CHELMSFORD MASTER PLAN
VISION QUEST 2020







TOWN OF CHELMSFORD, MASSACHUSETTS

October 2010

Prepared by

Town of Chelmsford Master Plan Committee

and

The Northern Middlesex Council of Governments

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PART 1: MASTER PLAN COMPONENTS

Town of Chelmsford
50 Billerica Road
Chelmsford, MA 01824-2777
www.townofchelmsford.us

To the Residents of Chelmsford,

The Master Plan Committee has developed the 2010 Master Plan to provide the town with guidance and direction over the next 10 years. The Committee has observed that since the 1996 Master Plan the town has become a more mature and built out suburb. We believe that if the town is not careful, and continues with current trends, there exists a significant potential for increased urbanization that will have a negative effect upon the town. This would likely result in a degradation of our community's quality of life, character, services and financial well being. We envision our town to be a suburban community with a diversity of people, financially stable, an education system that is one of the best in the state, and a town government that is open and accessible to all. We need to be cognizant that potential future development and over development could have adverse effects on our community. The Committee believes that the current quality of life and the services should be maintained or improved.

The 2010 Master Plan has identified limited new opportunities for housing and economic development in order to better manage current trends and create a balance in future growth. Since these new opportunities may differ from our recent philosophy for housing and economic development, the potential impact of both recent trends and these new opportunities must be acknowledged and fully understood before any implementation. It is likely that the intrinsic sustainable carrying capacity of the Town will be exceeded to the detriment of everyone. Consequently, we are recommending measures that should be taken to avoid, minimize and/or mitigate the combined potential impact.

During the development of the Master Plan, the Committee used the following principles as guidance when making decisions:

Recall fundamentals of the 1996 Master Plan:

- Maintain the suburban character of Chelmsford and recognize that unplanned and uncontrolled development of the industrial, commercial, and residential areas of the town may contribute to a poorer quality of life.
- Be cautious of the type of growth that will erode the remaining rural characteristics of the Town, increase traffic, increase parking requirements, and dramatically change the nature of the Town.
- Maintain sufficient natural areas so that open space, plant and wildlife species can be sustained.

Ensure that Chelmsford is Sustainable

Sustainability means that the town remains fiscally sound, services are maintained or improved, and schools maintain high academic standards. This also means that the water, sewer, transportation and telecommunications infrastructure is sufficient. Additionally we have the resources to protect our wetlands, recreation and open space, natural, cultural, and historic resources. It means we make an efficient use of our land and buildings based upon their intrinsic carrying capacity. In addition, it means we provide housing and economic opportunities for our residents.

Adopt a sensible and sustainable Land Use Policy
Chelmsford's Land Use Policy should include prioritizing the reuse and redevelopment of existing structures rather than promoting new construction. It should include new zoning regulations that control and encourage redevelopment where there is zero net increase in building square footage. The land use policy should increase landscaping, improve Stormwater Management and create significant improvements in parking, transportation and traffic systems. Where additional building square footage is allowed site impacts should be fully mitigated.

Adopt zoning regulations for housing and economic development
Zoning regulations should be adopted that serve local needs while pursuing regional solutions and strategies; that encourage new housing and economic opportunities to complement other goals and objectives of the Master Plan; that prioritize opportunities to include reuse, rehabilitation, and retrofitting of existing structures; that require all new development and redevelopment fully mitigate any increased impact and that result in a net benefit to the Town and environment while protecting open space. We should discourage development for the sole purpose of "revenue chasing". We recognize that Town-owned property might play an integral role in housing opportunities.

In the coming years, our community will face many challenges that will put pressure on maintaining the quality of life and level of services we currently enjoy. A balanced approach to development and redevelopment must take place in order to insure our community remains a suburban community. A review of our zoning bylaws needs to occur to make sure that we stay current with the ever-changing landscape of business. Our housing stock needs to maintain a balance so that the next generation will be able to be the future of Chelmsford.

In the Introduction Section, you will find our Vision for 2020, along with goals for the seven Sections of the Master Plan. The areas that were addressed include: Land Use and Zoning; Economic Development; Transportation; Housing; Open Space and Recreation; Natural, Cultural and Historic Resources; and Facilities and Services. During the process of developing the Master Plan, the Committee reached out to thirty different stakeholders in the community and held six public input sessions. We see this Master Plan as a guide to the future. It is a document that should be referred to by the Boards and Committees in Town and be used as they deliberate. It should continually be reviewed in order to keep the plan current.

We wish to thank Evan Belansky, Community Development Director; Vivian Merrill, Recording Secretary; and our consultant, Northern Middlesex Council of Governments, for their support and ideas throughout the process. We would like to extend a special thanks to all those that provided input at our public and open sessions, along with the stakeholders that attended our meetings.

In closing, the Master Plan Committee's work may end with this document, but what begins next is a period of implementation of the recommendations and bylaw review to bring the bylaws in line with the Master Plan.

Respectfully,

James Lane, Chairman
Philip Eliopoulos, Vice Chairman
George Zaharoolis, Clerk
Jackie Hoonjan
David J. McLachlan
Sheila Pichette
Linda Prescott
Peter Robson
Judy Tavano

II. INTRODUCTION AND OVERVIEW

WHAT IS A MASTER PLAN?

A Master Plan is comprehensive planning document that establishes long-term policy recommendations for a community's physical development, and outlines implementation strategies that address land use issues, transportation, community facilities and services, the local economy, and the environment. Chapter 41, Section 81D of the Massachusetts General Laws states:

"*A planning board established in any city or town under section eighty-one shall make a master plan of such city or town or such part or parts thereof as said board may deem advisable and from time to time may extend or perfect such plan. Such plan shall be a statement, through text, maps, illustrations or other forms of communication that is designed to provide a basis for decision making regarding the long-term physical development of the municipality. The comprehensive plan shall be internally consistent in its policies, forecasts and standards.*"

In general, communities use the Master Planning process to understand and manage future growth and development in remaining undeveloped areas. While limited areas of Chelmsford may be subject to such development pressure in the future, much of the town is built out. Therefore, Chelmsford's 2010 Master Plan explores a broader range of issues focused on managing and guiding redevelopment over the next decade.

The Master Plan is one of the main policy tools utilized by the Board of Selectmen, Planning Board, the Zoning Board of Appeals, the Conservation Commission, and the Community Development Department, and other local decision-makers. It is important to note that the Master Plan does not replace other important policy documents prepared by the Town, such as the *Affordable Housing Production Plan* or the *Open Space and Recreation Plan*, but should be used to complement these planning documents.

The extensive public participation process utilized to help formulate the recommendations set forth in this Master Plan ensured that the document reflects the needs and desires of the community. However, in recognizing that communities change over time, the Master Plan should be viewed as a flexible and ever-evolving document. Therefore, the recommendations set forth should be periodically re-evaluated in the interim period before a new Master Plan is created to ensure that they continue to align with the needs of the community.

PREVIOUS MASTER PLANS IN CHELMSFORD

The Town of Chelmsford has prepared Master Plan documents several times over the past fifty years. The first master plan was developed 1963, and subsequent plans were completed in 1975, 1986 and 1996. In earlier versions of the Master Plan, much of the focus was on promoting development and economic growth to accommodate the burgeoning population and workforce in Town and the overall region. Between 1960 and 1990, for example, Chelmsford's total population increased by 114%, from 15,130 people to 32,383 people, while the total number of housing units increased by 160.3%, from 4,540 to 11,816 units. Similarly, between 1971 and 1991, the amount of developed land in Chelmsford grew by 112% (totaling 7,880.92 acres in the latter year), while the total undeveloped land decreased by -37.5% to 6,946.73 acres. These trends are indicative of a community that was rapidly growing, and developing land in accordance with its population increase.

By1996, however, attention shifted toward striking a balance between continued economic and housing growth, and preserving the quality of life for residents of the town. For many, retaining quality of life meant preserving the Town's natural, social, and cultural resources in the face of encroaching development. Today, many believe that Chelmsford is approaching build-out capacity. During the public process undertaken for this document, some stakeholders expressed an interest in promoting economic growth and development without further utilizing undeveloped land. This objective is supported by the Master Plan Committee and is evident throughout the body of this document which takes a balanced approach to future growth.

THE 2010 MASTER PLAN DEVELOPMENT PROCESS

In 2007, the Planning Board began discussions regarding the process for updating the 1996 Master Plan, and at the Spring 2008 Town Meeting $70,000 was approved for Comprehensive and Strategic Planning. In Fall of 2008, the Town contacted their regional planning agency, Northern Middlesex Council of Governments (NMCOG), for technical assistance in updating the Master Plan.

In December 2008, the Planning Board appointed a Master Plan Committee, comprised of nine voting members, and the town's Director of Community Development. The voting members of the Master Plan Committee are listed Table 1.1on the following page, and the Committee's advisors are listed in Table 1.2. The Committee includes representation from the Board of Selectmen, Planning Board, Zoning Board of Appeals, Conservation Commission, Town Meeting, Community Preservation Committee, the business community and town residents at large.

TABLE 1.1
MASTER PLAN COMMITTEE MEMBERS, 2010

Member Name	Represents
Judy Tavano	Zoning Board of Appeals
Philip Eliopoulos	Board of Selectmen
Jackie Hoonjan	Chelmsford Business Association
James Lane	Planning Board
David McLachlan	Conservation Commission
Sheila Pichette	Town Meeting Representative
Linda Prescott	Community Preservation Committee
Peter Robson	Town Resident
George Zaharoolis	Planning Board

TABLE 1.2
MASTER PLAN ADVISORS

Advisor	Affiliation
Evan Belansky	Community Development Director
Vivian Merrill	Recording Secretary
Jay Donovan	Northern Middlesex Council of Governments
Beverly Woods	Northern Middlesex Council of Governments

In January 2009, the Master Plan Committee began meeting bimonthly. As with previous editions of Chelmsford's Master Plan, this document was prepared with extensive input and feedback from many stakeholders living and working in the community. The Master Plan Committee spearheaded a rigorous public outreach campaign, and facilitated a participatory process that is summarized below. As shown in Table 1.3 below, six public input sessions were held, drawing the participation of well over 250 residents and business representatives from across the Town.

TABLE 1.3
PUBLIC INPUT SESSIONS: MARCH 2009 – OCTOBER 2010

Event	Date	Number of Participants
Initial Visioning Session	March 24, 2009	57
Business Visioning Session	May 6, 2009	25
Public Forum on Land Use/ Zoning, Economic Development, and Housing	June 3, 2009	60
Public Forum on Transportation	September 17, 2009	25
Natural, Cultural, and Historic Resources	October 7, 2009	41
Public Input Session on the Draft Master Plan document	September 16, 2010	54

Source: NMCOG

In addition to the six public input sessions, the Master Plan Committee invited stakeholders to provide input during at their bimonthly meetings. The Committee conducted interviews with thirty (30) local stakeholder groups. In order to help focus the conversation, a list of discussion questions were provided to interviewees prior to the meeting. Stakeholders were also encouraged to submit written comments, participate in the various public input sessions, submit

comments electronically through the Town's website, or speak during open session at any meeting of the Master Plan Committee. A list of the organizations interviewed as part of this public input process is provided below:

- Community Development Department
- Permanent Building Committee
- Fire Department
- Police Department
- School Committee
- School Superintendant
- Economic Development Commission
- Lowell Regional Transit Authority (LRTA)
- Conservation Commission
- Historic Commission
- Community Preservation Committee (CPC)
- Bicycle and Pedestrian Advisory Committee (BPAC)
- Planning Board
- Board of Selectmen
- Department of Public Works (DPW)
- Emergency Management Director
- Chelmsford Housing Authority
- Chelmsford Senior Center
- Chelmsford Public Library
- Chelmsford Open Space Land Stewards
- Chelmsford Center Water District
- Building Department
- Capital Planning Committee
- Zoning Board of Appeals
- Sewer Commission
- Assessors Department
- Board of Health
- Chelmsford Finance Committee
- Chelmsford Business Association
- Town Manager
- Slow Growth Initiative
- Affordable Housing Committee

The Master Plan Committee maintained a Master Plan blog, and offered a standardized public comment form on their website that interested parties could fill out and submit for review. All of the documents produced during the planning process were made available for public review and comment, via the NMCOG website.

ORGANIZATION AND OVERVIEW OF THE 2010 CHELMSFORD MASTER PLAN

This section provides a summary of the organizational layout of the updated Master Plan document and includes the Vision Statement and goals adopted by the Master Plan Committee.

A. Contents of the 2010 Master Plan

This updated Master Plan for the Town of Chelmsford is organized into nine primary components. Section I contains a letter from the Master Plan Committee to the residents of Chelmsford. The introductory section (Section II) provides an overview of the master plan process, includes a discussion of the Vision Statement and Goals, and a brief demographic profile of the community.

Section III focuses on Land Use Planning and Zoning. In addition to a synopsis of past land use development patterns in Chelmsford, it offers a discussion of the Town's existing Zoning Bylaw and the types of uses permitted under these regulations. The Land Use and Zoning chapter includes a presentation of the issues and opportunities inherent to land use planning and zoning, as well as a set of recommendations for how to best move forward in a way that promotes

economic prosperity without sacrificing the natural, historical, and cultural integrity of the community.

Section IV relies heavily on demographic and industry data to assess the current state of Economic Development in Chelmsford. The chapter launches with a brief economic statistical profile of the community, followed by a discussion of existing economic and business conditions in Town—paying special mind to the current economic crisis of the past two years. From there, community assets and liabilities are presented, followed by an infrastructure analysis, and an examination of commercial and industrial activity. Another important element of this chapter is the discussion about striking a balance between economic development and quality of life - a central theme throughout this plan. Based on this discussion, a list of economic development opportunities, including potential economic redevelopment sites, is presented. The chapter concludes with an issues and opportunities discussion, coupled with a list of economic development recommendations.

Section V looks at Transportation Planning in Chelmsford. It includes a description of the existing transportation network within the community, including commuting patterns within the town, traffic volumes, crash statistics and the current state of the Town's overall transportation infrastructure for all transportation modes (auto, transit, commuter rail, bicycle and pedestrian). A detailed operational and safety analysis is provided for fifteen key intersections and improvement recommendations are outlined to address deficiencies identified at each location. As with other sections of the Master Plan, issues and opportunities related to transportation are presented and discussed, and a comprehensive list of recommendations is provided.

Section VI assesses Housing issues in Chelmsford. It begins with an overview of the various neighborhoods in Town, and then moves into an analysis of the existing conditions of the housing stock and housing market. Topics covered within this analysis include housing development and sales trends; housing needs, as determined by demographic data available for the community; affordable housing efforts in Chelmsford; issues, opportunities, and recommendations for sustainable housing production in the community. One of the most important components of this chapter is the list of sites identified as potential housing sites developed through extensive conversations among the Master Plan Committee, Town staff, and other local stakeholders.

Section VII examines policy and planning issues related to Open Space and Recreation. Topics covered in this chapter include existing conditions, local capacity, open space and recreation planning efforts, and identified community needs. The chapter also includes an analysis of issues and opportunities, as well as a set of recommendations.

Section VIII focuses on the Natural, Historical and Cultural Resources of Chelmsford. It includes a discussion of existing environmental, historical and cultural assets, and an analysis of the issues and opportunities inherent to natural, historical and cultural protection and preservation in Chelmsford. Finally, a set of recommendations about how best to conserve these important resources is presented.

The ninth section of the plan examines Municipal Facilities and Services. An inventory of existing town-owned facilities is provided and the physical characteristics and condition of each facility is assessed and described. Similarly, an inventory of town services is presented and opportunities for improving the efficiency and quality of service delivery are discussed. Similar to other sections, issues and opportunities regarding future facility and service needs is provided, along with a set of recommendations.

The final section of the Master Plan includes the Implementation Plan, which consists of a matrix containing each recommendation outlined in the Master Plan. The table identifies the town department, board, commission or committee with primary implementation responsibility for each specific recommendation. In addition, a timeframe for implementation is established.

B. The Master Plan Vision Statement

Over the course of the master plan development process, the Master Plan Committee has worked to craft and refine the town's Vision for the Future, which is presented below. The Master Plan has been created with an eye toward guiding the community in a fashion that will ultimately achieve this vision:

"The Town is a vibrant, safe and pleasant place to live and work. Pride in the community is evident throughout Town. The educational system in town is known for its high standard of excellence, adding to the attractiveness of the Town. There are diverse and affordable housing opportunities for people of all income levels, lifestyles and age groups. Our Center Village contains a mix of business and residential uses and is an important cultural and economic asset to the community. The ongoing use of revitalized mill structures and the North Town Hall in Vinal Square is testimony to the Town's preservation and celebration of its historic resources. Town government is responsive to the needs of the community and has a high level of civic engagement. There is strong and open communication between town officials, citizens and the business community.

The Town's infrastructure and information architecture is adequate to meet the Town's current needs and to serve as the foundation of sustainable future growth. We enjoy the town-wide system of parks, open spaces and recreation areas that enhance our quality of life. The transportation system is safe and efficient, incorporating the needs of all residents through roadway improvements, enhanced transit service and facilities designed to accommodate the needs of pedestrians and bicyclists. Sewer and water service is available throughout town and the capacity of the system is sufficient to handle current and future demand.

The Town welcomes responsible redevelopment and new development that promotes sustainable development practices, broadens the community's tax base, provides employment opportunities and protects natural and historic resources. We encourage and support businesses through open communication with town government and a streamlined permitting process. The business community continues to show its commitment to the Town through its participation in and support of community activities and organizations."

C. Principal Goals of the Master Plan

The following seven (7) goals are the principal goals that have been used to guide the Master Plan development process. A set of sub-goals have also been established and are enumerated on the first page of each section of the plan.

1. **Land Use and Zoning:** Manage and direct growth, including redevelopment and new development projects, in a manner consistent with the community's character and ensure that the Town's zoning and land use policies and practices are consistent with the approved Master Plan.

2. **Economic Development:** Establish an active economic development program to retain and attract "growth" businesses, which enhance the Town's tax base and create well-paying jobs in a manner that balances job creation with the quality of life.

3. **Transportation:** Improve and enhance the community's established transportation network by promoting alternative transportation modes, expanding public transit options, and implementing traffic improvements and techniques that are directed at alleviating congestion and improving safety.

4. **Housing:** Promote the development and maintenance of diverse and affordable housing opportunities for Chelmsford residents consistent with the community's character for all income levels, lifestyles and age groups.

5. **Open Space and Recreation:** Manage, preserve and protect the open space and recreation resources and invest in the expansion of these areas in order to enhance the quality of life.

6. **Natural, Historical and Cultural Resources:** Maintain, protect and preserve the natural, cultural and historic resources that provide the Town its unique identity and enhance the quality of life of its residents.

7. **Facilities and Services:** Provide high quality, cost effective and accessible services to meet the changing needs of the Town's residents and businesses.

DEMOGRAPHIC PROFILE

As part of the introduction to the 2010 Chelmsford Master Plan, the demographic profile of the community provides some standard and comparative data related to population, households and income. This demographic profile provides a linkage between the 1996 Chelmsford Master Plan and the 2010 Master Plan. More specific data related to the subject areas, such as economic development, housing or transportation, are included in their respective chapters.

A. Population Characteristics

Within the population section, there is information on Chelmsford population figures for 1990 and 2000, as well as population estimates for 2005 through 2009. The racial composition and foreign-born status of the population in 1990, 2000 and 2008 are also discussed. Population projections for Chelmsford and the Greater Lowell region are provided for 2010 through 2030, while population projections for the various age cohorts in Chelmsford are also provided.

The population for the Town of Chelmsford increased from 32,383 in 1990 to 33,858 in 2000, which represented a growth rate of 4.6%. This growth rate was among the lowest in the Greater Lowell region, which grew by 6.7% during this same period of time. Only the City of Lowell at 1.7% and the Town of Billerica at 3.6% had lower population growth rates between 1990 and 2000. The U.S. Census released new population estimates for the Greater Lowell region as of July 1, 2009. Based upon these population estimates, the Greater Lowell region experienced a growth rate of 2.4% between the U.S. Census figures (281,225) in April 2000 and the estimated figures (287,875) for July 1, 2009. Compared to the rest of the region, Chelmsford had the smallest positive growth rate during this period, increasing by only 0.7%. As shown in Table 1.4 below, the population growth in Chelmsford, Billerica (2.3%), Dracut (3%), Dunstable (19.3%), Pepperell (3.3%), Tewksbury (6.1%), Tyngsborough (8.1%) and Westford (9%) offset the slight population decrease in the City of Lowell (0.7%). The Town of Chelmsford actually experienced a decrease in its population estimates from 2008 to 2009.

TABLE 1.4
GREATER LOWELL POPULATION AND POPULATION ESTIMATES: 1990 - 2009

Community	4/1/1990	4/1/2000	7/1/2005 (estimated)	7/1/2006 (estimated)	7/1/2007 (estimated)	7/1/2008 (estimated)	7/1/2009 (estimated)
Billerica	37,609	38,981	40,069	41,391	41,616	41,844	39,865
Chelmsford	**32,383**	**33,858**	**33,852**	**33,707**	**34,302**	**34,409**	**34,111**
Dracut	25,594	28,562	28,971	29,385	29,273	29,501	29,415
Dunstable	2,236	2,829	3,163	3,222	3,265	3,323	3,375
Lowell	103,439	105,167	103,383	103,229	103,196	103,615	104,400
Pepperell	10,098	11,142	11,439	11,412	11,324	11,382	11,508
Tewksbury	27,266	28,851	29,120	29,418	29,366	29,543	30,597
Tyngsborough	8,642	11,081	11,369	11,542	11,773	12,019	11,980
Westford	16,396	20,754	21,520	21,507	21,626	22,066	22,624
NMCOG Region	263,659	281,225	282,886	284,813	285,741	287,702	287,875

Source: U.S. Census for 1990 and 2000 and U. S. Census Population Estimates for2005-2009 as of July 1, 2009.

In terms of racial composition, the town's population in 1990 was comprised principally of white residents (96.3%). According to the 1990 U.S. Census, the town's minority populations consisted of black (.5%), American Indian (.1%), Asian (3.1%), other race (0.02%) and Hispanic/Latino (1%). Even though Chelmsford is still a predominantly white community, the number of nonwhite residents living in Town—especially those of Asian descent and those who identify as some "Other" race or multiracial-- has increased substantially in recent years. Table 1.5 below, compares the racial composition of Chelmsford residents in 2000 and 2008.

TABLE 1.5
RACIAL COMPOSITION OF CHELMSFORD: 2000 AND 2008

	2000		2008		Percent Change
	Number	Percent	Number	Percent	2000-2008
Total Population (One Race Alone)	32,383	100	32,402	100.00	0.05
White	31,520	97.34	29,395	90.72	-6.74
Black or African American	194	0.60	176	0.54	-9.28
American Indian and Alaska Native	0	0.00	0	0.00	0
Asian	1,550	4.79	2,287	7.06	47.55
Native Hawaiian and Other Pacific Islander	0	0.00	0	0.00	0
Some other race	26	0.08	189	0.58	626.92
Two or more races	311	0.96	355	1.10	14.15
Hispanic or Latino (of any race)	488	1.51	357	1.10	-26.84

Source: U.S. Census Bureau 2000; 2006-2008 American Community Survey

According to figures provided in the 2000 U.S. Census and 2006-2008 *American Community Survey*, the total population identified as "white alone" decreased by -6.74% between 2000 and 2008. In 2000, white residents comprised 97.34% of the Town's total population, but eight years later that rate had decreased to 90.72%. The Black/African American and Hispanic/Latino communities declined as well—decreasing by 9.28% and 126.84%, respectively, during this time period.

In contrast, populations identified as "Asian alone", "Some other race", and "Two or more races" notably increased between 2000 and 2008. During this eight year time period, residents of Asian descent grew by 47.55%, comprising 4.79% of the town's population in 2000 and 7.06% in 2008. While residents identified as "some other race" were still a very small percentage of the town's population in 2008 (189 residents total, or 0.58% of the Town's total population), this segment of the population actually grew by 626.92% (26 residents, or 0.08% of the Town's population) in 2000. Similarly, multiracial residents comprised 0.96% of the Town's population in 2000, but had increased by 14.15% by 2008, accounting for 1.1% of the local population.

Additionally, the number of foreign-born residents has increased considerably over the past twenty years. In 1990, there were 1,940 foreign-born residents living in Chelmsford. Ten years later that number had grown by nearly a quarter (24.6%) to 2,418 residents. As of 2008, there

were 3,186 foreign born residents living in town. This represents an increase of 31.8% from 2000, and foreign-born residents comprised 9.8% of the Town's total population in 2008.

In 2007, the Massachusetts Highway Department (MassHighway), which has been renamed as the Massachusetts Department of Transportation (MassDOT), developed population projections for the region through 2030. These population projections were based upon a statewide model that assigned a specific share to each Metropolitan Planning Organization (MPO) region and then to its individual communities. NMCOG provided comments on the draft projections and the final projections were adjusted accordingly. Based upon the population projections established by MassDOT, Chelmsford was expected to increase its population by 3.1% between 2000 and 2010, and by 22.3% between 2000 and 2030. Compared to the rest of the region, as illustrated in Table 1.6 below, Chelmsford's projected population growth between 2000 and 2030 was the third lowest in the region at 10.8%. Due to the more mature level of development in Chelmsford and the lower population base figures for the other communities, the projected population growth for Chelmsford lags behind the rest of the region. If you compare the population estimate by the U.S. Census for Chelmsford in 2009 (34,111) with the MassDOT projected population for Chelmsford in 2010 (34,920), it appears that the population projections may be higher than the actual population growth.

TABLE 1.6
GREATER LOWELL POPULATION PROJECTIONS: 2000-2030

Community	2000	2010	2015	2020	2025	2030	Percent Change, 2000-2030
Billerica	38,981	40,020	40,470	41,090	41,650	42,150	8.1
Chelmsford	**33,858**	**34,920**	**35,460**	**36,110**	**36,900**	**37,500**	**10.8**
Dracut	28,562	33,408	34,700	36,900	38,100	40,300	41.1
Dunstable	2,829	3,780	4,300	4,850	5,490	6,120	116.3
Lowell	105,167	108,210	109,790	111,200	112,010	113,270	7.7
Pepperell	11,142	14,150	17,120	18,660	20,300	22,450	101.5
Tewksbury	28,851	30,915	31,700	32,300	32,500	33,270	15.3
Tyngsborough	11,142	13,430	14,610	15,400	16,200	17,400	56.2
Westford	20,754	24,807	26,350	28,490	29,350	31,340	51.0
Greater Lowell	281,225	304,000	314,500	325,000	332,500	343,800	22.3

Source: 2000 U.S. Census and 2007MassDOT projections in consultation with NMCOG

In terms of the breakout of Chelmsford's projected population by age, the Metropolitan Area Planning Council (MAPC) developed age cohort projections in 2006 for eastern Massachusetts communities based upon the 1990 and 2000 U.S. Census data. Similar to the MassDOT projections developed in 2007, these age cohort projections were developed across a wider region and then the community figures were developed. These age cohort projections are important in developing future policies for the community to address school enrollment, workforce numbers, housing needs and a variety of other subject areas.

These estimates are important because they speak to changes in the number of youth, the working-age population, and senior citizens living in a community over time. Changes in the age composition of a community have significant implications for the various planning initiatives within a community and there are different needs to be addressed within each age cohort.

Table 1.7 below shows Chelmsford's population broken down by age cohort, based upon the 1990 and 2000 U.S. Census. The age cohort projections for 2010, 2020 and 2030 were developed by MAPC and initially based upon the 1990 U.S. Census. Therefore, there will be some slight variations in the age cohort projection numbers from the population projections developed by MassDOT. However, the age cohort trends will remain consistent.

