the Relocated Pawtucket Boulevard Town Center Node, east of the river, where there is space for expansion.

should identify development parcels and potential uses for each parcel in a careful attempt to create the village atmosphere envisioned in this plan.

7.3 Maintenance of River Views

Development in all three town center nodes should emphasize maintenance and enhancement of river views. River views should extend as far south as possible beyond the town center, down south Middlesex Road. The road is very close to the river here, and some of the best views of it in the region now exist here. Keeping these views and limiting development south of Tyngsborough Center will aid considerably in maintaining the existing character of the Town, providing a gateway to the Town Center that emphasizes its open and natural features.



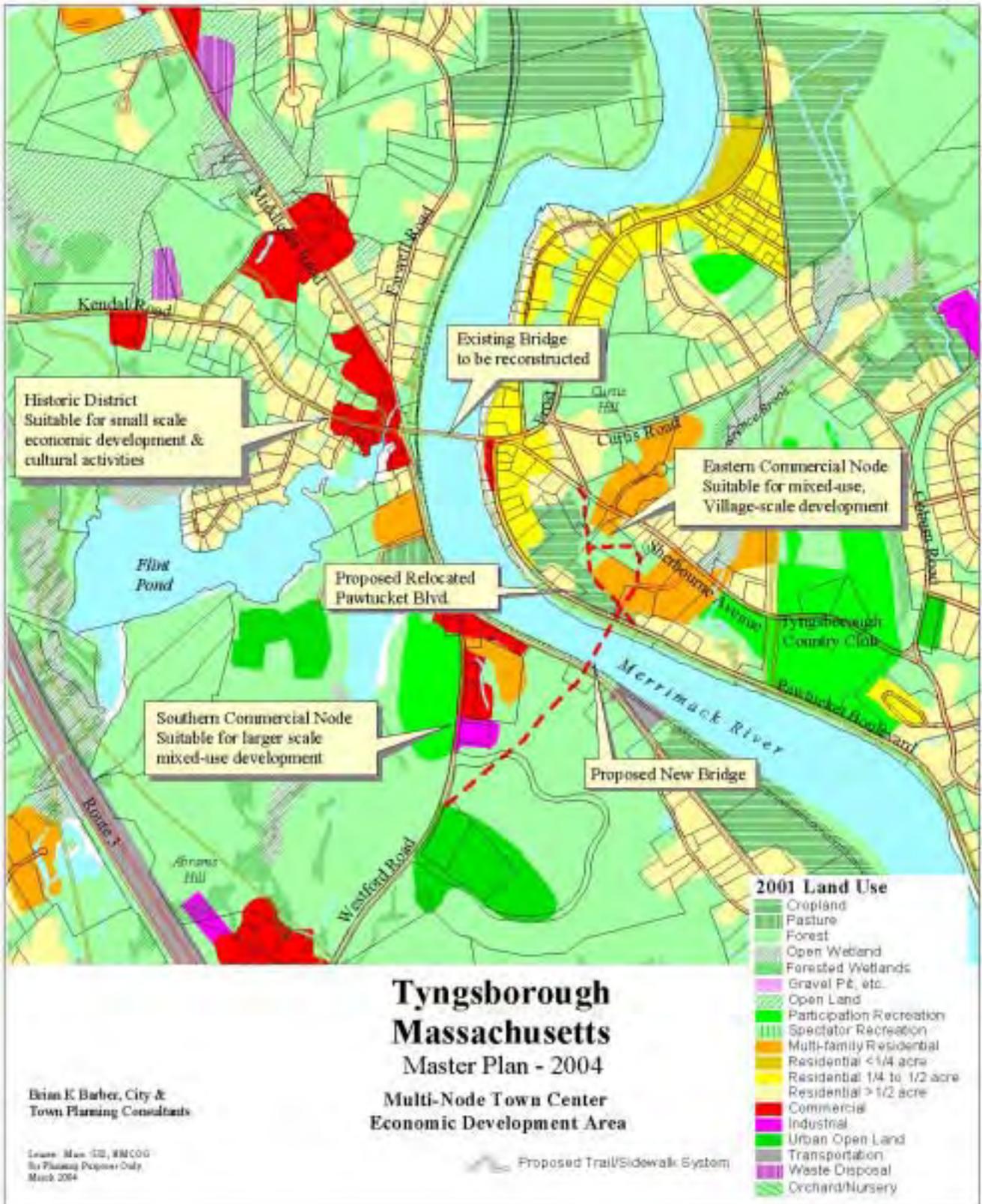
River view from the south to be maintained



Possible floating stage or pavilion on the Merrimack River or Flint Pond

Historic Town Center needing sidewalks





Map 7-1



Air photo of the Town Center area showing existing buildings and proposed roadway improvements.

Map 7-2



A potential bike path to bring people to the Town Center

8 TRANSPORTATION

8.1 Traffic Safety

Local traffic accidents, those attended by the Tyngsborough Police Department, have remained relatively steady over the last 5 years. Table 1 shows the increase year by year and by type of accident since 1998.

Table 8-1: Total Annual Personal Injury Accidents by Type, 1998-2002

Year	1998	1999	2000	2001	2002
Total Accidents	326	349	364	370	325
Personal Injury	99	133	154	128	129
Bicycle	1	1	2	1	0
Pedestrian	0	3	2	2	0
Fatal	1	0	1	3	0

Source: Tyngsborough Police Department

Table 2 shows traffic accidents by roadways for the period 1998 to 2002 for all roads with 5 or more accidents per year in 2002. All accidents on all roads are shown in Appendix B.

Table 8-2: Traffic Accidents in Tyngsborough by Roadway and Year: 1998 – 2002

Roadway /	1998	1999	2000	2001	2002
Chestnut Road	1	2	2	7	6
Coburn Road	9	8	11	9	8
Dunstable Road	5	5	6	11	9
Frost Road	40	27	42	22	26
Kendall Road	7	15	15	15	24
Lakeview Avenue	11	12	6	6	5
Long Pond Road	7	3	6	2	6
Middlesex Road	117	127	136	150	108
Norris Road	6	4	3	7	7
Parham Road	12	3	3	2	7
Pawtucket Blvd.	16	25	28	29	17
Route 3	8	6	10	6	5
Scribner Road	4	2	7	6	5
Sherburne Avenue	20	33	22	26	21
Westford Road	30	34	32	35	37
TOTALS	293	306	329	333	291

Source: Tyngsborough Police Department

Accident data for the same period, by type of traffic controls, show the following pattern.

**Table 8-3: Accidents by Traffic Control in Tyngsborough:
1998–2001**

Traffic Control	1998	1999	2000	2001
Stop Sign	47	53	43	44
Yield Sign	5	5	6	5
Warning Sign	1	2	2	2
Signal Light	30	47	51	54
Officer or Flagman	2	3	1	1
Control Device not Working	1	0	0	2
No Control Present	223	227	245	241
No Turn on Red	3	2	1	2
Totals	312	339	349	351

Source: Tyngsborough Police Department

The majority of accidents, about 70%, occur where there are no traffic controls present. Data are not kept by intersections, but according to the Tyngsborough Police Department the following intersections are the most hazardous in terms of traffic accidents.

- Middlesex Road and Kendall (west side of the Merrimack River Bridge)
- Pawtucket and Frost Roads (east side of the Merrimack River Bridge)
- Exit 36 from Route 3 at Middlesex Road (the entry to the Mall)
- Westford Road and Middlesex Road
- Middlesex Road at Locust Road
- Westford Road at Dunstable Road
- Lakeview Avenue at Coburn Road

8.2 Traffic Level of Service

The following table shows the levels of service at various intersections in Tyngsborough. Levels of service (LOS) are indicators of the need for improvements for both traffic safety and traffic flow and capacity. LOS is rated from A to F with A being the best, D being barely acceptable and E and F being unacceptable. These data are taken from two reports, 1) New Tyngsborough Bridge Transportation Study, Mass. Highway Department, 2002, and 2) Sycamore Networks Corporate Campus Expanded Environmental Notification Form Traffic Study, VHB Inc. 2002. Traffic volumes used for the level of service analyses were measured in 1999 for the Bridge Study, and 2001 for the Sycamore Networks Traffic Study. Both studies can be found in the Office of the Tyngsborough Town Planner and the Office of the Northern Middlesex Council of Governments.

Table 8-4: Existing Conditions Intersection Levels of Service

Location	Traffic Control Type	Existing Morning Peak Period LOS	Existing Afternoon Peak Period LOS
Middlesex Rd. & Westford Rd.	Signalized	A	B
Middlesex Rd. and Kendall Rd.	Signalized	F	F
Frost Rd. and Pawtucket Blvd.	Unsignalized	F	F
Frost Rd. and Sherburne Ave.	Unsignalized	F	F
Frost Rd. and Lawndale Rd.	Unsignalized	B	C
Sherburne Ave. and Coburn Rd.	Unsignalized	E	D
Rte. 3 North-bound Ramp Westford Rd.	Unsignalized	C	F
Route 3 South-bound Ramp Westford Rd.	Unsignalized	D	C
Route 3 North-bound Ramp and Kendall Rd.	Unsignalized	B	C
Route 3 South-bound Ramp and Kendall Rd.	Unsignalized	D	D
Route 3 South-bound Ramp and Middlesex Rd.	Signalized	A	B
Westford Rd. and Dunstable Rd.	Signalized	D	C
Westford Rd. and Swan Rd.	Unsignalized	F	E
Westford Rd. and Potash Hill Rd.	Unsignalized	C	D
Pawtucket Blvd. and Sherburne Ave.	Unsignalized	F	D

Source: New Tyngsborough Bridge Transportation Study, Mass. Highway Department, 2002, and Sycamore Networks Corporate Campus Expanded Environmental Notification Form Traffic Study, VHB Inc, 2002

8.3 Roadway Classification and Traffic Volumes

Maps 8-1 and 8-3 show traffic flow data from the Northern Middlesex Council of Governments and the Massachusetts Highway Department, and roadway classification from the Massachusetts Highway Department. Table 8.5 shows the traffic volume counts taken by the State and/or the NMCOG.

Table 8-5: Traffic Flow

Route/Street	Location	Average Daily Trips
Route 113	At the Dunstable Town Line	12,900
Route 113	Between the Route 3 Ramps	10,500
Route 113	East of Route 3	8,800
Route 113	1.5 miles west of the Lowell City Line	10,200
Route 3	At the New Hampshire State Line	63,800
Route 3	South of Exit 36	86,500
Route 3	South of Exit 35	77,900
Route 3	South of Exit 34	87,100
Route 3A	At the New Hampshire State Line	9,700
Routes 3A and 113	The Merrimack River Bridge	25,700
Route 3A	South of Westford Road	10,400
Route 3A	At the Chelmsford Town Line	15,500
Middlesex Road	At the New Hampshire State Line	23,300
Middlesex Road	North of Routes 113 and 3A	21,700
Sherburne Avenue	East of Cardinal Lane	8,000
Coburn Road	North of Sherburne Avenue	7,400
Long Pond Road	At the New Hampshire State Line	9,400
Westford Road	South and West of Route 3A	13,900
Westford Road	West of Route 3	24,900
Swan Road	At the Westford Town Line	11,700
Scribner Road	North of Groton Road	2,500
Dunstable Road	West of Route 3	3,100

Source: Mass. Highway Department



Map 8-1

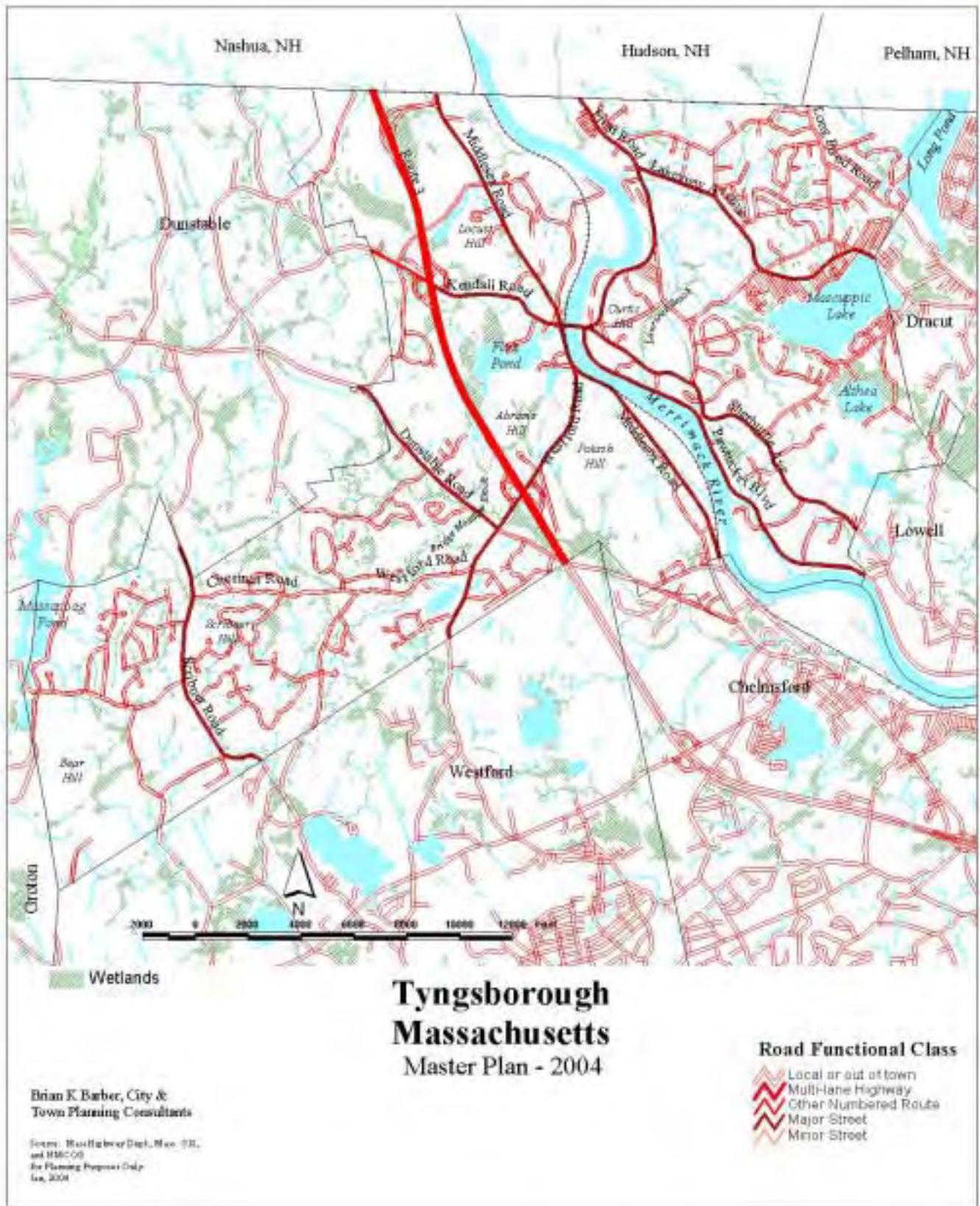
8.4 Traffic Flow

There are two dominant traffic flow features in Tyngsborough, the large volumes on Route 3 and the routes along the Merrimack River, and the fact that there is only one bridge crossing the Merrimack. The north-south flows are caused in part, by Tyngsborough's location between the Cities of Lowell, MA and Nashua, NH. Route 3 provides access from the northwest suburbs of the Boston Area to south, central and northern New Hampshire. It is also a major route for traffic between the northwest suburbs in the Boston Area and central and northern Vermont and the Montreal, Canada area. As Tyngsborough has grown, the traffic demands to cross the river have become greater.

There are three traffic regimes in Tyngsborough, east, central, and west. The central is dominated by Route 3 and local access routes to it, including the Merrimack River Bridge. The central area has local arterial streets with daily traffic volumes of about 20,000 - 30,000 vehicles. The east area has local arterial daily traffic volumes of about 10,000 to 20,000 vehicles. Its roadways connect with Lowell, a fairly high-density city, and Dracut, a moderately high-density suburban town. The schools in east Tyngsborough contribute to traffic generation.

In Tyngsborough west of Route 3, development has occurred at lower densities. Roadways here connect with Westford, Dunstable and Groton, three low-density semi-rural communities. Traffic volumes on west Tyngsborough roads are between 5,000 and 10,000 vehicles on arterials, and around 1,000 to 3,000 vehicles on smaller roads that serve only low-density residential areas. There is not much commercial development in the western part of Tyngsborough.

Identification of system bottlenecks and locations of chronic congestion. The most obvious bottleneck is the Merrimack River Bridge carrying State Routes 3A and 113. Daily volumes are around 27,000 vehicles presently. Currently there are two alternative locations for the proposed bridge, one about 800 feet south of the existing bridge, and one immediately south of the Pheasant Lane Mall in Nashua, N.H. The location of a new bridge is critical for future development in Tyngsborough. Commercial development will occur on both sides of the river at the approaches to a new bridge. A new bridge located just south of the existing bridge would support commercial and related office, industrial and residential development in the center of Tyngsborough. This would present many more opportunities for development in this area, a desirable feature provided that the development can be appropriately guided and controlled. A new bridge in this location would also better relieve traffic at the existing bridge. Traffic would be better distributed throughout the



Map 8-2

central area. A new bridge in a more central location in Tyngsborough would also help address the problem that 55% of the town’s population lives on the east side of the river, while most of the jobs and shopping opportunities are on the west side. Improved access to these jobs and businesses would result.

8.5 Recommendations for Roadway Improvements.

The following are roadway improvement recommendations, not yet made, that are contained in both the Mass. Highway Department New Bridge Study and the Traffic Study for Sycamore Networks Corporate Campus Expanded Environmental Notification Form done by VHB Inc.