TABLE 1.7
POPULATION BY AGE COHORT: 1990-2030

Age Range	1990	2000	2010	2020	2030	Percent Change, 2000-2030
Under 10 Years	4,240	4,650	3,939	3,708	3,813	-18.0
10-14	2,107	2,398	2,131	1,960	1,947	-18.8
15-19	2,140	1,989	2,184	1,973	1,843	-7.3
20-24	2,311	1,193	1,707	1,592	1,453	21.8
25-34	5,518	4,161	3,385	3,729	3,482	-16.3
35-49	7,727	8,923	7,828	6,502	6,768	-24.2
50-64	5,224	6,126	9,086	10,061	8,965	46.3
65-74	1,906	2,372	2,736	4,117	5,057	113.2
75+	1,210	2,046	1,759	2,003	2,988	46.0

Source: 1990 and 2000 U.S. Census Projections for 2010, 2020 and 2030 developed by the Metropolitan Area Planning Council, 2006

According to the projections by MAPC, Chelmsford is expected to experience the largest overall growth in its older populations – 50 to 64 years, 65 to 74 years, and 75+ - and its early working age or college population (20-24 years). Between 2000 and 2030, the 50-75+ population is expected to grow by nearly 6,500 residents or 61.3%. Within this overall population, the 65-74 age group is projected to grow by 113.2% between 2000 and 2030, the 50-64 age group is expected to increase by 46.3%, and the 75+ age cohort will increase by 46%. The early working age or college population (20-24) is expected to grow by 21.8% between 2000 and 2030, which represents the only age group below 50 years of age expected to increase. Overall, then, the community is expected to grow older and will need to address the growing needs of older residents.

The largest decline in any age cohort is in the 35-49 age group, which is expected to decrease by 24.2% between 2000 and 2030. This age group traditionally has the established families in the community. The 10-14 age group is projected to decrease by 18.8% during this time period, while children under 10 years of age are expected to decline by 18%. The early family group, or those in the 25-34 age range, is projected to decrease by 16.3% between 2000 and 2030. The

decline in these age groups will have an impact upon the school system and housing stock within the community.

B. Household Characteristics

As with the population projections completed by MassDOT, household projections were developed to show the growth of households in the Greater Lowell region. Households are defined by the U.S. Census as being equivalent to "occupied housing units". According to the projections developed by MassDOT, as reflected in Table 1.8 below, the number of households in Chelmsford is expected to increase by 8.6% between 2000 and 2020 and an additional 3% between 2020 and 2030. Compared to the other eight communities in the Greater Lowell region, Chelmsford has the second lowest projected growth rate for both decades—only slightly higher than the City of Lowell for both timeframes. This growth in the number of households is consistent with the projected population changes in the town and across the region. The total number of households in the NMCOG region is projected to increase by 28,858 (30%) between 2000 and 2030, with the most significant growth occurring in Dunstable (31.1%) and Pepperell (22.4%), which currently have the fewest households in the region.

TABLE 1.8
HOUSEHOLDS AND HOUSEHOLD PROJECTIONS: 2000-2030

Community	2000	2020	Percent Change, 2000-2020	2030	Percent Change, 2000-2030
Billerica	12,961	14,838	14.5%	15,540	4.7%
Chelmsford	**12,826**	**13,929**	**8.6%**	**14,340**	**3%**
Dracut	10,450	14,265	36.5%	15,640	9.6%
Dunstable	936	1,732	85.0%	2,270	31.1%
Lowell	37,992	41,119	8.2%	41,770	1.6%
Pepperell	3,845	6,807	77.0%	8,330	22.4%
Tewksbury	9,955	11,845	19.0%	12,370	4.4%
Tyngsborough	3,741	5,572	48.9%	6,440	4.4%
Westford	6,836	10,193	49.1%	11,700	14.8%
NMCOG Region	99,542	120,300	20.9%	128,400	6.7%

Source: 2000 U.S. Census; projections by MassDOT in consultation with NMCOG

C. Income Characteristics

Compared to the other towns in the region, Chelmsford had the third highest median household and median family incomes and the second highest per capita income in 2008. Dunstable and Westford have consistently had higher household and family incomes than Chelmsford, with Westford also surpassing the Town in its per capita income.

Between 1990 and 2008, the median household (MHI) and family incomes (MFI) in Chelmsford increased by 63.6% and 85.4%, respectively, while per capita income (PCI) increased by 93.7%. Compared to other communities in the region, per capita incomes increased at a higher rate

between 1990 and 2008 in Dunstable (98.4%), Pepperell (107.8%), Tyngsborough (118.7%), and Westford (109%). Median Household incomes grew at a higher rate in every community except for Dracut (52.8%). These statistics are illustrated in Table 1.9 below.

TABLE 1.9
PER CAPITA, MEDIAN HOUSEHOLD, AND MEDIAN FAMILY INCOMES: 1990-2008

	1990	2000	2008*	Percent Change,1989-2008
Billerica				
Per Capita Income	$19,395.00	$24,953.00	$32,479	67.5
Median Household Income	$50,210.00	$67,799.00	$85,022	69.3
Median Family Income	$53,302.00	$72,102.00	$95,712	79.6
Chelmsford				
Per Capita Income	**$21,814.00**	**$30,465.00**	**$42,258**	**93.7**
Median Household Income	**$53,971.00**	**$70,207.00**	**$88,293**	**63.6**
Median Family Income	**$59,368.00**	**$82,676.00**	**$110,066**	**85.4**
Dracut				
Per Capita Income	$16,508.00	$23,750.00	$31,046	88.1
Median Household Income	$45,165.00	$57,676.00	$69,012	52.8
Median Family Income	$48,506.00	$65,633.00	$80,226	65.4
Dunstable				
Per Capita Income	$20,059.00	$30,608.00	$39,802	98.4
Median Household Income	$62,515.00	$86,633.00	$102,615	64.1
Median Family Income	$65,720.00	$92,270.00	$116,747	77.6
Lowell				
Per Capita Income	$12,701.00	$17,557.00	$23,009	81.2
Median Household Income	$29,351.00	$39,192.00	$50,944	73.6
Median Family Income	$35,138.00	$45,901.00	$56,878	61.9
Pepperell				
Per Capita Income	$17,374.00	$25,722.00	$36,109	107.8
Median Household Income	$44,492.00	$65,163.00	$82,462	85.3
Median Family Income	$49,259.00	$45,901.00	$97,428	97.8
Tewksbury				
Per Capita Income	$18,224.00	$27,031.00	$33,852	85.8
Median Household Income	$52,572.00	$68,800.00	$87,427	66.3
Median Family Income	$56,786.00	$76,443.00	$99,405	75.1
Tyngsborough				
Per Capita Income	$16,633.00	$27,249.00	$36,380	118.7
Median Household Income	$48,842.00	$69,818.00	$87,887	79.9
Median Family Income	$52,358.00	$78,680.00	$105,993	102.4
Westford				
Per Capita Income	$21,878.00	$37,979.00	$45,728	109
Median Household Income	$60,566.00	$98,272.00	$117,538	94.1
Median Family Income	$63,047.00	$104,029.00	$130,030	106

Data Source: 1990 and 2000 U.S. Census; 2006-2008 American Community Survey
*Note: 2008 estimates for Dunstable, Pepperell, and Tyngsborough were calculated by applying the average percentage increase for the other 6 communities (between 2007 and 2008) in the region to the 2007 figures developed by Claritis, Inc.

Table 1.10 on the following page illustrates the distribution of incomes for Chelmsford households in 2000 and 2008. This data reveals that in less than a decade, the percentage of households and families earning less than $100,000 per year, except for the $10,000-$14,999 and $15,000-$24,999 ranges, *decreased,* while the percentage of households and families earning

more than $100,000 per year *increased* across all brackets. For example, households earning between $35,000 and $49,999 in 2000 accounted for approximately 13.2% of all households and by 2008 they accounted for 8.2% of total households. Conversely, households earning $150,000 or more per year jumped from 8.4% of all households in 2000 to almost 19.8% in 2008.

TABLE 1.10
INCOME DISTRIBUTION FOR HOUSEHOLDS IN CHELMSFORD: 2000 AND 2008

Income Bracket	Number of Households 2000	Percent of Total Households	Number of Households 2008	Percent of Total Households	Percent Change, 2000-2008
Less than $10,000	523	4.1	425	3.2	-18.7
$10,000- $14,999	400	3.1	410	3.1	2.5
$15,000- $24,999	887	6.9	913	6.9	2.9
$25,000- $34,999	847	6.6	803	6.1	-5.2
$35,000- $49,999	1,693	13.2	1,080	8.2	-32.2
$50,000- $74,999	2,589	20.2	2,110	16	-18.5
$75,000- $99,999	2,247	17.5	1,455	11.1	-35.2
$100,000- $149,999	2,555	19.9	3,223	24.5	26.1
$150,000- $199,999	672	5.2	1,545	11.7	129.9
$200,000 or more	413	3.2	1,202	9.1	191
Median Household Income	$70,207	12,826	$88,293	13,166	25.8

Source: 2000 US Census, 2006-2008 American Community Survey

Table 1.11 below compares the income distribution for Chelmsford families in 2000 and 2008. The income distribution among families followed similar trends as households: families with lower incomes declined, except for the $10,000-$14,000 bracket, between 2000 and 2008. For example, those families earning less than $10,000 per year declined by 72.8%, those earning between $15,000 and $24,999 declined by 12.8%, and those earning between $25,000 and $34,999 and $35,000 and $49,000 declined by 25.8% and 57%, respectively. Conversely, families earning between $100,000 and $149,999, $150,000 and $199,999, and more than $200,000 per year increased by 18%, 120%, and 194.7%, respectively. Part of these trends can be attributed to the economic inflation that has occurred over the past two decades, although the 2008 data accounts for the economic downturn that has occurred since December 2007.

TABLE 1.11
INCOME DISTRIBUTION FOR FAMILIES IN CHELMSFORD: 2000 AND 2008

Income Bracket	Number of Families 2000	Percent of Total Families	Number of Families 2008	Percent of Total Families	Percent Change, 2000-2008
Less than $10,000	147	1.6	40	0.4	-72.8
$10,000- $14,999	80	0.9	86	1	7.5
$15,000- $24,999	304	3.2	265	3	-12.8
$25,000- $34,999	391	4.2	290	3.3	-25.8
$35,000- $49,999	1,164	2.4	501	5.6	-57
$50,000- $74,999	2,005	21.4	1,337	15	-33.3
$75,000- $99,999	1,910	20.4	1,114	12.5	-41.7
$100,000- $149,999	2,368	25.3	2,795	31.4	18
$150,000- $199,999	616	6.6	1,355	15.2	120
$200,000 or more	376	4	1,108	12.5	194.7
Median Family Income	$82,676	9,361	$110,066	8,891	33.1

Source: 2000 US Census, 2006-2008 American Community Survey

III. LAND USE AND ZONING

INTRODUCTION

The Land Use and Zoning chapter of the Master Plan examines past development trends and current land use patterns within the community. Land use refers to the physical arrangement of a community's residential, commercial, industrial and institutional development, along with its transportation network, infrastructure and vacant land. Examining spatial development patterns, rates of change, and trends can provide insight into how the town evolved under varying social, economic and environmental conditions. Understanding land use change within a community is a key aspect of the overall Master Plan, and forms the basis for discussion regarding the future direction of the town.

Many individuals confuse land use with zoning. In the 1900s, local governments began to utilize zoning as a means for regulating the amount and location of development. Zoning is simply one tool that local officials may utilize to balance private property rights with the public interest in providing for orderly growth and change. In order to understand how zoning may aid in the accomplishment of community goals, this section of the Master Plan begins with a land use analysis which considers five aspects of Chelmsford's land use pattern:

- What are the features of Chelmsford's land use pattern?
- How did this pattern come about?
- What aspects of the town's land use pattern are essential to the character of the town?
- Is the existing land use pattern consistent with community goals?
- What opportunities exist to guide future development in a fashion consistent with the goals of the Master Plan or other established community goals?

Goal Statement: ***Manage and direct growth, including redevelopment and new development, in a manner consistent with the community's character and ensure that the town's zoning and land use policies and practices are consistent with the approved Master Plan.***

- ***Give preference to reuse and redevelopment of existing structures and underdeveloped parcels over new development via incentivized redevelopment zoning (EB), while ensuring that such projects are consistent with neighborhood character and respect the historic resources of the town.***
- ***Maintain development and permitting policies that encourage a diverse economic base, provide new housing opportunities for Chelmsford residents of all income levels, and target development to appropriate locations.***
- ***Reduce and eliminate land use conflicts to the greatest extent possible.***
- ***Protect the character of the town's residential neighborhoods.***
- ***Enhance the visual appearance of the community through the creation of design guidelines for appropriate areas.***
- ***Encourage the preservation of green space in every redevelopment and development project, while striving to reduce the amount of impervious surface.***

Historical Background

A community's physical progression can be traced through its land use history. The Town of Chelmsford has a well-documented history, typified by the growth and development patterns traditionally found throughout New England. One time Native American trails became links between colonial farmsteads. Local taverns and inns served stagecoach routes that connected population centers. The heart of the community focused on the Common, where goods and services were provided for travelers and those residing in the predominantly agrarian community. Chelmsford Center has retained much of its New England village-style character, with small shops located in older, detached buildings, and historic homes which are still utilized as single-family residences.

In the era following World War II, the Town of Chelmsford not only saw a significant increase in population but also the emergence of a society dependent on the automobile. The development of the local highway network, particularly Interstate 495 and U.S. Route 3, brought new economic opportunities to the community, transforming Chelmsford from a rural town to mature suburb. As can be seen in Table 2.1 below, Chelmsford's population grew from 9,408 to 15,130 between 1950 and 1960, a growth rate of 60.8%. During the 1960s, the town population more than doubled from 15,130 to 31,432, making Chelmsford the fastest growing community in the Commonwealth during that time period. Since 1970, population growth has slowed considerably, as evidenced by the fact that the population only increased by approximately 9.2% from 1970 to 2007.

The land use pattern in Chelmsford reflects the substantial changes precipitated by postwar development. The town is a composite of development traditions, many of which pre-date zoning. While local regulations have shaped recent development, it has occurred against the backdrop of older, established neighborhoods. The input received during the Master Plan visioning sessions and at the public input forums has clearly documented strong community support for preserving and respecting the historic fabric of these neighborhoods.

TABLE 2.1
POPULATION TRENDS: 1950-2007

Year	Population	% Change
1950	9,408	--
1960	15,130	60.8
1970	31,432	107.7
1980	31,174	-0.08
1990	33,383	3.9
2000	33,858	4.6
2007 (estimated)	34,128	0.8

Source: 2000 U.S. Census

PAST LAND USE TRENDS

The development of any single tract of land seldom changes the overall character of a community. Over time, however, with the development of open land and the corresponding need for support services, changes in overall community character slowly evolved. Table 2.2 below outlines the changes in land use from 1971 to 2008. This data was compiled by the University of Massachusetts Amherst through aerial photo interpretation. The 2008 UMass data is graphically displayed in the land use map on page 20. This information reflects that amount of land covered by a specific use based on physical attributes and is not parcel specific.

As outlined in Table 2.2, the most dramatic land use change occurred from 1971-1985, when 342 acres of commercial and industrial lands were developed. Although population growth in the community began to level out after 1970, an additional 703 acres of land were converted to residential use between 1971 and 1985. This is largely due to a decrease in household size and the formation of new households.

While residential development continued from 1971-1985, the growth in commercial and industrial development brought the most significant change. The Town's location was key to much of the economic growth that occurred during that period. Eastern Massachusetts experienced record commercial growth over the past few decades due to growth in the high technology sector. Chelmsford's advantageous location along Route 3 and I-495 was largely responsible for its economic vitality and its ability to attract new business and industry, and was a catalyst for the increase in industrial development.

During the period from 1985 to 1999, the rate of new development in Chelmsford slowed considerably, as evidenced in the land use change data. Commercial and industrial land uses grew by 28% and 30% respectively. Residential land uses increased by 13% during this same period. As can be seen in Table 2.2, since 1999, there has been almost no change in land use within the Town of Chelmsford. This can be attributed to a slowing economy and the nearly built-out nature of the community. As shown in Table 2.2, by 2008 approximately 64% of the town's land area was developed, with nearly half of the town's land area in residential use.

TABLE 2.2
LAND USE CHANGE IN CHELMSFORD, 1971-2008 (ACRES)

Class of Land Use	Acres in Use					Percent Change				Town % 2008
	1971	1985	1999	2005	2008	1971-1985	1985-1999	1999-2005	2005-2008	
Commercial[1]	242	334	426	411	414	38%	28%	-3.6%	1%	2.8%
Industrial[2]	204	454	592	561	560	150%	30%	-5.3%	-0.2%	3.8%

[1] The McConnell Land Use System defines "Commercial" land uses as general urban and shopping centers.
[2] The McConnell Land Use System defines "Industrial" land uses as light and heavy industrial.

TABLE 2.2
LAND USE CHANGE IN CHELMSFORD, 1971-2008 (ACRES)

Class of Land Use	Acres in Use					Percent Change				Town % 2008
	1971	1985	1999	2005	2008	1971-1985	1985-1999	1999-2005	2005-2008	
Residential[3]	5,758	6,461	7,306	7,163	7,371	12%	13%	-2%	2.8%	50.0%
Other[4]	8,575	7,529	6,454	6,616	6,406	-12%	-14%	2.5%	-3.2%	43.4%
Summary										
Developed [5]	7,191	8,380	9,435	9,286	9,499	17%	13%	-1.6%	2.2%	64.4%
Undeveloped[6]	7,587	6,398	5,343	5,464	5,254	-16%	-16%	2.3%	-3.8%	35.6%
Total	**14,778**	**14,778**	**14,778**	**14,750***	**14,753***	N/A	N/A	N/A	N/A	100%

Note: 2008 Land Use was updated from the 1999 McConnell Land Use files through orthophotography at a scale of 1 to 400.
*Totals from 2005 and 2008 are due to State methodology changes initiated in 2004.

Historical Master Planning and Zoning Efforts

The Town of Chelmsford has over forty years of experience with long range master planning, with master plan documents completed in 1963, 1975, 1986, and 1996. The first three master plan documents were completed during periods of rapid growth and were primarily focus on responding to the impacts of that growth and planning for future development. However, the 1996 Master Plan began to focus on the quality as well as quantity of future growth. Section II of the 1996 Master Plan, entitled "Future Land Use Options", presented three potential build out scenarios: Environmental, Economic and Composite. The document ultimately recommended the composite scenario.

The previous master plans resulted in comprehensive revisions to the Town's zoning bylaw and map and were reflective of the community's desires at that time. These changes directly influenced the historical land use patterns and trends, and established a framework for future development activity.

[3] The McConnell Land Use System defines "Residential" land uses as of the following: multi-family, smaller than ¼ acre residential lots, ¼ - ½ acre residential lots and larger than ½ acre residential lots.
[4] The McConnell Land Use System defines "Other" land uses as of the following: Cropland, Pasture, Forest, Wetland, Mining, Open Land, Participation, Spectator and Water Based Recreation, Salt Wetland, Urban Open, Transportation, Waste Disposal, Water and Woody Perennial.
[5] The McConnell Land Use System defines "Developed" land uses as of the following: Participation, Spectator, and Water Based Recreation, Multi-Family Residential, High, Medium and Low Density Residential, Commercial, Industrial, Urban Open, Transportation and Waste Disposal uses.
[6] The McConnell Land Use System defines "Undeveloped" land uses as of the following: Cropland, Pasture, Forest, Wetland, Mining, Open Land, Water and Woody Perennial uses.

LAND USE CHARACTERISTICS OF EXISTING PARCELS

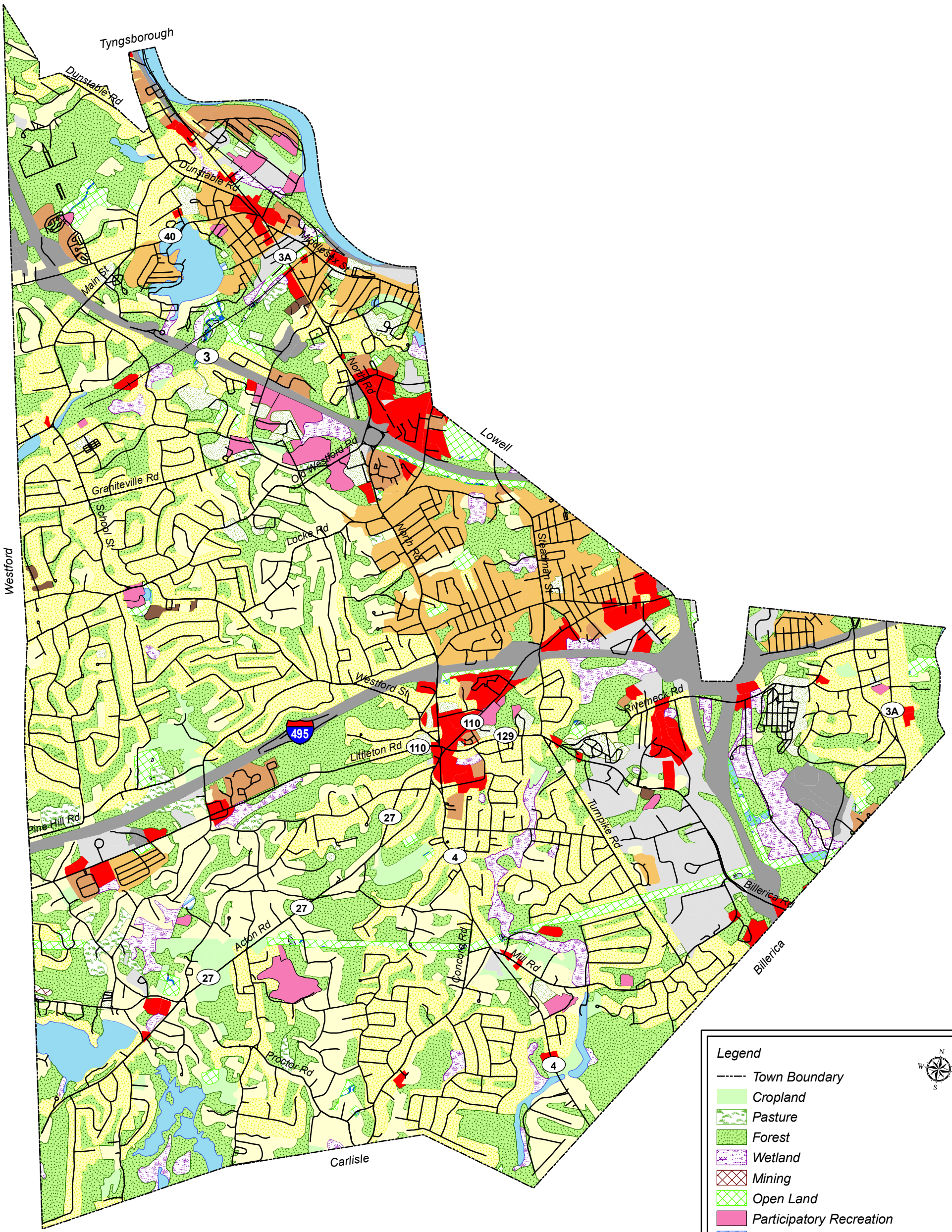
Land use coverage information provided through the University of Massachusetts/McConnell data differs significantly from parcel-based land use statistics. Since land use coverage information maps account for a community's entire geography, they include features such as open water and roadways. In contrast, tax assessor parcels maps represent land in recorded plans used to determine the appraised value of property. Given the different characteristics of these two data sources, it is not possible to directly compare one with the other, but both sources provide important insight into the development patterns within town and show similar trends. Table 2.3 below provides parcel-based land use statistics from the tax assessor's database for FY 2008.

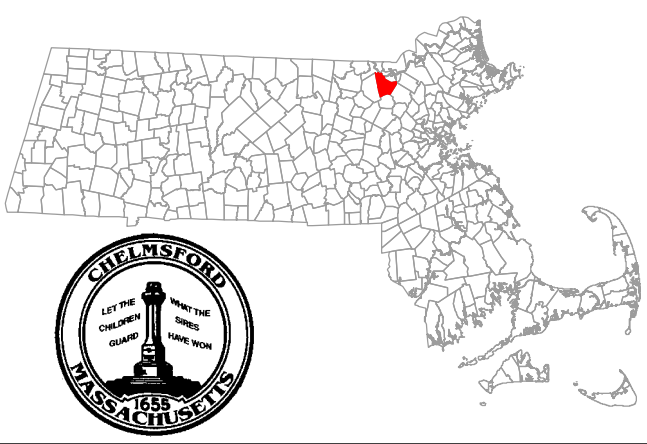
TABLE 2.3
CURRENT USES OF LAND IN CHELMSFORD (2008)

Class of Use	Acres	% Total Acreage
Residential		
Single-family dwellings	7,193	62.26
Two-family dwellings	126	1.09
Three-family dwellings	39	0.34
Condominiums	401	3.47
Mobile homes	39	0.34
Four to eight unit apartments	10	0.08
Apartments with more than eight units	54	0.47
Rooming and boarding houses	2	0.02
Total	**7,864**	**68.07**
Commercial		
Hotels, Motels and Nursing Homes	28	0.35
Storage Warehouses and Distribution Facilities	74	0.64
Retail Trade (restaurants, shopping centers/malls, depart. stores, etc.)	140	1.21
Auto-Related Uses	30	0.26
Banks, General and Medical Offices	161	1.39
Indoor and Outdoor Recreational Facilities	32	0.28
Misc.	8	0.07
Total	**473**	**4.09**
Industrial		
Manufacturing, R&D	489	4.23
Public Utilities	57	0.49
Total	**546**	**4.72**
Exempt Land		
Municipal	1,870	16.19
Colleges, Churches, 121A corp., Housing Auth. and Charitable Org.	228	1.97
State Land	307	0.27
Total	**2,405**	**20.82**
Chapter 61, 61A, 61B Land	**265**	**2.30**
Grand Total	**11,553**	**100%**

Source: Chelmsford Assessor's Database for FY 2008

Map 1: 2008 Land Use





2008 Land Use was updated from the 1999 Land Use files through orthophotography taken 11/13/2009 at a scale of 1 to 400. Initial data provided by the University of Massachusetts, Amherst and created from 1:10000 Color Infrared photos using the McConnell land use system. Due to the disparate photo resources the current wetlands may be understated.

Data developed by the Northern Middlesex Council of Governments.

Produced by:
The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

05/13/2009 *JCM*

Residential Land Uses

As shown in Table 2.3 above, 68 % of the town's land is used for residential purposes, of which 92% is utilized for single-family residences. An overwhelming majority of the homes in Chelmsford are detached single-family residences built in tract subdivisions. An additional 6% of the community's acreage is occupied by other residential uses including condominiums, multi-family housing, and rooming/boarding houses. Residential uses are distributed consistently throughout town, with single-family homes being most prevalent in West Chelmsford, the Westlands, Ward Corner, South Chelmsford, and North Chelmsford. Homes clustered around the town's lakes and ponds reflect the character of a one-time vacation area with small-size lots and modest cottage-style houses, most of which have been converted to year-round residences.

Multifamily residences and condominiums are interspersed throughout town, with concentrations in North Chelmsford along Middlesex Street, Tyngsborough Road and on Littleton Road near the Westford town line. Condominiums represent approximately 5% of the residential land uses and 3.47% of the overall land use acreage. Two- and three-family homes make up a very small percentage (1.43%) of the land use in the town overall and only 2% of the residential land.

Commercial Land Uses

Commercial land uses make up approximately 4% of the total land use area in town, according to the assessor's database. Chelmsford has a diverse commercial base comprised of retail, hotels, restaurants, financial establishments, and service type businesses. A diversity of land use types and varying patterns of commercial land use can be found throughout Chelmsford.

Shopping center and suburban retail plaza development is prevalent along Route 110 between the Center and Route 3, and within the Drum Hill area. Office/R&D development occupies much of land along Route 129 in the area of the Route 3 interchange. Smaller scale village-style businesses are found in Chelmsford Center and the Vinal Square area of North Chelmsford, while pockets of neighborhood-style retail establishments are interspersed throughout the community. Commercial development is generally concentrated in the following geographic areas:



Drum Hill commercial retail district

Chelmsford Center

The historic commercial and civic center of Chelmsford provides a variety of retail, professional office and service businesses. The Town Hall and Town Library are located in close proximity to newer, automobile-oriented commercial retail establishments including a grocery store, a discount retail department store, and strip-mall style development along Summer Street and Route 110. The heart of the town center contains a mix of specialty retail, restaurants and service type businesses.



Retail uses in Chelmsford Center

Drum Hill and Technology Drive

Drum Hill is one of the town's major retail corridors. Located adjacent to Route 3, and bordering the City of Lowell, commercial land use patterns within the Drum Hill area consist of broad mix including professional offices, shopping centers, banks, restaurants, medical/surgical services, and a hotel. The commercial district is anchored by a supermarket and large discount department store. The remaining retail activity consists primarily of medium-sized stores, serving local rather than regional needs.

Vinal Square/North Chelmsford

A small cluster of businesses is located in North Chelmsford around the historic village of Vinal Square. This area, located at the intersection of Route 40, Middlesex Street and Route 3A, is home to a variety of neighborhood retail and service businesses. Renovated historic mill complexes are located south of Vinal Square, along Middlesex Street and Route 3A, and provide office, industrial and additional retail space. Scattered pockets of neighborhood retail development can be found along Route 3A north of Vinal Square to the Tyngsborough town line.

South Chelmsford Village

South Chelmsford Village is a small historic village located along Route 27 and Maple Road and contains limited retail space, a local farm stand, and a few large industrial buildings.

Route 110/Littleton Road

Route 110 (Littleton Road) is the town's main east/west corridor and traverses the center of Town. The corridor accommodates a variety of retail and commercial businesses. The most densely developed portion of the roadway extends from Chelmsford Center, past the Interstate

495 interchange to the Lowell border near Route 3. This section of the corridor features large retail complexes, such as East Gate Plaza and the Chelmsford Mall, as well as smaller-scale retail and service establishments, small professional office properties and two hotels.

Industrial Land Uses

In 2008, approximately 546 acres or 4.72% of the town's tax parcels contained an industrial use. Industrial uses include utilities, manufacturing, research and development facilities, warehousing and wholesale establishments. Many of these establishments are located along Route 129, in the Drum Hill area, in the mill complexes in North Chelmsford, and along Route 3A north of Vinal Square. More extensive information regarding industrial development within Chelmsford can be found in the Economic Development section of this document.

Institutional Land Uses

The Town of Chelmsford has a traditional group of institutional land uses consisting of government, charitable, religious and educational properties, which occupy 20.82% of the town's tax parcel acreage. The town owns 1,836 acres of land or 15.39% of the acreage included in the town's tax parcels. Charitable, non-profit, educational and religious entities own 228 acres, or approximately 1.97% of the town's tax parcel acreage. The Commonwealth of Massachusetts owns 307 acres, representing 2.66% of the overall land acreage, while Middlesex County owns 34 acres.

OPEN SPACE LAND AND PROTECTION STATUS

Approximately 999.16 acres of the Town's 2,620.42 acres of classified open space are considered permanently protected, comprising 6.7 percent of the Town's total land area. The majority of these open space properties are owned by the Town and the Water Supply Districts. Detailed information regarding ownership and level of protection for those properties with permanent protection or limited protection is provided in Table 2.4 below.

TABLE 2.4
OPEN SPACE LANDS

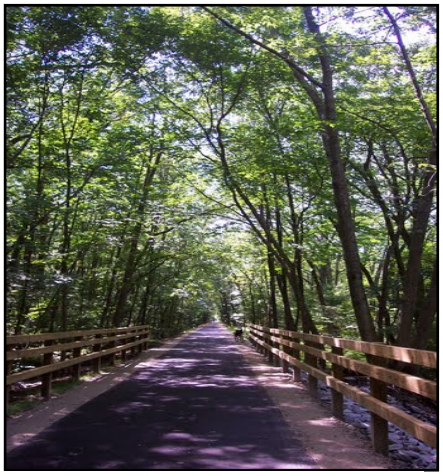
Ownership/Classification	Number of Parcels	Total Acreage
Permanently Protected Lands		
Commonwealth of Massachusetts	4	64.97
Town of Chelmsford	100	778.11
Chelmsford Land Conservation Trust	13	74.28
Conservation Restrictions (Public and Private)	10	71.03
Water Supply Districts	2	2.77
Total	**129**	**991.16**
Unprotected/Limited Protection Public Lands		
Commonwealth of Massachusetts	3	8.78
Town of Chelmsford (including cemeteries)	199	717.18
City of Lowell (cemeteries)	2	14.63
Water Supply Districts	73	388.47

TABLE 2.4
OPEN SPACE LANDS

Ownership/Classification	Number of Parcels	Total Acreage
Total	**277**	**1,129.06**
Unprotected/Limited Protection Private Lands		
Chapter 61	12	112.23
Chapter 61A	24	256.97
Chapter 61B	3	28.93
Cemeteries	6	102.07
Total	**29**	**359.55**
Total	**45**	**500.20**

Source: Chelmsford Assessor's Database for FY 2008, and NMCOG

The two largest parcels owned by the Commonwealth of Massachusetts are located on Billerica Road (28 acres) and Proctor Road (21 acres). The Massachusetts Department of Transportation also owns the Bruce Freeman Rail Trail, which runs through the Town. The three largest Town-owned open space properties are the Cranberry Bog Reservation on Acton Road (180 acres), Russell Mill/Town Forest on Mill Street (132 acres) and the George B. B. Wright Reservation (90 acres), which is in the area of Parker Road, Green Valley Road and Old Stage Road. Most of the town-owned parcels are relatively small - of the 97 permanently protected parcels, only seventeen (17) contain more than ten acres.



Bruce Freeman Rail Trail

Water supply lands are owned by the three (3) Water Supply Districts within Town as shown in Table 2.5 below. Collectively, the town's three water districts own 75 parcels of land comprising 391.24 acres.

TABLE 2.5
SUMMARY OF PROPERTY OWNED BY WATER SUPPLY DISTRICTS

Water Supply District	Number of Parcels Owned	Total Acreage Owned
East Chelmsford Water District	5	34.10
North Chelmsford Water District	12	87.94
Chelmsford Water District	58	269.20
Total	**75**	**391.24**

Ten (10) properties, totaling 71.03 acres, are permanently protected through conservation restrictions, and all are located in the Residential B (RB) zoning district. The Chelmsford Land Trust, a private, non-profit organization dedicated to the preservation of open space, owns thirteen (13) parcels totaling 74.28 acres. At twenty-four (24) acres, the Warren Wildlife Sanctuary located on Boston Road, is the largest Chelmsford Land Trust parcel.

Approximately 717.18 acres of land owned by the Town is unprotected or has limited protection from potential development. These lands include town parks, school athletic fields and playgrounds, landfills and cemeteries. The City of Lowell also owns two (2) parcels totaling 14.63 acres.

Chelmsford currently has approximately 398.13 acres of private land in forestry, agricultural or recreational uses, enrolled in the Chapter 61, 61A and 61B tax abatement programs. The Chapter 61 lands are all located within the Residential B (RB) zoning district and comprise 112.23 acres of land. Chapter 61A and 61B lands comprise 285.90 acres and are located within residential zoning districts, with the exception of two (2) parcels which are located within the Roadside Commercial zoning district.

The three (3) Water Supply Districts comprise seventy-five (75) parcels, totaling 391.24 acres. There are six (6) privately-owned cemetery parcels totaling 102.07 acres. The Water Supply District and cemetery parcels are classified as having limited or unprotected status.

BUILD-OUT ANALYSIS AND FUTURE LAND USE OPTIONS

A build-out analysis is a land use planning tool used to help a community understand the impacts of developing available land to the capacity allowed under current zoning. It is understood and acknowledged that while build-out studies are useful, they cannot predict when in time full build-out will occur. More importantly, it is understood and cautioned that the Town may never reach full build out of vacant and under-developed land as this depends on many factors, such as the economic climate and market conditions, which are generally outside a community's control. A build-out analysis can help a community identify changes that are needed in its Master Plan, Zoning Bylaw and development regulations.

In its simplest form, a build-out analysis looks at land area that is currently developed, developable land area, and vacant land area that is subject to absolute development constraints, such as open water, wetlands, or parcels of dedicated or permanently protected open space. The undevelopable land is subtracted from the total land area to determine area still available for development.

Within the last two years, two build out analyses have been completed. This first, an analysis of vacant developable lands under existing zoning regulations, was undertaken by NMCOG and completed in 2008. This residential and commercial/industrial build out primarily focused on larger sized parcels that had significant contiguous developable uplands. The methodology can be found in Appendix B of the 2008 Chelmsford Build Out Analysis Update prepared by NMCOG.

A second build out analysis was conducted in 2010 by the Town's Community Development Department to analyze development capacity of under-developed properties that have existing

structures that are not fully developed. This build-out concluded that the redevelopment of existing, underutilized land will have a significant impact on the Town.

Vacant Developable Lands

The results of the 2008 Build-out Analysis concluded that Chelmsford is nearly built out (See Map 2, Developable Lands), with only 680.58 acres of vacant developable land remaining, as shown in Table 2.6 below.

TABLE 2.6
UNDEVELOPED/DEVELOPABLE PARCELS BY ZONING CLASSIFICATION

Zoning Classification	Number of Parcels	Total Acreage
Limited Industrial (IA)	13	96.54
Special Industrial (IS)	3	83.07
Residential A (RA)	10	79.75
Residential B (RB)	46	397.74
Adult Entertainment (CX)	3	23.48
Total	**75**	**680.58**

Source: 2008 Chelmsford Build-out Analysis Update prepared by the Northern Middlesex Council of Government

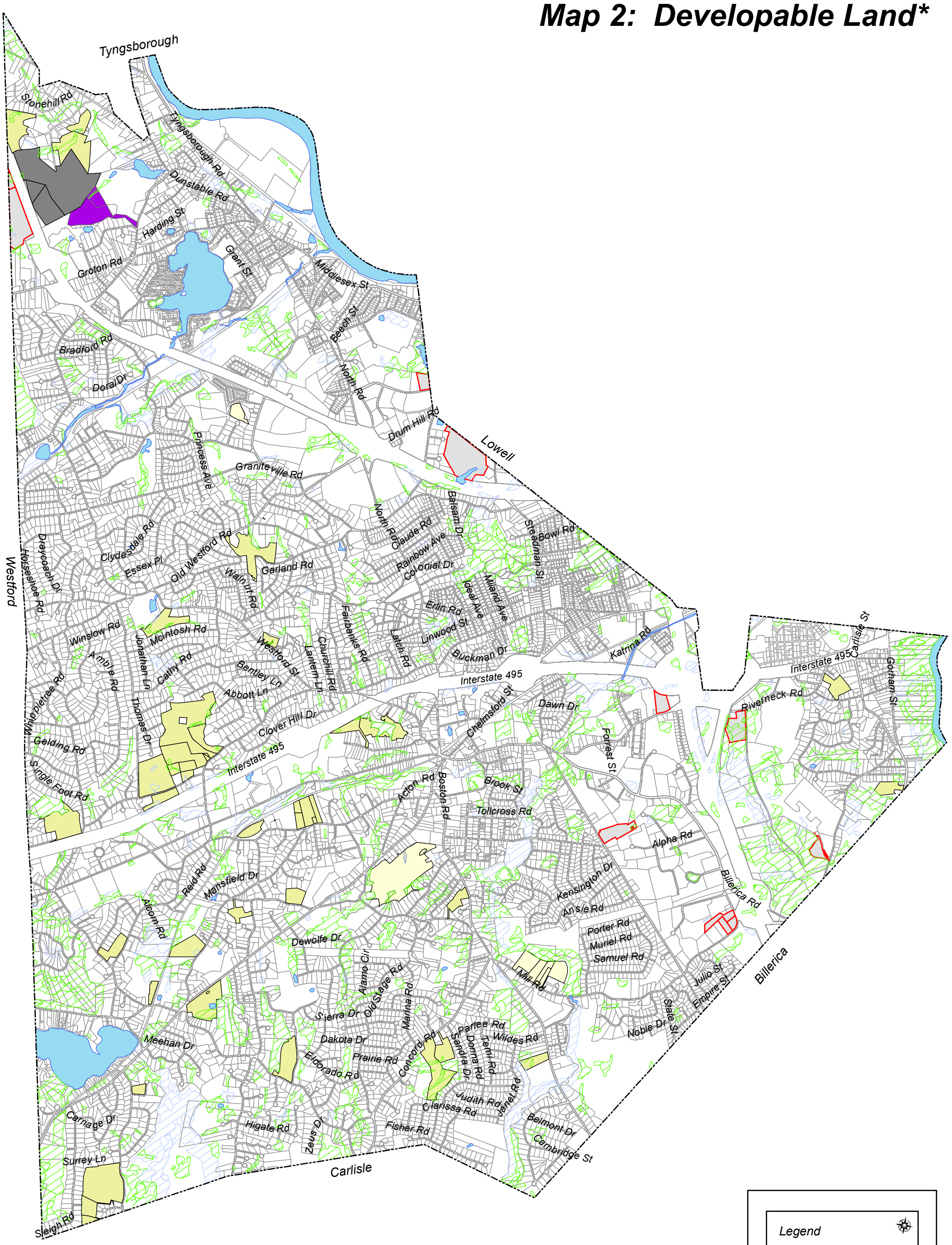
Table 2.7 below summarizes the results of the build-out analysis and quantifies some of the infrastructure impacts of achieving full build-out.

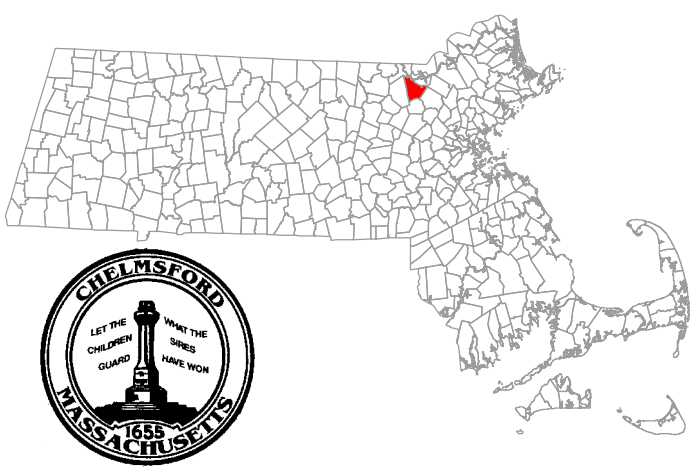
TABLE 2.7
2008 BUILD-OUT ANALYSIS SUMMARY TABLE

Indicator	Impact
Developable Land (sq. ft.)	29,646,183
Developable Land (acres)	680.58
Total Residential Lots	56
Adult CX Buildable Floor Area (sq. ft.)	439,801
Industrial IS Buildable Floor Area (sq. ft.)	1,104,463
Industrial IA Buildable Floor Area (sq. ft.)	1,676,370
Commercial/Industrial Water Use (gallons/day)	241,575
Residential Water Use (gallons/day)	11,025
Municipal Solid Waste (tons)	88.64
Non-recycled Solid Waste (tons)	53.66
New Residents	147
New Students	29
New Residential Subdivision Roads (miles)	0.95

Source: 2008 Chelmsford Build-out Analysis Update prepared by the Northern Middlesex Council of Government

Map 2: Developable Land*





*Based on 2008 Build-out analysis.

Data provided by the Town of Chelmsford, MassHighway, Mass DEP and the Northern Middlesex Council of Governments. Developable land, as depicted, is by definition, under current zoning bylaws, capable of having permanent structures of indefinite life, such as housing, commerical, industrial buildings or other impervious surfaces, built upon the sites indicated.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Produced by:
The Northern Middlesex
Council of Governments
40 Church St., Suite 200
Lowell, MA 01852
978-454-8021
NMCOG.ORG

03/23/2009 jcm

Legend

- Town Boundary
- DEP Wetlands
  - Water
  - Marsh
  - Swamp
- Developable Lands by Zoning District
  - Adult Entertainment
  - Limited Industrial
  - Special Industrial
  - Residential A
  - Residentail B

0 0.25 0.5 0.75 1 Miles

Potential Residential Build-out



Potential redevelopment site for a new MBTA commuter rail station in Vinal Square. (*Source: Pictometry International, 2008)*

The largest areas of vacant developable residential land are found in the RB zoning classification, with nearly 400 acres of land remaining on 46 parcels. Combined with ten parcels, comprising nearly 80 acres, remaining under the RA zoning classification, future residential development is projected to add 56 additional housing units and 147 new residents, including 29 new students.[7] Obviously, other factors, such as Chapter 40B (affordable) housing, changing family and household size, redevelopment of current properties, housing turnover and shifting demographics ("empty nesters" selling to younger families), will have an impact upon these projections.

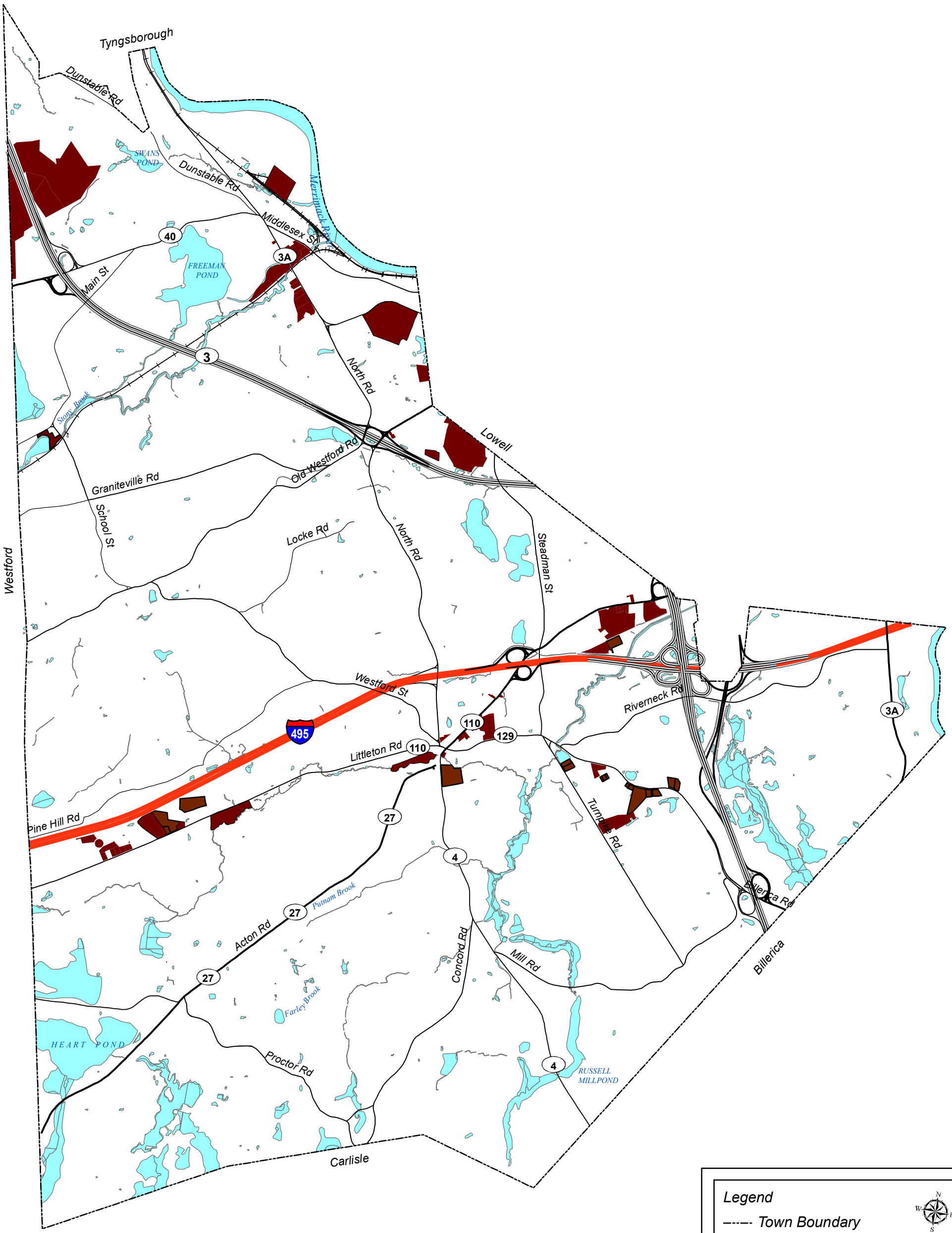
Commercial and Industrial Build-out

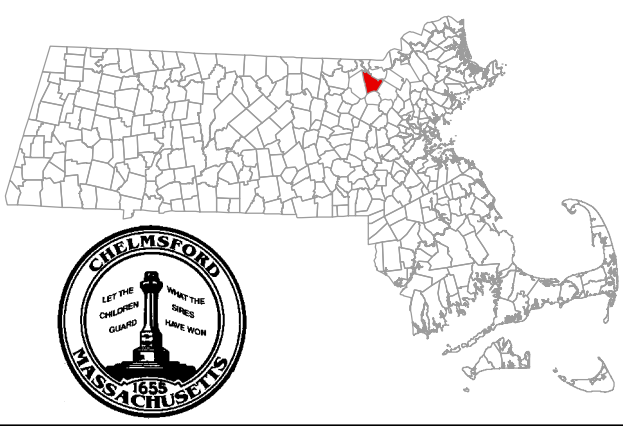
There is no remaining developable land located in the commercial zoning districts. Therefore, any new commercial development will likely occur as a result of a redevelopment or infill project. In some areas, such as Chelmsford Center and Vinal Square, creation of a mixed-use overlay district and adoption of a mixed-use bylaw would allow the Town to take advantage of "smart growth" programs at the state level, while revitalizing these areas as commercial centers. As part of the Build-out Analysis, Map 3 was developed depicting future redevelopment opportunities within the Town.

The remaining acreage in the IA zoning district should be further evaluated to ensure that the land is developed to the highest and best use, as a means of promoting economic development and growing the non-residential tax base. Two of the vacant industrial parcels do not meet the minimum lot size requirements under the Town's existing zoning bylaw (Map 86, Block 328, Lots 27 and 28). Unless they are combined with other parcels, they cannot be developed without a variance from the Zoning Board of Appeals. Most industrial operations do not use multi-story buildings. The potential commercial/industrial floor area that can be developed does not account for factors such as this, and therefore, it is likely that the floor area ratio would be less than that assumed in the build out calculations.

[7] Most of this acreage is classified as Chapter 61 lands and the Town has the right-of-first-refusal should the property be put up for sale.

*Map 3: Redevelopment Parcels**





** Based on 2008 Buildout analysis, Chelmsford Economic Development Plan, and input from the Community Development Department.*

Additional Data provided by MassGIS, MassDOT, The Northern Middlesex Council ofGovernments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

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Legend

- *Town Boundary*
- *Redevelopment Parcels*

Major Roads

- *Interstate*
- *Limited access*
- *Arterials*
- *Collectors*
- *Rail lines*
- *Lakes, ponds, and open water*

N W E S

Miles
0 0.25 0.5 0.75 1

Under-developed Lands

As mentioned above, a supplemental build out was conducted in 2010 by the Town's Community Development Department which focused exclusively on commercial and industrial development. This build out identified the additional development capacity for each underdeveloped parcel. The specific methodology for the 2010 Commercial/Industrial Build Out is included in Appendix B of this document.

The results of the 2010 Build-out Analysis concluded that Chelmsford has significant potential for additional square footage on under-developed lands via redevelopment of existing under-utilized parcels with existing structures. As mentioned previously, it is important to note that the Town may never see full build out of under-developed lands.

Table 2.8 and 2.9 summarizes the results of the under-developed lands build out analysis based upon zoning and land use types.

TABLE 2.8
UNDER-DEVELOPED LANDS BY ZONING CLASSIFICATION

Zoning Classification	Number of Parcels	Total Acreage
Commercial Neighborhood (CA)	17	40
Commercial Roadside (CB)	52	90
Shopping Center (CC)	13	47
General Commercial (CD)	69	60
Limited Industrial (IA)	124	586
Total	**275**	**823**

Source: 2010 Chelmsford Build-out Analysis prepared by the Community Development Department

TABLE 2.9
UNDER-DEVELOPED LANDS BY LAND USE TYPE

Land Use Type	Number of Parcels	Total Acreage
Commercial	107	246
Auto-related	31	24
Office	49	115
Industrial/Manufacturing	88	440
Total	**275**	**825**

Source: 2010 Chelmsford Build-out Analysis prepared by the Community Development Department

Table 2.10 and 2.11 on the following page summarizes the results of the under-developed lands build-out analysis based upon zoning and land use types.

TABLE 2.10
BUILD-OUT ANALYSIS SUMMARY BY ZONING CLASSIFICATION

Zoning Classification	Additional Square Footage
Commercial Neighborhood (CA)	322,548 – 403,185
Commercial Roadside (CB)	477,817 – 597,272
Shopping Center (CC)	259,956 – 324,946
General Commercial (CD)	283,080 – 353,850
Limited Industrial (IA)	837,332 – 1,046,665
Total	**2,180,733 – 2,725,918**

Source: 2010 Chelmsford Build-out Analysis prepared by the Community Development Department

TABLE 2.11
BUILD-OUT ANALYSIS SUMMARY BY LAND USE TYPE

Land Use Type	Additional Square Footage
Commercial	1,360,000 – 1,719,658
Auto-related	38,858 – 48,573
Office	381,201 – 476,502
Industrial/Manufacturing	325,955 – 407,444
Total	**2,106,014 – 2,652,177**

Source: 2010 Chelmsford Build-out Analysis prepared by the Community Development Department

The additional square footages, presented in Tables 2.10 and 2.11, reflect a range based upon a projected low and high. The specific methodology for determining the ranges is presented in Appendix B of this Master Plan.

Consolidated Commercial / Industrial Build Out

The consolidated build out provides a glimpse of "Trends continued", if and when all land is developed to the maximum extent allowed under law. More importantly, the associated outputs or impacts of the build-out analysis should help inform community discussions regarding land use, housing and economic development. For example, is there too much or too little of a particular land use projected for the community, such as enough residential development to support the amount of commercial development desired, or enough industrial to provide a balanced tax and employment base? Is the mix of uses appropriate to create a vibrant Village Center? Is there too much residential development proposed, based on the level of services the Town can provide? Ultimately, the build out should help the community identify changes needed to its Master Plan, Zoning Bylaw and development regulations.

Based upon the vacant land and under-developed land build outs, as presented above, Table 2.12 on the following page presents a consolidated summary.

TABLE 2.12
CONSOLIDATED COMMERCIAL/INDUSTRIAL BUILD OUT ANALYSIS SUMMARY

Zoning Classification	New Square Footage on Vacant Lands	Additional Square Footage on Under-developed Lands
Commercial Neighborhood (CA)	N/A	322,548 – 403,185
Commercial Roadside (CB)	N/A	477,817 – 597,272
Shopping Center (CC)	N/A	259,956 – 324,946
General Commercial (CD)	N/A	283,080 – 353,850
Limited Industrial (IA)	1,676,370	837,332 – 1,046,665
Adult Commercial (CX)	439,801	N/A
Special Industrial (IS)	1,104,463	N/A
Total	**3,220,634**	**2,180,733 – 2,725,918**

Table 2.13 below details the future redevelopment opportunities in the Town, as identified by the Community Development Director, the 2008 Chelmsford Build-out Analysis Update and the town's Economic Development Plan, 2008. Although all parcels listed in Table 2.13 may not be redeveloped, there are nearly 352 acres of land on 66 parcels that may hold potential as redevelopment sites for future commercial, industrial, residential and mixed-use developments. These parcels have been further reviewed by the Master Plan Committee to ascertain their highest and best use, whether, it be for economic development purposes, housing or open space. The results of the review will be described in the Economic Development, Housing and Open Space and Recreation elements of the Master Plan.