- Pawtucket Boulevard at Frost Road (east side of the existing bridge). A traffic signal should be installed to provide better service for left-turn movements across the bridge from Pawtucket Boulevard.
- Middlesex Road at Kendall Road (west side of the existing bridge). Increased roadway capacity is needed at this signalized intersection to improve the movements in all directions.
- Westford Road at Route 3 Southbound Ramps needs traffic signals and additional through and auxiliary lanes installed to improve level of service in both the morning and afternoon peak traffic flow periods.
- Similarly, Westford Road at Route 3 Northbound Ramps also needs traffic signals and additional through and auxiliary lanes to improve level of service in both the morning and afternoon peak traffic flow periods.

8.6 Special Transportation Needs Improvements

The following data are indicators of needs for special transportation services.

Table 8-6: Special Needs Groups in Tyngsborough

Category of Resident	Number of Residents	Year
Children ages 5 to 12 years	2,506	2000
Teenagers ages 13 – 19 years	1,053	2000
Elderly ages 65 and over	732	2000
Persons 16 to 64 years of age with mobility disabilities	517	2000
People below poverty level	313	1999
Families below poverty level	118	1999
Households without cars	66	2000

Persons over 64 years of age with no access to a car	26	2000
--	----	------

Source: 2000 U. S. Census of Population and Housing

The Lowell Regional Transit Authority owns a bus with a capacity of 14, run by the Senior Center. The bus operates 30 hours per week and makes a variety of medical, social and shopping trips for seniors who otherwise would be housebound. Often the bus is full. The maintenance costs of the bus are paid for by a grant, which comes through the Lowell Regional Transit Authority (LRTA). The Council on Aging pays for a driver.

The bus provides daily scheduled rides to the Multi-Service Center and is used for scheduled trips for general and grocery shopping, a weekly luncheon trip, and to bring seniors to the Multi-Service Center for special weekly events. It is also used for recreational trips, some to near-by towns, and for medical appointments when they can be fit in between scheduled daily trips. Medical trips and shopping trips are often to nearby town destinations because such facilities in Tyngsborough are limited. The bus does not make weekend trips or go very far beyond Tyngsborough because it needs to get back for its scheduled daily trips in town. Enrollment in Senior Center programs has been increasing and at some point another bus will be needed to handle the trips.

There are complementary paratransit services provided in Tyngsborough by the LRTA for the elderly, or persons with disabilities, to recognize the fact that two of the LRTA fixed route bus lines operate in Tyngsborough (The DT Route and the NC Route). However, these services are not well known, nor are they used to any extent. It is possible for eligible passengers to call LRTA and schedule a ride on their Roadrunner paratransit services, although Tyngsborough is not listed by LRTA as one the towns served by complementary paratransit.

8.6.1 Recommendations for Serving Special Needs Transportation Groups

There are not many households without an automobile, nor many below the poverty level. Expanded LRTA bus routes in Tyngsborough can probably meet their transportation needs.

Demand is increasing for more senior citizen trips. Soon there will be a demand for more trips than one bus can make. Accordingly, a second bus and full-time driver would be needed. From 20 to 40 senior citizens attend the Senior Center every day and the one 14-passenger bus is able to accommodate only some of the demand.

Some of the medical, shopping and personal business trips now made by the Council on Aging bus could be made on Roadrunner vehicles operated by the LRTA. As noted, currently there is no Roadrunner (complementary paratransit) service in Tyngsborough from LRTA, despite the fact that the surrounding towns of Dracut, Chelmsford, Westford and Groton are served. If fixed-route bus service is extended in Tyngsborough there will be a legal requirement that complementary paratransit (Roadrunner service) be provided to the areas served by the fixed-route service.

8.7 Public Transportation

The Lowell Regional Transit Authority (LRTA) operates two bus routes that serve parts of Tyngsborough. These are the DT (Dracut and Tyngsborough) and NC (North Chelmsford) routes. The DT route penetrates furthest into Tyngsborough, along Lakeview Avenue up to Frost Road and Madeline Terrace. Its outer end is Ayotte's Market in Hudson, NH. The Downtown Lowell route end is the Transit Center at Paige Street. The NC route just barely comes into south Tyngsborough, turning around at Worden Road at Triangle Store to go back down Route 3A to Chelmsford and on to the Merrimack Street Transit Center in Downtown Lowell. To get to the Gallagher Intermodal Transportation Center where commuter rail is located requires an additional 15 minute trip on the LRTA Downtown Shuttle service. The Downtown Shuttle runs every 15 minutes. The DT route takes 27 minutes to get from Ayotte's Market to Downtown Lowell, while the NC route takes 37 minutes to get from the Triangle Store to Downtown Lowell. Both routes run every hour on weekdays and every two hours on Saturday.

By comparison, it takes about 15 minutes to travel by automobile from Tyngsborough Center to the Gallagher Intermodal Center during off-peak hours, and 20 minutes to travel by automobile from Tyngsborough Center to Downtown Lowell during off-peak hours. During peak hours these trips can take an additional 10 minutes, depending on traffic. From Tyngsborough Center to the intersection of Routes 3 and I-95 in Burlington, MA (an entry point to the Boston Metropolitan Area) it takes about 30 minutes off-peak and 45 minutes during the peak-hour. When Route 3 improvements, now underway, are finished, the peak hour time should reduce to about 35 minutes for this trip

8.8 Commuters

Tyngsborough is a town of commuters. According to the 2000 Census, only 12% of town residents worked in Tyngsborough. The remaining 88% commuted to jobs in other towns and cities. Commuters used the following transport modes for getting to work.

Table 8-7: Mode of Transport to Work

Mode of Transport	Number	Percent
Drive Alone	5,218	89.0%
Carpool	407	6.9%
Public Transportation	45	0.8%
Walk	20	0.3%
Other Means	31	0.5%
Works at Home	142	2.4%

Source: 2000 Census of Population and Housing

Seventy-six percent (76%) of Tyngsborough’s households had 2 or more automobiles available. Another 22% had one automobile available. Only 2% of the households had no automobile available. These are indicators of the fact that the overwhelming number of workers commutes to work by automobile.

The Lowell Commuter Rail Line serves Tyngsborough residents who can drive to it. The northern end of the line is the Gallagher Intermodal Center, located in Lowell near the end of the Lowell Connector highway, accessing Routes 3 and I-495. The line terminates in North Station in Downtown Boston.

Present commuter rail service between Gallagher Intermodal Center in Lowell and North Station in Boston consists of 21 daily inbound trains leaving on the half-hour between 5:35 a.m. and 8:25 a.m. and approximately hourly after that time, with the last train to Boston leaving the station at 10:35 p.m. Travel time on the train between the Gallagher Intermodal Center and North Station is 44 minutes during off-peak hours and 49 minutes during peak-hours.

Rail service to Lowell from North Station also consists of 21 daily outbound trains between the hours of 5:45 a.m. and 11:59 p.m. with more frequent runs during the evening "rush hour". In addition to Lowell, the train stops at North Billerica, Wilmington, Anderson Mishawum, Winchester, Wedgemere and Medford. Weekend and holiday rail service consists of nine trains daily both inbound and outbound serving the same stations as weekdays.

8.9 Nashua Commuter Rail Extension

In March 1999, the Nashua Regional Planning Commission (NRPC) commissioned a study to examine the feasibility of extending existing commuter rail service on the MBTA’s Lowell line to the southern New Hampshire region. This study focused on an incremental approach to restoring service along a 30.4-mile section of the former B&M New Hampshire mainline rail corridor between Lowell and Manchester, NH. The last regularly scheduled commuter rail service to Nashua and

Manchester was operated in June 1967. A 13-month demonstration project offered a limited schedule of service in 1980 and 1981. The former double track mainline corridor has been reduced to a single-track route with passing sidings, except for a 3.5-mile segment between Lowell Station and Chelmsford Wye.

The incremental approach being examined by the NRPC has been broken into two phases: (1) extension of service from the existing MBTA commuter rail station in Lowell to a new station located at the east end of Spit Brook Road in South Nashua on land owned by Hampshire Chemical Corporation (about 11 miles), and (2) a further extension from Nashua to Manchester, a distance of 19 miles. Conceptual level cost estimates have shown the estimated cost of infrastructure improvements for Phase I to be \$28 million and Phase 2 to be \$51 million. New Hampshire DOT estimates that Phase 1 extension would attract about 910 one-way riders per day. This represents an 18% increase over the one-way 4,991 riders between Lowell and Boston surveyed in November 2003.

The Chelmsford Board of Selectmen voted to pursue the development of a new station in the North Chelmsford area if the project moves forward. The MBTA and the Central Transportation Planning Staff (CTPS) completed a feasibility study in 2002 that identified two preferred locations for such a station and assessed the potential demand for each location. The locations include the North Chelmsford Auto Parts site north of Vinal Square and the industrial complex at the end of Wotton Street in North Chelmsford. The cost of construction is estimated at \$3.7 million for a 400-car lot, which would be needed for opening day conditions, and \$4.9 million for a 710-car lot, which would be needed for the longer-term future when ridership has eventually increased to its final foreseeable level. Parking lots of these sizes would clearly attract more peak-period traffic in Tyngsborough on Middlesex Road. Six round-trips each weekday and three round-trips on Saturdays are planned. More data on the proposed project can be found in Appendix C. Copies of the MBTA/CTPS Study can be obtained from the Central Transportation Planning Staff in Boston.

The key questions of how much traffic will be generated and which roads will be impacted by the new parking facility will be answered in the series of studies necessary before the rail extension can be built. The studies include refined and updated ridership projections, preliminary engineering studies, and an environmental impact report/statement (including detailed traffic impacts) required by state and federal laws. It is recommended that the Town of Tyngsborough closely monitor and contribute to these studies as they are done. One

form of participation will be through the transportation planning activities of the Northern Middlesex Council of Governments.

8.10 Boston-Montreal High Speed Rail

In late 2000 the Federal Railroad Administration (FRA) designated the Boston to Montreal route as one of the nation's three new High Speed Rail corridors. The proposed 329-mile corridor travels along existing rail rights-of-way from Boston, north to Lowell, Nashua, NH and up through Manchester to Concord, NH. It then turns northwest following the former B&M northern line from Concord to West Lebanon, NH. It crosses the Connecticut River into Vermont at White River Junction and travels northwesterly to St. Albans, VT, linking with the Canadian National Railroad at Alburg, VT. From Alburg, the line travels the final 65 miles to Central Station in Montreal, Quebec.

In March 2003, the Boston to Montreal High-Speed Rail Feasibility Study was completed. The study was managed by the Vermont Agency of Transportation (VTrans) through an agreement with the FRA and in partnership with the New Hampshire DOT and the Massachusetts Executive Office of Transportation and Construction. The study examined potential station locations, including Lowell, and assessed potential demand under various operating scenarios. A maximum ridership forecast of 683,667 passengers per year was derived from the mid-speed scenario with the lowest fare rate.

Future studies are needed to examine environmental permitting and impact issues, investigate regulatory and institutional issues given that the facility will be international, and to further evaluate operating and capital costs, including the number and size of trains likely to be operated. The environmental impacts of double tracking the line through Tyngsborough, and operating high-speed trains through sensitive riverine and agricultural areas in town, as well as adjacent to residences, commercial properties, and town-owned open space and recreational lands, certainly need to be identified and examined. Again, participation through the transportation planning activities of the Northern Middlesex Council of Governments is recommended as a way of monitoring and contributing to decisions made about this service. Because of the potential major impacts of the high-speed rail and commuter rail extension projects in very critical areas of town (along the river which gives the town much of its character) the Town of Tyngsborough needs to be very attentive and observant about developments in planning for these facilities. Future updates of the Master Plan, preparation of future transportation plans, and participation in regional activities, need to recognize the planning and decision-making that might occur at the regional, state and federal levels to shape and implement these projects.

8.11 Other Public Transportation Services

There is no express bus service that stops in Tyngsborough. As the town grows perhaps one of the interstate services that traverses Route 3 can be motivated to stop in Tyngsborough Center, or alternatively at the future park-and-ride lot at the intersection of Kendall Road and Route 3 (where a LRTA shuttle will take passengers to the Gallagher Intermodal Center in Lowell to connect with commuter rail). Any new express bus service must be coordinated with commuter rail services, although it is expected that they can complement each other, with commuter rail going to North Station in Boston and express bus going to South Station in Boston.

LRTA bus routes DT and NC terminate in Tyngsborough; the DT serving the Lakeview Avenue area and terminating at Frost Road and Madeline Terrace, and the NC serving just the southeast tip of the town with a termination at Worden Road and Route 3A.

Numbers of trips for the LRTA service are:

		Inbound	Outbound	
North Chelmsford	(NC)	11	12	Weekday
		6	5	Saturday
Dracut-Tyngsborough	(DT)	11	11	Weekday
		5	5	Saturday

Full fare to travel to Lowell is \$1.50 and travel within Tyngsborough is \$1.00.

The Lowell Regional Transit Authority recently completed a Draft Transit Service Plan. The following paragraphs borrow liberally from it. The plan examined the route structure and schedule for the LRTA’s fixed route service and recommended changes that will be necessary to accommodate the relocation of the downtown transit hub to the Gallagher Intermodal Center. The recommendations are also focused on making the routes more direct and efficient. The plan estimated the impacts on ridership and costs of implementing the recommendations.

The plan provides for more frequent and direct service in Lowell with all routes meeting at Gallagher Intermodal Center. The following items highlight other recommendations contained in the plan:

- The Belvidere and Centralville routes have been redesigned to make service more direct.
- New service has been proposed for the Bleachery area in Lowell.
- A new route has been designed to service Pawtucket Boulevard, Lowell.

- Additional service to Drum Hill has been recommended. This could be accomplished by extending the Middlesex Street and Westford Street routes. In addition, new circulator service has also been recommended for the Drum Hill area.
- New links to major commercial and employment centers such as the Pheasant Lane Mall in Tyngsborough and the Route 110 corridor in Westford.
- Expansion of suburban service has been suggested including two new routes in Billerica and two new routes in Dracut.
- New circulator services in Chelmsford, Tewksbury and Westford have also been recommended.

The plan will need to be implemented in phases as resources become available. It may take several years to fully implement the recommendations given current economic conditions.

8.12 In-Town Needs

It is unlikely that Tyngsborough could support its own internal public transportation system, as have some larger towns such as Lexington (population 30,355 in 2000). The best prospects for better public transportation are expanding LRTA services by extending its routes into Tyngsborough. As Middlesex Road continues to develop it is likely that it will support a LRTA bus route between Lowell and Nashua. As the Tyngsborough Town Center and south Middlesex Road also continue to develop it is likely an extension of the NC Route from Chelmsford to the Pheasant Lane Mall could be justified. New bus service planned for Pawtucket Boulevard in Lowell might be extended into Tyngsborough, especially if a new commercial node is developed in Tyngsborough Center along a Relocated Pawtucket Boulevard.

8.13 Walking, Bicycling and Other Network Needs

Plans for meeting walking and bicycling facilities needs must recognize the proposed rail improvements and levels of service. Existing rail activity consists of slow freight trains several times each week. Commuter rail service with 12 trains each weekday traveling at moderate speeds, and especially high-speed long-distance rail service if it is established, will pose new challenges to public safety along the tracks. Walking along and crossing the double-tracked line will be more dangerous than it presently is. Fences, signals and other safety features and practices will be part of the improvements. A public train safety education program should be part of the improvements, funded by the state or federal government, with important roles given to Tyngsborough public safety officials and the school system.

A related issue is the reduction in access to the river and adjacent agricultural and recreational lands that increased train service will impose. Access points to the river and these lands should be carefully planned and protected. The Conservation Commission in preparing a proposed Town-Wide Trail Plan should be given a key role in analyzing the situation and in making recommendations to town, state and federal officials.

8.13.1 Sidewalk Construction and Improvement Program

All new subdivisions and development projects should require sidewalks. A program of building sidewalks along arterial roads should be staged over a five-year period.

8.13.2 Walking Connections between Activity Centers

There are potentials to establish bike and multi-purpose trails in Tyngsborough. These are discussed in the Open Space and Recreation Chapter. Such trails are multi-functional with transportation as an important use. Such trails would be most useful for transportation purposes connecting residential areas with shopping areas and schools. This means multi-purpose trails should be built in and around the Town Center, and along roads leading to schools. Developers should be encouraged to include trails in their proposals, both for residential and commercial development.

8.13.3 Road Shoulders Suitable for Bicycling

Arterials roadway improvements should include marked bike lanes. This means pavement widths and shoulders need to conform to Mass Highway Department design standards for roadways with bike lanes.

8.14 Pavement Management

A pavement management program to repair roads before they deteriorate significantly should be undertaken. Standards used by the Mass. Highway Department for local road pavement management should be adopted.

8.15 Determining Status of Roads

Discontinued roads and roads of uncertain status should be identified and those that should be abandoned should be identified. This will help prevent any development that comes as a surprise when development is proposed using a paper street that may be inappropriate for development.

8.16 Establishing a Department of Public Works

Tyngsborough is at a stage in growth that will require a full Department of Public Works to plan, manage and operate town public works including roads and sewers and water lines. Activities like

planning a prioritized system of sidewalk improvements, instituting a pavement management program and implementing a storm-water management plan or water conservation program, require more resources than are currently available in each separate department or commission. Accordingly it is recommended that in the next several years a full Department of Public Works be established with a Director who can devote ample time to each of the planning, management and operations functions needed.