TABLE 2.13
POTENTIAL REDEVELOPMENT SITES

Location	Map	Block	Lot	Acreage	Zoning District	Land Use Code	Land Use Description
100 Wotton Street[1,2]	9	6	3	12.53	Limited Industrial (IA)	400	Former Southwell Combing Co. mill. 127,321 sq. ft. consists of one manufacturing tenant with the remainder of the mill being vacant.
Ledge Road/Off [2]	10	4	2	21.27	Residential B (RB)	909	Congregational Church - East of Route 3 and northwest of Scotty Hollow Road
540 Groton Road/off[2]	10	22	1	20.9	Limited Industrial (IA)	440	Vacant developable industrial land
Groton Road/off[2]	10	22	2	1.80	Limited Industrial (IA)	440	Vacant developable industrial land
Dunstable Road/Off[2,3]	11	4	1	66.37	Special Industrial (IS)	903	Oak Hill Road Parcel - Municipal vacant land
51 Middlesex Street[2]	13	36	1	6.10	Limited Industrial (IA)	400	Occupied mill: Building app. 221,544 sq. ft.
61 Middlesex Street[2]	13	36	3	1.45	Limited Industrial (IA)	401	Occupied mill: Building app. 112,860 sq. ft.
70 Princeton Street[2]	13	36	8	1.28	Limited Industrial (IA)	401	Occupied mill: Building app. 45,594 sq. ft.
31 Princeton Street[2]	13	39	3	0.21	General Commercial (CD)	903	North Chelmsford Town Hall (circa 1898)
107 PrincetonStreet[2]	19	59	4	0.64	Roadside Commercial (CB)	105	Three-family residential

TABLE 2.13
POTENTIAL REDEVELOPMENT SITES

Location	Map	Block	Lot	Acreage	Zoning District	Land Use Code	Land Use Description
117 Princeton Street[2]	19	59	6	0.84	Roadside Commercial (CB)	332	Auto repair service
123 Princeton Street[2]	19	59	8	0.70	Roadside Commercial (CB)	332	Auto repair service
133 Princeton Street[2]	19	59	9	1.30	Roadside Commercial (CB)	401	Abandoned 16,000 sq. ft. industrial warehouse that is in disrepair
147 Princeton Street[2]	19	59	10	3.11	Roadside Commercial (CB)	326	Restaurant/Club
165 Princeton Street[2]	20	59	1	4.26	Roadside Commercial (CB)	322	Disc. store
255 Princeton Street[1,2,3]	20	74	1	34.00	Residential B (RB)	902	UMass Lowell West Campus
10 Technology Drive[2]	27	74	1	3.90	Limited Industrial (IA)	440	40,000 sq. ft. office space potential after environmental constraints. Vacant industrial developable land
152 Stedman Street[2,3]	32	110	1	30.78	Limited Industrial (IA)	402	Former Glenview Sand and Gravel. Vacant industrial developable land
3 Jean Avenue[1,2]	32	110	11	1.02	Roadside Commercial (CB)	390	Developable land
59 Parkhurst Road[1,2]	32	110	12	1.09	Roadside Commercial (CB)	335	Car wash
110 Drum Hill Road[2]	32	113	4	0.23	Shopping Center (CC)	101	Single-family residential
6 Wesley Street[2]	32	113	5	0.33	Shopping Center (CC)	340	Office building
11 School Street[1]	35	142	5	13.77	Residential B (RB)	340	Office building
27 Katrina Road[1,2]	52	234	2	3.12	Limited Industrial (IA)	903	Municipal land – Light Industrial
283 Chelmsford Street[2]	52	203	3	0.54	Shopping Center (CC)	390	Developable vacant land
265 Chelmsford Street[2]	52	203	4	18.28	Neighborhood Commercial (CA)	323	Shopping mall
279 Chelmsford Street[2]	52	203	5	0.39	Neighborhood Commercial (CA)	130	Residential vacant land
277 Chelmsford Street[2]	52	203	6	0.22	Neighborhood Commercial (CA)	392	Undevelopable vacant land
271 Chelmsford Street[2]	52	203	7	0.48	Neighborhood Commercial (CA)	032	Store/Shop
280 Chelmsford Street[2]	52	140	18	0.48	Residential B (RB)	130	Residential vacant land
299 Chelmsford Street[2]	53	201	1	6.92	Shopping Center (CC)	362	Permitted for supermarket
25 Katrina Road[2,3]	63	234	2	3.91	Limited Industrial (IA)	400	Manufacturing building – Brownfield site. Town's only **Priority Development Site (PDS)**
53 Chelmsford Street[2]	73	289	5	1.50	General Commercial (CD)	N/A	McFarlin Field (Possible site for new fire station)
92 Chelmsford Street[2]	73	295	10	0.39	General Commercial (CD)	322	Commercial disc. store
95 Chelmsford Street[2]	73	301	2	0.23	General Commercial (CD)	334	Vacant gas station
93 Chelmsford Street[2]	73	301	3	0.26	General Commercial (CD)	322	Commercial Disc. Store (3-4 tenant strip plaza)
1A North Road[2]	73	319	12	0.76	Residential A (RA)	903	Old Town Hall
39 Chelmsford Street[2]	73	327	4	0.93	General Commercial (CD)	322	Current CVS location

TABLE 2.13
POTENTIAL REDEVELOPMENT SITES

Location	Map	Block	Lot	Acreage	Zoning District	Land Use Code	Land Use Description
29 Chelmsford Street[2]	73	327	7	0.55	General Commercial (CD)	326	Current Papa Gino's
34 Turnpike Road[1]	74	328	5	1.10	Limited Industrial (IA)	101	Single-family
36 Turnpike Road[1]	74	328	6	1.23	Limited Industrial (IA)	101	Single-family
163 Billerica Road[2]	74	331	2	2.74	Limited Industrial (IA)	032	Mulch processing plant on 5 acre site. Office building future development option
242 Billerica Road[1]	75	291	52	5.62	Limited Industrial (IA)	101	Industrial land
41 Central Square[2]	84	334	11	0.39	General Commercial (CD)	341	Bank building
16-20 Boston Road[1,3]	84	334	17	8.45	Shopping Center (CC)	324	Stop & Shop Site
11 Cushing Place[1]	84	336	5	5.00	General Commercial (CD)	332	Disc. store/Commercial warehouse
Blackmer Street[1]	85	331	3	0.22	Limited Industrial (IA)	442	Industrial vacant land
221 Billerica Road[1]	86	328	5	1.00	Limited Industrial (IA)	101	Single-family residential
199 Billerica Road[1]	86	328	6	0.38	Limited Industrial (IA)	101	Single-family residential
205 Billerica Road[1]	86	328	8	6.70	Limited Industrial (IA)	101	Single-family residential
Tracy Road/104 Turnpike Road[2]	86	328	21	8.93	Limited Industrial (IA)	440	Industrial developable vacant land. Could support a 200,000 sq. ft. building.
8 Blackmer Street[1]	86	331	2	0.66	Limited Industrial (IA)	101	Single-family residential
Hunt Road[1]	91	378	3	6.66	Limited Industrial (IA)	440	Industrial developable land
235 Littleton Road[1]	91	378	11	6.06	Roadside Commercial (CB)	112	Apartment 8+ Units
233 Littleton Road[1,2]	91	378	15	0.92	Roadside Commercial (CB)	390	Developable vacant land
50 Hunt Road/Littleton Road[1,2]	92	337	4	11.20	Residential B (RB)	105	Three-family residential with contractor's yard
12 Kidder Road[2]	99	403	4	2.45	Limited Industrial (IA)	440	Industrial vacant developable land
261-7 Littleton Road[1,2]	100	378	1	8.54	Roadside Commercial (CB)	332	Store/Shop/Apts. 4 + Units
269 Littleton Road[2]	100	378	6	0.46	Roadside Commercial (CB)	340	Office building
273 Littleton Road[2]	100	378	7	0.57	Roadside Commercial (CB)	105	Three-family residential
241 Littleton Road[1,2]	100	378	8	0.92	Roadside Commercial (CB)	390	Developable vacant land
289 Littleton Road[2]	100	403	5	0.92	Limited Industrial (IA)	322	Commercial building
293 Littleton Road[2]	100	403	6	0.92	Limited Industrial (IA)	322	Auto repair facility
295 Littleton Road[2]	100	403	7	0.97	Limited Industrial (IA)	300	Auto repair facility
297 Littleton Road[2]	100	403	8	0.97	Limited Industrial (IA)	332	Auto repair facility
Total	**66 Parcels**			**351.34**			

Sources: 1 - Identified in the 2008 Chelmsford Build-out Analysis Update as a potential redevelopment site.
2 - Identified in the Chelmsford Economic Development Plan, 2008, as a potential redevelopment site.
3 - Evan Belansky, Community Development Director indicated the parcel holds a significant potential for redevelopment

ZONING OVERVIEW

Chelmsford regulates development through zoning, subdivision control, Board of Health regulations, and wetlands regulations. Zoning is the most important of these regulatory tools. In a mature suburb like Chelmsford, a zoning bylaw's capacity to steer redevelopment is as important as its capacity to guide the development of vacant land.

Chelmsford's zoning framework includes fifteen (15) conventional use districts (Map 4) and four (4) overlay districts (Map 5). A use district is a geographic area delineated on a zoning map and designated for specific land uses. An overlay district, also delineated on a zoning map, may encourage or limit certain uses within one or more districts, depending on the purposes of the overlay. In Chelmsford, for example, the Billboard Overlay District is designed to only allow billboards in very specific targeted locations – Oak Hill on Route 3 near Scotty Hollow, Chelmsford High School land along Route 3, and at the Route 3/Interstate 495 interchange.

Each zoning district has dimensional and use requirements, and many uses require a special permit, i.e., an approval granted at the discretion of either the Zoning Board of Appeals or the Planning Board. The Planning Board exercises control over activities and uses that require site plan review. Table 2.14 below identifies each zoning district and describes its intended use(s).

TABLE 2.14
CURRENT ZONING DISTRICTS AND INTENDED USES

Land Use Categories	Zoning District	Intended Uses
Low Density Residential	Residential A (RA)	At 100% single-family residential, these are the lowest density single-family residences.
	Residential B (RB)	Low density single-family residential.
Moderate Density Residential	Residential C (RC)	Medium density with 50% single-family residential and 50% duplex.
High Density Residential	Residential Multi-Family (RM)	High density residential district with 15% single-family, 5% duplex and 80% multi-family.
Office & Retail	Neighborhood Commercial (CA)	Commercial districts for neighborhood areas with a development mix of three-story buildings, 50% office and 50% retail.
	Roadside Commercial (CB)	General commercial districts with high traffic generation and a development mix of 25% four-story office buildings, 65% single-story retail and 10% single-story restaurants.
	Shopping Center (CC)	Commercial districts designed to allow clustering of stores around a central parking area; it assumes a development mix of 80% single-story retail, 10% three-story office and 10% single-story restaurants.
	General Commercial (CD)	Primarily retail commercial offices (60%), restaurants (10%) and entertainment commercial uses (30%) located along major existing thoroughfares.
	Center Village (CV)	Mixed-use district intended to promote downtown revitalization

TABLE 2.14
CURRENT ZONING DISTRICTS AND INTENDED USES

Land Use Categories	Zoning District	Intended Uses
Industrial/High Tech	Limited Industrial (IA)	Primarily used for office, R & D, manufacturing (20%) and warehousing (20%).
	Special Industrial (IS)	Suited for heavy industrial, this use has a mix of 50% single-story manufacturing and 50% single-story warehouse.
Public/Semi-Public	Public (P)	Lands owned or leased by federal, state or municipal governments for governmental purposes.
Open Space/Recreation	Open Space (OS)	Privately owned lands used for open space.
	Residential Mobile Home (RMH)	District for mobile homes.
	Adult Entertainment District (CX)	This is a commercial district created for adult entertainment establishments and other permitted uses. There is only one CX District in town, located east of Route 3 and north of Route 40.

Source: Town of Chelmsford Zoning Bylaw, Chapter 195

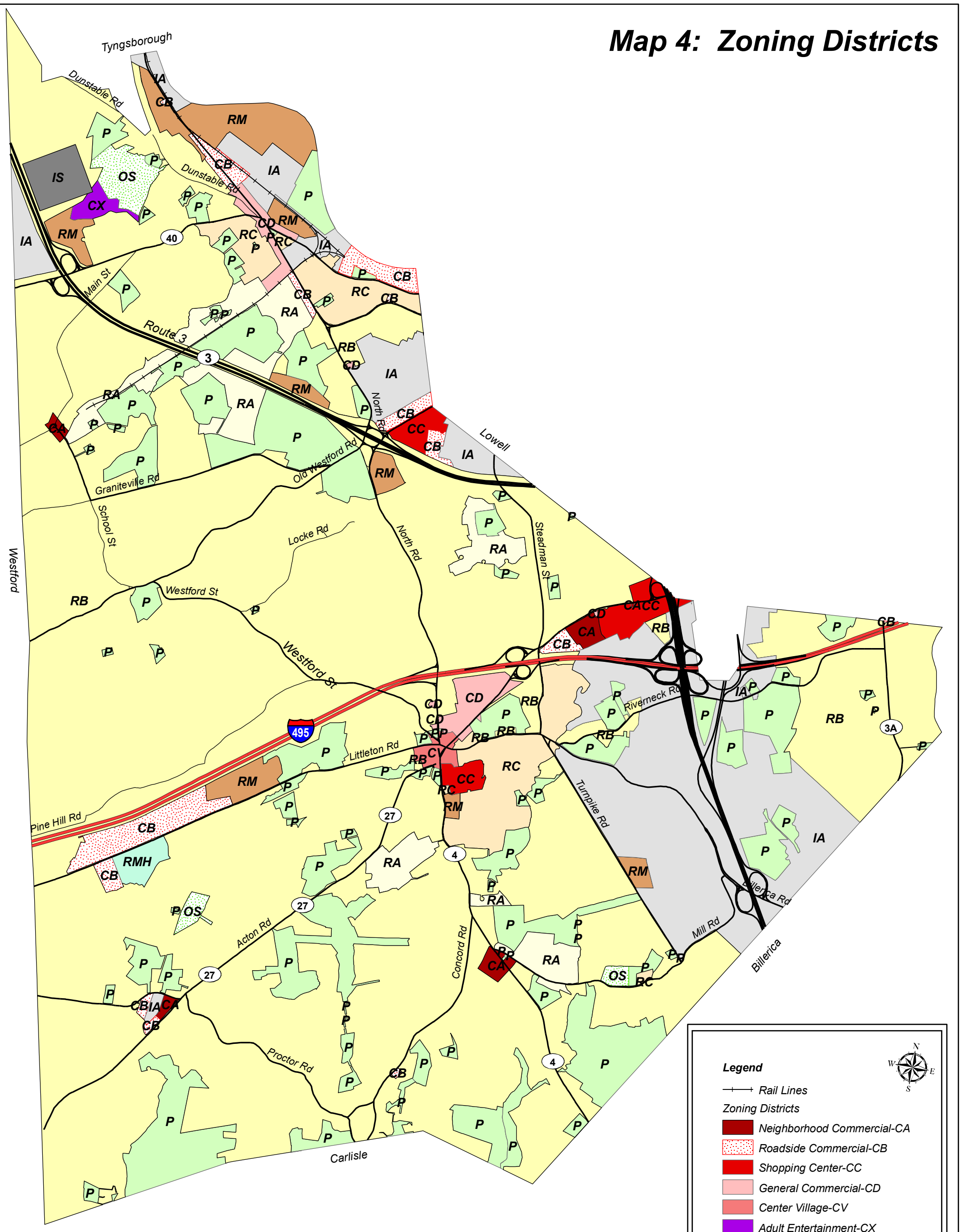
Table 2.15 depicts the acreage for each zoning district within Chelmsford. Approximately 73% of the town is zoned for residential use, with 65% of the town zoned specifically for single-family residences. Commercial zoning districts (CA, CB, CC, CD, and CV) cover 2.87% of the community, while 10.79% of the town is zoned for industrial use. The public zoning district represents 12.15 % of the town and consists of lands owned or leased by federal, state or municipal governments for governmental purposes.

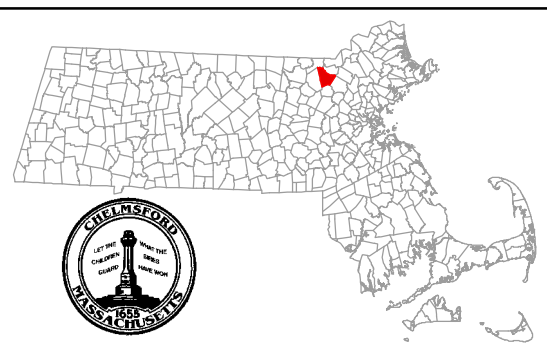
TABLE 2.15
ZONING DISTRICT CLASSIFICATIONS

Zoning District	Acres	Percentage
Residential A (RA)	419.00	2.84%
Residential B (RB)	9,637.78	65.34%
Residential C (RC)	410.18	2.78%
Residential Multi-family (RM)	317.42	2.15%
Center Village (CV)	26.79	0.18%
Neighborhood Commercial (CA)	41.64	0.28%
Roadside Commercial (CB)	134.15	0.91%
Shopping Center (CC)	120.34	0.82%
General Commercial (CD)	100.81	0.68%
Adult Entertainment (CX)	24.96	0.17%
Limited Industrial (IA)	1,527.41	10.35%
Special Industrial (IS)	65.54	0.44%
Residential Mobile Home (RMH)	37.80	0.26%
Public (P)	1,792.31	12.15%
Open Space (OS)	94.77	0.64%
Total	**14,750.88**	**100%**

Source: Northern Middlesex Council of Governments

Map 4: Zoning Districts





The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation. Data provided by MassGIS, MassDOT, the Town of Chelmsford and The Northern Middlesex Council of Governments.

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Legend

- Rail Lines

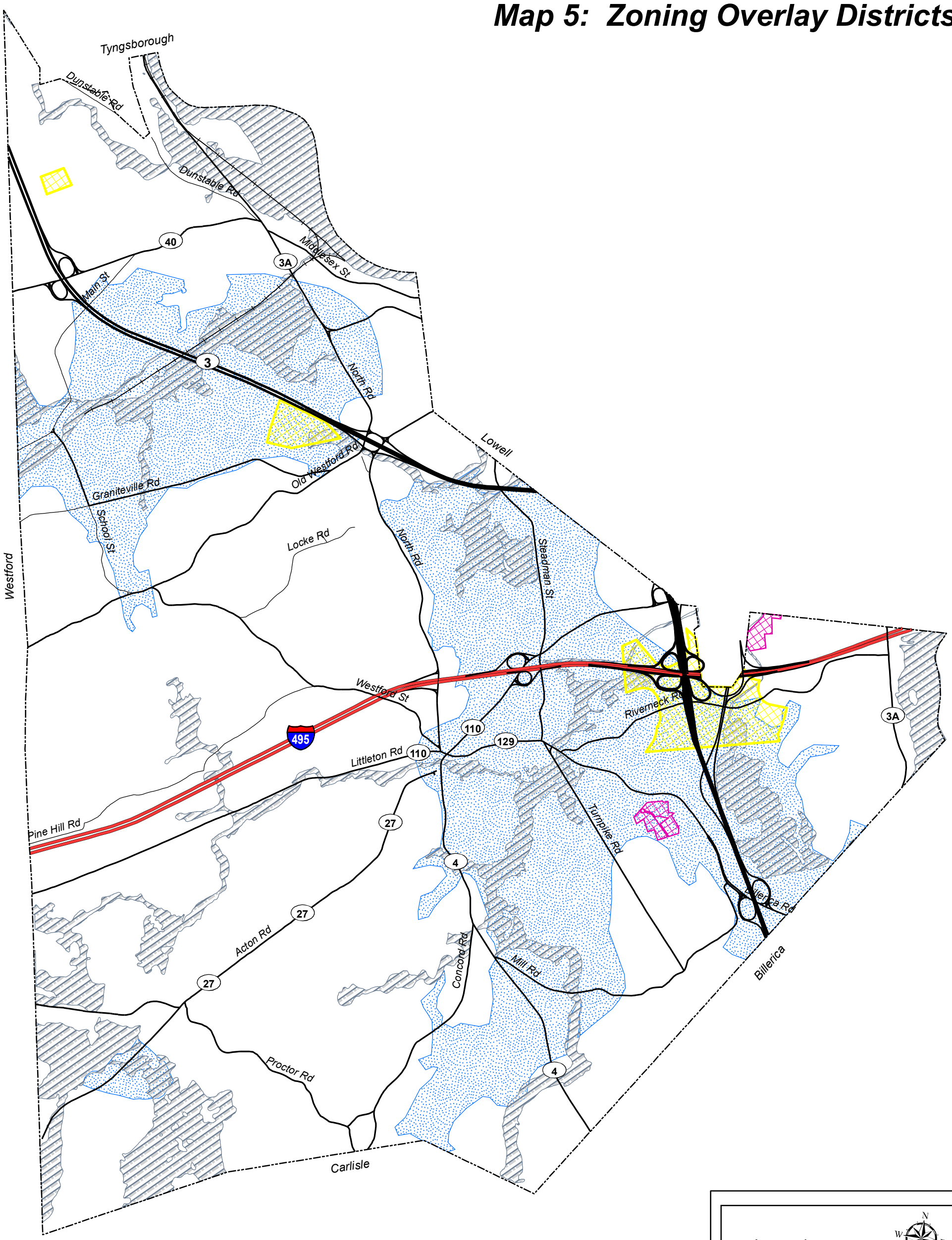
Zoning Districts

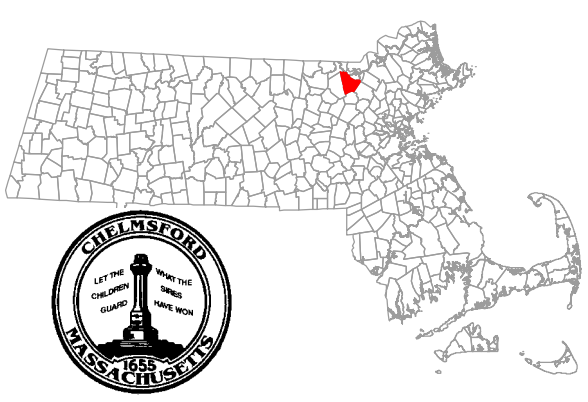
- Neighborhood Commercial-CA
- Roadside Commercial-CB
- Shopping Center-CC
- General Commercial-CD
- Center Village-CV
- Adult Entertainment-CX
- Limited Industrial-IA
- Special Industrial-IS
- Open Space -OS
- Public-P
- Residential A-RA
- Residentail B-RB
- Residential C-RC
- Residential Multi-Family-RM
- Residential Mobile Home-RMH

N W E S

0 0.25 0.5 0.75 1 Miles

Map 5: Zoning Overlay Districts





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Legend

- *Town Boundary*
- *Rail Lines*

Zoning Overlay Districts

- *Adult Entertainment*
- *Aquifer Protection*
- *Billboard*
- *Flood Plain*

0 0.25 0.5 0.75 1 Miles

The Chelmsford Zoning Map and Bylaw has been subsequently updated and reorganized after the completion of each Master Plan, with the most recent comprehensive revision completed in 1998. Some examples of the zoning amendments approved by Town Meeting over the past several years include the following:

- Billboard Overlay Zoning District
- Center Village District
- Residential Mobile Home District

Residential Zoning

Chelmsford is predominately zoned for residential development. As a result, the town's residential zoning regulations will significantly impact its overall land use pattern at build-out, just as residential development already influences Chelmsford's land use pattern and character today. Chelmsford has four residential zones, all of which allow single-family dwellings. Two-family dwellings are allowed only in the RC and RM Districts; multifamily dwellings are allowed in the RM district and the Center Village (CV) only by Planning Board special permit. The minimum lot size for residential uses ranges from 20,000 to 60,000 square feet depending on the district. Planned Open Space Residential Developments (POS) are only permitted in the RA and RB zoning districts, by special permit from the Planning Board. POS developments, however, require a minimum of 10 acres of land, with a minimum of 25% being set aside for open space.

There are several zoning provisions that have been adopted to specifically promote the development of specialized housing, such as: Article XVII, "facilitated and independent senior living facilities, Article XII, multi-family dwellings, and Section 195-13, conversion of dwelling units. Facilitated and independent senior living facilities are not allowed within any residential zoning district except the Residential Multi-Family District (RM).

Special permit uses include multi-family dwellings in RM and CV Districts, conversion of dwellings in the RB and RM Districts, and group residences in the RM and all commercial districts. Accessory residential uses are not permitted in any of the residential zoning districts within the Town other than the Center Village District.

Residential A

The Residential A (RA) District was adopted in 1998 to protect the groundwater supply. It covers 419 acres (2.84%) and is a conventional district for single-family homes. According to the 2008 build-out analysis, approximately 79.75 acres of vacant RA land are considered developable. Areas included in the RA zoning district can be found throughout town, including portions of West Chelmsford and North Chelmsford, and areas off Steadman Street, along Route 27, and along Route 4 south of the Center.

The RA district is the lowest density residential zoning district in Chelmsford, with a minimum lot area of 60,000 sq. ft. required. A minimum frontage of 150 feet is needed and structures must be set back at least 40 feet from the road, 25 feet from the side boundary of the lot, and 30 feet from the rear boundary. Buildings height is capped at the traditional suburban maximum of 35 feet or 3 stories.

Residential B

The Residential B (RB) district was adopted in 1998 and covers approximately 9,637 (65.34%) acres of land. It is the dominant residential district in Chelmsford. The RB district requires a minimum lot area of 40,000 sq. ft. and a minimum lot frontage of 150 feet. As is the case in the RA district, structures must be set back at least 40 feet from the road, 25 feet from the side boundary of the lot, and 30 feet from the rear boundary. There are, however, differences in the dimensional requirements for the RA and RB zoning districts, specifically in the maximum building coverage (15% in RB and 10% in RA) and the floor area ratio (.20 in RB and .15 in RA). Building height in the RB zoning is limited to 35 feet or 3 stories. Of the 9,637 acres of land that comprise the RB District, there are approximately 397.74 acres identified as developable in the 2008 build-out analysis.

Residential C

The Residential C (RC) zoning district allows for single-family homes on moderate-density lots of 20,000 sq. ft, with a minimum lot frontage of 125 feet. Structures must be set back at least 20 feet from the road, 12 feet from the side boundary of the lot, and 20 feet from the rear boundary. Building height is restricted to 45 feet or 4 stories.

The RC district covers only 410 (2.78%) acres of land and allows for the most flexible residential uses, including single-family residences, duplexes and boardinghouses, all of which are permitted by right within the district. This zoning district is most prevalent in North Chelmsford and in an area just southeast of the Town Center. According to the 2008 build-out, there is no developable land remaining within this zoning district.

Residential Multi-Family

The Residential Multi-Family District (RM) was adopted in 1998 and allows for high-density residential development. Single-family and two-family residences are permitted by right and multi-family dwellings are be allowed by special permit from the Planning Board. The RM district requires a minimum lot area of 40,000 sq. ft. and minimum lot frontage of 150 feet. The dimensional requirements are identical for RB and RM districts, except that the RM district has a floor area ratio of .30 compared to the RB district floor area ratio of .20. It is important to note that projects constructed in the RM district must comply with additional minimum yard requirements when abutting an RA or RB district.

The RM district covers approximately 317 (2.15%) acres of land, and allows for the widest array of permitted uses among town's residential districts. The RM district is designed to bring greater housing options to persons and families with a limited income. Under Section 195-63 of the town's zoning bylaw, the Planning Board may grant a density bonus of 10% to an applicant willing to set aside 10% of the units for low and moderate income persons and families, for a period of at least ten years. In order to make progress toward meeting the affordability provisions of Chapter 40B, the town should consider revising the affordability incentives by increasing the percentage of affordable units to 25% and require a deed restriction of at least 30 years, in order that the affordable units may be counted in DHCD's Subsidized Housing Inventory (SHI).

Facilitated and Independent Senior Living Facilities

Through zoning changes adopted in 1998, Facilitated and Independent Senior Living Facilities are allowed in a variety of zoning districts by Planning Board special permit, in order to promote the development of multifamily and communal housing most beneficial for the senior and elder population. Facilitated living accommodates persons who require some medical attention or supervision, and includes assisted living facilities, Alzheimer's facilities and congregate living facilities. Independent facilities are intended for a senior couple or individual who can live independently.

Development of Facilitated and Independent Senior Living Facilities requires a minimum lot area of five acres in most zoning districts, except for the CV district where only 3 acres are required, and the IA district where the minimum lot area requirement is 7 acres. The maximum number of units per acre allowed for facilitated living facilities is 7 in most zoning districts, except for the RM district where 8 units per acre are permitted. The maximum number of units per acre allowed for independent senior living facilities is 4 units for most zoning districts, except for the RM district where 4 units are allowed, and the CV district where 7 units are allowed. Any Facilitated and Independent Senior Living Facilities development must preserve at least 30% of the site as open space in all but the RM District, where there is no minimum open space requirement.

The Planning Board may grant a density bonus for a facilitated and independent senior living facilities project that provides rental units. Where there is more than one size or style of unit in a project, the affordable units must comprise the same percentage as the market rate units. One-half of all additional units created through the density bonus must be maintained as affordable, according to the HUD Section 8 Voucher Program or other such programs deemed agreeable by the Planning Board. Alternatively, the developer may make a contribution under MGL Chapter 44, Section 53A, for the creation of senior affordable housing.

Planned Open Space Development

Originally adopted in 1988 as cluster development, Planned Open Space (POS) residential developments are allowed by Planning Board special permit to promote the conservation of open space and efficient use of land. Developable land must be in an RA or RB zoning district, and a minimum lot size of 10 acres is required. The project must be permitted as a subdivision with a minimum lot size of 12,000 square feet. The number of dwelling units allowed may not exceed the number of units allowed under the base zoning. At least 25% of the site must consist of contiguous open space. The percentage of open space that is classified as wetland must not exceed the percentage of the overall site classified as wetland.

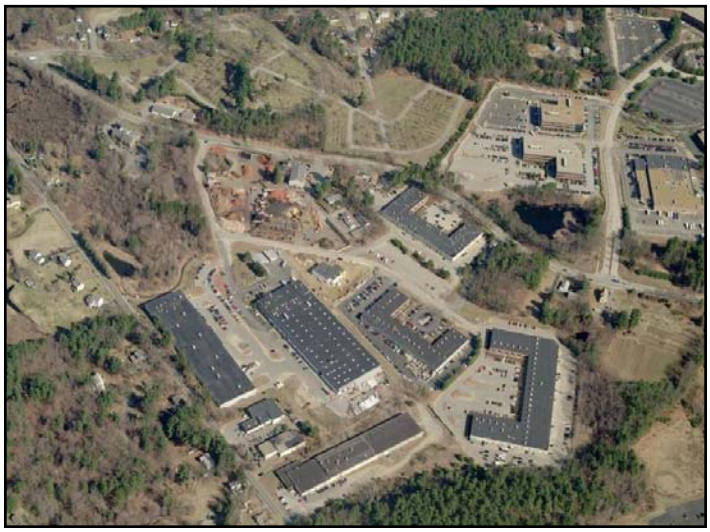
All Planned Open Space Developments must be governed by a homeowners association designated as a non-profit organization under the laws of the Commonwealth. The homeowners association is responsible for the use, care and maintenance of lands and improvements. Membership in the homeowners association is mandatory for all landowners within the POS development.

Commercial and Industrial Zoning

The Town of Chelmsford encourages commercial and industrial development in seven distinct zoning districts: Neighborhood Commercial (CA), Roadside Commercial (CB), Shopping Center (CC), General Commercial (CD), Center Village (CV), Limited Industrial (IA), and Special Industrial (IS). These zoning districts differ in terms of purpose, goals and requirements, as does their impact on the town from both a physical and fiscal perspective. Land zoned for commercial development comprises 423 acres of land, or 2.9 percent of the town's total area, while industrially zoned land comprises 1,592 acres or 10.8 percent.

Limited Industrial District

Adopted in 1963, the Limited Industrial District (IA) is the largest industrial zoning district in Chelmsford, covering 1,527 (10%) acres of land. The minimum lot size in the IA zone is 40,000 square feet, with 150 feet of frontage. Maximum building height allowed within the district is 45 feet or 4 stories. Thirty percent lot coverage and a .45 floor area ratio are allowed within the district.



Route 129 Technology Corridor (*Source: Pictometry International, 2008)*

The IA district consists primarily of office uses, research and development,

manufacturing and warehousing. Professional offices, medical centers, wood operations and wireless communications facilities are other uses allowed by right. Contractor's yards, motel, hotels, health clubs, and self-storage mini-warehouse are allowed by special permit.

This is the primary zoning district encompassing the Route 129 technology corridor, by far the largest office and industrial area in Town. Smaller, but sizable IA zoned areas can be found on the west side of Route 3 at the Route 40 exit, the east side of Route 3A near Tyngsborough border, at the mills in North Chelmsford, near Wellman Avenue in North Chelmsford, Technology Drive near Drum Hill, the Glenview Sand and Gravel parcel near Jean Street, Katrina Road off Route 110 near the Route 3, and a small area off Maple Road in South Chelmsford.

Of the two (2) industrial zoning districts in Chelmsford, the IA District is the only industrial zone in which residential uses of any kind are allowed by special permit – facilitated and independent senior living and group residences. The IA District also allows adult daycare facilities by special permit.

Special Industrial District

Adopted in 1998, the Special Industrial District (IS) is intended for heavy industrial uses. A wide variety of uses are allowed by right including transport terminals, wood operations, light manufacturing, educational uses, wireless communications facilities and childcare facilities. Granite operations are allowed only with a Special Permit. The minimum lot size in the IS zone is 40,000 square feet, with 150 feet of frontage. Maximum building height permitted within the district is 45 feet or 4 stories. Forty percent lot coverage and a .45 floor area ratio are allowed within the district.

This zoning district is limited to a 66-acre town-owned parcel off Swain Road, to the east of the Route 40 Exit on Route 3. This parcel is currently land-locked and sits adjacent to the Swain Road landfill, which is currently zoned for adult entertainment and various commercial and institutional uses.

General Commercial District

Adopted in 1963, the General Commercial District (CD) encompasses 101 acres of land, less than 1% of the town's land area. Uses allowed within the district include retail, commercial offices, restaurants and commercial entertainment uses. Wireless communications facilities are also permitted by right. Motels, indoor recreation facilities, golf courses, auto repair and health clubs are allowed by special permit from the Zoning Board of Appeals.

There are three areas in the town with a CD zoning designation: Route 110 between the Center and I-495, Vinal Square and a portion of the North Chelmsford mills, and a parcel next to the Drum Hill Technology Park. The minimum lot size in the CD zone is 10,000 square feet, with

50 feet of frontage. Maximum building height permitted within the district is 45 feet or 4 stories. Forty percent lot coverage and a .45 floor area ratio are allowed within the district.

Shopping Center District

Adopted in 1963, the Shopping Center District (CC) is designed to allow the clustering of stores, offices, etc., around a central parking area. The CC zone encompasses 120 acres of land within Chelmsford, and represents less than 1% of the town's land area. The minimum lot size in the CD zone is 100,000 square feet, with 200 feet of frontage. Maximum building height allowed within the district is 35 feet or 3 stories. Thirty percent lot coverage and a .45 floor area ratio are permitted within the district.

Allowed uses are similar to the CD District. In addition, indoor commercial recreation is allowed by right and fast food restaurants, clubs or lodges are allowed by special permit. Wireless communications facilities are also permitted by right in the CC District. There are three such areas in town: Drum Hill, Route 110 near the Lowell border (Eastgate Plaza, Chelmsford Mall) and the Stop and Shop Plaza/Summer Street area near the Town Center.

Roadside Commercial District

Adopted in 1967, the Roadside Commercial District (CB) is a general commercial district, and includes uses that are high traffic generators. The CB district encompasses 134 acres of land, representing less than 1% of the town's land area. The minimum lot size in the CB zone is 40,000 square feet, with 150 feet of frontage. Maximum building height allowed within the district is 45 feet or 4 stories. Thirty percent lot coverage and a .45 floor area ratio are allowed within the district. Allowable uses within the CB district are similar to the CC District, except that mini storage is also allowed by special permit. Uses allowed by right include clubs or lodges, motels/hotels, motor vehicle sales, vehicle service and repair, and wireless communications facilities.

CB Districts are located throughout town, including along Route 110 near the Westford border, Route 3A north and south of Vinal Square, Middlesex Street near the Lowell line, the north side of Drum Hill Road, Parkhurst Road, and along Route 110 east of Route 495. A small area in South Chelmsford along Maple Street also has this designation.

Neighborhood Commercial District

Adopted in 1963, the Neighborhood Commercial District (CA) is intended for small retail establishments (less than 3,000 square feet) and professional offices serving neighborhood needs. The CA district comprises approximately 42 acres, including parcels in South Chelmsford Village, along Route 110 in the Westlands, West Chelmsford village, and at the intersection of Route 4 and Mill Road, near the Billerica line. The minimum lot size in the CA zone is 20,000 square feet, with 125 feet of frontage. Maximum building height allowed within the district is 35

feet or 3 stories. Fifteen percent lot coverage and a .45 floor area ratio are allowed within the district.

Center Village District



Chelmsford Center Village District

Adopted in 1998, the Center Village District (CV) was designed for maintaining the village-style character of the Town Center. The CV District encompasses 27 acres of land and is Chelmsford's only true mixed-used district, allowing commercial and residential uses (multifamily housing). Other uses allowed by special permit include offices, banks, medical centers, restaurants, motel/hotel uses and fast food restaurants. According to the Use Regulation Schedule in the Zoning Bylaw, drive-through restaurants are not permitted by right or by special permit. The minimum lot size in the CV zone is 50,000 square feet, with 50 feet of frontage. The minimum building height requirement is 20 feet and the maximum building height allowed within the district is 35 feet or 3 stories. Forty percent lot coverage and a .60 floor area ratio are allowed within the district.

The intent of Center Village (CV) Zoning is to aid in revitalizing, preserving and expanding the village character of Chelmsford's traditional business district. The bylaw encourages small business development and residential uses as an accessory use in certain areas. Parking requirements are reduced by up to 50%, and shared parking is encouraged, in order to promote a pedestrian-friendly environment. Multi-family dwellings and facilitated and independent senior living facilities are the only residential uses allowed in the CV District, and require a special permit from the Planning Board.

Adult Entertainment District

The Adult Entertainment District (CX) is a commercial district created for adult entertainment establishments. Other uses allowed by right within the district include business and professional offices, and banks or financial agencies. There is only one CX District in town, located east of Route 3 and north of Route 40. The CX zone encompasses 25 acres of land and is located at the former Swain Road landfill. The minimum lot size in the CX zone is 40,000 square feet, with 150 feet of frontage. Maximum building height allowed within the district is 45 feet or 4 stories. Thirty percent lot coverage and a .45 floor area ratio are allowed within the district.

In addition to the CX District, an Adult Entertainment Overlay District was established and is subject to the use regulations pertaining to the CX District. Special permits are required from the Zoning Board of Appeals, and cannot be granted for an adult use establishment if it is located less than 1,000 feet from another adult entertainment establishment, residential uses, public or private nursery and day care schools, public or private kindergartens, public or private elementary and secondary schools, playgrounds or parks and religious institutions.

Major Business Complexes

Adopted in 1983, the Major Business Complexes provision within the town's zoning bylaw is intended to increase the diversity and convenience of goods and services, and to provide entrepreneurial and employment opportunities for area residents. It is also intended to focus development in locations that are able to support business development with relatively minimal environmental or municipal costs. Any industrial or commercial development of more than 20,000 square feet in gross floor area is considered a major business complex and requires a Special Permit from the Planning Board.

Home Occupations

The most recent version of the Chelmsford's home occupation bylaw was adopted in 1998 and is similar to that of other communities. Home occupations as of right are businesses or professions incidental to and customarily associated with the principal residential use. The bylaw, however, seems restrictive in light of the town's suburban character and development pattern, and in light of the current economic climate. For example, the bylaw only allows one non-resident to be employed on the premises, which requires a special permit by the Zoning Board of Appeals (ZBA). It is common for home occupations or at-home business regulations to limit the number of non-resident employees, but it is equally common to provide some flexibility by allowing the ZBA to grant exceptions by special permit.

Public and Open Space Districts

Public District

Adopted in 1988, the Public District (P) is composed of lands that are owned and leased by federal, state or municipal governments for governmental purposes. The P District encompasses 1,792 acres (12.5% of the town's land area) scattered throughout town. The minimum lot size in the P district is 20,000 square feet, with 125 feet of frontage. Maximum building height allowed within the district is 35 feet or 3 stories. Fifteen percent lot coverage and a .35 floor area ratio are allowed within the district.



Farmers' market and art festival located at the Town Center Common

Uses allowed by right within the P district include religious and educational institutions, child-care facilities, agricultural uses, wine and dairy facilities, cemeteries, municipal facilities and garages, golf courses, and wireless communication facilities. The following uses are allowed by special permit from the Zoning Board of Appeals: essential services, indoor and outdoor commercial recreation facility, club/lodge, riding academy, fairs/carnivals and health clubs. Essential services are defined as services provided by a public service corporation or by a governmental agency through erection, construction, alteration or maintenance of gas, electrical, steam, water or sewer transmission/distribution systems, or communication systems, whether underground or overhead, but not including wireless communications facilities. Facilities necessary for the provision of essential services include poles, wires, drains, sewers, pipes, conduits, cables, fire alarm boxes, police call boxes, traffic signals, hydrants and other similar equipment.

Open Space District

Adopted in 1988, the Open Space District (OS) is composed of privately-owned lands used for open space. The OS district encompasses 95 acres, or less than 1% of the town's land area. The minimum lot size in the P district is 20,000 square feet, with 125 feet of frontage. Maximum building height allowed within the district is 35 feet or 3 stories. Fifteen percent lot coverage and a .35 floor area ratio are allowed within the OS district.

Uses allowed by right within the OS district include religious and educational institutions, child-care facilities, agricultural purposes, wine and dairy facilities, municipal facilities, indoor/outdoor commercial recreation facilities, club/lodge and health club. The following uses require a special permit from the Zoning Board of Appeals: essential services, riding academy, golf course, wireless communications facilities and fairs/carnivals. For more information pertaining to open space, refer to the Natural Resources and Open Space section of this Plan.

Overlay Districts

Chelmsford has three (3) zoning overlay districts: the Aquifer Protection Overlay District, the Floodplain Overlay District, and the Billboard Overlay District. Each district is discussed in greater detail below.

Aquifer Protection Overlay District

Adopted in 1988, the Aquifer Protection Overlay District consists of three (3) separate Wellhead Protection Areas (WHPAs) within Chelmsford, as defined by the Massachusetts Department of Environmental Protection (DEP). Zone I includes a 400 ft. radius around the wellhead (assuming a greater than 100,000 gpd withdrawal rate). Zone II includes all land deemed influential to the quality and quantity of water drawn from a well under stressed pumping conditions (i.e., the recharge area), and Zone III includes the larger watershed surrounding a water supply.

Development in the Aquifer Protection Overlay District is subject to regulations that supersede the requirements of the underlying districts. Much like the Massachusetts DEP's model regulation, Chelmsford's bylaw prohibits uses that pose a heightened risk to public drinking water supplies, such as landfills, chemical storage, hazardous waste facilities, and junkyards. Some uses are subject to a special permit from the Planning Board if located within the Aquifer Protection Overlay District, such as motor vehicle repair facility, dry cleaners with on-site cleaning facilities, dam construction, salt storage facilities/sheds, and furniture and wood stripping operations, to name a few. Also, the enlargement or alteration of existing uses that are nonconforming in the Overlay District would be subject to a special permit, as described in Section 195-73 of the Zoning By-law.

Floodplain Overlay District

Adopted in 1977, Chelmsford's Floodplain Overlay District is similar to that of other communities across the Commonwealth. It includes all areas within the 100-year floodplain and floodways shown on the Flood Insurance Rate Maps (FIRM), prepared by FEMA and dated January 16, 2004. The 100-year flood zones are Special Flood Hazard Areas (SFHA), with a 1% annual chance of flooding. Regardless of the underlying zoning district use regulations, the Floodplain Overlay District limits permitted uses to those unlikely to cause flooding in a 100-year storm event.

The Floodplain Overlay District is established as an overlay district to all other districts. All development in the district, including structural and nonstructural activities, whether permitted by right or special permit, must be in compliance with M.G.L. c. 131, § 40. The Zoning Board of Appeals can grant a special permit for new construction in the floodplain, as long as the applicant demonstrates that a proposed project conforms to the State Building Code and provides an engineer's certification that it will not increase flood levels during the 100-year flood.

Billboard Overlay District

The Billboard Overlay District, approved at Town Meeting on April 30, 2009, is designed to allow billboards at only three locations – Oak Hill on Route 3 near Scotty Hollow, Chelmsford High School land along Route 3, and at the Route 3/Interstate 495 interchange. The bylaw also

requires that the billboards be located at least 500 feet from a residential use, and that at least 1,000 feet be provided between signs.

DEVELOPMENT STANDARDS

Chelmsford has adopted development standards or requirements that govern site design, off-street parking and loading, environmental standards, landscaping, signage and outdoor lighting, especially in the commercial and industrial zoning districts. The Site Plan review process as well as landscaping, parking and signage requirements, are outlined in the following narrative.

Site Plan Review

The Massachusetts Zoning Act does not specifically authorize site plan review, but the courts have upheld it as valid exercise of zoning authority, and most communities have some type of site plan review procedure. Site plan review is a vital component of the planning process because it creates a mechanism for reviewing development plans for projects that are likely to have a noticeable impact on the surrounding land uses, natural resources and traffic. Site plan review also provides a mechanism for placing reasonable conditions on projects prior to the issuance of a building permit. However, it does not create authority to disapprove uses permitted by right. Unlike a subdivision plan or special permit, an approved site plan does not "grandfather" any zoning rights. Site plan approval lapses after two years from the approval date, if substantial use has not commenced, except for good cause.

Originally adopted in 1975, Chelmsford requires site plan review for the building, alteration, or expansion of any nonresidential building, structure or use in all zoning districts. This is required if such construction will exceed a total gross floor area of 500 square feet. In Chelmsford, Site Plan Review under Section 195-104 of the Zoning By-law applies to the following:

- Construction, exterior alteration or exterior expansion of, or change of use within, a municipal, institutional, commercial, industrial or multi-family structure involving more than 500 square feet;
- Construction or expansion of a parking lot/area for a municipal, institutional, commercial, industrial or multi-family structure or purpose (construction or expansion from 500 to 2,500 sq. ft. shall require minor site plan review);
- Grading or clearing more than 10% of a lot, except for the following: landscaping on a lot with a existing structure or a proposed single-or two-family dwelling; and
- Construction or exterior expansion of a single- or two-family structure that will result in habitable space of more than 4,000 sq. ft. on a lot which held a single- or two-family structure within the past two years.

Chelmsford does not require site plan review for a building that was wholly or partially destroyed and the rebuilt using the same footprint or the square footage of usable space.

Landscaping

Landscaping plans are an important component of the overall development plan and are required by most communities as part of the Site Plan Review process. Adopted in 1998, the Chelmsford Zoning Bylaw requires a landscaping plan for all non-residential and multi-family projects. However, landscaping requirements may be reduced through a special permit, if the Planning Board finds that the proposed project will not detract from the objectives set forth in Section 159-41 of the Zoning Bylaw.

Parking areas with more than ten (10) spaces must contain 150 square feet of planted area for every 1,000 square feet of pavement related to parking spaces and aisles. The screening of parking areas facing public ways and residential zones or uses is required. Each nonresidential development facing a residential use or district is required to meet the required buffer area setbacks. Planted areas must contain indigenous plant species and avoid planting invasive species. As part of the Site Plan approval process, the Planning Board may require the applicant to submit a landscaping plan.

Off-Street Parking and Loading

Zoning bylaws normally set minimum off-street parking and loading standards for various land uses. Adopted in 1975, Chelmsford's minimum parking requirements for businesses uses are expressed as a minimum number of spaces per square foot of office or retail space, while residential and transient uses are expressed as a minimum number of spaces per bedroom or room/unit. The Planning Board has the discretion to reduce the number of parking spaces required if the project proponent can document that fewer spaces will meet the parking needs of the proposed project.

Chelmsford's off-street parking and loading regulations also impose design, landscaping and lighting requirements, in addition to minimum dimensions for parking spaces. Notably, unlike some communities, Chelmsford requires that any reduction in area required for parking is reserved as landscaped open space.

Signage and Outdoor Lighting

Signage and outdoor lighting is usually the most restrictive and exhaustive section of a zoning bylaw, given the need to accommodate and provide uniformity for each zoning district. Chelmsford requires a sign permit for the erection, enlargement or alteration of any sign. Signage must be maintained in a safe and sanitary condition to the satisfaction of the Inspector of Buildings, and in accordance with Section 1404.0 and 1405.0 of the State Building Code. The Inspector of Buildings is responsible for the issuance, approval and denial of all sign permit applications.

Chelmsford is similar to many other communities regarding the types of signage and illumination which are prohibited. However, it is extremely difficult for a code enforcement

officer or the Inspector of Buildings to monitor all signage in Town. Chelmsford has strict standards for signs placed in the residential, commercial and industrial districts, with regard to lettering, illumination, height, square footage, setbacks and maintenance. Signs permitted in the business districts are also permitted in the two industrial districts, with the exception of window signs. Outdoor lighting is required to be designed, located, installed, and directed in a fashion that prevents observable shadows at the property line or glare at any location on or off the property.

Chelmsford has a Sign Advisory Committee, comprised of five members appointed by the Town Manager. The Committee reviews all appeals to the Zoning Board of Appeals involving signs, as well as applications for sign permits and all applications for special permits.

PUBLIC INPUT

On June 3, 2009, the Master Plan Committee held a public forum at the Chelmsford Senior Center focusing on Land Use, Economic Development and Housing. The session was televised on local cable television and viewers were also encouraged to submit additional recommendations and comments. At the beginning of the session, participants were provided with a draft goal statement regarding land use which was developed by the Master Plan Committee:

"Manage and direct growth, including new development and redevelopment projects, in a manner consistent with the community's character and ensure that the town's zoning and land use policies and practices are consistent with the approved Master Plan."

Comments offered by the participants relative to land use and zoning have been summarized as follows:

- Chapter 40B development has consumed industrial and commercial property, producing an adverse fiscal impact
- Density provisions in the town's zoning bylaw should be revisited
- Town character should be protected
- Planning for development of vacant parcels should emphasize preservation of open space
- New construction has negative fiscal implications
- Chelmsford needs a stronger tax base
- The town needs to be proactive in creating affordable housing; rezone town-owned parcels for multi-family use
- Large-lot zoning should be explored (1-acre vs. 2-acre lots)
- Revise the existing zoning bylaw so that dimensional requirements are consistent with neighborhood character (e.g. Westlands and North Chelmsford)
- Apply special permit standards rather than requiring a variance—allow the ZBA to issue use variances

- Revise zoning bylaw in a way that is "redevelopment friendly"; create standards for redevelopment that are less onerous
- Adopt an "optional inclusionary" bylaw in exchange for providing affordable units; include developer incentives
- Promote "village center" and "new urbanism" type development (e.g. Cornerstone Square Lifestyle Center in Westford)
- Implement mixed-use zoning in the Town Center and Vinal Square
- Mixed-use development should include interconnected green space
- Redevelopment should occur in Vinal Square, along Route 110 and on town-owned land
- Zoning should be modified to allow service establishments along Route 129

ISSUES AND OPPORTUNITIES

The build-out analysis performed by the Northern Middlesex Council of Governments (NMCOG) clearly indicates that the Town of Chelmsford is nearly built out. With only 179 acres of developable land for commercial and industrial use remaining, future economic development opportunities in Town will, in large part, be in the form of redevelopment projects. It is evident that the town's zoning bylaw will need to modified and strengthened to incentivize and control redevelopment activities. At a minimum, these modifications should include adjustments to the setback, landscaping and parking requirements outlined in the existing zoning bylaw. The need for these modifications to the zoning bylaw is further detailed in an April 1, 2010 technical memo prepared for the Town of Chelmsford by Concord Square Planning and Development, Inc.[8] A copy of the memorandum is included in Appendix C.

The Master Plan Committee has identified the following general areas as being suitable for redevelopment: Route 129 corridor (from Riverneck Road to Route 3), Vinal Square, Center Village, the Route 110 corridor between the town center[9]and I-495, and the Drum Hill area in the vicinity of Glenview Sand and Gravel. It is also recommended that the upper parking lots and four commercially zoned parcels in front of the Chelmsford Mall be rezoned for neighborhood commercial type uses, thereby providing additional buffering and screening for abutters and protecting neighborhood character. Furthermore, the Master Plan Committee recommends that expedited permitting be established for projects within the Route 129 corridor. The concept of expedited permitting is discussed in greater detail within the Economic Development component of this Master Plan.

The Master Plan Committee recommends that the establishment of a mixed-use Redevelopment District along Route 110, from Hunt Road to Chamberlain Road, be further explored. Mixed-use development incorporates complementary residential, commercial, civic and businesses uses

[8] Technical memorandum dated April 1, 2010 to Evan Belansky, Community Development Director from Karen Cullen, Concord Square Planning and Development, Inc.
[9] The town center geographic boundaries include Academy Street, both ends of Fletcher Street, Route 110 to just beyond Ginger Ale Plaza, Route 129 to Town Hall, Summer Street, and Route 4 to Summer Street.

into a single building, parcel or development/redevelopment area. Mixed-use is a key component in many contemporary development trends and concepts such as Transit-Oriented Development (TOD), Traditional Neighborhood Development (TND), Livable Communities and Smart Growth. There are multiple benefits of mixed-used development, such as increased housing options for diverse household types, reduced auto dependence, and healthier lifestyles for residents living within a mixed-use district.

Currently, many features of the zoning bylaw work to separate land uses rather than encouraging mixed-use development in appropriate areas. Areas in which mixed-use development would be appropriate include the Town Center, Route 110 from the Town Center to Fletcher Street, Technology Drive, Vinal Square, and the mill complexes of North Chelmsford. Allowing residential uses above retail, offices or shops within the Town Center and Vinal Square would add vitality and additional foot traffic to these areas creating a more vibrant village community. The creation of design guidelines for mixed-use development and redevelopment projects within the Town Center and Vinal Square will ensure that future projects are consistent with the character of these areas and that the historic integrity of the villages is preserved and enhanced.

The establishment of a Mill Reuse Overlay District in North Chelmsford is a concept that the Town should pursue. Overlay zoning is designed to encourage additional uses not addressed in the base zoning. Creation of an overlay district maintains all of the uses allowed in the base zone, but provides greater flexibility in redeveloping or reusing existing structures, and in developing vacant parcels, and increases potential property values for current owners. Overlay zoning bylaws often focus on protecting historic resources or environmental resource areas. The purpose of a mill reuse overlay district is to:

- Protect the neighborhood from the loss of historic buildings, new construction not in character with the neighborhood, or alterations to existing buildings that would lessen their architectural significance;
- Facilitate and encourage the reuse of the North Chelmsford historic mill buildings should a vacancy occur;
- Promote diverse housing choices in the community; and
- Provide flexibility in meeting the town's housing and economic development goals.

Uses other than those allowed under the base zoning would require a Special Permit and Site Plan review, with the Planning Board serving as the Special Permit Granting Authority (SPGA). Design guidelines should be developed for projects undertaken through the overlay bylaw.