8.17 Transportation Recommendations

- Locate a new bridge just south of the existing bridge to support commercial and related office, industrial and residential development in the center of Tyngsborough.
- In the short-term, at Pawtucket Boulevard at Frost Road (east side of the existing bridge), a traffic signal should be installed to provide better service for left-turn movements across the bridge from Pawtucket Boulevard.
- In the long-term Pawtucket Boulevard should be relocated to provide east-side access to the new bridge and to better route traffic to the existing bridge.
- At Middlesex Road at Kendall Road (west side of the existing bridge), increased roadway capacity is needed at this signalized intersection to improve the movements in all directions.
- Coordinate town transportation planning, public safety planning and recreational planning efforts with current plans to extend commuter rail service from Lowell to Nashua, and in the longer-run, plans to establish high-speed rail service between Boston and Montreal.
- Install traffic signals and additional through and auxiliary lanes to at Westford Road and Route 3 Southbound Ramps
- Similarly, at Westford Road at Route 3 Northbound Ramps install traffic signals and additional through and auxiliary lanes.
- Extend the current LRTA North Chelmsford bus route to Tyngsborough Center and north to the Pheasant Run Mall.
- Provide a second bus and full-time driver for the Council on Aging Senior Center
- Establish full “Roadrunner” LRTA complementary paratransit services to match extended “fixed-route” LRTA bus service.
- All new subdivisions and development projects should require sidewalks. A program of building sidewalks along arterial roads should be staged over a 10 year period.
- Establish multi-purpose trail with transportation as an important use, in and around the Town Center, and along roads leading to schools.
- Include marked bike lanes when making arterial roadway improvements.

- Undertake a pavement management program to repair roads before they deteriorate significantly.
- Identify discontinued roads and roads of uncertain status (paper streets).

9 PUBLIC FACILITIES AND SERVICES

This element includes descriptions and analyses of the following public facilities and services:

Schools	Multi-service/Senior
Library services	Center/Fire Station/Police
Meeting facilities	Sub-station Highway
Town officers/Town Hall	Department
Multi-Service/Senior Center	Wastewater Disposal
Teen/Community Center	(Sewage)
Police Department	Water Supply and
Fire Department	Distribution
Gas and Electricity	Telephone and Cable TV

See Map 9-1 for locations of these public facilities.

9.1 Schools

The Town of Tyngsborough operates four (4) schools:

- The Early Childhood Center (ECC)
- Tyngsborough Elementary School
- Tyngsborough Middle School
- Tyngsborough High School

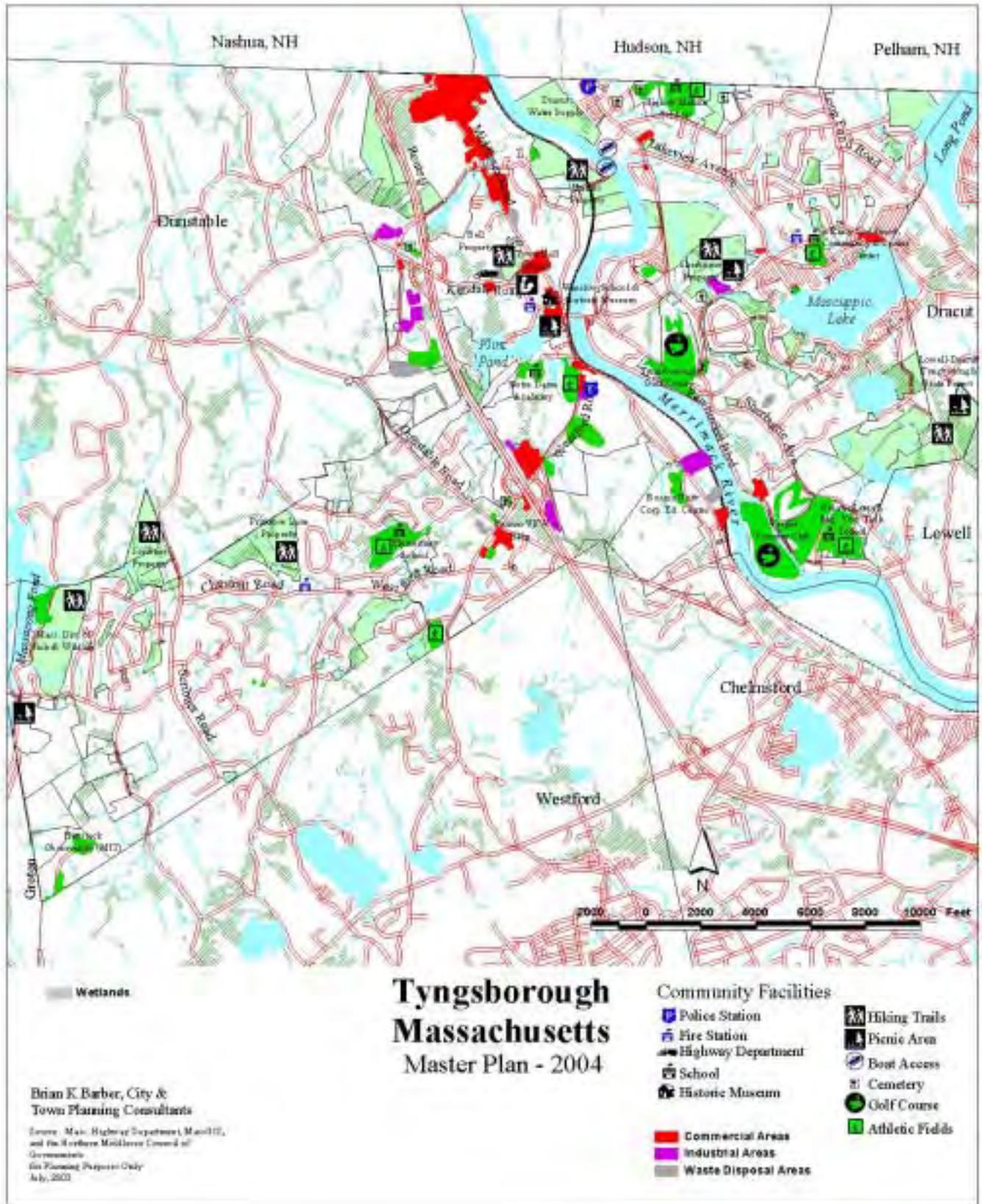
In 2002 a new elementary school was opened and the school system was reconfigured (the seventh and eighth graders were moved from the High School to the Norris Road School which then became the Middle School for grades 6th – 8th. The 3rd-5th graders at the Norris Road School moved to the new elementary school which now houses grades transition, 1, 2, 3, 4, and 5).

9.1.1 The Early Childhood Center (ECC)

The Early Childhood Center (ECC) is located in the old Lakeview School. In 2002, the Center moved into the building with little or no renovations made to the former school. There were approximately 275 children enrolled in the Center in 2003. The Center has experienced steady increases in enrollment. According to the 2003/2004 School Improvement Plan (goal #5): “The needs assessment returned from parents and staff stressed concerns regarding physical plant of the TECC. Areas of concern include heating and ventilation systems, windows, appropriate playground equipment, parking and traffic patterns and hardware to make the building Internet accessible.”

9.1.2 Tyngsborough Elementary School

Tyngsborough Elementary School, located on 205 Westford Road is the newest school constructed in 2002. While the school



Map 9-1

accommodated approximately 838 students in the year 2003, it was built to accommodate 1,080 students. The current building has two wings – one for Transition to Grade 3 students and the other for 4th and 5th graders. Each wing was built so that an addition could be added on at a later date. The common spaces – including the library, cafeteria and gymnasium – were also built to accommodate students from additional classrooms. If needed, the elementary school could be added onto, to accommodate an additional 20 classrooms. At approximately 25 students per classroom, that means the school could hold an additional 500 students.

9.1.3 Tyngsborough Middle School

The Middle School building was originally designed to be a high school and was the town's high school until 1988. It is located at 50 Norris Road and was renovated about 10 years ago to be used as the Norris Road Elementary School. In 2003, grades 3,4, and 5 moved to the building, which then became the town's middle school. Although the building was not renovated for this reconfiguration, it is reportedly in very good shape and well maintained. According to the 2003/2004 School Improvement Plan for the Middle School, their second goal's measurable outcome is: "Improved physical plant, functioning water fountains, clean bathrooms, improved air quality/temperature, intercom system and clocks." The Middle School shares athletic fields with the High School because there is insufficient space for both to have separate fields. Reportedly teams sometimes have to practice in other town fields due to this limitation. Sports funding has been cut and user fees have been implemented.

The school is operating at capacity in terms of the number of students and staff that it can accommodate. The building was designed to accommodate 600 people in total and in 2003 there were approximately 540 students and approximately 50 staff members. It would be difficult to accommodate any large increases in the student population.

9.1.4 Tyngsborough High School

The Tyngsborough High School (grades 9-12) is located on the same site as the Tyngsborough Middle School (grades 5-8) at 50 Norris Road. The building is approximately 12 years old and was built to accommodate 600 students. In the year 2003 there were 597 students with projections for the years 2004 and 2005 reaching 672 and 720 students respectively. There are 6 portable classrooms attached to the building currently and there is no room to accommodate additional portables. There is also a need to upgrade the computer labs (four of

them) and to address the athletic fields including adding a field house complex and new bleachers.

9.1.5 Other Educational Institutions

The Greater Lowell Regional Vocational Technical School is located at 250 Pawtucket Boulevard in Tyngsborough. There were 1, 860 students enrolled in the school (2003), approximately 4% were from Tyngsborough. The percentage of students from Tyngsborough has been steadily increasing over the last 2-3 years as the school has been working closely with the Junior High. Although the Vocational School currently does not have the funds to expand, they have a very large waiting list (approximately 1100 students applied for 500 openings in 200) mostly from Lowell. The Town recreational leagues have access to the Vocational School facilities, some are schools use the Vocational School’s Olympic size swimming pool, and the elderly from Tyngsborough come to the Vocational School for a hair cut and lunch.

There are also two private schools in Tyngsborough: the Academy of Notre Dame Elementary School and the Academy of Notre Dame High School.

A regional educational facility, the Boston University Corporate Education Center is also located in Tyngsborough. There are six institutions of higher learning within a very small distance from Tyngsborough, but located in adjacent towns: Middlesex Community College in Lowell, Northern Essex Community College in Haverhill and Lawrence, Merrimack College in North Andover, UMASS Lowell in Lowell, Daniel Webster College in Nashua and Rivier College, also in Nashua, New Hampshire.

9.1.6 Actual Enrollments

Enrollment trends can be viewed in the chart below (please note that the significant differences in the 2002 enrollment figures are then due to the change in grade configurations following the school building renovations).

Table 9-1: Total Actual Student Enrollment²

Year	Early Childhood Center	Elementary School	Middle School	High School	Out of District	TOTAL ³
1993	237	286	515	607	16	1,670
1994	204	313	543	646	18	1,732
1995	253	315	587	668	20	1,850
1996	236	317	631	723	20	1,935

² Extracted from October 1 Reports prepared by the Tyngsborough School Superintendent’s Office

³ Total includes MEC/PDD students (less than 10 each year) not shown in the previous columns.

1997	243	315	656	761	20	2,003
1998	241	308	682	802	23	2,066
1999	250	309	683	871	18	2,139
2000	255	309	675	917	21	2,185
2001	304	316	649	956	20	2,253
2002	270	825	540	605	20	2,270
2003	267	830	541	595	20	2,263

9.1.7 School Enrollment Projections

Based on 2000 Census data, almost one half (49.4%) of Tyngsborough’s total student population is elementary and middle school children (grades 1 – 8). As discussed in the Housing Chapter, the number of school age children is expected to continue to grow through to the year 2025 at the following rates⁴:

Year	Pre-school Age children (ages 0-4)	School-age children (ages 5-19)
1990	841	1,971
2000	987	2,572
2010	1,008	3,729
2020	1,254	4,111
2025	1,542	4,114

MISER (Massachusetts Institute for Social and Economic Research) at UMASS Amherst creates three levels of population projections: low, mid, and high. The following chart presents their mid-level projections:

Year	Pre-school Age children (ages 0-4)	School-age children (ages 5-19)
1990	841	1,971
2000	769	2,564
2005	966	2,807
2010	1,145	3,006

Therefore, even with moderate growth, the school population is expected to continue growing. The following chart compares the projected student population with actual enrollment figures. Each year since 1998 actual enrollment surpassed the projected numbers. The new 40B housing projects will result in yet more students.

⁴ Based on CTPA/MAPC population projections.

Past Projections⁵ Compared to Actual Growth in Student Population

Year	Projected Total Student Population (PK- 12)	Actual Total Student Population (PK – 12)
1998	2020	2066
1999	2060	2139
2000	2116	2185
2001	2184	2253
2002	2245	2270
2003	2303	2263

There is a need for new enrollment projections to determine whether or not the schools have the capacity to absorb new growth especially taking into account 40 b housing developments (the enrollment projections made in 1998 did not take such development into account).

In the case of large unpredicted growth in the high school student population grade 5 could be moved to the elementary school which was built to accommodate growth and grade 9 could be moved to the middle school.

9.2 Library

The old Littlefield Library was converted to house the Historic Museum. The new library is housed in the new building – completed in 1998 and shared with the Town Hall – located on Bryant Lane. There is no branch library in Tyngsborough.

The library serves approximately 3,000-4,000 visitors per month. Approximately 50% of the Town’s population has a library card. The library is open every day except Sunday. The collection is comprised of approximately 34,000 books and is growing. The library provides a number of programs: for example story hours for children three times a week, lectures for adults once or twice a month, and once a month book club, writer’s group and internet access instruction for the elderly.

The library currently is housed in approximately 10,000 square feet of space with 200 square feet for storage. While the amount of active library space is reportedly adequate, there is a need for approximately 500 square feet for additional storage and 100 square feet for used book storage. The storage space should be dry and insect and rodent proof. The storage space should be located within relatively close distance to the shelve area so that a book cart can travel between the two. The space that was originally planned for storage was used for

⁵ Tyngsborough Feasibility Study, HMFH Architects, Inc. August 4, 1998,

the water meter, sprinkler generator and electrical closet for the building. The only capital needs that are predicted are a need for new carpeting by the end of 2008 due to the high traffic of library users.

The Tyngsborough Public Library has 7 full time employees (FTEs) while the Director reports that a minimum of 10 FTEs is needed. With expected growth in the population, especially along the east side of the river, and 40b developments on the west side, there may be need for additional staff and even sometime in the future for a branch library on the other side of the River. Additional staff is needed now for more programming and outreach.

9.3 Meeting Facilities

The Town of Tyngsborough seems to have a significant amount of meeting facilities with a wide range of capacities. The following is a list of the available facilities.

- Town Hall/library (4 meeting spaces)
- Community Center/Council on Aging (Capacity: 60 people)
- Brinley Terrace Elderly Housing community room (approximate capacity is 30 people)
- Fire Station #1 has a meeting space just inside the door with a banquet table (approximate capacity of 15 people).

There are several meeting facilities available to the community located in the town's schools; these include:

- Cafetorium at the Elementary school (approximate capacity is 500 people)
- Auditorium at the High school (approximate capacity is 300 people)
- Auditorium at the Middle school (approximate capacity is 200 people)
- Gym in the High School (approximate capacity is 800 people)
- Gym in the Middle School (approximate capacity is 600 people)
- Gym in the Elementary School (approximate capacity is 600 people)
- Cafeteria in the High School (approximate capacity is 200)
- Cafeteria in the Middle School (approximate capacity is 200)
- Gym/cafeateria in the Early Childhood Center (approximate capacity is 200 people)

There seems to be enough spaces and capacity; sometimes the coordination of meeting times and meeting spaces can be a problem.

9.4 Town Offices/Town Hall

The new Town Hall was constructed in 1998 and is located in the same building as the library off Winslow Drive. The Town Hall houses the following town offices:

Accountant	Planning and Community
Assessor	Development and
Appeals	Conservation
Health	Planning Board
Building Commission	Veteran's Agent
Town Clerk	Sewer Office
Tax Collector	Assistant Town Administrator
Financial Department/ Treasurer	Selectmen/Town Administrator

Responses received from various town offices revealed that the numerous functions are adequately housed in the new building with the exception of the need for additional storage space and technology, especially computer and software needs; some examples include:

- Tax Collector needs additional storage space (which for permanent storage should be climate controlled).
- Treasurer of the Financial Department needs additional storage space and to keep hardware and software up to date.
- Director of Planning and Community Development reports needed 500 sq. ft. of additional storage space and need to update GIS software.
- Building Department reports a need for 200 sq. ft. of additional storage space as well as space for other departments to access building permit records.

9.5 Teen / Community Center

The Town has recently acquired the former VFW building and discussions are underway regarding converting it to a teen/community/recreation center. In 1982 the Town gave 13 acres and a building for the Veteran's of Foreign Wars with a provision that if they lost or gave up their charter that the building would revert back to the Town. The Veteran's gave up their charter and so the Town has re-acquired the building. It is a two-story, not totally handicap accessible building on septic system and well water with a seasonal deck that most likely will need to be rebuilt. A large percentage of the land is wetlands. Discussions for reuse of the building include creating a teen gathering space for dancing and socializing and other forms of passive recreational activities. The Town would like to hire a Recreation Director to help with the programming. Plans include attracting a local developer to donate time and materials with the hope that the new center will be operating by the year 2004.

9.6 Multi-Service/Senior Center

The multi-service center, used primarily by seniors, is located at 180 Lakeview Avenue. It is approximately 4,600 square feet with a full basement of approximately 2,000 square feet. The elderly use the center from 8:30am – 4 pm daily. While the community at large can schedule the space for use, it rarely does. Town Committees use it once or twice a month for meeting space and the Cub Scouts use the restrooms occasionally when they are using the playing fields.