Providing that there is proper community input and adequate traffic mitigation in North Chelmsford and elsewhere, the Master Plan Committee is supportive of the extension of commuter rail service from Lowell to Nashua and Manchester, New Hampshire. Should this project go forward, the town has expressed an interest in establishing a commuter rail station within North Chelmsford. The addition of commuter rail service to the area creates future

opportunities for transit-oriented development. To ensure that the project benefits Chelmsford and its neighboring communities, the town should continue to work with the New Hampshire Department of Transportation (NHDOT), MassDOT, the Nashua Regional Planning Commission (NRPC), the Lowell Regional Transit Authority (LRTA), and NMCOG to guide the progress of the commuter rail project by participating in the design and environmental review processes. Should a commuter rail station be established, the town will need to review the zoning in this area in order to take advantage of state funding opportunities for transit-oriented development programs, which promote moderate and high density mixed-use development within walking and bicycling distance of public transit facilities. The Town should also work with the LRTA to maximize transit access, particularly for residents with mobility issues.

The Route 129 Corridor is the town's principal technology corridor. Currently, the maximum building height allowed within this area is 45 feet or 4 stories. Based on conversations with local officials and input received from the public, the Master Plan Committee recommends that the zoning bylaw be amended to allow structures of four to six stories for lots abutting Route 129 in the area extending from the Billerica town line to Alpha Road, provided that these taller structures do not negatively impact abutting residences, while gaining a significant increase in open space exceeding our existing requirements. This may require some modifications to the town building and safety regulations. The Chelmsford Fire Department has indicated that they have the capability of providing sufficient fire protection to structures of this height.

It is further recommended that the zoning for this area of Route 129 be modified to allow for commercial uses that provide support services to the office park developments located along the corridor. Such uses would include restaurants, dry cleaners, personal and professional services, and similar retail establishments. In addition, the zoning bylaw should be modified to allow an extended stay facility on Billerica Road, either side of Route 3 between the town line and Mill Road, to serve the needs of corporate tenants and businesses located along the Route 129 corridor. The Planning Board should establish a reasonable size limit for service establishments to ensure the type of development constructed is what is desired in the area and to minimize the traffic impacts of such businesses. The intent of these recommendations is to encourage the reuse of existing vacant and underutilized properties, and to encourage businesses that complement the town's downtown area. Given that Route 129 is an important gateway to Chelmsford, design standards should be developed for this area, which address building form and materials, lighting, landscaping, parking, access control, and bicycle and pedestrian amenities.

The town could improve the visual quality of commercial and industrial development through the adoption of a design review process. The intent of creating design guidelines is to provide guidance and suggestions regarding the future development of retail, commercial, and industrial projects within the community. The guidelines provide a means by which the commercial and retail districts can thrive, the transportation network can function more efficiently, and the visual quality of the area can be improved. This represents an opportunity for the community to

improve the quality of future development and redevelopment, ensuring that the projects meet the visual and design standards that the community prefers.

Design guidelines would allow the Planning Board to consider factors beyond engineering and site design as outlined in the Zoning Bylaw. Generally, design guidelines address building massing, materials and articulation; reinforce the form and architecture to be compatible with the surrounding area; promote facade treatments that are in keeping with the overall context of the community; and provide appropriate signage, lighting and landscaping. Design review could begin as an advisory review coordinated within the town's existing approval process. The process could be activated by commercial and industrial projects of a certain size threshold, e.g. 10,000 square feet or more. Design guidelines are not intended to stifle creativity or to limit a property owner's opportunity to maximize the value of his or her property. Well written design guidelines recognize the value of diverse design, and in fact, encourage innovative and unique design solutions. The use of design guidelines helps to avoid the visual chaos and functional inefficiencies of design decisions that are made independent of the context in which the project is located.

Input received during the Master Plan development process indicated that residents and local officials generally feel that the town's zoning is not always consistent with neighborhood character. This is particularly true in the Westlands, including, but not limited to, Manahan Street, Morgan Drive and Maple Avenue, and in the areas around Freeman Lake and Heart Pond, where previous development generally occurred on smaller size lots and at a higher density than in other sections of town. The town's zoning requirements should focus on maintaining the existing character of its neighborhoods. The bylaw and zoning districts should be revised to encourage development that is consistent with the existing physical characteristics of the Westlands and lake neighborhoods.

There are obvious zoning and land use conflicts along the Route 40 corridor between Route 3 and the Westford town line, where some lots are split-zoned for industrial and commercial uses. The town has an opportunity to revise the zoning in this area to eliminate future land use conflicts in a way that benefits the neighborhood and the community overall. The use of transitional zoning should be further explored as a means of reducing existing and future conflicts between residential and industrial uses and districts. Transitional zoning districts allow for a set of land uses that will effectively create a transitional area between higher intensity commercial and industrial uses and adjacent residential neighborhoods. Transition zoning is used to ensure that new development and redevelopment projects are compatible with the scale and aesthetics of the surrounding area, and to provide appropriate buffering for residential neighborhoods.

The town's zoning bylaw currently makes it difficult for the town to attain the 10% affordable housing goal outlined in Chapter 40B. The current density bonus provision in the RM zones provides for 10% affordability with a ten-year deed restriction. In order for affordable units to

be included in the state's Subsidized Housing Inventory (SHI), a deed restriction for each affordable unit must be in place for a minimum of thirty (30) years. The town should revise this portion of the zoning bylaw to require 25% affordability with a deed restriction in perpetuity on each affordable unit. In addition, the town should establish design guidelines for 40B development projects, similar to what is in place in Westford, to ensure compatibility with community character.

The Town should consider establishing an RM zoning overlay district for select parcels to allow for future multi-family housing opportunities within the limits of the town's carrying capacity, so that the town's resources are not strained and community character is not negatively impacted. According to a report prepared by Taintor and Associates, Inc.[10] in July 2006, very few parcels of developable land remain in the RM zones. The current bylaw requires that new RM districts have 5 acres of land and 250 feet of frontage on a state highway, a right-of-way that is 60 feet wide or a right-of-way that carries 1,000 or more vehicles per day. These requirements limit the potential for new RM districts to be created. The zoning bylaw should be modified to establish much more reasonable and achievable criteria for creating districts for multi-family housing. The following parcels have been identified by the Master Plan Committee as potential candidates for rezoning within the RM district:

- 11 Cushing Place
- 51-57 and 61-63 Middlesex Street
- 100 Wotten Street
- 26 and 32 North Road
- 233, 235, and 241 Littleton Road.

To promote affordable housing in a way that provides additional units while having local regulatory control over the process, the town should consider adopting a comprehensive inclusionary zoning bylaw. The new bylaw must have a fair system of density bonuses or other cost offsets for on-site affordable units, and allow the option to provide equivalent housing through off-site units or through land donations to the Chelmsford Housing Authority. The bylaw should apply to multi-family development, as well as large-scale single-family subdivisions above a certain size threshold. In addition, the development of rental housing within the Center Village zoning district should be allowed by right. The town should also revisit the issue of in-law apartments with the objective of improving the permitting process and developing criteria that meet the needs of today's families.

Low Impact Development (LID) is an approach to environmentally friendly land use development that includes landscaping and design techniques that maintain the natural, pre-developed ability of a site to manage rainfall. The LID approach protects the natural ability of the site to capture precipitation and allow it to recharge the local water table. This is achieved by applying a suite of tools including:

[10] Chelmsford Affordable Housing-Zoning Analysis and Options for Modification, Taintor and Associates, Inc., July 28, 2006.

- Planning: preserve the site's natural features such as wetlands, native vegetation, flood plains, woodlands and soils to the greatest extent possible;
- Landscaping: plant native vegetation in buffer strips and in rain gardens (small planted depressions that can trap and filter runoff);
- Prevention: use vegetated areas to slow down runoff; maximizing infiltration and reducing contact with paved surfaces; and
- Innovating: reduce impervious surfaces wherever possible through alternative street design, such as omission of curbs and use of narrower streets, and through use of shared parking areas.

Presently, the town's subdivision regulations do not permit the use of low impact development techniques. The use of these techniques should be permitted and encouraged within the town's development regulations.

The special needs of agricultural uses are not considered within the current zoning bylaw. The zoning bylaw should be amended to address the unique needs of agricultural enterprises and operations, in order to encourage the preservation of the town's remaining agricultural lands, and to allow agricultural enterprises to remain economically viable.

The Town's Zoning Bylaw and development regulations should provide stronger incentives to encourage developers to contribute to the town's open space goals. As highlighted in the Open Space and Recreation of this Master Plan, the existing Planned Open Space Development zoning bylaw, Section 195-92, could be revised to specifically target the remaining large developable tracts of land by providing incentives such as density bonuses in exchange for providing open space.

The current condition of the University of Massachusetts Lowell West Campus off Princeton Boulevard is unacceptable to the Town of Chelmsford. The buildings are in a serious state of disrepair and the campus has not seen any significant reinvestment in decades. The Master Plan Committee recommends that a redevelopment master plan be prepared for the overall campus which strives to maintain the character of the area, preserves historic resources and structures, protects environmental resources and respects the concerns of the neighborhood and the abutters. The town will need to actively engage the neighborhood and the University and establish an open dialogue, in terms of the future disposition and use of this property.

A similar master planning effort is needed to address the future use(s) for the 66-acre Oak Hill parcel acquired by the Town in 1998. The Master Plan Committee feels that this parcel would be best used for housing and active and passive recreation, or a combination thereof. . The majority of the property is currently zoned for industrial use, and therefore, rezoning may be required, depending on the outcome of the site master planning process.

During the Master Plan public input sessions, citizens and area business leaders noted that the town's budgetary challenges have led to the elimination of the zoning enforcement officer. Zoning enforcement is now the sole responsibility of the building inspector. Residents cited the fact that the town is not always timely in its response to resident complaints, given the other responsibilities and duties with which the building inspector is tasked. The lack of enforcement of the sign and lighting sections of the zoning bylaw were particularly noted. As the economy improves, reinstating the zoning enforcement officer position should be among the town's priorities. The reactivation or re-establishment of the Sign Advisory Committee should also be considered.

Overall, the town's zoning bylaw has not been significantly revised or rewritten in many years, with the last major update occurring in 1998. The Master Plan Committee recommends that the Town review all of its bylaws every five years. Town staff has indicated that the zoning bylaw is not user friendly, that many sections of the bylaw need to be clarified, that there are inconsistencies between the zoning map and the zoning bylaw, and, in general, the document needs to be better organized. Many of the dimensional requirements outlined in the zoning bylaw are unachievable as presently written.

The dated nature of the bylaw is evident in that more recent commercial businesses that have come into vogue, such as family entertainment complexes, are not addressed in the table of permitted uses or allowed under the current bylaw. In addition, it has been noted that the bylaw does not presently allow the town to regulate certain businesses, such as landscaping companies or soil/compost/bark mulch sales and distribution establishments. Many proposals do not require any public notification or regulatory review. Many of the conflicts that arise between these businesses and abutting residences are also due to the fact that the town does not presently require site plan review for all new businesses.

The current zoning bylaw allows for 4-story buildings within the Residential C zoning district. The Master Plan Committee recommends that the maximum building height in this district be consistent with the town's other residential zoning districts, therefore the zoning bylaw should be modified to reduce the height limit to three stories.

Currently, the town does not have any means of enforcing the overnight garaging of commercial vehicles in residential neighborhoods. This issue should be resolved either through revisions to the town's zoning bylaw or the town's municipal code. The Bylaw Review Committee should be reinstated and the zoning bylaw should be improved and modernized through a comprehensive review of the entire bylaw, including zoning districts, permitted uses, definitions and dimensional requirements. The Planning Board and Community Development Department have identified the following sections of the Zoning Bylaw as being in need of updating and revision:

- Use and dimensional tables along with definitions.
- 195-6.1- Limited accessory apartment [In-Law Apartments]
- 195-7- Home Occupation
    - Antiquated, need to be updated to reflect current professions and work environment
    - Define Terms
- 195-8- Nonconforming Uses and Structures
- 195-17 -Minimum Parking Requirements
- 195-43- Property Lines
- 195-44 A,B, & C-Parking Areas
- Article XI-Major Business Complexes
- 195-55- Applicability
- 195-63-Density Bonus
- 195-100 -Administration and enforcement
- 195-101 -Violations
- Article XVII- Facilitated and Independent Living Facilities
- Article XVIII A- Center Village Zoning.

The town will need to retain the services of a zoning and land use consultant to assist with the review and re-write of the zoning bylaw. Any revisions to the bylaw should incorporate the changes needed to better accommodate redevelopment projects through the creation of redevelopment zoning overlay districts, as outlined above.

RECOMMENDATIONS

- Modify and revise the town's Zoning Bylaw and subdivision regulations to better accommodate redevelopment projects. At a minimum, revisions should include allowing for reduced setbacks and providing greater flexibility in terms of parking and landscaping requirements. The Special Permitting process should also be modified to require the issuance of one consolidated special permit for a redevelopment that is not allowed by right. Redevelopment projects should be designed to provide significant improvement in the non-conforming nature of a property, where applicable.

- Establish a Redevelopment District along Route 110, from Hunt Road to Chamberlain Road. Regulations for this area should promote mixed-use development that provides additional economic development and housing opportunities for the community.

- Implement expedited permitting for projects located within the Route 129 corridor.

- Target the following areas for redevelopment: the Route 129 corridor, Vinal Square, Center Village, the Route 110 corridor between the Center and I-495, and the Drum Hill area, including the vicinity of Glenview Sand and Gravel.

- Rezone the upper parking lots and four commercially zoned parcels in front of the Chelmsford Mall to allow neighborhood commercial uses with strict design guidelines, thereby creating transitional zoning which would provide additional buffering and screening for abutting residences, thereby preserving the character of the neighborhood.

- Create mixed-use overlay zoning districts in the following areas: Vinal Square, the mill complexes of North Chelmsford, the Town Center, Route 110 from the Center to Fletcher Street, and Technology Drive.

- Create design guidelines for mixed-use development and redevelopment projects within the Town Center and Vinal Square to ensure consistency with the character and historic integrity of these villages.

- Establish a Mill Reuse Overlay District and Bylaw for the mill complexes in North Chelmsford to provide greater flexibility in redeveloping or reusing the existing structures, to add value to the properties, to protect the area's historic resources, and to provide flexibility in meeting the town's housing and economic development goals.

- Modify the current zoning bylaw to allow residential uses above retail, offices and shops within the Town Center and Vinal Square.

- Continue to monitor the progress of the Lowell to Nashua/Manchester commuter rail extension project, and position the community to take advantage of transit-oriented development opportunities should the extension project go forward.

- Revise the town's zoning bylaw to allow the construction of four to six story buildings for lots abutting the Route 129 corridor in the area extending from the Billerica town line to Alpha Road, provided that such structures do not negatively impact abutting residences, while gaining a significant increase in open space exceeding our existing requirements. Design standards should also be developed for this area that address architecture, lighting, landscaping, parking, signage, etc.

- Modify the zoning along the Route 129 corridor to provide support services for the office park developments located along the corridor. Desired support businesses include restaurants, dry cleaners, personal and professional services, and similar retail establishments.

- Modify the zoning bylaw to allow for the development of an extended stay facility on Billerica Road, either side of Route 3 from the town line to Mill Road, in order to serve the needs of corporate tenants and businesses located along the Route 129 corridor.

- Adopt a design review process that includes design guidelines for retail, commercial and industrial projects. Initiate design review as an advisory review coordinated within the town's existing approval process.

- Modify the town's current zoning bylaw to enhance and reflect the existing character of its neighborhoods. Particular attention should be paid to modifying the zoning requirements for the Westlands, including, but not limited to, Manahan Street, Morgan Drive and Maple Avenue, and for the neighborhoods surrounding Heart Pond and Freeman Lake, where development has occurred at a much higher density than in other areas of town.

- Address the land use and zoning conflicts that exist along the Route 40 corridor between Route 3 and the Westford town line. The Zoning Bylaw Review Committee should be reconvened and work with the neighborhood and the Planning Board to resolve these conflicts in a fashion that is amenable to the residents and beneficial to the community overall. The use of transitional zoning should be explored as a means of reducing existing and future conflicts between residential and commercial/industrial uses.

- Implement revisions to the zoning bylaw that promote the creation of additional units of housing to meet local needs. In the RM zoning district, increase the affordability requirement from 10% to 25% and require a deed restriction in perpetuity for each affordable unit. In addition, establish an RM overlay zoning district for select parcels to provide future opportunities for multi-family housing. Modify the restrictions outlined in the RM zoning bylaw to include more reasonable criteria for establishing RM districts.

- Adopt a comprehensive inclusionary zoning bylaw with a fair system of density bonuses or other cost offsets for on-site affordable units, and provide the option of creating equivalent housing through off-site units or through land donations to the Chelmsford Housing Authority.

- Revise the zoning bylaw to allow the development of rental housing by right within the Village Center zoning district.

- Review the in-law apartment regulations to improve the permitting process and to update the regulations to reflect the needs of today's families.

- Amend the town's subdivision regulations to allow for and encourage the use of Low Impact Development (LID) techniques for managing storm water.

- Amend the zoning bylaw to address the unique needs of agricultural enterprises and operations, in order to encourage the preservation of the town's remaining agricultural lands, and to allow agricultural enterprises to remain economically viable.

- Develop a master plan for the University of Massachusetts Lowell West Campus, working collaboratively with the University and the neighborhood.

- Develop a master plan for the 66-acre Oak Hill parcel, which was acquired by the town in 1998.

- Revise the Planned Open Space Development zoning bylaw (Section 195-92) to provide stronger incentives for developers to contribute to the Town's open space goals.

- Reinstate the position of the zoning enforcement officer.

- Update and revise the entire zoning bylaw to improve readability, add clarity and make the overall document more user-friendly. The bylaw also needs to be modernized in terms of the table of uses, dimensional requirements, definitions, and provisions for dealing with commercial vehicle storage, etc.

- Establish design guidelines for 40B projects to ensure compatibility with neighborhood and to maintain the community's character.

- Review and update all municipal bylaws every five years.

- Reduce the maximum building height allowed in the Residential C district from 4 stories (45 feet) to three stories (35 feet).

IV. ECONOMIC DEVELOPMENT

INTRODUCTION

The focus on economic development issues enables local decision-makers and Chelmsford Town Meeting to determine how they wish to target economic growth in the future so as to provide an equitable balance with quality of life issues that attract residents, businesses and visitors to the Town of Chelmsford. Economic growth generates property taxes that provide local public services, creates new contracting opportunities for local businesses, provides local employment and connects the Town of Chelmsford with the national, state and regional economies. The Town can establish its own direction through the targeting of economic growth within the community even though it has limited control over what happens in the Greater Lowell economy. At a time when the nation, state and region are facing the most severe recession since World War II, the Town needs to address how it can retain its existing business community, while attracting other businesses. The Town needs to focus on the many redevelopment opportunities available in the community, as well as the more limited development opportunities. Since the Town's Comprehensive Master Plan was last completed in 1996, there have been significant changes in the overall economy. Do the economic development goals outlined in the 1996 Chelmsford Master Plan still apply? Have these been replaced by the goals in the 2008 Economic Development Plan or should there be new goals established as part of the 2010 Master Plan Update? Should the community work to retain existing businesses and to attract new businesses that reflect the Town's current priorities? Should the Town build upon its economic development efforts during the past two years and actively market the community as a business-friendly community? Finally, does the community see a benefit in working with the private sector to improve the quality of life in Chelmsford?

Goal Statement: ***Establish an active economic development program to retain and attract "growth" businesses which enhance the town's tax base and create well-paying jobs, in a manner that balances job creation with the quality of life.***

- ***Market the Town of Chelmsford through the Economic Development Commission.***
- ***Streamline and improve the Town's development permitting process to encourage targeted commercial redevelopment activities, such as through expedited permitting along Route 129/Billerica Road, the use of the Village Center and Mill Reuse Overlay Districts, as well as the Redevelopment Districts along Route 110/Littleton Road and Chelmsford Street.***
- ***Analyze and encourage economic development opportunities in those areas identified in the 2008 Chelmsford Economic Development Plan: Center Village/Vinal Square, the Route 129 Technology Corridor, Drum Hill/Technology Drive, North Chelmsford Mill District, the Routes 3/40 Interchange and Route 110/Littleton Road and Chelmsford Street through incentivized redevelopment bylaws.***
- ***Address infrastructure and workforce development issues in order to attract viable businesses.***
- ***Focus on "green" technology as a future business cluster for the community.***

The Northern Middlesex Council of Governments (NMCOG) completed the *Greater Lowell Comprehensive Economic Development Strategy (CEDS) for 2004*-2008 in 2004 in order to qualify the Greater Lowell region for federal funding from the Economic Development Administration (EDA) of the U.S. Department of Commerce. This initial document provided an overview of the economic conditions and needs of the Greater Lowell region (the City of Lowell and its eight surrounding suburbs – including Chelmsford) and provided updated information from the 2000 U.S. Census, as well as other federal, state, local and private data sources. A Vision Statement, specific Goals and Objectives and a detailed Action Plan were developed as part of the document. The ten goals identified in the document demonstrate that economic development is comprised of many components, including workforce development, transportation systems and technology. This section of the Master Plan has been organized in much the same way and is designed to tie into the broader regional economic development plan. However, the Town of Chelmsford needs to develop consensus on what role it wishes to play in the larger regional economy by determining the specific identity it wishes to develop in order to attract the types of businesses desired by the community. More recently, NMCOG completed its *Annual CEDS for 2008*, which provides an update for the original Five-Year CEDS document.

CHARACTERISTICS OF THE WORKFORCE

Over the past twenty years, the workforce in Chelmsford has become more highly educated and is now employed in higher paying, knowledge-based industries. This section examines trends and changes in the types of industries in which the Chelmsford workforce is employed, the wages they are earning, and trends in employment over the past decade. It also examines layoffs in the region which have affected the local workforce.

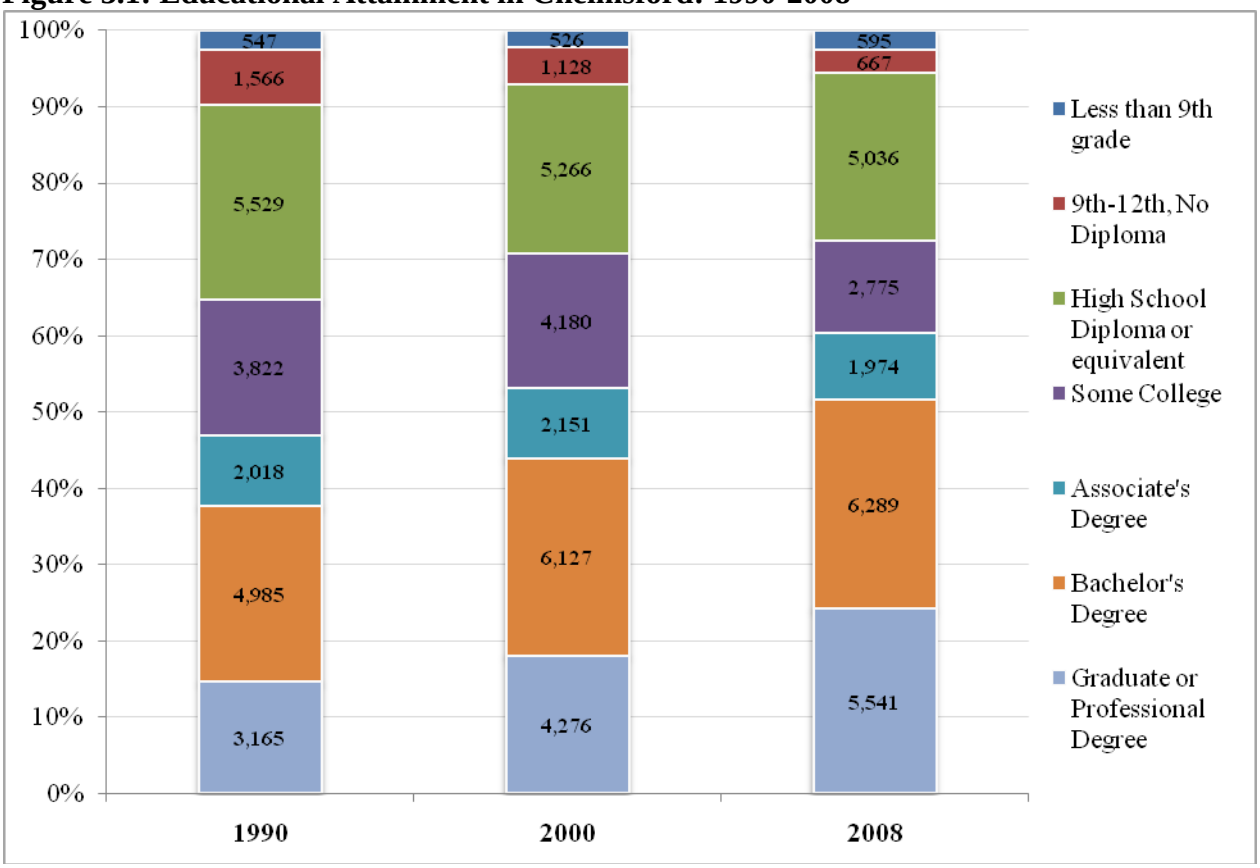
Educational Attainment

Figure 3.1 on the following page compares educational attainment among Chelmsford residents 25 years and older between 1990 and 2008. In 1990, approximately 9.8% (2,113) of adults living in Chelmsford had not earned a high school diploma or its equivalent. In 2000, that rate had decreased to 7% (1,654) and by 2008, it had dropped to 5.5% (1,262). Adults who had earned a high school diploma accounted for 25.5% in 1990, 22.3% in 2000, and 22% in 2008.

For all three time periods, the majority of adults had completed some college. In 1990, Associate's Degree holders comprised 9.3% (2,018) of adults, while those with Bachelor's and Advanced Degrees accounted for 23% (4,985) and 14.6% (3,165) respectively. Over the next two decades, educational attainment among adult residents shifted significantly. In 2008, approximately 8.6% (1,974) of all adults over the age of 25 had earned an Associate's Degree, 27.5% (6,289) of all adults had earned a Bachelor's Degree, and 24.2% (5,541) of all adults had earned an Advanced or Professional Degree. In essence, the changes in the types of positions

workers are employed in—which is to say, higher skilled, more training intensive, and better paying jobs-- is consistent with the changes in both educational attainment and the distribution of incomes among residents that was addressed in the Introductory chapter of this Master Plan.

Figure 3.1: Educational Attainment in Chelmsford: 1990-2008



Source: 1990 and 2000 US Census; 2006-2008 American Community Survey

Employment Sectors for Chelmsford Residents

Chelmsford residents work in virtually every industry, from skilled labor fields such as biotechnology, engineering, manufacturing and construction, to food services and retail, business, law, and public administration. Table 3.1 on the next page shows the primary occupations by industry for Chelmsford residents in 2000 and 2008.

This table illustrates the decline in employment opportunities affecting Chelmsford residents since the onset of the present economic recession, with all but three industry categories experiencing decreases over the past nine years. For the past decade, workers employed in the education, health care, and social services fields have made up the largest portion of working Chelmsford residents, employing 4,272 residents in 2000 and 4,005 residents in 2008. Manufacturing, which employed 3,549 Chelmsford residents in 2000 (the second largest industry employing residents) also declined, although in 2008 it was still the third largest sector

employing Chelmsford residents. The industries that experienced growth include Professional, Scientific, Management, and Administrative and Waste Services (15.2%), Finance, Insurance, and Real Estate (Including leasing) (18.8%), and "Other" services excluding Public Administration (6%).

TABLE 3.1
PRIMARY EMPLOYMENT INDUSTRIES FOR CHELMSFORD RESIDENTS IN 2000 AND 2008

Industry	2000	2008	Percent Change, 2000-2008
Agriculture, Forestry, Fishing and Hunting, and Mining	39	22	-43.6
Construction	904	842	-6.9
Manufacturing	3,549	2,709	-23.7
Wholesale Trade	523	408	-22
Retail Trade	1,802	1,693	-6.0
Transportation, Warehousing, and Utilities	546	356	-34.8
Information	990	769	-22.3
Finance, Insurance, and Real Estate (Including leasing)	994	1,181	18.8
Professional, Scientific, Management, and Administrative and Waste Services	2,531	2,915	15.2
Educational Services, Health Care, and Social Assistance	4,272	4,005	-6.3
Arts, Entertainment, Recreation, Accommodation, and Food services	917	868	-5.3
Other services, except Public Administration	510	479	6.0
Public Administration	590	441	-25.3

Source: 2000 US Census, 2006-2008 American Community Survey

Journey to Work and Commuting Patterns

In addition to understanding the industries in which Chelmsford residents are employed, it is important to know how many residents work in town and across the region. It is also important to know how many workers are commuting into Chelmsford for employment. Table 3.2 below shows where Chelmsford residents worked in 2000, while Table 3.3 on the following page illustrates where people who work in Chelmsford commuted from.

TABLE 3.2
JOURNEY TO WORK DATA FOR CHELMSFORD RESIDENTS IN 2000

Place	Total Number of Workers
Chelmsford	3,720
NMCOG Region (except Chelmsford)	4,094
New Hampshire	713
Boston	880
Within I-495	4,875
Outside I-495	883
Within Route 128 (Greater Boston)	2,654

Source: 2000 US Census

According to Table 3.2 above, the greatest percentage of Chelmsford residents worked within the I-495 boundary (27.4%). Approximately 3,720 Chelmsford residents (20.9% of the local workforce) worked in town, and another 23% of residents worked in one of the other eight communities in the NMCOG Region. Approximately 4% of residents commuted to jobs in New Hampshire, 4.9% of Chelmsford residents commuted into the City of Boston, and 14.9% of residents worked within the Greater Boston/ Route 128 area. Another 5% of Chelmsford residents commuted outside of I-495 for work.

As Table 3.3 illustrates, the greatest percentage of jobs in Chelmsford in 2000 were filled by residents living within the Greater Lowell Region (7,490 or 36.2% of all residents across the region). The second highest percentage of local jobs were filled by Chelmsford residents (18%), followed by residents of New Hampshire (13.4%), residents of the Greater Boston/ Route 128 region (11.4%), and those residents living within I-495 (11.1%).

TABLE 3.3
JOURNEY TO WORK DATA FOR WORKERS EMPLOYED IN CHELMSFORD IN 2000

Place	Total Number of Workers
Chelmsford	3,720
NMCOG Region (except Chelmsford)	7,490
New Hampshire	2,765
Boston	640
Within I-495	2,291
Outside I-495	1,420
Within Route 128 (Greater Boston)	2,350

Source: 2000 US Census

Using a methodology developed by the U.S. Census Bureau, Chelmsford's daytime population can be calculated using the Journey to Work data provided above. Given that 14,190 Chelmsford residents commute outside of the town for work, but 18,967 people commute into Chelmsford for work, the town's daytime population for 2000 was estimated to be 38,635 people. In other words, Chelmsford's daytime population is 4,777 people greater than its total resident population. Although more recent Journey to Work data is not available for the town, one can assume that recent years have followed similar trends. Updated Journey to Work data will be available from the 2010 U.S. Census when it is released.

In 2007, the vast majority of Chelmsford residents ages 16 and older commuted to work by car, either alone or, less frequently, in carpools. Among those residents driving to work, 78.2% of all residents worked in Middlesex County, another 16.3% of total residents worked in a different county in Massachusetts, and 5.5% of residents worked in a different state. For public transit commuters, 52% of Chelmsford residents worked in the same County, while 48% of residents worked in a different county in Massachusetts. For all residents, regardless of mode of transportation, approximately 39% had a commute time of less than twenty minutes; another 41.4% of residents had commutes between twenty and forty-five minutes, and 19.7% of residents commuted for longer than forty-five minutes.

During the public visioning sessions, a number of residents and local business owners repeatedly articulated their desire to have a commuter rail stop sited in Vinal Square. This idea will also be addressed in the Transportation chapter of this Master Plan. What is notable about this commuting analysis is that a significant portion of people living in Chelmsford appear to be working locally, and as such, contributing to and boosting the local and regional economies.

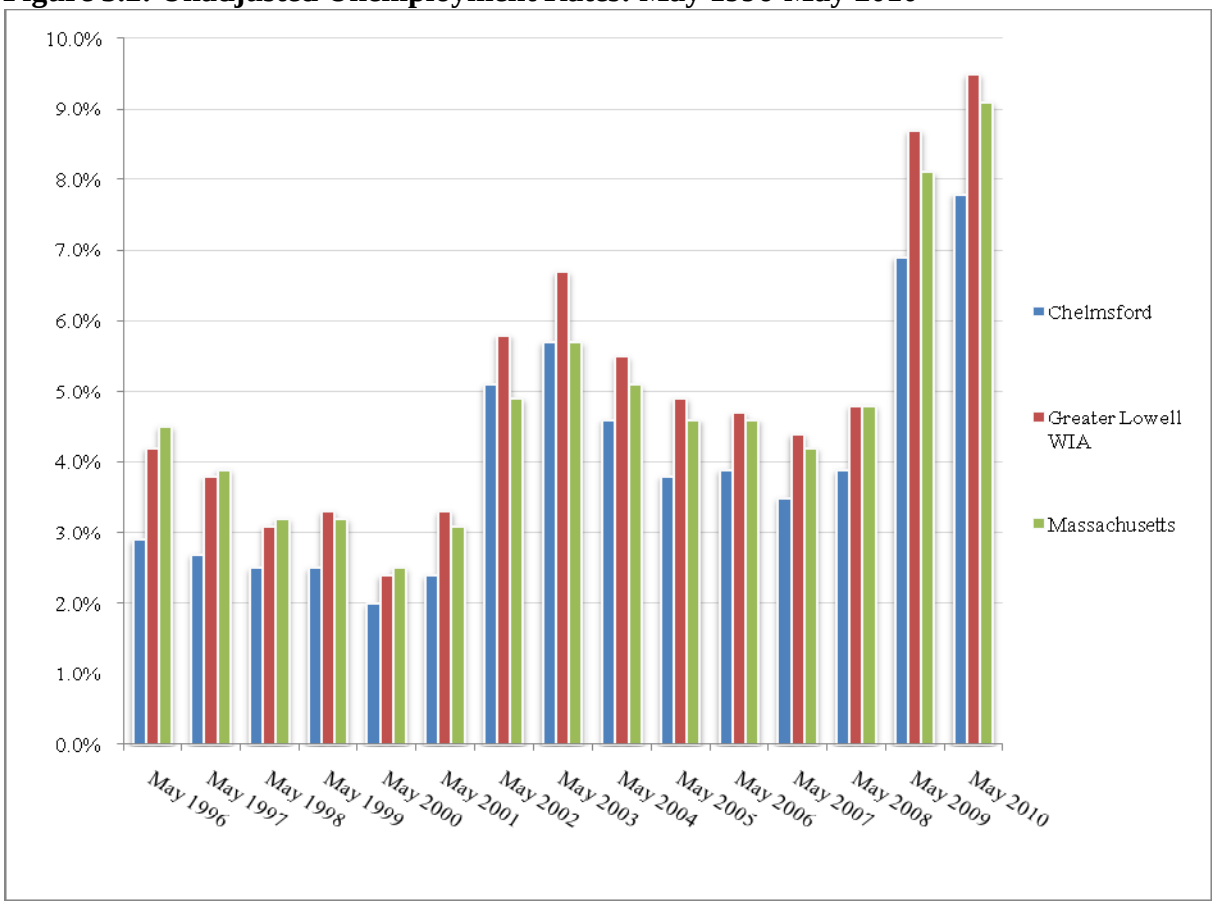
Employment Levels and Unemployment

Since the publication of the town's Master Plan in 1996, and up until December 2007, employment opportunities for the Chelmsford workforce generally remained strong. Employment levels consistently increased between 1996 and 1999, but then declined sharply during the economic recession of the early 2000s. Prior to the current economic recession, the lowest levels of employment in the town occurred between January 2002 and January 2004.

The present economic recession has had a more serious impact on the local labor force than any other economic downturn in the past three decades. Between January and September 2009, employment levels consistently dropped, with the employed and unemployed workforce averaging 17,541 and 1,347 respectively. While the local unemployment rate decreased slightly during the months of October 2009 and November 2009 (7.4% each month, respectively), it increased again in December 2009 (8.0%) and January 2010 (8.6%). Since January 2010, the local unemployment rate has ranged from 7.7% in March to 8.1% in February. As of May 2010, the local unemployment rate stood at 7.8%.

Unemployment rates for similar time periods are represented in Figure 3.2 on the next page. Examining these rates over time reveals that employment levels were extremely high during the second half of the 1990s with unemployment rates averaging less than 3%. In the early 2000s, unemployment levels increased, in part due to the layoffs in the information technology and computer manufacturing fields, but then dropped again during the middle of the decade. Since the beginning of the current economic recession, unemployment in Chelmsford has more than doubled, rising from 3.9% in May 2008 to a peak of 8.6% in January 2010, when 1,589 local workers were unemployed.

Figure 3.2: Unadjusted Unemployment Rates: May 1996-May 2010



Source: Executive Office of Labor and Workforce Development LURR Reports

Given that the majority of the Chelmsford residents work in the region, we can expect that this increase in unemployment is partially due to layoffs occurring across the region. Table 3.4 on the next page shows the scheduled layoffs by community in the region between January 2008 and April 2010. Since January 2008, 2,080 workers in the NMCOG region have been impacted by plant layoffs, 535 of which have been with Chelmsford businesses (the layoff for Henkel Corporation in Billerica is scheduled to begin as of September 30, 2010).

Layoffs have occurred for several reasons in Chelmsford. ConMed Endoscopic Technologies, for example, laid off 45 workers after consolidating their companies. Arbor Networks laid off 19 workers due to financial reasons, and Sycamore Networks laid off 46 workers due to foreign competition. Despite these regional layoffs, it's important to note that Chelmsford's unemployment rates have remained consistently lower than the regional and Massachusetts rates, as reflected above in Figure 3.2.

TABLE 3.4
LAYOFFS IN THE NMCOG REGION: MARCH 2008 – APRIL 2010

Community	Company	Effective Date	Employees Affected
Chelmsford	Daily Racing Form	5/17/2008	7
	Fidelity National Information	5/22/2008	30
	Kronos Inc.	9/30/2008	87
	Potpourri Group, Inc.	12/24/2008	60
	Brooks Automation, Inc.	3/1/2009	190
	Brooks Automation, Inc.	In Progress	51
	Sycamore Networks, Inc	8/13/2009	46
	ConMed Endoscopic Technologies	10/26/2009	45
	Arbor Networks	11/30/2009	19
Billerica	Jabil Circuit	3/28/2008	30
	GSI Lumonics Trust, Inc.	4/28/2008	8
	Nutcracker Brands	5/1/2008	90
	Tel Epion, Inc.	4/18/2009	18
	Jabil Circuit	10/31/2008	70
	Jabil Circuit	11/25/2008	20
	Jabil Circuit	9/30/2009	315
	Schott Solar, Inc.	12/22/2009	215
	Iron Mountain	12/23/2009	18
	Welch Foods, Inc.	2/1/2010	9
	Henkel Corporation	9/30/2010	50
Lowell	Adden Furniture	2/19/2008	70
	Microsemi Microwave Products	4/11/2008	8
	Adden Furniture	6/1/2008	13
	Adden Furniture	9/3/2008	15
	Doubletree Hotel	8/26/2009	55
	GES US, Inc.	9/15/2009	92
	Cass Information Services	9/8/2009	48
	Classic Floors, Inc.	9/21/2009	2
Tewksbury	DJ Reardon Company	7/14/2008	56
	Avid Technology, Inc.	12/23/2008	73
Westford	Sonus Networks, Inc.	9/1/2009	40
	AECOM	12/22/2009	30
Greater Lowell	Internal Revenue Service	6/1/2009	200

Source: Massachusetts Rapid Response Team

EXISTING ECONOMIC AND BUSINESS CONDITIONS

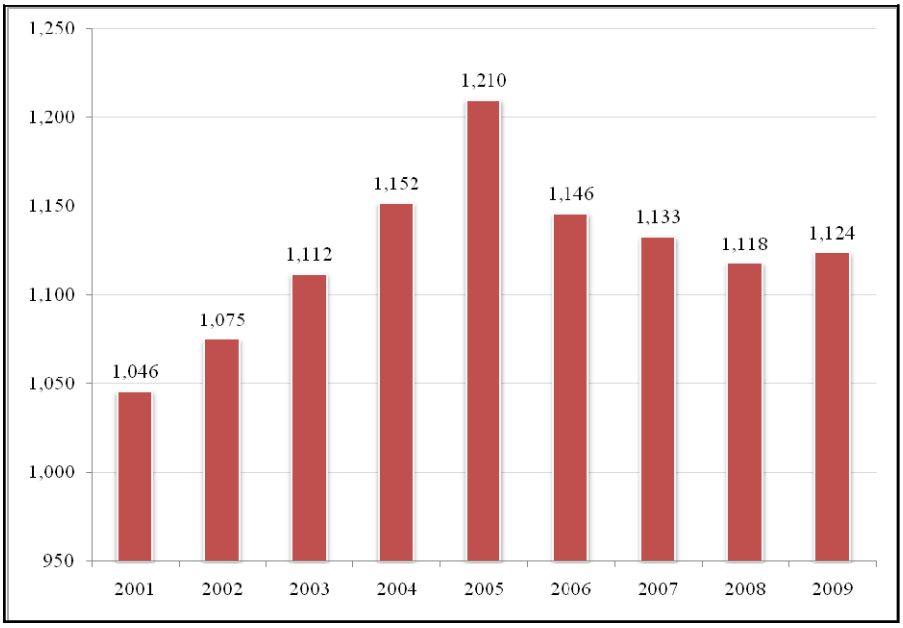
This section examines the existing economic and business conditions in Town over the past seven years. It begins by analyzing business patterns, including changes in the number of establishments, average monthly employment, and wages. An examination of changes in the

industry composition in Town is then provided, followed by a discussion of local major employers and some of the characteristics of Chelmsford businesses.

Business Patterns

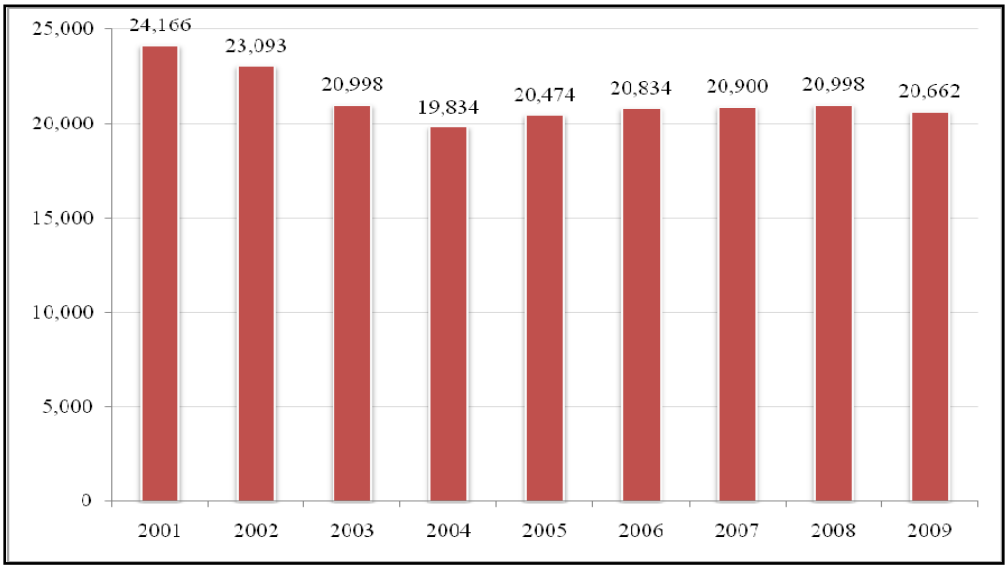
Trends in the Chelmsford workforce are mirrored by the business patterns of establishments operating in Town over the past decade. Figure 3.3 illustrates changes in the total number of establishments between the first quarter of 2001 and the first quarter of 2009, while Figure 3.4 represents the Average Monthly Employment for all industries during the same period of time. As previously discussed, the layoffs in the early 2000s can be seen in the drops in average monthly employment between 2001 and 2003, although notably, the total number of establishments during those years consistently grew.

Figure 3.3: Total Number of Establishment in Chelmsford, 2001-2009 (Q1)



Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

Figure 3.4: Average Monthly Employment for Chelmsford Establishments, 2001-2009



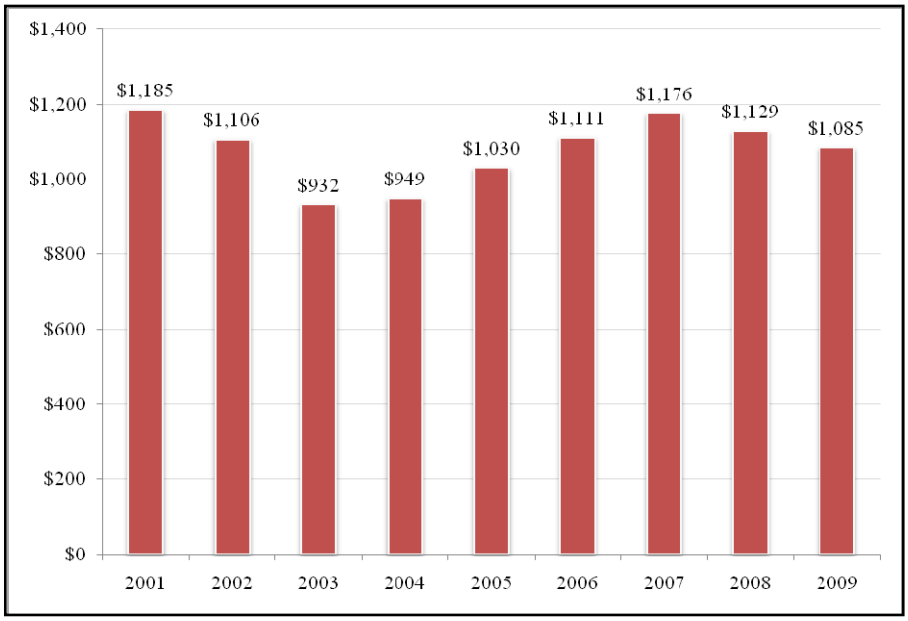
Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

This trend may indicate a decrease in employment levels at large corporations and growth in the number of small businesses operating in Town. Although the total number of establishments in Town declined every

year between the first quarters of 2004 and 2008, the first quarter of 2009 showed business growth, with 78 more businesses operating than in 2001.

Another indicator of local economic vitality is the average weekly wages paid to workers. Figure 3.5 illustrates changes in average weekly wages (across all industries) paid to workers employed in Chelmsford for the first quarter of each year between 2001 and 2009. Consistent with the economic recession that affected the region in the early 2000s, average weekly wages decreased from $1,185 in 2001 to $932 in 2003. Between 2004 and 2007, average weekly wages increased modestly from $ 949 to $ 1,176, but the 2007 wages were still slightly lower that the 2001 average weekly wage figures.

Figure 3.5: Average Weekly Wages for Chelmsford Workers, 2001-2009 (Q1)



Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

Since the onset of the current recession, average weekly wages across all industries have consistently dropped, down 4% ($47/ week) between 2007 and 2008 and an additional 3.9% ($44/week) between 2008 and 2009. The average weekly wages paid to workers employed in Chelmsford during the first quarter of 2009 were one hundred dollars less than the average weekly wages paid in 2001. This point is of particular concern given the 21% rate of inflation between 2001 and 2009. In other words, one dollar ($1.00) in 2001 had the same buying power as $1.21 in 2009.

Industry Composition

The composition of industries in Chelmsford is diverse, ranging from high tech research and development firms to social services; restaurants to boutiques to utilities contractors. Fewer people from town are employed in manufacturing now than twenty years ago, but employment in construction, finance, and information technology has increased. The composition of industries operating in Chelmsford has become more diversified, as reflected in Table 3.5 on the next page.

In terms of the goods-producing domain, durable and nondurable goods manufacturing establishments decreased by -36.6% and -10.5%, respectively, between the first quarter of 2001 and 2009. Construction establishments, however, increased by 30.9%, from 97 establishments in 2001 to 127 in 2009.

Many of the service-providing industries, such as educational services (11.8%), financial and insurance businesses (14.5%), health care services (13.1%), accommodation and food services (14.5%), and "Other Services", such as Repair and Maintenance services, Personal Care Services, Professional Organizations, and Private Households, increased substantially between the first quarters of 2001 and 2009. Service industries experiencing decline during this time frame included wholesale trade establishments, which declined by nearly a quarter (-22.1%) between 2001 and 2009, as well as Real Estate and Leasing (-9.8%), Arts, Entertainment, and Recreation (-14.3%), and Retail Trade (-4.5%). These trends are consistent with larger issues related to the emergence of a service-oriented economy in the 21st century, a trend which has been impacting the region, state, and nation as a whole for the past twenty years.

TABLE 3.5
CHANGES IN LOCAL INDUSTRY COMPOSITION: 2001 TO 2009 (Q1)

Number of Establishments	2001 (Q1)	2009 (Q1)	Percent Change: 2001-2009
Total, All Industries	1,046	1,124	7.5
Goods-Producing Domain	194	195	0.5
Agriculture, Forestry, Fishing & Hunting	4	4	0
Construction	97	127	30.9
Durable Goods Manufacturing	71	45	-36.6
Non-Durable Goods Manufacturing	19	17	-10.5
Service-Providing Domain	852	929	9.0
Utilities	3	4	33.3
Wholesale Trade	95	74	-22.1
Retail Trade	112	107	-4.5
Information	25	25	0
Finance and Insurance	40	45	12.5
Real Estate and Rental and Leasing	41	37	-9.8
Professional and Technical Services	159	161	1.3
Management of Companies	0	7	100
Administrative and Waste Services	64	70	9.4
Educational Services	16	20	25.0
Health Care and Social Assistance	107	121	13.1
Arts, Entertainment, and Recreation	14	12	-14.3
Accommodation and Food Services	62	71	14.5
Other Services, except Public Administration	84	133	58.3

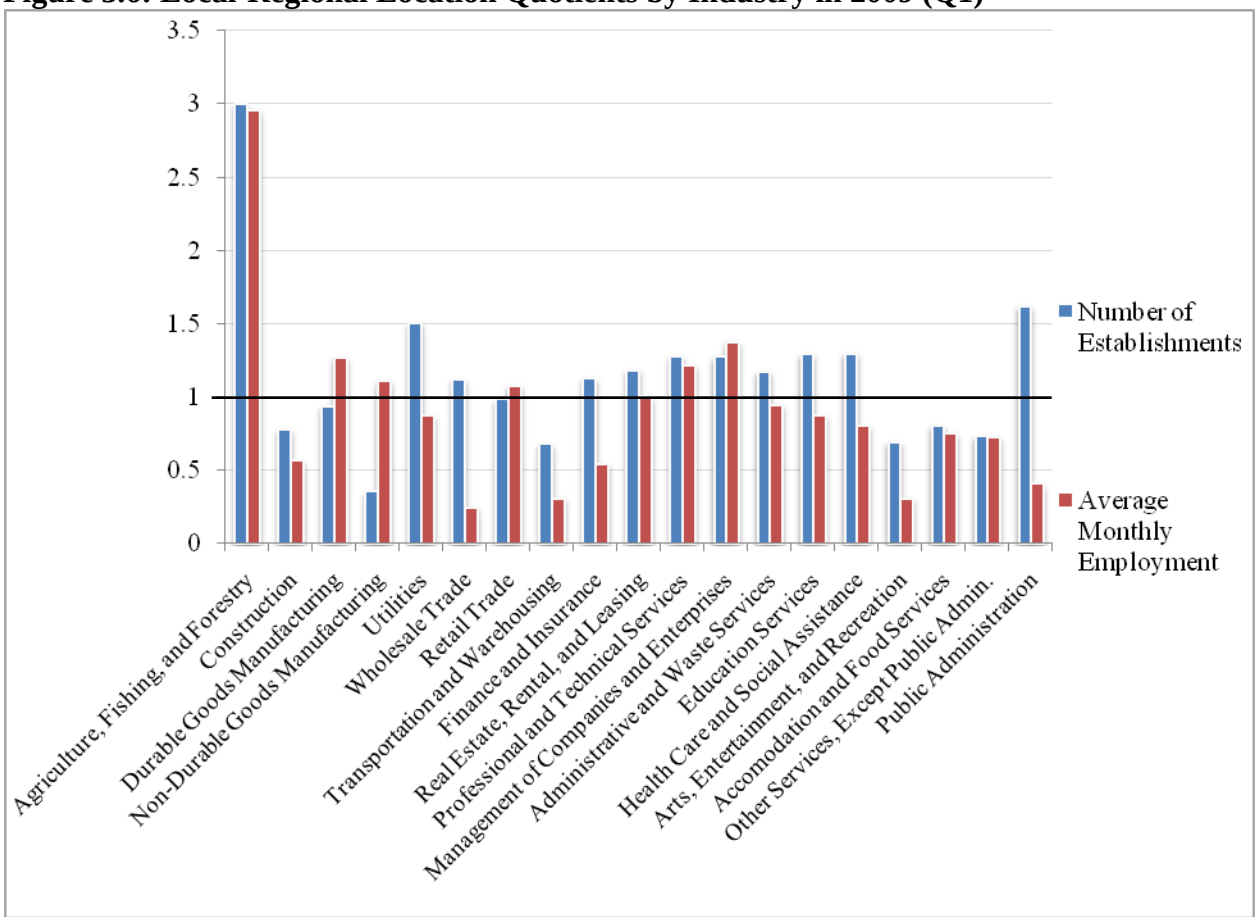
Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

Location quotients (LQ) are a useful tool for assessing the various industry clusters located in a particular region. Location quotient analyses help us better understand the strengths of a local economy by assessing which industries are concentrated within it, relative to the region or state as a whole. Location quotients-- which are essentially a ratio of the concentration of a particular industry in one area (in this case, Chelmsford) to the concentration of the same industry in a

larger geographic area (Greater Lowell Workforce Investment Area[11]) - are understood to be significant when they are greater than 1.0.

Using the Greater Lowell Workforce Investment Area as a basis of comparison, location quotients were developed with first quarter 2009 data for each of the industries with a presence in Chelmsford. Quotients were calculated for both the total number of establishments and average monthly employment among each industry sector. Figure 3.6 below illustrates the current location quotients for each of the primary industry sectors operating in town, according to both the total number of establishments and average monthly employment.

Figure 3.6: Local-Regional Location Quotients by Industry in 2009 (Q1)



Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

According to first quarter 2009 figures, the industry sector with the highest location quotients by far is Agriculture, Fishing, and Forestry, although this figure is somewhat misleading. With only eight (8) establishments and 40 workers employed across the region working in these industries, half of the establishments and 55% of jobs were located in Chelmsford. While these sectors

[11] The Greater Lowell Workforce Investment Area includes the communities of Billerica, Chelmsford, Dracut, Dunstable, Lowell, Tewksbury, Tyngsborough, and Westford. It is similar to the NMCOG region except it does not include the Town of Pepperell.

overall represent a small section of the local and regional economies, their concentration in Chelmsford affords the town location quotients of 3.002 for total number of establishments, and 2.953 for average monthly employment.