As mentioned above seniors use the center for a variety of events, bingo being the most popular. The Center provides daily lunches for \$2.00 per person subsidized by the Merrimack Valley Nutrition in Lawrence (state and federally funded). An average of 15 people attend these lunches daily. The Lowell Regional Transit Authority owns a bus with a capacity of 14, run by the Senior Center. The bus operates 30 hours per week and makes a variety of medical, social and shopping trips for seniors who otherwise would be housebound. Often the bus is full to capacity. The maintenance costs of the bus are paid for by a grant that is being reduced while simultaneously the cost of maintaining the bus is increasing as the bus ages. The Center puts out a monthly newsletter with a circulation of approximately 800.

The center also runs a Meals-on-Wheels program. A 19-hour per week employee helps with meals on wheels and is funded by the Town.

The Senior Center has the following staff:

Director	full-time
Meals-on-Wheels	part-time
Secretary	35 hours
Bus driver	40 hours
Senior Aid/Outreach	was part-time, is now cut from budget

The Director of the Center feels that the Senior Aid and Outreach staff member needs to be replaced.

Some of the center's programs are self-supported others are funded through the Friends of the Council on Aging. None of the programs are Town funded.

The Center is comprised primarily of one large room of approximately 1200 square feet that seats approximately 64 persons. During the December holiday party there was a waiting list of 30 people. In addition to the fact that the center could use a larger room, they would like to have additional spaces so that more than one activity could occur simultaneously. A nice outdoor seating area such as a patio is

also desirable. Additionally, there are handicap accessibility code violations, the roofing is worn and needs to be replaced, lighting is inadequate and the finishes are dark and discolored.

The Director of the Senior Center is very supportive of the proposed multi-service center combining the senior center, fire station and police sub-station that satisfactorily addresses the deficiencies of the current facility. This is described below (8.9 Multi-Service/Senior Center/Fire Station/Police Sub-station).

9.7 Police Department

The Police Department is located at 20 Westford Road. There is also a police sub-station located at Red Pines Terrace. The Department has 25 full-time officers and 13 part-time staff and occupies 7000 square feet with an additional 1,000 square feet used for storage. The Police Chief reports that the Department, which is expected to grow over the next ten years, needs 18,000 square feet of active space and 3,000 square feet for storage. Ample parking space is also needed for police cruisers and visitors.

The station also has a lock-up facility with 4 male cells (2 beds/cell), 1 juvenile cell (1 bed), and 1 female cell (2 beds) sight and sound separated from each other.

The Police Department receives approximately 18,000 calls for service each year.

Year	Number of Calls for Service
2000	18,219
2001	18,393
2002	17,892

The majority of the calls are building and liquor establishment security checks and disturbances in residential areas. As is evident in the chart below, Tyngsborough has a relatively low crime rate, especially with regard to “Part 1” (violent, serious) crimes. The rate has remained relatively stable over the last few years.

Table 9-2: Tyngsborough Crime 2000-2002⁶

Type of Crime	2000	2001	2002
Assault	120	162	123
Rape	4	5	1
Homicide	0	1	0
Robberies	0	5	3
Larsen	180	179	207

⁶ from Tyngsborough Police Department

Type of Crime	2000	2001	2002
Drug Violations	54	32	20
Burglaries	47	58	61
Auto Theft	38	22	41

The Police Department has officers who specialize in special services such as Community Policing and Juveniles. The Department also runs programs such as SARA (Sexual Assault Resistance Awareness in the schools) and the Juvenile Diversion Program, a community service opportunity for troubled kids.

The police sub-station located at Red Pines Terrace, an apartment complex with elderly and affordable housing, occupies one unit on the first floor of the elderly housing building. An Elder Affairs Officer who does paper work and phone calls from this location mans it for a couple of hours each day. The space is adequate for its use.

The main capital need of the police department is a new building. The current building was built in 1988 with very limited funding. As a result the building does not meet ADA requirements, needs to be upgraded to meet fire codes and overall poor quality of materials and workmanship has lead to a deterioration of the structure. Additionally, it expected that the department would grow with the Town’s increasing population. Based on the build-out with current zoning, and using the standard of 2.5 officers per 1,000 residents, over the next ten years, the Department expects to need 35 officers. Therefore, a new building will be needed due to capacity constraints.

The Police Department has identified the site of the Winslow School as being a very desirable location for a new public safety building. The criteria suggested by the Chief to evaluate siting a new public safety building include:

- Location: easy access and visibility for town residents.
- Lot size: need for parking for police vehicles as well as visitor parking.
- Cost: town owned land would be ideal

In addition to being town owned land, the Department emphasizes that converting the Winslow School to a Police Department also offers the advantage of injecting vitality into the center and relating to the existing uses such as the fire department, old Town Hall and public islands at Kendall and Middlesex Road, helping to form more of a “center of town” identity.

The Department also strongly supports the development of a combined multi-service/senior center/ fire station/ and police sub-station at the

proposed location at 180 Lakeview Avenue as it would minimize emergency response time on the east side of the river.

9.8 Fire Department

There are three fire stations in Tyngsborough. There are 45 call firefighters and 4 full-time slots through which the 45 fire fighters are rotated. This includes the Fire Chief. When a fire is reported all three stations go to the site.

9.8.1 Fire Station #1

Station #1 is located next to the Old Town Hall on Kendal Road, is the fire department's headquarters. It was totally renovated in 1999-2000. This renovation included adding handicap accessible bathrooms, employee decontamination area, crew sleeping quarters and additional apparatus space. Minor enlargement of the training room was also completed at this time. Under current staffing levels, this station is expected to be adequate for the next 10-15 years. However, the Department hopes in the near future to construct a small 3-bay garage in the rear of the station to house the service vehicles currently parked outside.

9.8.2 Fire Station #2

Station 2 is located on Lakeview Ave. The top priority of the Fire Department is to replace this station. The primary reason for the replacement of Station #2 is to have apparatus bays large enough to fit N.F.P.A. compliant equipment and to have a training room of adequate size to train the 45 members of the department. The station was built in the early 1950s and currently has a number of problems including roof and electrical deficiencies.

9.8.3 Fire Station #3

This station is located on Chestnut Road and was constructed in 1976. It was tied into the municipal water in 1998 and had roof replacement and heating system upgrades in the year 2001. This building is a substation and is expected to be adequate for an additional 20 years.

9.8.4 Proposed New Fire Station

The Fire Chief strongly supports the proposal for the multi-service that combines the senior center/fire station #2 and a police sub-station. The location is central in the district and meets National Fire Protection Association (NFPA) response time recommendations. Additionally it provides the needed training space to accommodate all 45 fire fighters. Currently they meet and train in station #1 where the space is not adequate. The combined multi-service center is described below.

9.9 Multi-Service/Senior Center/ Fire Station/Police Sub-Station

Winter Street Architects completed a feasibility study and plan for the Multi-Service Center in 2002. The proposal recommends locating the three functions in a new building on the site of the existing senior center at 180 Lakeview Avenue. The feasibility study found that “a new combined Multi-service Center, Fire Station and Police Station Annex, would be a good and appropriate response to the current needs of each organization.” Specifically:

- The current Multi Service Center building is inadequate for the current and future needs of the Tyngsborough Seniors.
- The advantages of renovating or adding on to the existing Multi-service building are far outweighed by the expense of correcting the problems with the building so a new building would be a more appropriate option.
- The Fire Department and the Police Department have demonstrated a real need for a viable modern public safety building on this side of the river.
- The programmatic needs of the three organizations overlap in such a way as to make a combined facility mutually advantageous to all.
- The existing site at 180 Lakeview Avenue can be used for the new combined facility. The multiple uses of the site can be coordinated through the strategic location of the building, access points and parking.
- The programmatic needs of the various departments can be met through a plan that carefully controls access points into the building while centrally locating building elements that can be used by more than one organization.
- The times of day during which the institutions would need shared spaces are complementary thus increasing efficiency of space usage.
- The public safety functions adjoining the multi-service center would increase both the perceived as well as the actual security of seniors using the Center.
- The combined multi-service center provides a unique opportunity to allow different groups of people to be mutually supportive to each other in their daily work.

The Plan proposes the following space requirements for an estimated \$3 million:

Table 9-3: Space Requirements for Proposed Multi-Service Center⁷

Function	Space (square feet)
Multi-Service Center	4,512
Fire Station	7,094
Police Station Annex	684
Building Services	480
Shared Spaces (duplicated in totals above)	1,644
Circulation (35% of total)	3,894
BUILDING TOTAL AREA	15,020

In addition to losing the social benefits of locating the three functions together, space efficiency is also lost. The following is a summary of space requirements as determined in the feasibility study for each of the functions separately:

Separate Public Safety Building	9,724
Separate Multi-Service Center	5,946
TOTAL	15,670

The status of the project is pending due to lack of funding.

9.10 Highway Department

The Department is currently located at 89 Kendall Road on an open, flat and dry site with a gravel base.

Tyngborough does not have a Department of Public Works per se. Instead the functions of a traditional DPW are shared across several departments, the bulk of them concentrated in the Highway Department. The Highway Department also shares responsibility for moving fields in the summer with the Recreation Department.

The Highway Department has a total of 11 staff, 10 full-time and 1 part-time employee. The Department occupies a total of 8,000 square feet. In addition to the fact that the department is already crowded and there is no room for growth, there is a need for an additional 10,000 square feet in storage space. Currently there are equipment and materials outside that should be stored inside, but cannot be due to a lack of space. The Department will also need additional equipment in the future including trucks, trucks/sanders and plows, loader, backhoe, and road grader.

⁷ From Multi-Service Center Feasibility Study: Town of Tyngborough by Winter Street Architects, 2002.

There is land for sale adjacent to the Highway Department's current site. The Department needs an additional 3-5 acres in addition to what they currently have and feels that acquiring the adjacent parcel would be ideal.

9.11 Wastewater Disposal

The Sewer Department, located at the Town Hall, has two employees, one full-time and one part-time. The Department currently occupies approximately 50 square feet—space for secretarial desk --with an additional 50 for file storage. One hundred square feet would be desirable with an additional 1,000 for storage. Also needed are a garage for a truck, work area for repairing pumps, compressors, controls, etc.

The Sewer Department reportedly needs a pick-up truck, safety equipment and shop equipment in order to maintain the existing sewer system.

The Sewer Department also reports a need for more staff. The system operates 24 hours a day, 7 days a week and the department needs to be able to respond to potential problems around the clock. Additionally, some of the pump stations require “confined space entry” which means that at least 2 people need to be at the site. Current plans are that a full-time assistant will be hired to support the Superintendent. They would like a second, smaller truck available for this position. This would allow the department to repair their own equipment and therefore, rely less on outside vendors.

Approximately one-third of Tyngsborough's residents are serviced by a municipal sewer system. The remaining two-thirds operate on-site Title 5 (septic) systems. The following describes the two ways the town disposes of wastewater.

9.12 Municipal Sewer System

Municipal sewers were first developed in Tyngsborough in the 1970s and currently serve approximately one third of Tyngsborough residents. Sewer lines are shown on Map 9-2. Service is provided in three sewage collection areas, each governed by a separate inter-municipal agreement (IMA) focused around Lake Mascuppic, Dunstable Road, and the southern end of Pawtucket Boulevard. The Town does not have its own wastewater treatment facility and contracts with the towns of Dracut, Chelmsford and Lowell for conveyance, treatment and disposal of wastewater, all of which is ultimately treated at the Lowell Regional Wastewater Utility in return for sewer use charges. Tyngsborough's IMAs with the Towns of Dracut and Chelmsford establish a capacity of 1.60 million gallons per

day (MGD) and 0.35 MGD, respectively. Currently, Tyngsborough utilizes only half of these capacities. Tyngsborough's IMA with Lowell, which provides a capacity of 0.02 MSD, does not allow for the current sewer flow which is nearly 0.04 MSD at present, therefore modification to the agreement with Lowell are needed to provide additional capacity for current and future needs.

Table 9-4: Summary of Inter-municipal Agreements⁸

Inter-municipal Agreement	Year Executed	Average Daily Flow (gallons per day)
Dracut/Tyngsborough	1977	1,600,000
Chelmsford/Tyngsborough	1994	350,000
Lowell/Tyngsborough	1995	20,000

The entire wastewater system consists of approximately 115,600 linear feet (21.9 miles) of pipelines, the majority of which is located around Lake Mascuppic on the east side of the Merrimack River and along Dunstable Road on the west side of Town. While the system extends into these areas, there are a number of connections available that are unused by property owners who have chosen to continue to utilize their on-site wastewater systems. Very few of the Town's individual sewer connections are metered, so the Sewer Commission utilizes a fixed fee sewer charge.

9.13 Septic Systems

The remaining two-thirds of Tyngsborough's residents utilize conventional on-site wastewater management (Title 5) systems. Non-sewered areas lie primarily in the southwestern part of Town between Pawtucket Boulevard and Althea Lake, the central part of Town between Route 3 and the Merrimack River, and the western parts of Town past Dunstable Road. The Tyngsborough Board of Health (BOH) is the local entity that enforces the state Title 5 regulation of on-site septic systems. The Town requires that subsurface wastewater disposal systems be setback at least 100 feet from wetlands and 200 feet from wells.

The Town undertook a wastewater management planning effort in 1997 that resulted in the recommendation of an eight-phased sewerage plan. Phase I Sewers and portions of Phases 2 and 3 were approved for immediate construction. Phase I of the plan documents existing environmental conditions, evaluates current and future water demands, drainage conditions and current and future wastewater disposal needs.

⁸ from Comprehensive Water Resources Management Plan/Environmental Impact Report. Phase I: Needs and Growth Management. Town of Tyngsborough. Submitted by: SEA Consultants. March 2003.

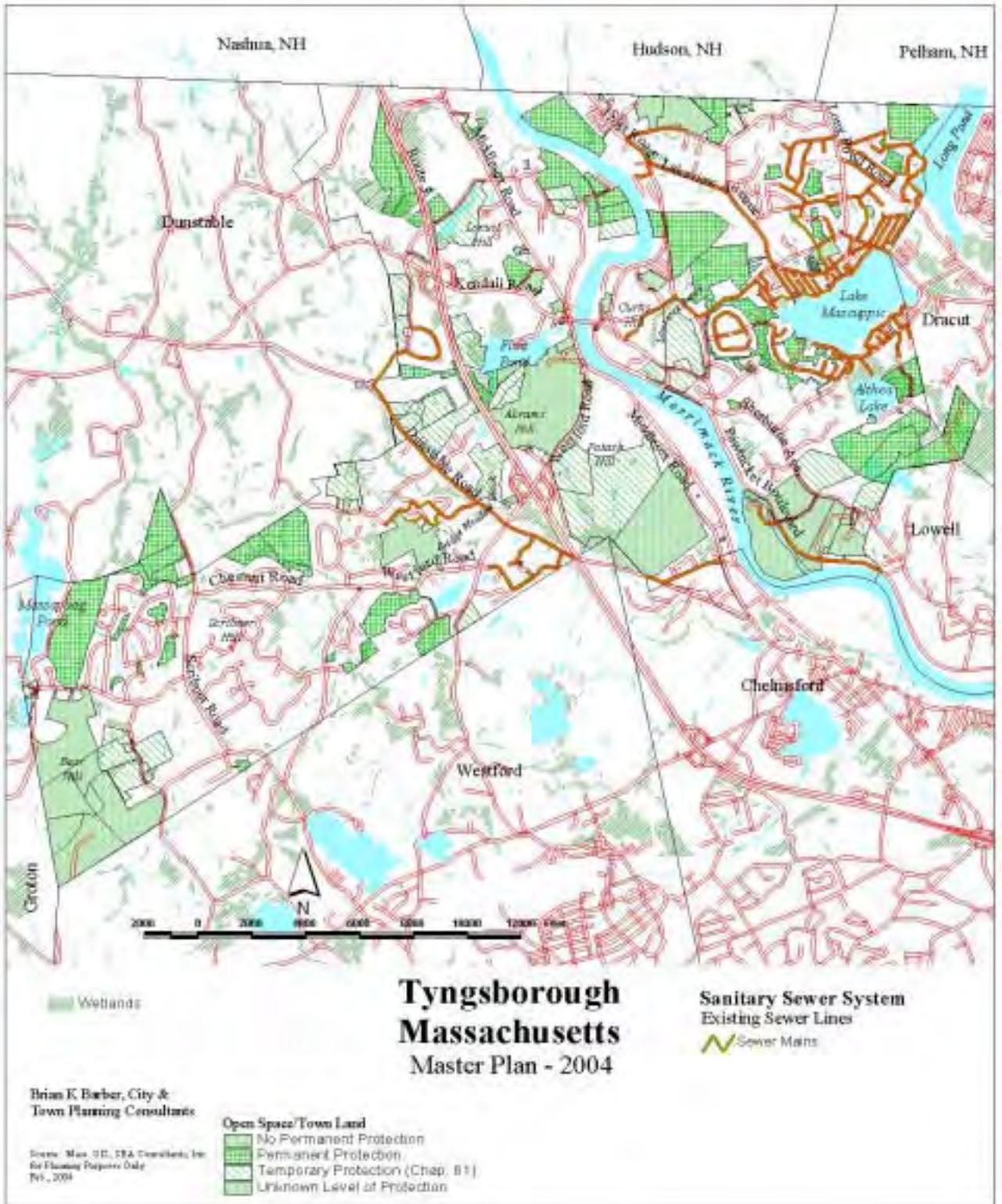
The project team conducted a Needs Analysis that examined the conditions in 23 Study Areas in the non-sewered locations in Town. The study determined that two areas – the Merrimack East Study Area and the Flint Pond Study Area possess conditions whereby existing septic systems pose a “significant contamination risk to nearby resources,” and recommended that the town pursue alternative methods of wastewater treatment and disposal other than septic systems. Thirteen other areas were determined to have characteristics that “encourage remote and localized system malfunctions and a moderate degree of adverse impact.” It was recommended that these areas be considered for alternative means of wastewater management as well. The Plan suggests exploring a variety of alternatives, especially for the Needs areas, including: near-site or shared septic systems, package treatment plants, extension of town sewers, and measures to successfully implement on-site systems including the use of I/A technologies and flow and waste reduction.

Phase II of the Plan, for which a draft scope of work has been prepared, will evaluate other potential management approaches for the fifteen identified “need areas.” Northern Middlesex Road is a top priority area for sewerage. The sewer extends now only to the shopping plaza next to the Pheasant Lane Mall. Further economic development in this area would be aided by extension of the sewer down Middlesex Road. Some cost sharing with developers to accomplish this should be pursued by the Town.

9.14 Water Supply and Distribution

Tyngsborough is located within the Lower Merrimack River Watershed and contains significant water resources, including the Merrimack River and a variety of lakes, ponds and streams. The Town has a total of six different municipal water systems or service zones, supplied/operated by the Tyngsborough Water District (TWD), Dracut Water Supply District (DWSD) and North Chelmsford Water District (NCWD). Non-point source pollution, primarily storm-water runoff contaminated by sedimentation and fertilizers, is the greatest cause for concern.

The Tyngsborough Water District was formed in 1983 and currently serves approximately 30% of Tyngsborough’s residents. It was created by the EPA when the Charles George landfill polluted the wells – a major source of drinking water for the town -- at the Canongate Industrial area (19??). The Charles George landfill is now an EPA Superfund site due to the toxic waste. The EPA ran an above ground water line from the Lowell water system out of Chelmsford.



Map 9-2

They placed a big tank at Flynn's Corner with pumps and eventually buried the lines.

Seventy percent of the community relies upon local aquifers for drinking water. Extensive groundwater resources are located in close proximity to the Merrimack River, Bridge Meadow Brook, Flint Pond and Lake Mascuppic.

The District's distribution system contains over 28 miles of water mains ranging in size from 6-inch to 16-inch. Besides the Pawtucket Boulevard Booster Pumping Station, the other sources of supply for the District including the Birchmont Street Booster Pumping Station (supplied by DWSD), and the Pennichuck Metering Facility (expected to be on-line December, 2002).

The Greater Lowell Wastewater Treatment Plant has a capacity of 32 MG/D, and that not all towns will be able to extend their systems indefinitely, despite agreements signed between some towns and the Lowell facility. Moreover, the 4" water line providing water to West Tyngsborough has a limited capacity and cannot meet all needs in the future.

A Water System Master Plan was completed in 1993 by Dufresne-Henry Consultants, revised in 1996 and updated in 2003. As of March 2004 this plan has not been fully reviewed and approved. According to the Plan, the water supply available to the TWD through the communities of Lowell and Dracut appears to adequately meet future demand because water demand is not expected to be commensurate with the growth in the Town population as public water service is not planned for the western portion of Town where most of the future development is anticipated. Additionally, the TWD is discussing an extension of the Pennichuck Water Works Commission system from Nashua, NH into Tyngsborough's Middlesex Road area, thus meeting any increase in the demand for water in this part of town.

The Water District has several initiatives to manage the increase in seasonal demand for water including a Water Connection Application process for any new industrial/commercial or multi-unit residential development, Underground Lawn Sprinkler Regulations, and Outdoor Water Use Restrictions. There is a possibility of Tyngsborough getting a representative on the Dracut Water District. This would help in getting Tyngsborough water priorities met. The limited water that Tyngsborough now gets from the Dracut District will restrict water dependent uses, such as car washes or industry that uses process water, in Tyngsborough

Two important goals identified by the Plan are the protection of water quality and promotion of groundwater recharge. Also recommended was the construction of storm water mitigation facilities for which candidate sites were identified.

The following chart summarizes water demand from 1997-2001.

Table 9-5: Past Water Usage⁹

Month/Year	1997	1998	1999	2000	2001
Total (million gallons)	55.90	59.02	81.55	64.05	79.62
Average day demand (GPD)	153,151	161,710	223,412	175,477	218,147
Max Day Demand (GPD)	382,300	489,000	620,920	360,750	609,750
Total Services (units)	523	516	626	686	713
Max Day/Average Day	2.50	3.02	2.78	2.06	2.80
Gallons/Unit/Day	293	317	357	286	344
Unaccounted for Water	2.13%	9.40%	4%	12.5%	9%

9.14.1 Current and Future Need

From 1997 to 2001, per unit consumption of water ranged from a low of 286 gpupd in 2000 to a high of 357 gpupd in 1999, with an average consumption of 319 gpupd. The Master Plan projects a significant future increase in the demand especially because of the three new 40b projects underway. Assuming Chap. 40b development at 144 units (at Merrimack Landing), 200 units (at Maple Ridge) and 200 units (at Wynbrook), the average day demand is expected to increase from 0.25 MGD in 2002 to 0.57 MGD in 2011. The maximum day demand is expected to increase from 0.66 MGD in 2002 to 1.52 MGD in 2011.

Table 9-6: Water Demand Projections with Expected 40B Housing Development¹⁰

Year	Number of Services	Average Day Demand (MGD)	Maximum Day Demand (MGD)
2002	775	0.25	0.66
2003	999	0.32	0.85
2004	1,323	0.42	1.13
2005	1,475	0.47	1.26
2006	1,527	0.49	1.30
2007	1,579	0.50	1.35
2008	1,631	0.52	1.39

⁹ Report on Water System Master Plan Update. Submitted by : Dufresne – Henry. November 2002.. Chpt. 2 p.2-2

¹⁰ Report on Water System Master Plan Update. Submitted by Dufresne – Henry. November 2002. Chapter 2. P.2-7.

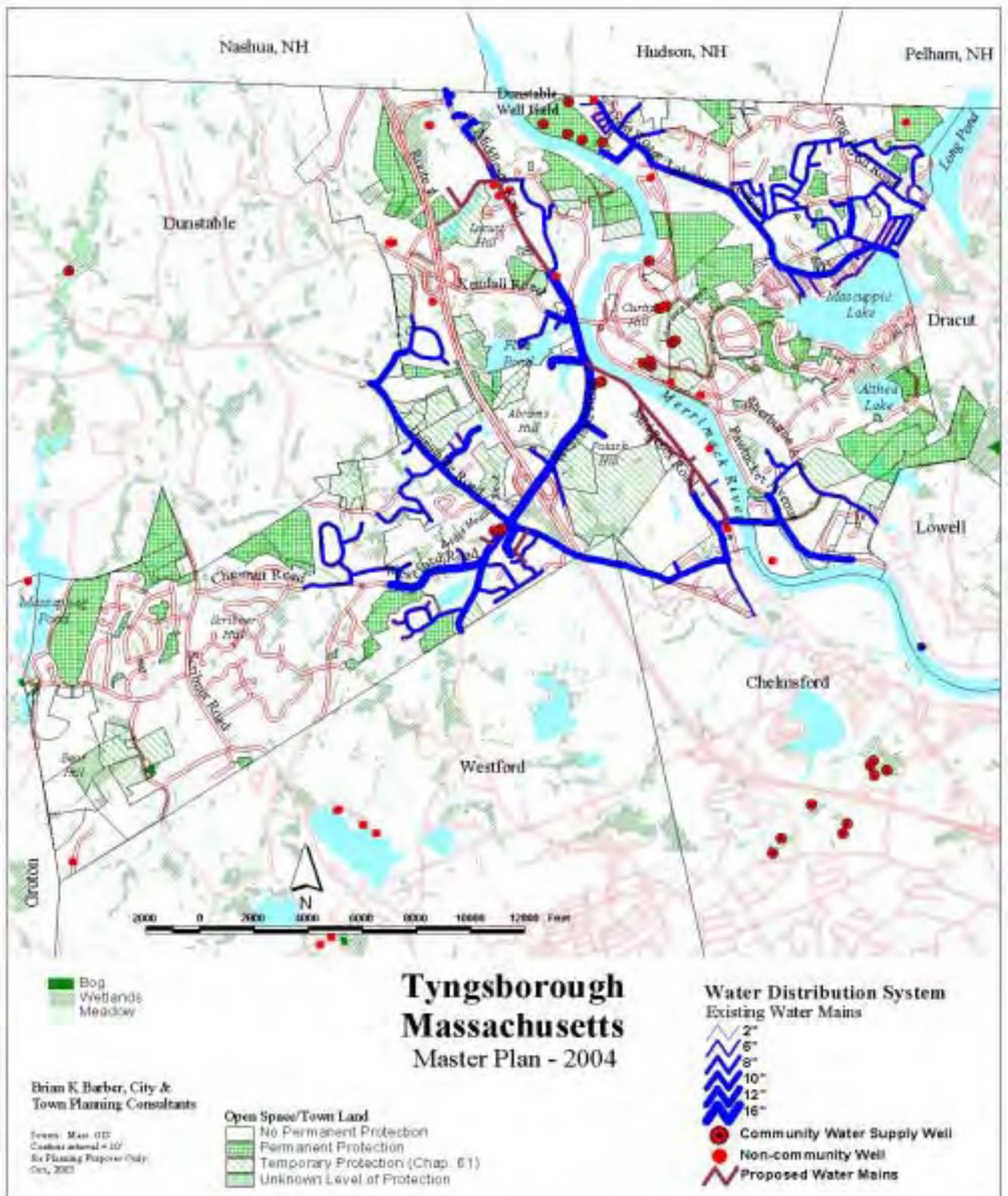
Year	Number of Services	Average Day Demand (MGD)	Maximum Day Demand (MGD)
2009	1,683	0.54	1.43
2010	1,735	0.55	1.48
2011	1,787	0.57	1.52

In order to provide adequate water service to the 40b housing developments projects without adversely impacting the rest of the distribution system, the Water District Master Plan recommends that a new water storage tank be constructed on Locust Avenue and that several miles of new 16-inch and 12-inch water mains be installed on Middlesex Road. The Water District's storage capacity will also be adversely impacted by such an increase in demand for service such that the storage deficit will increase to 1.42 MG in 2011 (the storage deficit is expected to double with the increased demand created by the 40b developments). The Master Plan recommends constructing a new storage tank with a minimum usable storage capacity of 1.0 MG and modifications should be considered to the Flints Corner tank to provide more storage.

The Water Master Plan Update makes the following conclusions and recommendations:

- The Water District has adequate auxiliary power at its only pumping facility. However, supply demand flows cannot be met during a prolonged power failure for required fire flow and maximum day demands.
- The District is currently completing an upgrade of the Pawtucket Boulevard Booster Pumping Station and construction of the Pennichuck Metering Facility. With these two improvements, there are no other recommended improvements for supply facilities.
- A new 1.0 MG elevated storage tank should be constructed on Locust Avenue. Several water main improvements are also needed along Locust Avenue and Middlesex Road North along with the installation of a booster pumping station at the Pennichuck Metering Facility.
- Additional water main improvements are recommended along Middlesex Road and Old Tyngsborough Road (Middlesex Road South) to connect the proposed Merrimac Landing and Maple Ridge Developments to the distribution system.
- The District should consider repainting the Flint's Corner Tank within the next five years and also consider modifying the tank after the new tank is constructed.

The District recently completed a study of their water rates and connection fees. A five-rate schedule was recommended to



Map 9-3

encourage water conservation. A new system fee schedule was implemented in the spring of 2002.

- The District must complete a Vulnerability Assessment as part of the recently enacted Bioterrorism Act.

9.15 Gas and Electricity

Mass Electric has a large feeder that crosses through the town of Tyngsborough. Gas is provided by Key Span out of Lowell. There is a large feeder gas pipe along Chestnut Road.

9.16 Telephone and Cable TV

Telephone service is provided by Verizon. ComCast Broadband currently provides cable television service in Tyngsborough.

DSL availability: The town is being rewired for digital cable. Projected date of completion is the summer of 2003.

9.17 Community Services and Facilities Observations

Historic buildings with potential for reuse:

- Winslow School
- Old Town Hall
- Littlefield Library
- Sherburne House
- Fire Station #2

Other town-owned buildings and parcels

- East side of the bridge
- Site of Existing senior center
- VFW building

Town Needs

- Space for Recreation Department
- Additional storage for Town Hall and Library
- Senior center
- Teen center
- New police station in future
- Exhibit space for historic artifacts
- Community gathering space
- Increased vitality in center

9.18 Decisions and Potential Opportunities

Old Town Hall. The building has been unoccupied since the new Town Hall was opened in 1998. The Historical Commission has been involved in renovating the building, but efforts have been limited by a lack of funding. The Community Preservation Committee has submitted an application to list the building on the National Registry

of Historic Register and has voted \$44,000 to the project. Once the building is registered other funding sources may be available. Priorities for renovation include repair of the heating system and windows. The funds can also be used as a matching fund when applying for restoration grants. The CPC will periodically review the progress of the project.

Thoughts regarding reuses include a community theatre and gathering space and possibly housing the Tyngsborough/Dunstable Historic Society Museum (currently housed in the Littlefield Library). Under this scenario the Littlefield Library, with appropriate design controls, could be used as municipal office space or leased out as office space or even as an art gallery.

Interested Parties:

- Historic Commission for Historic Preservation
- Community Preservation Committee
- Tyngsborough/Dunstable Historic Society

Sherburne House. This house is located off Colburn Road on an 85-acre parcel. It could be used to house historic artifacts for the Tyngsborough Historic Commission and for environmental education.

Old Winslow School. The School is currently vacant and is now owned by the Town (no longer the School Department). The building is undergoing an environmental assessment to determine the degree of lead, asbestos, and ADA compliance issues necessary to be dealt with for its reuse. Ideas regarding its reuse include converting the building to Art Studios or offering the building for lease for office and/or retail space. There is space for a municipal parking lot behind. The Police Department has expressed interest in the building to use as their headquarters but they would most likely need an addition to the building. The Town is considering applying for National Registry of Historic Buildings registration, as the Winslow School building is one of the oldest buildings in the Town.

If combined senior center/ fire station/police sub-station is constructed, **Fire Station #2** will be available for reuse.

9.19 Recommendations

Schools

- It is recommended that new enrollment projections be undertaken for the Tyngsborough school system so that the more accurately reflect growth trends and new housing developments. By forecasting the population to be served, the town can better plan

for capital improvements, teaching workforce needs and other budgeting needs.

- Explore additional opportunities for community usage of school facilities (buildings and grounds).
- Develop additional after school activities.

Highway Department

Consider acquiring additional land for the Highway Department, specifically the property adjacent to the current Highway Department site.

Senior Center

Support the development of a new senior center.

Teen Center

Support the development of a teen center

Water and Sewage Systems

- Future development should take into consideration the findings of the Comprehensive Water Resources Management Plan with regard to locating housing in areas where septic systems pose a risk to the public health of residents. Either alternative modes of wastewater disposal should be explored and/or housing should be located in areas identified as being not at risk.
- Support the implementation of the Water System Master Plan recommendations.
- Phase II of the Water Resources Plan should be completed so that the Town has a comprehensive plan outlining the most effective combination of localized and centralized wastewater treatment solutions that are most appropriate to the Town's current and future development patterns.
- Encourage residents and business owners who are fronted by sewer and have not yet tied in, to do so.
- Implement the Stormwater Management Plan.
- Support extension of sewer lines along Middlesex Road. State funding cannot be used to do this due to recent changes in the state funding priorities (focus on groundwater recharge as opposed to economic development).
- Once the town reaches its capacity of wastewater treatment at the Lowell plant (new housing developments will take up a significant portion of the town's allocated capacity, there may be a need for package treatment plants in select locations in the future.

Police Department

Explore need for new police department.

Reuse of Town-owned Buildings

Reuse historic buildings in town center in such a way so as to meet town needs but also add to the vitality of the center.

Winslow School: Explore the possibilities for reuse.

Old Town Hall: Secure funding and conduct a reuse study for the old Town Hall.

VFW Building: Determine most appropriate use.

Council on Aging building and site: Determine most appropriate use.

Littlefield Library

Sherburne House

Fire Station #2

Storage for Municipal offices

- Explore possibilities for additional storage space for the Town Hall and Library.

10 LAND USE IN TYNGSBOROUGH

Tyngsborough is still predominately open with active agriculture. Table 10-1 shows that 55% of the town is in open uses. Residential uses account for 28% of land uses. Commercial and industrial uses account for only about 3% of the town's area. Agriculture, pasture and orchards account for about 4% of the town's land uses.

Table 10-1: Land Use In Tyngsborough 2001

Land Use	Acres	Percent
Cropland	332.1	2.9%
Pasture	72.2	0.6%
Forest	5440.0	47.0%
Open Wetlands	347.3	3.0%
Gravel Pits, etc.	45.9	0.4%
Open Land	288.4	2.5%
Participation Recreation	302.1	2.6%
Water-based Recreation	2.3	0.0%
Multi-family Residential	81.6	0.7%
Residential <1/4 acre	34.0	0.3%
Residential 1/4 to 1/2 acre	415.8	3.6%
Residential >1/2 acre	2732.3	23.6%
Commercial	230.0	2.0%
Industrial	59.7	0.5%
Urban Open Land	159.6	1.4%
Transportation	224.7	1.9%
Waste Disposal	35.5	0.3%
Water	759.6	6.6%
Orchard, Nursery, etc.	13.1	0.1%
Total	11576.0	100.0%

Source: NMCOG with some updates.

Water, while accounting for about 7% of Tyngsborough's surface area is an important organizing feature, with housing clustering around several of the ponds and lakes in town. Some of the town's early development occurred around Lake Mascuppic, Long Pond, Flint Pond and along the Merrimack River, especially in the vicinity of the Town Center where there is a river crossing. Extensive residential development has only occurred relatively recently. In 1960 Tyngsborough's population was only 3,022. The town did not grow substantially until 1980 as indicated by ten-year population figures.

Year	1960	1970	1980	1990	2000
Total Population	3,022	4,204	5,683	8,642	11,081

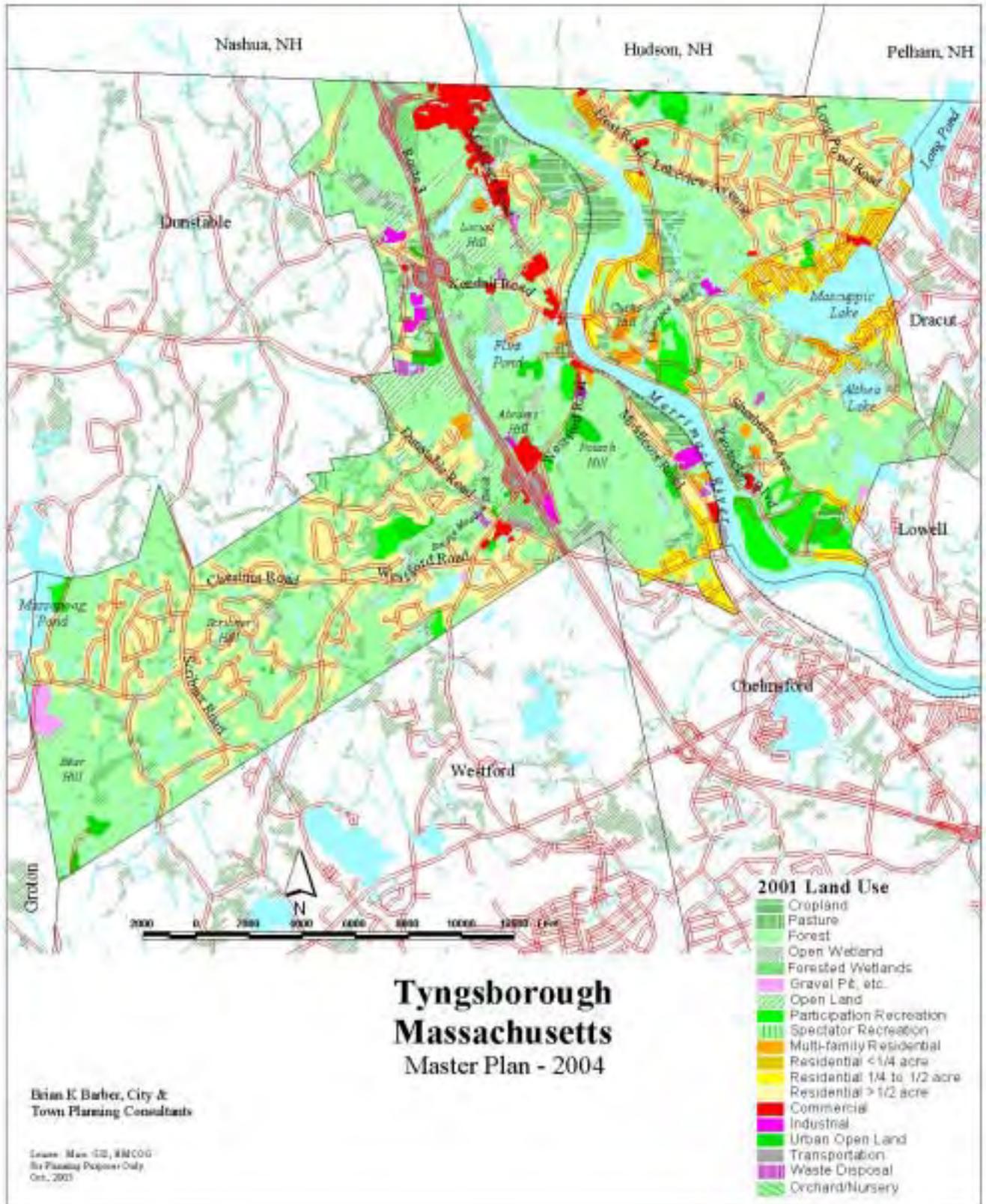
10.1 Distribution and Density of Land Uses

Map 10-1 shows the distribution of land uses. Map 2-2 in the Housing Chapter (Chapter 2) shows residential densities. 84% of residential development is on lots over ½ acre in size. Tyngsborough's residential zoning has 3 types of districts, R1 requiring at least 65,000 sq. ft. per lot, R2, requiring at least 20,000 sq. ft. (less than ½ acre) lots, and R3, a district permitting multi-family residences, requiring also a minimum lot size of 20,000 sq. ft. Zoning is shown on Map 10-2 (and on Map 6-3 in Chapter 6, Economic Development). The R2 district is located around Lake Mascuppic and recognizes the relatively dense historical development there. R3 is located in three areas designated for multi-family development, one on the east side of the Merrimack River Bridge along both sides of Sherburne Avenue, one bordering the west side of the river just east of Middlesex Road and north of Bridgeview Circle, and one between Swan Road and the Westford town line. The map on the page following the land use map shows zoning districts.

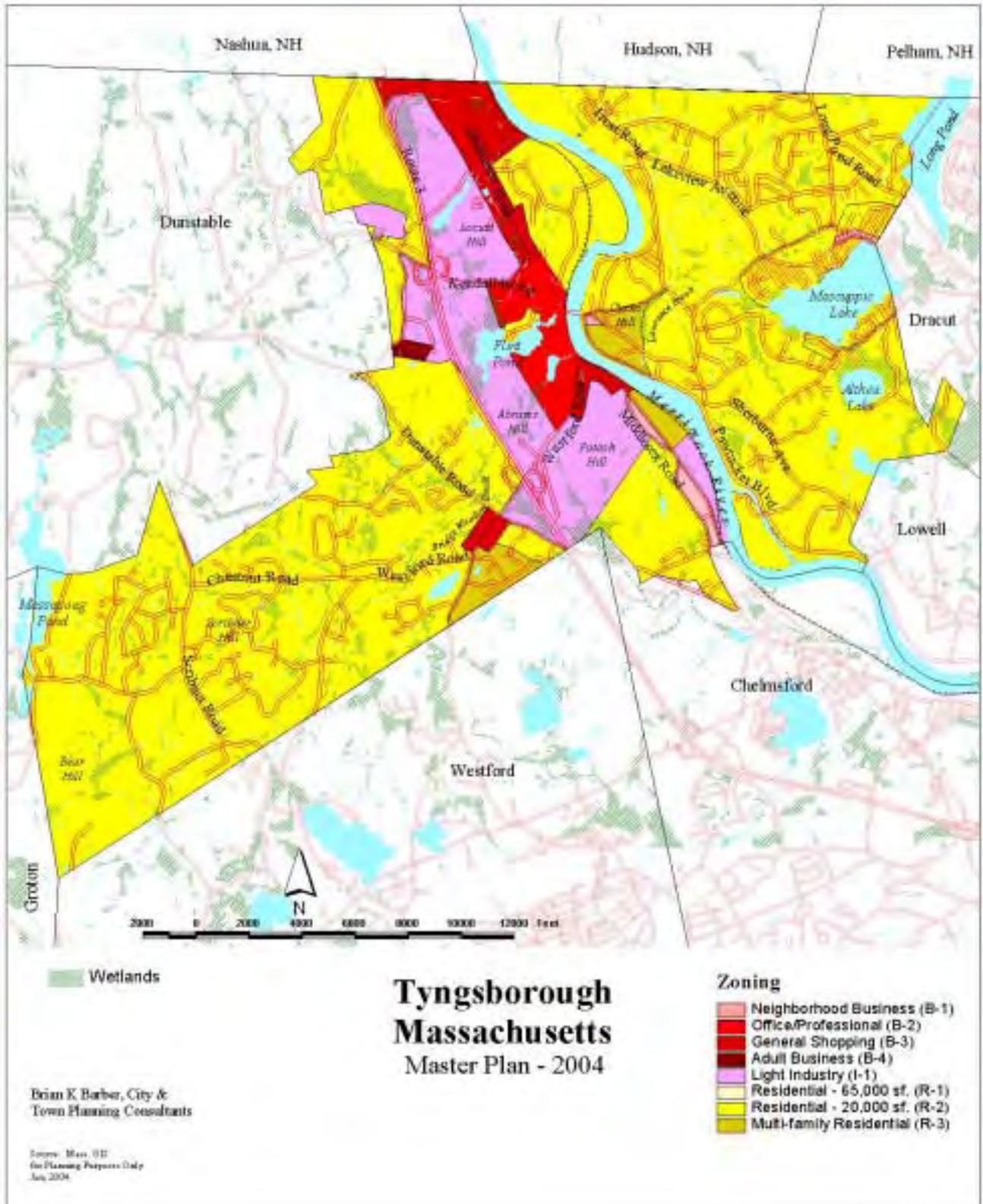
Most of Tyngsborough is zoned R1, in keeping with the need for larger lots to accommodate on-site septic systems for wastewater disposal. The second most extensive zoning district is I-1 (light industry). Almost all the land between Route 3 and Middlesex Road is zoned I-1. It requires a minimum lot size of 80,000 sq. ft. The zoning bylaw text identifies an I-2 (heavy industry) district with a minimum lot size of 120,000 sq. ft., but the zoning map does not designate any area for it. It is recommended that it be established just east of Route 2 and north of Locust Road, where sewers are more likely to be available. As Table 9-1 shows only 60 acres of land in 1999 were actually used for industry.

There is a considerable amount of institutional land in Tyngsborough. Institutions located in town are the Greater Lowell Regional Technical High School, Notre Dame Academy, the Boston University Corporate Education Center and the MIT Haystack Observatory, in addition to Tyngsborough Public Schools. Some of this land is publicly owned and unlikely to be sold. However, the private schools with extensive lands, such as Notre Dame Academy and Boston University could sell land. The Notre Dame Academy land is zoned I-1, while the Boston University land is zoned R-1, as is the MIT land and the Greater Lowell Regional Technical High School land.

It is important to assure that institutional lands (and recreational lands such as golf courses) are properly zoned. Golf courses, like private educational land could be sold off. There are two private golf courses



Map 10-1



Map 10-2

in Tyngsborough, currently zoned R-1. It is recommended that Tyngsborough establish an institutional/recreational zoning district category that requires town review of any proposals for reuse of such lands after their sale. Provisions of the zoning would also require town review of any development proposals the institutions or recreational facility owners might have to develop their own land. It may be desirable for some of the land to be developed under cluster design principles to preserve some open space and increase densities. Clustering would also provide an opportunity to dispose of waster water with small package treatment plants, rather than septic systems. Institutional and golf course lands are shown on Map 5-1 in the Chapter on Open Space and Recreation. Clustering is permitted under current zoning in Section 4.14.00 Special Permit – Open Space Residential Development. A minimum of 9 acres is required to use this provision. Density must not exceed the number of units that are permitted by the underlying R-1 zoning (2/3 of a dwelling unit per acre, or 2 units for every 3 acres). Town Meeting approval of an Open Space Residential Plan is required prior to the granting of a special permit.

No such applications have been made to the town, perhaps because of the necessity of obtaining Town Meeting approval and the fact that there is no incentive to use the provision. If a small density bonus of 17% were given, and the special permit granting authority were exercised by the Planning Board, as it is in many Massachusetts towns, it is possible that residential cluster development would be used. There is certainly enough land zoned R-1 in town to provide a wide choice of locations. A 17% density bonus would result in 7 dwelling units on a 9 acres development rather than 6, which is possible now.

10.2 Business Land Use and Zoning

Only 2% of Tyngsborough's area is occupied by businesses. These include retail, office and service businesses. Most businesses are located on Middlesex Road, with a concentration of them just south of the Pheasant Run Mall. There are very few businesses on the east side of the Merrimack River. Middlesex Road is beginning to have the appearance of strip businesses with frequent curb cuts and signing that competes for driver's attention. The photo below illustrates this. There are two newer shopping plazas just west of Route 3 on Westford Road to serve the growing area in West Tyngsborough. There are a growing number of restaurants in town that primarily serve an out-of-town clientele. These are located on Middlesex Road and are spreading south from the Pheasant Mall area.

There are four types of business zones in Tyngsborough, B-1 (Neighborhood) that provides for small neighborhood oriented

businesses, B-2 (Office/Professional) which covers the Town Center and provides for smaller businesses characteristic of the Town Center,



Strip development on North Middlesex Road

B-3 (General Shopping) that provides for larger business areas along arterial roadways, and B-4 (Adult) that provides for adult entertainment businesses. The B-4 zone is located in a remote area on Cummings Road along the Dunstable Town Line. B-1 and B-2 zones require 20,000 sq. ft. minimum lots, while B-3 and B4 zones require 80,000 sq. ft. minimum lots. B-1 zones are located along the north side of Lakeview Avenue between the Lowell city line and Blossom Street, at the east end of the Merrimack River Bridge, and on the west side of Middlesex Road between it and Old Tyngsborough and Tyngsborough Roads. All of the B-1 zones are small and intended for neighborhood-oriented businesses.

The B-2 zone, which encompasses the Town Center is intended for office and professional uses, although retail uses of less than 5,000 sq. ft. of gross floor area are permitted. The B-3 zones which permit larger businesses and are designated for general shopping, are located along Middlesex Road north of the Town Center all the up to the Nashua city line, and along Westford Road just south of the Town Center, and west of Route 3 between Dunstable Road and Swan Road. Most of the town's commercial development is in B-3 zones. The B-4 adult zone is small and as mentioned, located in a remote area along the Dunstable town line.

Tyngsborough has three special overlay districts, one for wetlands, one for flood plain protection and one for telecommunications. The telecommunications districts are small areas of individual lots where telecommunications towers have been permitted. There are 5 of these located along the Route 3 corridor and one on the MIT Haystack Observatory property in West Tyngsborough. They are allowed only with a special permit from the Planning Board.

10.3 Tyngsborough’s Neighborhoods

In the broadest sense there are two sections of Tyngsborough, east and west of the Merrimack River. However, there are neighborhood place names associated with different parts of the town. These are shown on the map on the next page. Some of these are older historic or traditional names, some are names of roads that traverse the area, some are geographic feature place names, and some are names of subdivisions or developments that have been created relatively recently. The boundaries of each of the areas are shown with their names on Map 10-3. They are listed below:

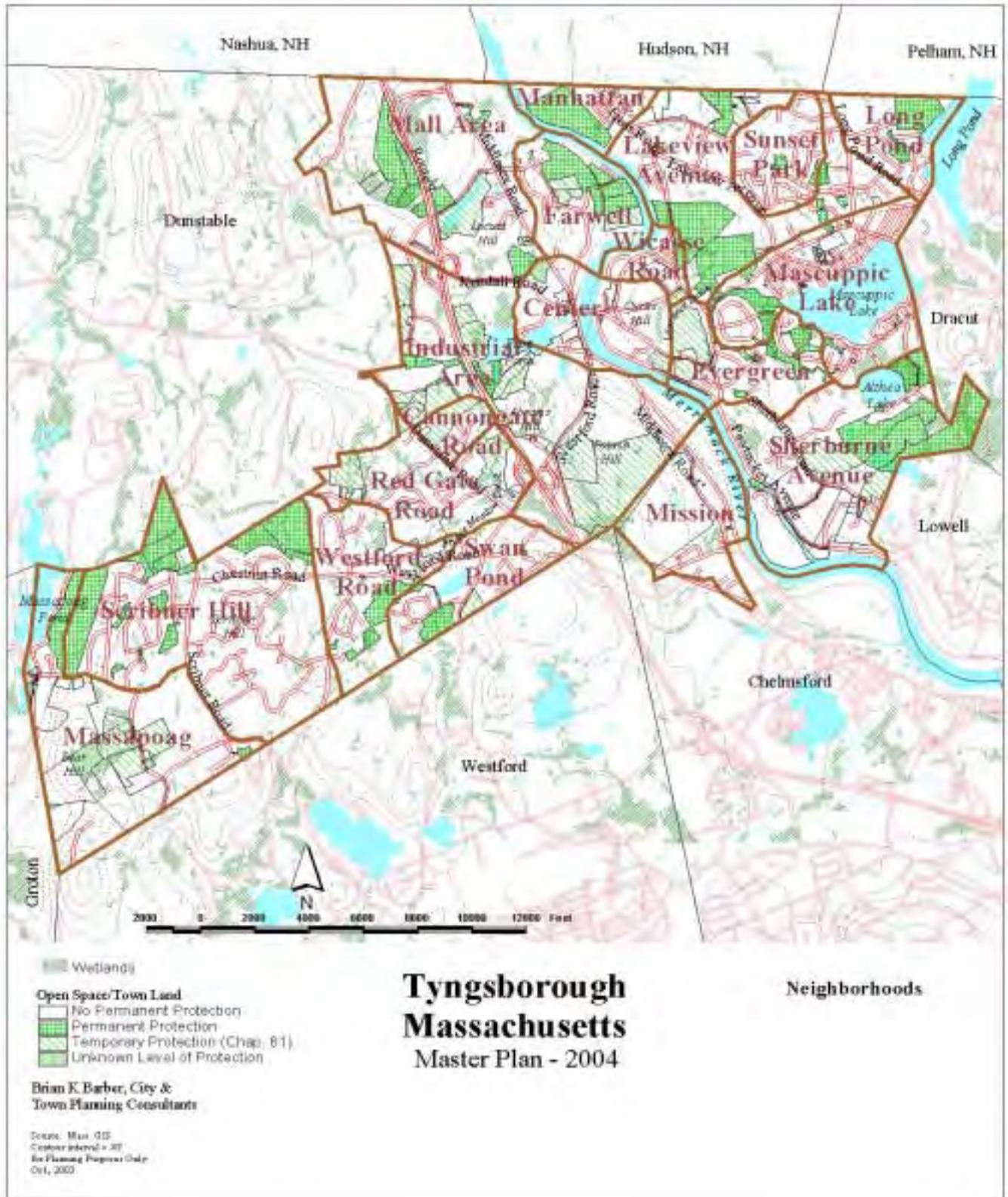
The Center	Wicasse Road	Lake Mascuppic	Long Pond
Evergreen	Sunset Park	Sherburne Avenue	Manhattan
Lakeview Avenue	The Mall Area	Farwell	Mission
Industrial Area	Red Gate Road	Cannongate Road	Swan Pond
Westford Road	Scribner Hill		

10.4 Planning Treatment for each Neighborhood

Each of Tyngsborough’s neighborhoods requires somewhat different treatments in terms of improvements and features desirable for future development or maintenance of existing qualities and characteristics. A list of treatments for each neighborhood is shown on Table 10-2.

Table 10-2: Neighborhood Planning Treatment

Neighborhood	Treatment
The Center	Preservation of historic assets, very selective and well-reviewed changes in buildings and uses in the Center along Kendall and Middlesex Roads. Relocation of Pawtucket Boulevard on the east side of the Merrimack River Bridge. Creation of a mixed use overlay zone to allow for commercial and more multi-family residential development along relocated Pawtucket Boulevard. Intersection improvements on both sides of the Bridge, with elimination of Winslow Drive to connect the waterfall area with Winslow School and Littlefield Library. Creation of walking areas connecting to trails in the area on both sides of the river.
Wicasse Road	Elimination of the Tyngsborough Campground and conversion to a riverfront park with boat access to the river. Extension of trails along the river and through the open property north of Coburn Road. Sidewalks. There will be continuing redevelopment of housing in this neighborhood.



Map 10-3

Neighborhood	Treatment
Lake Mascuppic	Selective replacement or modernization of summer homes to year-round homes. Creation of trails along the southwest edge of the lake. Implement recommendations of Lake Mascuppic Study Committee for Weed Control. Sidewalks.
Long Pond	Selective infill of new homes on vacant lots. Trail development and lake access at old Girl Scout Camp. Preparation of a plan and management program for the property when the Town acquires it. Sidewalks. Weed control in conjunction with adjacent towns.
Evergreen	Creation of trails in open areas. Zoning provisions to better assure that the Tyngsborough Country Club golf course will be developed as cluster homes if it is ever sold or developed.
Sunset Park	Repair of existing sidewalks. Sewer area to address failing septic systems.
Sherburne Avenue	Maintenance of existing open character of the area with trail connections to the Lowell-Dracut-Tyngsborough State Forest. Zoning provisions to better assure that the Vesper Country Club golf course will be developed as cluster homes if it is ever sold or developed. Sidewalks.
Manhattan	Protection of the public water supply well fields in the area. Extension of trail corridor along the river. Creation of sidewalks along Frost Road and residential streets. Opening up and public use of the boat ramp on the river in the area.
Lakeview Avenue	Creation of sidewalks through residential areas. Creation of a multi-service center on the site of the existing senior center (the teen center to be included in the multi-service center adjacent to athletic fields). Other uses would include police and fire stations.

Neighborhood	Treatment
The Mall Area	Continued commercial development along Middlesex Road with design controls to minimize the adverse visual and traffic impacts. Protection of the agricultural land and wildlife habitat along the river just south of the Mall, but east off of Middlesex Road. Creation of sidewalks and traffic lights to aid in pedestrian movements between the commercial developments. Explore trail possibility along river.
Farwell	Protection of the agricultural properties there and the historic assets. Protection of wildlife habitat. Extension of a trail along the river.
Mission	Zoning provisions to better assure that the Boston University Corporate Education Center will be developed as cluster homes with open space if it is sold or developed. Protection of agricultural land along river. Maintenance of views along the river. Extension of trails along the river and through the open property to connect with Potash Hill. Creation of sidewalks in residential areas not currently having them.
Industrial Area	Protection of environmental resources in the extensive areas zoned for industry. Consider mixed-uses in this zone. Rezoning of the area bounded by Locust Avenue, Middlesex Road and Route 3 from I-1 to I-2. Careful review of all proposals for industrial development in this area. Affordable housing proposed for area south of Westford Road. Sidewalks. Maintenance of views along the river.
Red Gate Road	Preservation of ponds and wetlands and the open character of the area. Sidewalks.
Cannongate Road	Creation of a trail system in the area connecting with a proposed trail in Dunstable. Maintenance of the open character of the area.
Swan Pond	Creation of a trail system through open land connecting to trails in Westford. Maintenance of the open character of the area.

Westford Road	Creation of a trail system through open land connecting with proposed trails in Dunstable and Westford and the Scribner Hill area of Tyngsborough. Maintenance of the open character of the area. Sidewalks.
Scribner Hill	Maintenance of the open character of the area. Creation of trails connecting to and along Massapoag Pond and through the MIT Haystack Observatory property. Sidewalks. Improve roads.
Massapoag	Maintenance of the open character of the area. Creation of trails connecting to and along Massapoag Pond. Improve roads. Sidewalks

For reference to the trails and trail corridors and environmental features to be protected see Map 5-1 in the Open Space and Recreation Chapter (Chapter 5).

10.5 Build-Out Analysis of Tyngsborough’s Land

An analysis of the extent to which Tyngsborough can grow, given its zoning, current state of development, land ownership patterns, and natural constraints to development such as wetlands was done by the Northern Middlesex Council of Governments in 2001, and supported by the Massachusetts Executive Office of Environmental Affairs. The analysis revealed that Tyngsborough could grow by an additional 5,166 residents in 1,700 housing units. Other summary data from the build-out are as follows.

	Population	Students	Households	Water Use Gal./Day
1990	8,642	1,349	2,823	
2001	11,081*	2,131	3,806*	249,540
Build-out	16,247	2,930	5,506	1,824,582

**2000 Census*

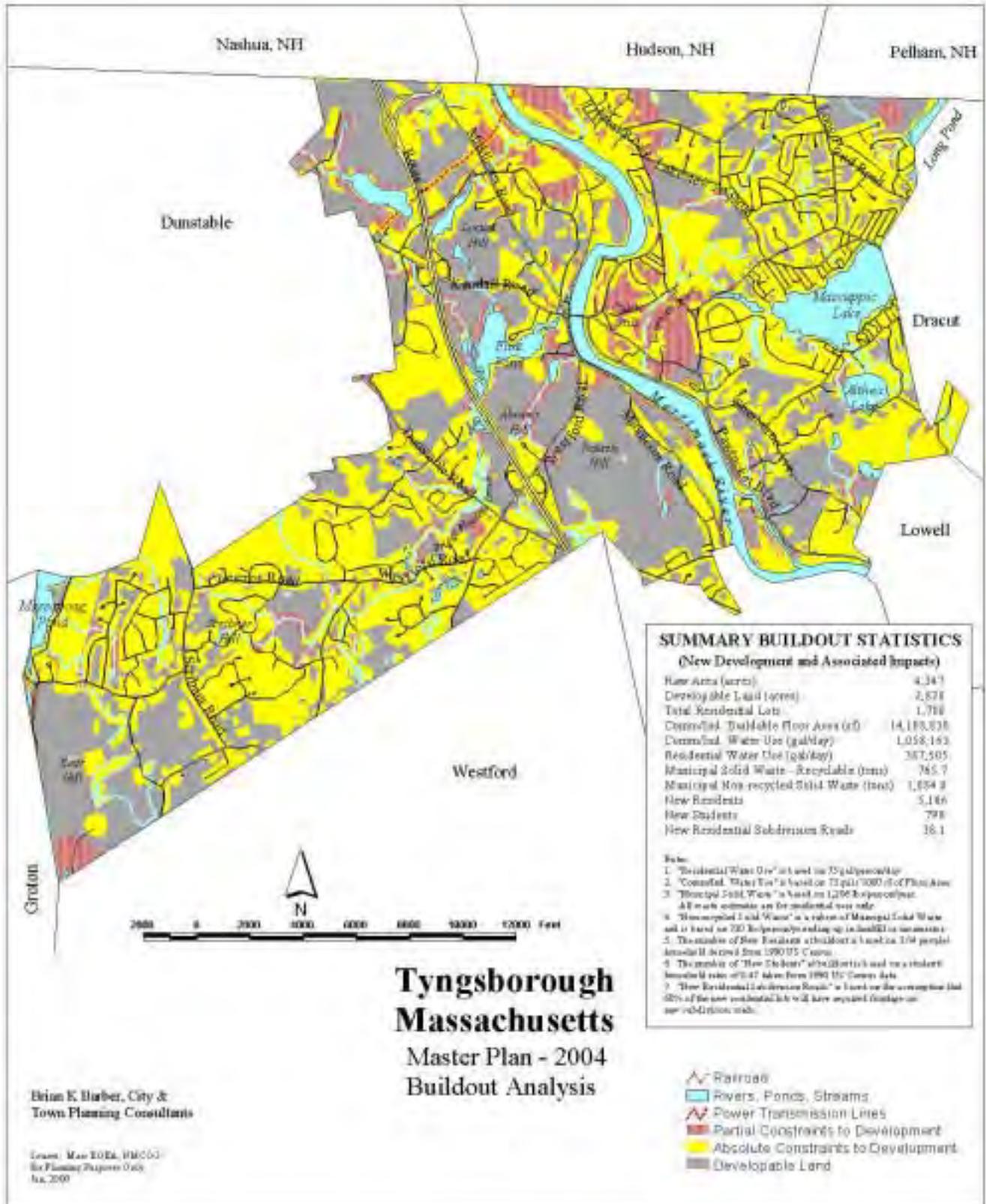
The impacts from the build-out are that all the developable land would be used up sometime around the years 2015 (according to current population forecasts by NMCOG), and that the following additional activities would be added to Tyngsborough’s features.

Table 10-3: Build-out Impacts

Additional Residents	5,166
Additional Residential Water Demand	387,505 gal./day
Additional School Children	799
Additional Commercial/ Industrial Water Demand	1,058,163 gal./day
Additional Residential Units	1,700
Additional Commercial/ Industrial Floor Area	14,108,838 sq ft.
Additional Solid Waste	
Recyclable	1,885 tons/yr.
Non-Recyclable	766 tons/yr.
Additional Roadway Needed	38.1 miles

It is unlikely that the commercial/industrial floor area figure will ever be achieved in the planning period, or even the reasonably foreseeable future. It would require 30,000 to 40,000 employees to use this much space. The build-out figure results from the abundant area now zoned for business and industrial activities. By 2025 total employment in Tyngsborough is forecast to be 5,950, up from the Year 2000 figure of 4,293.

Map 10-4 on the next page shows the location of developable land in Tyngsborough. The area in gray is vacant developable land.



Map 10-4

11 IMPLEMENTATION

Plan implementation consists of actions necessary to carry out the objectives of the plan. These include zoning changes, public investments, administrative actions and adoption of growth management bylaws and regulations. For Tyngsborough the following are recommended.

Table 11-1: Implementation Actions, Responsibilities, and Timing

Type of Action	Specific Action	Responsibility	Timing
Zoning	Establish an Institutional/Open Space Zoning District and apply it to golf courses and other open lands with owners consent	Planning Board	2004 Town Meeting and continuing negotiations
	Establish an I-2 industrial zoning district on the zoning map	Planning Board	2004 Town Meeting
	Eliminate requirement that Town Meeting approve each Open Space Residential Development in the R-1 District	Town Meeting	2004 Town Meeting
	Provide a density bonus in Open Space Residential Development to encourage its use	Planning Board	2004 Town Meeting
	Eliminate requirement that Town Meeting approve each Multi-Family Residential Development in the R-3 District.	Town Meeting	2004 Town Meeting
	Reduce the minimum per unit land requirement for multi-family units in the R-3 Residential District from 20,000 to 15,000 sq. ft.	Planning Board	2004 Town Meeting
	Create a mixed-use zone between the river and relocated Pawtucket Boulevard	Planning Board	2005 Town Meeting
	Pass a “Corridor Protection Overlay District” along Kendall, Westford and Middlesex Roads.	Planning Board	2005 Town Meeting
	Pass “Inclusionary Zoning” bylaw for multi-family housing	Planning Board	2005 Town Meeting
	Other Growth Management Tools	Work with the Economic Development Committee to Attract new Jobs and Businesses	All Town Departments
Support the location of a new bridge just south of the existing bridge		All Town Government	2004 and continuing

Type of Action	Specific Action	Responsibility	Timing
	Support the relocation of Pawtucket Boulevard even if the new bridge is not built	All Town Government	2004 and continuing
	Identify discontinued roads and roads of uncertain status (paper streets) to control development	Planning Board Assessors Office Highway Department	2004 and continuing
	Establish a 300-foot riparian buffer along wetlands, streams and ponds to provide for wildlife habitat functions, nutrient and pollutant removal and bank stabilization.	Conservation Commission	2004 Town Meeting
Public Investments	Construct sidewalks along arterial roads.	Highway Department	2004 and continuing
	Include marked bike lanes when making arterial roadway improvements	Highway Department	2004 and continuing
	Establish multi-purpose trails in and around the Town Center and along roads leading to schools.	Conservation Commission	2004 and continuing
	Build boat ramps with associated parking for access to the Merrimack River	Board of Selectmen	2005 and continuing
	Acquire additional land for the Highway Department, specifically the property adjacent to the current Highway Department site.	Town Meeting	2004
	Construct a multi-service center combining a teen center, fire station and police sub-station with shared space.	Town Meeting	2004
	Continue exploring options for the location of a Senior Center	Board of Selectmen	2004
	Continue exploring option for the location of a new main Police Station	Board of Selectmen	2004 and continuing
	Continue extending sewer lines down Middlesex Road negotiating for developer participation to the maximum extend possible	Sewer Commission Planning Board	2004 and continuing
	Implement the specific traffic control recommendations of existing traffic studies	Highway Department working with the State	2004 and continuing

Type of Action	Specific Action	Responsibility	Timing
Administrative Actions	Develop Town-wide Trail Plan	Conservation Commission	2004 and continuing
	Negotiate with private and institutional land owners to acquire land and easements for a trail system	Conservation Commission Board of Selectmen	2004 and continuing
	Identify appropriate locations for ATV and snowmobile use	Conservation Commission	2004 and continuing
	Conduct ongoing monitoring of the former Town Landfill	Conservation Commission	2004 and continuing
	Pursue Designation of two historic districts, Tyngsborough Center and the James Butterfield House and Mill Area	Board of Selectmen	2004 and continuing
	Prepare new enrollment projections for the Tyngsborough school system so that they more accurately reflect growth trends and new housing developments.	School Department	2004

APPENDIX A -- Prioritizing Assets and Liabilities

The following is a compilation of comments and responses from the Master Plan Committee. It is based primarily on discussions with the Master Plan Committee and the Master Plan Consultant Team that took place on February 12, 2003. Committee members were asked to select what they viewed as the three most important assets and the three most important liabilities from a list prepared by the Northern Middlesex Council of Governments (NMCOG). The NMCOG completed preliminary work on documenting the town's assets and liabilities and developing a vision statement. Committee members were asked to expand on their comments in writing following the meeting. The Committee, at a subsequent meeting, further refined the list and discussion of Assets and Liabilities; additional comments were incorporated after the Committee had a chance to review a preliminary summary. The following summarizes the Committee's comments.

Assets

The four most frequently referred to assets were the following:

- Rural character
- Location
- Good schools
- River

The number one asset mentioned by Committee members was the rural character of the town, a quality many felt defined the essence of the Town, giving it a small town feeling, a slower pace of life and a feeling of being close to nature. They felt that the open space, the farms and a good balance between rural and suburban qualities are what give Tyngsborough this feeling. Preserving the open space, retaining the farmland and developing recreational areas were ways members suggested to strengthen the rural character of the Town.

Tyngsborough's location was also frequently cited as an asset. The fact that it is a small town with access to larger towns and cities and all they have to offer, as well as the easy access to the ocean, the mountains, the airport, were all seen as advantages to the Town's location.

Good schools were frequently mentioned as a reason that people chose to move to the Town and there seemed to be relative consensus that the quality of the schools has remained very satisfactory.

The River was frequently mentioned as an asset more in terms of its potential, than its current status. It was referred to as being the focal and

central point of the town that greatly contributes to the Town’s character and provides potential for commercial, environmental and recreational opportunities. All agreed that increased access to the River was a very important goal.

ASSETS	Number of Responses
Rural character	15
Location	8
River	8
Good schools	7
Quality of life	4
Transportation	4
Low crime rate	3
Diversity in housing types	3
Historic and cultural resources	3
Middlesex Road Corridor	1
Good business community	1
Recreational opportunities	1
Talented people	1

Liabilities

The five most frequently mentioned liabilities were the following:

- Only one bridge
- Traffic
- Inadequate commercial base
- Lack of access to natural resources, especially the river
- Growth pressures

The fact that there is only one bridge crossing the River was cited most frequently as the most important liability of the Town because it tends to divide the town, causes traffic congestion and is a safety issue as it significantly increases emergency response time. Suggested mitigating measures included the need to develop alternative plans, the need to construct a second bridge, developing turning lanes, improving signage and enforcing traffic laws. The fact that building a second bridge is a state project was cited as an obstacle to progress on this front in that the funding and timing are out of the Town’s control.



Traffic was the second most frequently cited liability. The issues that seemed of most concern regarding traffic seemed to be primarily the commuter though traffic and Route 3. The traffic congestion was seen as negatively impacting the quality of life, the delivery of town services, and the ability of the town to develop the town center and encourage business growth. Suggestions for mitigating traffic issues included that the traffic

impacts of construction projects should be calculated ahead of time and required for review and that traffic calming measures should be implemented.

The town’s commercial base was frequently cited as being inadequate. The main concerns seemed to be that there is a lack of local employment opportunities, the opportunity for additional tax revenues from additional commercial development, a lack of needed goods and services locally available, and that the town is not a destination for visitors due to its lack of appealing “stops.” Several suggestions were given regarding how to improve the commercial base; these included: attracting anchors, long term establishments, and large employers; encouraging growth along the Middlesex Road area; becoming more business friendly; developing a plan to encourage business and industry to locate in Tyngsborough; controlling traffic; and attracting commuters to shop here. Perceived obstacles to commercial growth included the following: zoning regulations, business growth has not been actively pursued, lack of political support, state and federal regulations that are not geared towards rural communities, and the fact that regulations are not enforced.

While the existence of natural resources was highly prized as an asset, the limited access to these natural resources, especially to the River, was frequently cited as a liability. The main reason this was seen as being important was that as a result these resources are underutilized and are not used to their full potential. Suggestions for improving this situation included: improving access, improving resource management, and promoting and providing information regarding what exists.

LIABILITIES	# of Responses
Only one bridge	13
Traffic	12
Inadequate Commercial base	10
Lack of access to natural resources (river, lakes & ponds)	7
Growth pressures	7
Inadequate infrastructure	5
Proximity to New Hampshire	1
Affordable Housing (40B)	1
Town is not a destination	2
Identity crisis	1

Growth pressures were also cited as a threat to the town’s rural character, putting a strain on services and developing open spaces that are diminishing as a result. Suggestions for mitigating such pressures for growth include controlling growth, protecting open space including exploring alternatives to purchasing such space in order to protect it.

ASSETS	Number of Responses	Why Important	How to Strengthen	Obstacles to Progress
Rural character	15	<ul style="list-style-type: none"> Because it is the essence of the Town Open space, maintenance of local farms, good balance between rural and suburban small town feel, slower pace of living sense of privacy, closeness to nature 	<ul style="list-style-type: none"> preserve open space, develop recreational areas, protect historic assets retain farmland & other open spaces Hold events of traditional rural character i.e. bean suppers, 4-H clubs) Have “annual town day” Increase the amount and marketing of cultural events Support local growers, producers 	<ul style="list-style-type: none"> Residential growth demands Road limitations (size, type) Highways and traffic Perhaps location between Metro Lowell and South Nashua, N.H. is an obstacle.
Location	8	<ul style="list-style-type: none"> Small town with access to larger towns Easy access to ocean, mountains, airport Close to shopping centers and theatres 	<ul style="list-style-type: none"> Establish Railroad train station Enhance LRTA services 	<ul style="list-style-type: none"> Current infrastructure Financial Constraints Not in Town’s control Greater ties with Lowell & Nashua
River	8	<ul style="list-style-type: none"> Because the town’s character is greatly enhanced Focal point, center of town 	<ul style="list-style-type: none"> Develop a plan to increase access; promote commercial and recreational uses Fulfill Potential: commercial asset, environmental asset and recreational opportunity Tyngsborough has the ability to work with GLTHS to gain river accessibility Acquire new property along the river; do a better job managing currently owned property Work with Lowell & Nashua. 	<ul style="list-style-type: none"> Need to make the property usable Lack of community vision/Leadership Apathy of majority of residents
Good schools	7	<ul style="list-style-type: none"> Increases the value of real estate 	<ul style="list-style-type: none"> More community 	<ul style="list-style-type: none"> Financial constraints

ASSETS	Number of Responses	Why Important	How to Strengthen	Obstacles to Progress
		<ul style="list-style-type: none"> Makes future local citizens capable, productive town residents 	<ul style="list-style-type: none"> involvement Local history/civics incorporated into curriculum Utilize talents of students in community activities 	<ul style="list-style-type: none"> State/Federal funding cuts Lack of participation
Quality of life	4	<ul style="list-style-type: none"> Schools, public services, diversity of activities available 	<ul style="list-style-type: none"> Increase social gatherings, community events, and cultural activities Improve economic services i.e. bank, drugstores, grocery stores Develop “industrial malls” to incorporate services in industrial parks 	<ul style="list-style-type: none"> Traffic
Transportation	4	<ul style="list-style-type: none"> Access to work Rt. 3 	<ul style="list-style-type: none"> Infrastructure improvements sidewalks 	<ul style="list-style-type: none"> Money State a& Federally controlled
Low crime rate	3	<ul style="list-style-type: none"> Keeps citizens safe 		
Diversity in housing types	3	<ul style="list-style-type: none"> Varying densities & types for diverse needs Supports socio-economic diversity 	<ul style="list-style-type: none"> More affordable housing Programs to assist in home purchasing Develop grant structures to encourage restoration, maintain older homes Continue with current CPA program 	<ul style="list-style-type: none"> Citizens are replacing older, smaller homes with newer bigger ones
Historic and cultural resources	3	<ul style="list-style-type: none"> Maintain heritage Keep rural character 	<ul style="list-style-type: none"> Expand media programs Outreach to citizens to educate them on our colorful history 	<ul style="list-style-type: none"> Development pressures Funding
Good business community	1			
Middlesex Road Corridor	1	<ul style="list-style-type: none"> Potential for economic development Opportunity to increase tax 	<ul style="list-style-type: none"> Reinforce growth in goods and services with additional cultural and artistic venues to 	<ul style="list-style-type: none"> Develop a plan to identify & encourage the type of businesses that would make the town a destination location

ASSETS	Number of Responses	Why Important	How to Strengthen	Obstacles to Progress
		revenues	make the town a destination location	
Recreational opportunities	1		<ul style="list-style-type: none"> • Open schools after hours 	
Talented people	1		<ul style="list-style-type: none"> • Need to engage them and get them more involved 	

LIABILITIES	Number of Responses	Why Important	How to Mitigate	Obstacles to Progress
Only one bridge	13	<ul style="list-style-type: none"> • Causes traffic congestion • When there is an accident, cannot cross • Makes fire alarms dangerous, increases response time • Divides the town 	<ul style="list-style-type: none"> • Need to develop alternative plans • Develop turning lanes • Improve signage • Enforce traffic laws • Construct second bridge 	<ul style="list-style-type: none"> • Need to collaborate • Building 2nd bridge is a state project so timeline out of town control
Traffic	12	<ul style="list-style-type: none"> • Rt. 3splits • Through traffic from New Hampshire • Commuter through traffic • Negatively impacts quality of life • Affects ability to develop town center and encourage business growth 	<ul style="list-style-type: none"> • Traffic Impacts of construction projects should be required • Traffic needs to be slowed down- it is too concentrated and travels too fast causing bottlenecks interfering with delivery of basic services • Need to upgrade some of the major secondary roads. 	<ul style="list-style-type: none"> • Need money
Inadequate Commercial base	10	<ul style="list-style-type: none"> • Need Jobs and economic development • Lack of drugstores and supermarkets • Insensitive design of retail and services • Town is not a destination, just a pass through • Lack of local employment opportunities 	<ul style="list-style-type: none"> • Attract anchors & long-term establishments • Encourage large employers • Attract commuters to stop • Encourage growth in Middlesex Road area • Become more business-friendly • Develop a plan and dedicate resources to encourage business and industry to locate here. • Develop necessary infrastructure to support business growth • Control traffic to enable growth • Promote industry through trade and commercial outlets & industry-based magazines • Create and improve historic 	<ul style="list-style-type: none"> • Zoning regulations have been loosely enforced • There has not been real effort to encourage business growth • Lack of political & financial support • Regulations are geared to cities, do not take into account rural needs • Federal & state agencies enforce regulations unequally

LIABILITIES	Number of Responses	Why Important	How to Mitigate	Obstacles to Progress
Lack of access to natural resources (river, lakes & ponds)	7	<ul style="list-style-type: none"> • They are underutilized 	<p>district, provide more services and the area will become more attractive to small businesses and shops.</p> <ul style="list-style-type: none"> • Promote/provide info • Improve access • Improve resource management 	
Growth pressures	7	<ul style="list-style-type: none"> • Open spaces are diminishing • Strain on services • Threat to town's rural character 	<ul style="list-style-type: none"> • Protect remaining open space • Control growth • Explore alternatives to purchasing open space in order to protect it 	<ul style="list-style-type: none"> • Limited resources for protecting open space
Inadequate infrastructure	5	<ul style="list-style-type: none"> • Lack of water and sewage 		<ul style="list-style-type: none"> • Poor management
Proximity to New Hampshire	1	<ul style="list-style-type: none"> • Traffic • An obstacle to development 		
Affordable Housing (40B)	1	<ul style="list-style-type: none"> • Too much development too fast drains town services, no infrastructure planning • Threatens to destroy rural character through poor land use, environmentally unfriendly practices and demands on services 	<ul style="list-style-type: none"> • Better planning • Better use of building technology • Fewer environmental concessions • Build ranch and capes 	<ul style="list-style-type: none"> • Control new housing developments • patronage
Town is not a destination	2	<ul style="list-style-type: none"> • Need more attractions 	<ul style="list-style-type: none"> • Better use of existing resources, including open space, old Town Hall, make more aware of existing resources • Develop areas to picnic 	
Identity crisis	1	<ul style="list-style-type: none"> • As town has grown lost sense of self 		

**APPENDIX B -- TRAFFIC ACCIDENTS BY ROADWAY IN
TYNGSBOROUGH: 1998 - 2002**

Roadway/Year	1998	1999	2000	2001	2002
Alden Street	0	0	1	0	0
Althea Avenue	1	2	0	1	3
Appaloosa Circle	0	0	0	1	0
Arabian Way	0	0	0	1	0
Beverlee Road	0	1	0	0	0
Birchmont Street	1	0	0	0	0
Bowers Avenue	0	1	1	0	0
Bridgeview Circle	0	1	0	0	0
Brooklyn Street	0	1	0	0	0
Butterfield Road	0	0	2	2	1
Chard Road	0	0	0	1	0
Chestnut Road	1	2	2	7	6
Christine Avenue	1	0	0	0	0
Clover Hill Circle	0	0	0	0	1
Coburn Road	9	8	11	9	8
Cummings Road	3	2	4	1	1
Danforth Road	1	0	0	0	1
Davis Road	1	1	0	2	1
Davis Street	0	0	0	1	0
Derby Lane	1	0	0	0	0
Dunstable Road	5	5	6	11	9
Elm Street	0	0	0	1	0
Farwell Road	1	0	1	1	3
Fay Memorial Drive	0	0	0	1	0
Fletcher Drive	0	0	0	0	1
Frost Road	40	27	42	22	26
Gail Avenue	0	1	0	0	0
Groton Road	2	2	2	3	2
Hillcrest Drive	0	0	1	0	1
Industrial Way	0	0	1	0	0
Indian Lane	0	2	0	0	0
Ingalls Road	0	1	0	0	0
Island Road	2	2	0	2	0
Jacques Road	0	0	0	0	1
Kendall Road	7	15	15	15	24
Lake Mascuppic	0	1	0	0	0
Lakeview Avenue	11	12	6	6	5
Lawndale Road	3	5	3	4	3
Lawrence Road	0	0	2	1	1

Roadway/Year	1998	1999	2000	2001	2002
Locust Avenue	0	1	2	3	0
Long Pond Road	7	3	6	2	6
Makos Street	0	1	0	0	1
Massapoag Road	0	1	0	0	0
Middlesex Road	117	127	136	150	108
Nevada Road	1	0	0	0	0
Norris Road	6	4	3	7	7
Old Tyng Road	0	0	0	0	1
Oregon Road	1	0	0	1	1
Parham Road	12	3	3	2	7
Pawtucket Boulevard	16	25	28	29	17
Pondview Place	0	0	2	1	0
Red Gate Road	1	1	1	1	1
Riverbend Road	0	0	0	1	0
Rock Road	0	0	0	0	1
Route 3*	8	6	10	6	5
Rt. 3 On-Ramp, Exit 36	1	1	0	0	0
Scribner Road	4	2	7	6	5
Sequoia Drive	1	0	0	0	2
Sherburne Avenue	20	33	22	26	21
Summer Street	0	1	0	0	0
Swan Road	2	3	2	3	1
Tower Road	0	1	0	0	0
Trotting Park Road	0	0	1	0	0
Tyng Road	1	1	1	0	3
Village Lane	1	1	1	0	0
Virginia Road	0	1	0	0	1
Washington Street	1	1	0	0	0
Waterway Place	1	1	0	0	0
Westeck Drive	0	0	1	0	0
Westford Road	30	34	32	35	37
Wicasse Road	0	0	1	1	1
Willowdale Avenue	0	1	0	1	0
Willowdale Road	3	4	4	2	3
Woodlawn Street	1	0	2	1	0
Worden Road	1	0	0	0	0
TOTALS	326	349	365	371	327

* Route 3 accidents are most often handled by the State Police which the data on this table does not include.

Source: Tyngsborough Police Department

APPENDIX C -- PROPOSED COMMUTER RAIL EXTENSION FROM LOWELL TO NASHUA, NH.

(Taken from the Annual Report of New Starts of the U.S. Department of Transportation, Federal Transit Administration) Web Site Address:
http://www.fta.dot.gov/library/policy/ns/ns2004/pe_LowellNashComRailExt.htm

Lowell-Nashua Commuter Rail Extension Lowell, Massachusetts-Nashua, New Hampshire (November 2002)

Description

The New Hampshire Department of Transportation (NHDOT) is proposing to design and construct a 12-mile extension of an existing commuter rail line from Lowell, Massachusetts to Nashua, New Hampshire. The proposed project would extend existing commuter rail service provided by the Massachusetts Bay Transportation Authority (MBTA) on an anticipated schedule of six round trips per weekday and three roundtrips on Saturdays. The proposed service extension would provide an alternative to a highly congested highway corridor and would provide traffic mitigation during the planned expansion of Route 3 in Massachusetts. The proposed project also includes the purchase of commuter rail equipment for use by the MBTA, rehabilitation of existing track, the construction of new trackage (where necessary), and a park-and-ride lot with a boarding platform near Everett Turnpike (Exit 2) in Nashua. MBTA anticipates 910 average weekday boardings at the start of service.

The Lowell, MA-Nashua, NH commuter rail extension is located in an area generally paralleling Route 3 in Massachusetts. NHDOT plans to execute an agreement with the MBTA (primary commuter rail operator in New England) to operate the commuter rail extension project. The total capital cost for the commuter rail extension project is estimated at \$40.7 million (escalated dollars), with a proposed Section 5309 New Starts share of \$18 million. Because the proposed New Starts share is less than \$25 million, the project is exempt from the New Starts criteria, and is thus not subject to FTA's evaluation and rating (49 USC 5309 (e)(8)(A)).

Summary Description	
Proposed Project:	Commuter Rail Extension 12 miles; one station
Total Capital Cost (\$YOE):	\$40.7 million
Section 5309 New Starts Share (\$YOE):	\$18 million (44%)
Annual Operating Cost (\$1999):	\$1.7 million
Ridership Forecast (2003):	900 avg. weekday boardings
Opening Year Ridership Forecast:	N/A

Status

The Nashua Regional Planning Commission, in cooperation with the City of Nashua, NHDOT and other participatory agencies, has studied the feasibility of restoring commuter rail service to southern New Hampshire since the early 1980s. In 1999, NRPC completed a Major Investment Study that analyzed the passenger rail market, required capital investments, operational issues and several alternatives to the commuter rail extension option. In June 1999, NRPC and NHDOT selected the extension of commuter rail service from Nashua to Lowell as the Locally Preferred Alternative (LPA). The LPA was also included in the NRPC's long range transportation plan. FTA approved NHDOT's request to initiate Preliminary Engineering on the project in May 2000. NHDOT is currently undergoing the environmental review phase for the proposed project and will be completed by Spring 2003. FTA is aware that the total cost for this project is anticipated to escalate beyond \$45.0 million dollars and that the NHDOT will be seeking a larger New Start share for the proposed commuter rail extension. Based on the project's anticipated change it will be removed from the New Starts exempt category. NHDOT will submit New Starts criteria and will be rated and evaluated for the FY 2005 reporting year.

Section 3030(a)(49) of TEA-21 authorizes the "Nashua, NH-Lowell, MA Commuter Rail" for Final Design and construction. Through FY 2002, Congress has appropriated \$5.93 million in Section 5309 New Starts funds for this project.

Locally Proposed Financial Plan		
<u>Proposed Source of Funds</u>	<u>Total Funding</u> <u>(\$ million)</u>	<u>Percent of Total</u>
Federal: Section 5309 New Starts	\$18.0	44.2%
Federal: CMAQ	\$14.5	35.6%
Total:	\$40.7	100.0%

NOTE: Funding proposal reflects assumptions made by project sponsors, and are not DOT or FTA assumptions. Total may not add due to rounding.