As evidenced above, many other types of industries are concentrated in Chelmsford relative to the Greater Lowell Workforce Investment Area. Within the goods-producing domain, both durable and non-durable goods manufacturing had significant average monthly employment LQs: 1.267 and 1.108, respectively. An examination of sub-sectors reveals that Chelmsford has high concentrations of the following types of manufacturing businesses: Printing and Related Support (1.557), Plastics and Rubber Manufacturing (2.001), Commercial and Service Industry Machinery (2.001), Computers and Peripheral Equipment (2.252), and Electronic Instrument Manufacturing (1.785). Many of these sectors also had relatively high concentrations of the region's average monthly employment, including Plastics and Rubber Manufacturing (3.919), Machine Shops and Threaded materials (1.105), Computers and Peripheral Equipment (4.436), and Electronic Instrument Manufacturing (2.175). Table 3.6 below provides the location quotients for each of the goods-producing subsectors with a presence in Chelmsford during the first quarter of 2009.

TABLE 3.6
ECONOMIC STATISTICS FOR GOODS-PRODUCING INDUSTRIES IN 2009 (Q1)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	LQ- # of Est.	LQ- AME
Agriculture, Forestry, Fishing & Hunting	4	22	$471	**3.002**	**2.953**
Water, Sewage and Other Systems	4	45	$1,121	**1.668**	**1.559**
Construction					
Residential Building Construction	26	61	$756	0.7	0.774
Nonresidential Building Construction	4	34	$1,332	0.801	0.697
Building Foundation/Exterior Contractors	14	65	$889	0.824	0.797
Building Equipment Contractors	37	223	$931	0.69	0.5
Building Finishing Contractors	22	38	$511	0.887	0.282
Other Specialty Trade Contractors	20	103	$1,128	**1.092**	**1.433**
Manufacturing					
Printing and Related Support Activities	7	103	$1,157	**1.557**	0.818
Plastics & Rubber Product Manufacturing	3	403	$754	**2.001**	**3.919**
Plastics Product Manufacturing	3	403	$754	**2.001**	
Fabricated Metal Product Manufacturing	9	127	$826	0.6	0.543
Machine Shops and Threaded Products	8	114	$831	0.906	**1.105**
Comm. & Service Industry Machinery	3	29	$1,434	**2.001**	0.398
Computer and Electronic Product Mfg	23	2,444	$1,677	**1.469**	**1.629**
Computers and Peripheral Equipment	3	533	$2,126	**2.252**	**4.436**
Semiconductor & Electronic Components	7	383	$1,406	0.977	0.654
Electronic Instrument Manufacturing	11	1,525	$1,590	**1.785**	**2.175**

Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

Chelmsford also has high concentrations of service-related businesses and jobs relative to the region. In terms of the total number of establishments, every major service industry category except for Retail Trade, Transportation and Warehousing, Arts, Entertainment, & Recreation, Accommodation and Food Services, and "Other" services had a significant (>1.0) location quotient. Table 3.7 below and on the subsequent three pages illustrates those industries with the most significant presence are among high-tech, professional, knowledge-based services.

With few exceptions, sectors included within Information, Financial Activities, Professional and Business Services, and Education/Health Services had LQs exceeding 1.0. The sectors exceeding a 1.5 LQ for total number of establishments were: Furniture and Furnishing Merchant Wholesalers (3.002), Print & Media Book Publishers (3.002), Real Estate Brokers and Agents (1.638), Non-depository Credit Intermediation (2.402), Legal Services (1.501), Specialized Design Services (1.716), Office Administrative Services (1.601), Employment Services (1.772), Travel Arrangement and Reservation Services (1.827), Elementary and Secondary Schools (1.801), Ambulatory Health Care Services (1.514), Offices of Physicians (1.969), Home Health Care Services (1.501), Community Care facilities for the Elderly (1.848), Professional Organizations (1.681), and Public Administration (1.619).

The average monthly employment LQs for service industries were not quite as high, indicating the presence of many small businesses (employing fewer workers) in Chelmsford. In terms of general industry categories, Retail Trade (1.078), Professional and Technical Services (1.212), and the Management of Companies and Enterprises (1.375) scored above a 1.0. However, upon closer inspection, several service oriented sub-sectors have notable average monthly employment LQs. These sectors include Commercial Goods Wholesale Merchants (1.095), Lawn & Garden Supply stores (1.79), Clothing and Accessory stores (2.596), Jewelry and Luggage stores (2.44), Real Estate Agents and Brokers (1.82), Consumer Goods Rental (1.847), Management and Technical Consulting services (1.719), Employment Services (1.918), Offices of Physicians (2.523), Community Care Facilities for the Elderly (1.926), and Individual and Family Services (1.779).

TABLE 3.7
ECONOMIC STATISTICS FOR SERVICE-PROVIDING INDUSTRIES IN 2009 (Q1)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	LQ- # of Est.	LQ- AME
Wholesale Trade					
Merchant Wholesalers, Durable Goods	35	519	$1,708	**1.095**	0.845
Furniture & Furnishings Merchant Whsle	3	9	$1,269	**3.002**	0.711
Commercial Goods Merchant Wholesale	13	274	$1,888	**1.531**	**1.57**
Electric Goods Merchant Wholesalers	7	138	$1,885	**1.106**	0.693
Hardware & Plumbing Wholesalers	3	25	$1,054	**1.201**	**1.025**
Merchant Wholesalers, Nondurable	10	80	$1,014	**1.072**	0.361
Electronic Markets & Agents/Brokers	29	124	$3,003	**1.169**	0.691

TABLE 3.7
ECONOMIC STATISTICS FOR SERVICE-PROVIDING INDUSTRIES IN 2009 (Q1)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	LQ- # of Est.	LQ- AME
Retail Trade					
Motor Vehicle and Parts Dealers	8	72	$633	0.658	0.428
Automobile Dealers	3	5	$1,028	0.751	0.58
Auto Parts, Accessories, & Tire Stores	3	45	$489	0.439	0.641
Furniture & Home Furnishings Stores	6	15	$791	**1.242**	0.455
Furniture Stores	3	7	$871	**1.638**	0.418
Electronics and Appliance Stores	5	26	$604	**1.112**	0.956
Bldg Material & Garden Supply Stores	11	79	$456	**1.501**	0.661
Lawn & Garden Equip./Supplies	4	15	$519	**2.402**	**1.79**
Food and Beverage Stores	17	585	$366	0.685	0.832
Grocery Stores	10	534	$362	0.632	0.814
Beer, Wine, and Liquor Stores	6	50	$350	0.819	**1.405**
Health and Personal Care Stores	9	88	$474	0.983	0.56
Gasoline Stations	12	58	$389	0.901	0.663
Clothing & Accessories Stores	11	310	$627	**1.376**	**2.596**
Jewelry, Luggage & Leather Goods	3	10	$767	**1.801**	**2.44**
General Merchandise Stores	3	321	$371	0.901	**1.976**
Miscellaneous Store Retailers	14	100	$364	**1.236**	**1.447**
Office Supply, Stationery & Gift Stores	6	74	$370	**1.716**	**2.017**
Other Miscellaneous Store Retailers	6	14	$295	**1.441**	0.928
Transportation and Warehousing					
Truck Transportation	5	84	$981	0.417	0.334
Specialized Freight Trucking	4	84	$981	0.801	0.891
Transit & Ground Passenger Transport	3	80	$263	0.517	0.6
Support Activities for Transportation	6	24	$1,008	**1.638**	0.632
Information					
Information	25	1,355	$1,285	**1.365**	**1.364**
Publishing Industries	13	402	$2,281	**1.859**	0.969
Print & Book Media Publishers	5	72	$1,760	**3.002**	**1.039**
Software Publishers	8	330	$2,394	**1.501**	0.955
Motion Picture & Sound Recording	3	9	$1,299	**1.801**	0.399
Other Information Services	5	66	$877	**2.001**	**1.435**
Financial Activities					
Finance and Insurance	45	266	$1,348	**1.126**	0.543
Credit Intermediation & Related Act.	24	174	$1,217	**1.191**	0.61
Depository Credit Intermediation	14	136	$855	0.955	0.601
Nondepository Credit Intermediation	8	37	$2,573	**2.402**	**1.062**
Financial Investment & Related Act.	5	37	$2,386	**1.251**	0.747
Insurance Carriers & Related Acts.	16	55	$1,064	**1.056**	0.358
Insurance Agencies, Brokerages & Support	15	54	$1,018	**1.072**	0.653
Real Estate and Rental and Leasing	37	176	$974	**1.182**	**1**
Lessors of Real Estate	4	32	$509	0.632	0.792
Real Estate Agents & Brokers	15	40	$752	**1.638**	**1.82**
Activities Related to Real Estate	9	21	$832	**1.103**	0.413
Rental and Leasing Services	8	62	$703	**1.092**	**1.077**
Automotive Equip. Rental & Leasing	3	10	$514	**1.287**	0.577

TABLE 3.7
ECONOMIC STATISTICS FOR SERVICE-PROVIDING INDUSTRIES IN 2009 (Q1)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	LQ- # of Est.	LQ- AME
Consumer Goods Rental	4	43	$768	**1.201**	**1.847**
Professional and Business Services					
Professional and Technical Services	161	2,414	$1,836	**1.279**	**1.212**
Legal Services	36	200	$1,054	**1.501**	**2.178**
Accounting and Bookkeeping Services	19	86	$672	**1.375**	0.779
Architectural and Engineering Services	18	168	$1,445	**1.081**	0.692
Specialized Design Services	4	9	$883	**1.716**	**1.342**
Computer Systems Design & Rel. Srvs.	42	1,244	$2,250	**1.341**	**1.342**
Management & Tech.Consulting Svc	20	448	$1,603	0.992	**1.719**
Scientific Research & Develop. Svc	12	165	$2,063	**1.386**	0.581
Advertising and Related Services	4	6	$837	**1.201**	0.716
Other Professional & Tech. Services	6	88	$560	**1.06**	**1.467**
Management of Companies & Enterprises	7	564	$1,687	**1.274**	**1.375**
Administrative and Waste Services	70	739	$660	**1.174**	0.945
Administrative and Support Services	68	720	$656	**1.208**	0.986
Office Administrative Services	4	37	$717	**1.601**	0.349
Employment Services	18	452	$643	**1.772**	**1.918**
Business Support Services	4	19	$344	**1.044**	0.267
Travel Arrangement & Reservation Services	7	15	$2,612	**1.827**	**1.202**
Services to Buildings and Dwellings	28	186	$522	0.904	0.982
Other Support Services	4	7	$1,396	**1.848**	0.817
Education and Health Services					
Educational Services	20	1,750	$692	**1.291**	0.869
Elementary and Secondary Schools	6	1,262	$851	**1.801**	0.832
Other Schools and Instruction	10	135	$248	**1.251**	**2.17**
Health Care and Social Assistance	121	2,053	$779	**1.297**	0.8
Ambulatory Health Care Services	90	1,127	$1,023	**1.514**	**1.467**
Offices of Physicians	41	753	$1,175	**1.969**	**2.523**
Offices of Dentists	26	208	$790	**1.473**	**1.336**
Offices of Other Health Practitioners	16	64	$726	**1.248**	0.881
Home Health Care Services	3	48	$374	**1.501**	0.868
Nursing and Residential Care Facilities	10	531	$571	0.78	0.793
Community Care Facility for Elderly	4	197	$461	**1.848**	**1.926**
Social Assistance	21	395	$361	**1.051**	**1.104**
Individual and Family Services	9	218	$375	**1.422**	**1.779**
Child Day Care Services	12	177	$344	**1.109**	0.908
Leisure and Hospitality					
Arts, Entertainment, and Recreation	12	93	$408	0.693	0.305
Amusement, Gambling & Recreation	10	89	$386	0.732	0.361
Other Amusement & Rec. Industries	10	89	$386	0.751	0.363
Accommodation and Food Services	71	1,087	$310	0.8	0.752
Food Services and Drinking Places	68	909	$306	0.799	0.701
Full-Service Restaurants	20	465	$300	0.728	0.746
Limited-Service Eating Places	31	382	$279	0.716	0.705
Special Food Services	15	55	$566	**1.668**	0.592

TABLE 3.7
ECONOMIC STATISTICS FOR SERVICE-PROVIDING INDUSTRIES IN 2009 (Q1)

Industry	Number of Establishments	Average Monthly Employment (AME)	Average Weekly Wages	LQ- # of Est.	LQ- AME
Other Services					
Other Services, Ex. Public Admin	133	567	$790	0.732	0.728
Repair and Maintenance	24	222	$1,483	0.629	0.665
Automotive Repair and Maintenance	15	73	$671	0.515	0.462
Electronic Equip. Repair/Maintenance	7	122	$1,982	0.004	0.797
Personal and Laundry Services	40	244	$342	**1.049**	**1.17**
Personal Care Services	27	190	$286	**1.026**	**1.275**
Death Care Services	3	19	$962	**1.001**	**1.159**
Drycleaning and Laundry Services	8	33	$308	**1.334**	**1.143**
Membership Orgs & Associations	10	37	$396	0.78	0.324
Professional and Similar Organizations	7	15	$779	**1.681**	0.782
Private Households	59	64	$319	0.637	0.526
Public Administration	24	290	$1,261	**1.619**	0.406

Source: Executive Office of Labor and Workforce Development ES-202 Reports (March 2009)

Professional and Technical Service-related businesses, such as Schafer Engineering Corporation depicted in the photograph below, comprise the second-largest industry sector in Chelmsford.



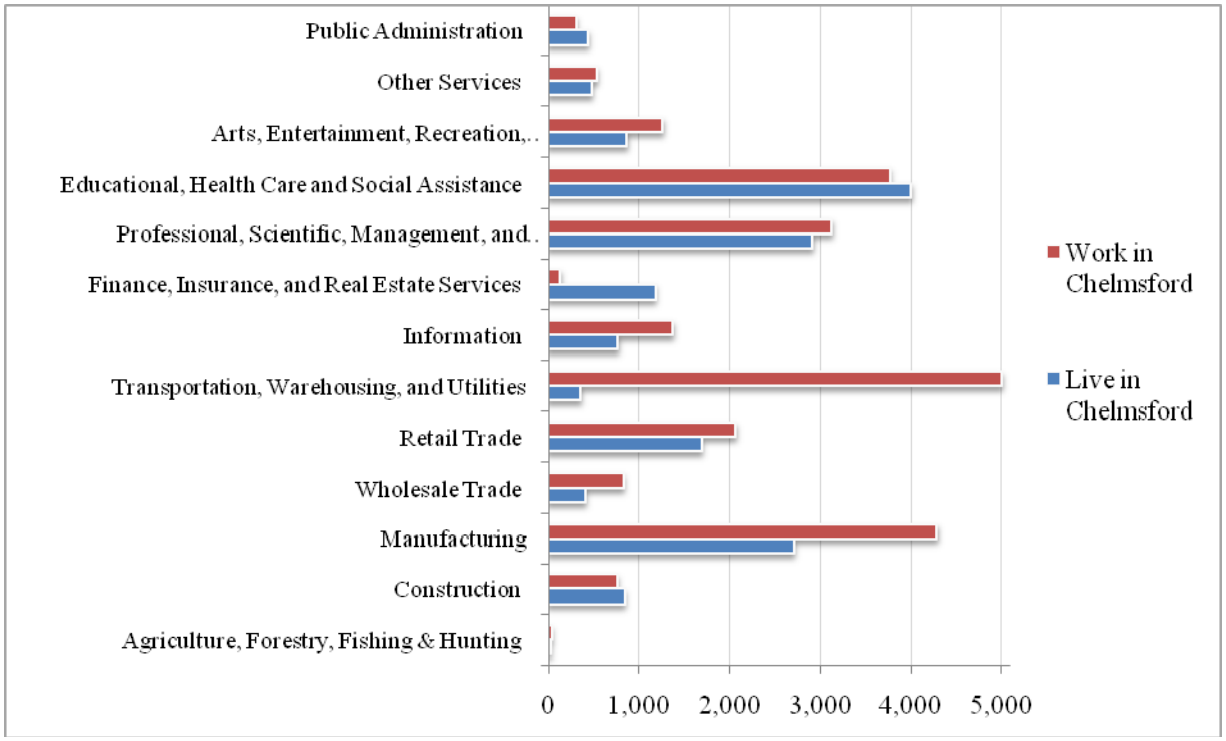
Schafer Corporation, a Subsidiary of Metalmark Capital Holdings, LLC, is a 25-year old Engineering Consulting Service business located at 321 Billerica Road. According to statistics compiled by ReferenceUSA, the company employs 44 workers and grosses between $50 and $100 million in sales annually. (*Source: Pictometry International, 2008)*

In 2008, Chelmsford's Community Development Department produced a series of documents, including an *Economic Development Profile* for the Town. One graph compared the industries in which Chelmsford residents are employed to the composition of jobs, by industry, that are operating in Town. Using 2006-2006 *American Community Survey* and 2008 Annual ES-202 data, NMCOG updated this analysis, which is illustrated in Figure 3.7 on the following page.

Figure 3.7 reveals that there are far more people working in Chelmsford who are employed in transportation, warehousing, and utilities than there are Chelmsford residents working in these

fields. The same is true for information services, retail, and manufacturing, though to a lesser extent than transportation, warehousing, and utilities.

Figure 3.7: Employment in Chelmsford vs. Employment of Chelmsford Residents in 2008



Source: 2006-2008 American Community Survey; Executive Office of Labor and Workforce Development ES-202 Reports (2008 Annual)

Major Employers



The United Parcel Service facility located at 90 Brick Kiln Road. (*Source: Pictometry International, 2008)*

Chelmsford is home to a number of major regional employers, including United Parcel Service (UPS) and Harvard Vanguard. Table 3.8 on the next page offers a breakdown of the eight largest employers operating in Town in both 1994 and 2009. Since 1994, United Parcel Service has been the largest employer in Chelmsford, employing 1,550 workers in 2008 (down slightly from 1,600 in 1994). Consumer products manufacturer, Comet Products, has also consistently been included in the list of major employers in Town. Table 3.8 on the following page reveals that for the past 15 years, high tech computer

manufacturing and service providers have been leaders in town in terms of providing jobs to the local and regional workforce.

TABLE 3.8
MAJOR EMPLOYERS IN CHELMSFORD: 1994 AND 2009

Company	Employees	Industry	Company	Employees	Industry
1994			2009		
United Parcel Service	1,600	Local & Long distance freight and delivery	United Parcel Service	1,550	Local & Long distance freight and delivery
Town of Chelmsford	878	Local government	Kronos, Inc.	1,251	Computer Hardware and Software
Hewlett Packard	550	Computer hardware	Comcast	714	Telecommunications
Sun Microsystems	350	Computer software and hardware	Natures Jewelry/ Potpourri Group, Inc.	500	Catalog Sales
Harvard Community Health Plan	320	Medical practice	Mercury Computer Systems, Inc.	500	Electronic Computers Manufacturing
Comet Products, Inc.	275	Consumer Products	Harvard Vanguard Medical Assoc.	397	Medical Practice
Optronics, Inc.	215	Computer hardware and software	WNA/ Comet Products	335	Consumer Products
Mercury Computer	165	Computer hardware manufacturing	Cintas, The Uniform People	300	Uniform Supply Service

Source: Town of Chelmsford Community Development Department Economic Development Profile
**Kronos, Incorporated laid off 87 employees in September 2008*

Wages

Table 3.9 on the following pages reflects the total wages and average weekly wages earned for all industries operating in Chelmsford during the first quarters of 2001 and 2009. In sum, the total wages paid across all industries declined by $80,834,431 (-21.7%) between these two quarters, while average weekly wages declined by 8.4% from $1,185/ week to $1,085/week. Despite wage growth in several sectors, both the goods producing domain and service providing domain saw decreases in their total and average weekly wages between 2001 and 2009.



Manufacturing businesses provide the highest wages to workers out of any industry in Chelmsford. The Ferrite Components, Inc. facility is located at 10 Kidder Road and employs 29 workers. (*Source: Pictometry International, 2008)*

Although the number of manufacturing businesses in Chelmsford has declined over the years, manufacturing continues to be the leading source for wages among industries operating in the town. While total wages from manufacturing declined approximately 47.9% between 2001 and 2009, the total wages received through manufacturing during the first quarter of 2009 was $78,659,736, which was $2,354,668 more than the total wages earned through Professional and Business Services (the industry sector with the second-highest total wages for the quarter). Moreover, the average weekly wages paid to workers in durable goods manufacturing declined by 7.3%, from $1,718/week in 2001 to $1,593/week in 2009. The average weekly wages paid to nondurable goods manufacturing workers, however, increased slightly (5.8%), from $765/week in 2001 to $809/week in 2009.

TABLE 3.9
TOTAL WAGES AND AVERAGE WEEKLY WAGES BY INDUSTRY: 2001 AND 2009

	Total Wages (Q1)		Percent Change	Average Weekly Wages (Q1)		Percent Change
	2001	2009	2001-2009	2001	2009	2001-2009
Total: All Industries	$372,250,564	$291,416,133	-21.7	$1,185	$1,085	-8.4
Goods-Producing Domain	$150,424,438	$85,845,742	-42.9	$1,565	$1,412	-9.8
Agriculture	$126,408	$134,795	6.6	$343	$471	37.3
Construction	$4,537,279	$7,033,522	55	$773	$989	27.9
Manufacturing	$144,299,462	$78,659,736	-45.5	$1,637	$1,475	-9.9
• Durable Goods Manufacturing	$138,580,156	$72,214,037	-47.9	$1,718	$1,593	-7.3
• Non-Durable Goods	$5,719,306	$6,445,699	12.7	$765	$809	5.8
Service-Providing Domain	$221,826,125	$205,570,391	-7.3	$1,017	$989	-2.8
Trade, Transportation & Utilities	$40,929,356	$47,744,658	16.7	$631	$793	25.7
• Utilities	$258,765	$655,524	153.3	$766	$1,121	46.3
• Wholesale Trade	$17,627,825	$17,415,898	-1.2	$1,464	$1,853	26.6
• Retail Trade	$8,046,084	$12,156,481	51.1	$359	$498	38.7
Information	$24,354,325	$22,636,170	-7.1	$1,360	$1,285	-5.5
Financial Activities	$6,249,656	$6,890,564	10.3	$954	$1,199	25.7
• Finance and Insurance	$4,451,166	$4,661,247	4.7	$1,010	$1,348	33.5
• Real Estate and Rental & Leasing	$1,798,490	$2,229,316	24	$838	$974	16.2
Professional & Business Services	$116,512,678	$76,305,068	-34.5	$1,793	$1,580	-11.9
• Professional &Technical Services	$97,238,724	$57,601,825	-40.8	$2,626	$1,836	-30.1
• Management of Companies & Enterprises	$0	$12,365,620	100	$0	$1,687	100
• Admin. & Waste Services	$9,637,624	$6,337,623	-34.2	$414	$660	59.4
Education & Health Services	$23,614,804	$36,538,212	54.7	$625	$739	18.2
• Educational Services	$11,256,685	$15,753,281	39.9	$637	$692	8.6
• Health Care & Social	$12,358,118	$20,784,932	68.2	$615	$779	26.7

TABLE 3.9
TOTAL WAGES AND AVERAGE WEEKLY WAGES BY INDUSTRY: 2001 AND 2009

	Total Wages (Q1)		Percent Change	Average Weekly Wages (Q1)		Percent Change
	2001	2009	2001-2009	2001	2009	2001-2009
Assistance						
Leisure & Hospitality	$5,395,197	$4,879,720	-9.6	$305	$318	4.3
• Arts, Entertainment, & Recreation	$382,210	$492,863	29	$249	$408	63.9
• Accommodation & Food	$5,012,987	$4,386,857	-12.5	$310	$310	0
Other Services	$2,366,272	$5,820,456	146	$431	$790	83.3
• Other Services, Ex. Public Admin	$2,366,272	$5,820,456	146	$431	$790	83.3
Public Administration	0	$4,755,544	100	0	$1,261	100

Source: Executive Office of Labor and Workforce Development ES 202 Reports (March 2009)

Professional and technical services also experienced a decline between the first quarters of 2001 and 2009, with total wages decreasing by 40.8% and average weekly wages declining by 30.1%. Other industries that experienced decreases in total wages between these two periods included: Wholesale trade (-1.2%), Information (-7.1%), Administration and Waste Services (-34.2). and Food and Accommodation (-12.5%). With the exception of Food and Accommodation, which saw zero increase in the average weekly wages paid to workers between these two periods, each of the industries mentioned above also experienced declines in the average weekly wages paid to workers.

With the exception of Information and Professional and Technical Services, every industry within the Service Providing Domain experienced wage growth between the first quarters of 2001 and 2009. The greatest amount of total wage growth occurred within Utilities (153.3%), Other Services (146%), Health Care and Social Assistance (68.2%), and Retail Trade (51.1%). The most significant increases in average weekly wages occurred within Other Services (83.3%), Arts, Entertainment, & Recreation (63.9%), Administrative & Waste Services (59.4%), and Utilities (46.3%).

Additionally, the highest paying industries during the first quarter of 2009 included Wholesale Trade ($1,853/ week), Professional and Technical Services ($1,836/ week), Durable Goods Manufacturing ($1,593/ week), Finance and Insurance ($1,348/week), and Public Administration ($1,261/ week).

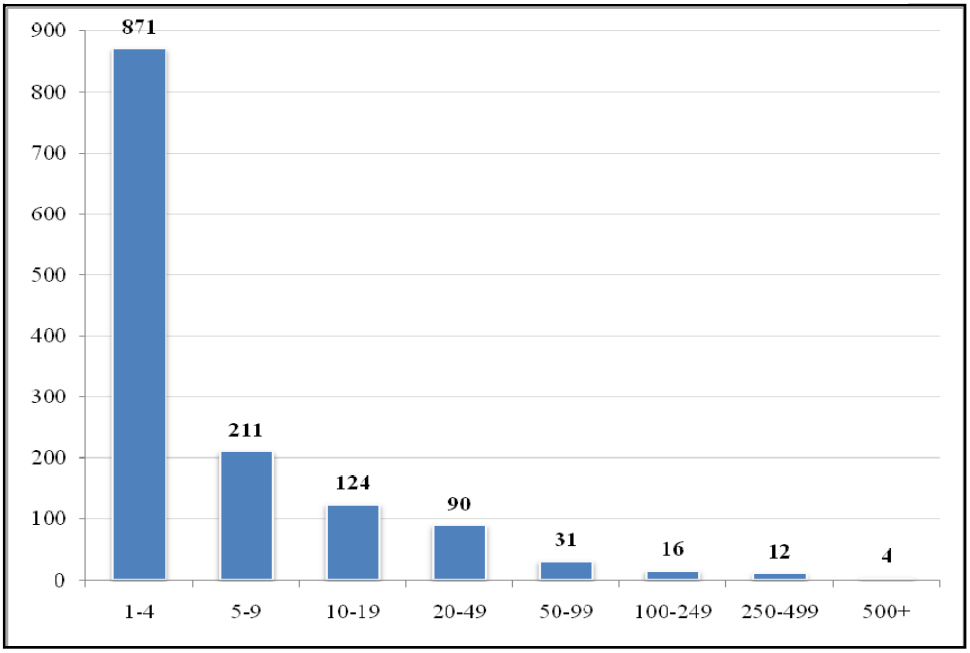
Local Business Characteristics

The data collection firm ReferenceUSA[12], which compiles detailed information about local businesses across the United States reported that as of May 2009 there were 1,359 businesses operating in Chelmsford. This number is 235 higher than the data provided by the Executive Office of Labor and Workforce Development *ES-202 Reports*. This difference may be partially attributed to new businesses that have opened up since the State compiled their first quarter (January-March) 2009 data. Additionally, ReferenceUSA's databases include municipal departments, state organizations, and individuals who may work independently for a larger company.

Number of Employees

According to this database, 89% of businesses operating in Chelmsford have less than twenty employees with 64% of all businesses employing between one and four workers (Figure 3.8). The Town does have its fair share of larger businesses, however, hosting approximately 18% of all the businesses in the NMCOG region that employ 100 or more workers. Approximately 85% (1,164 of the total businesses) are independently owned, single location businesses; another 13% (178 of total businesses) are branches, while headquarters and subsidiaries each comprise 1% of the total number of businesses in Chelmsford.

Figure 3.8: Number of Employees for all Chelmsford Businesses in 2009



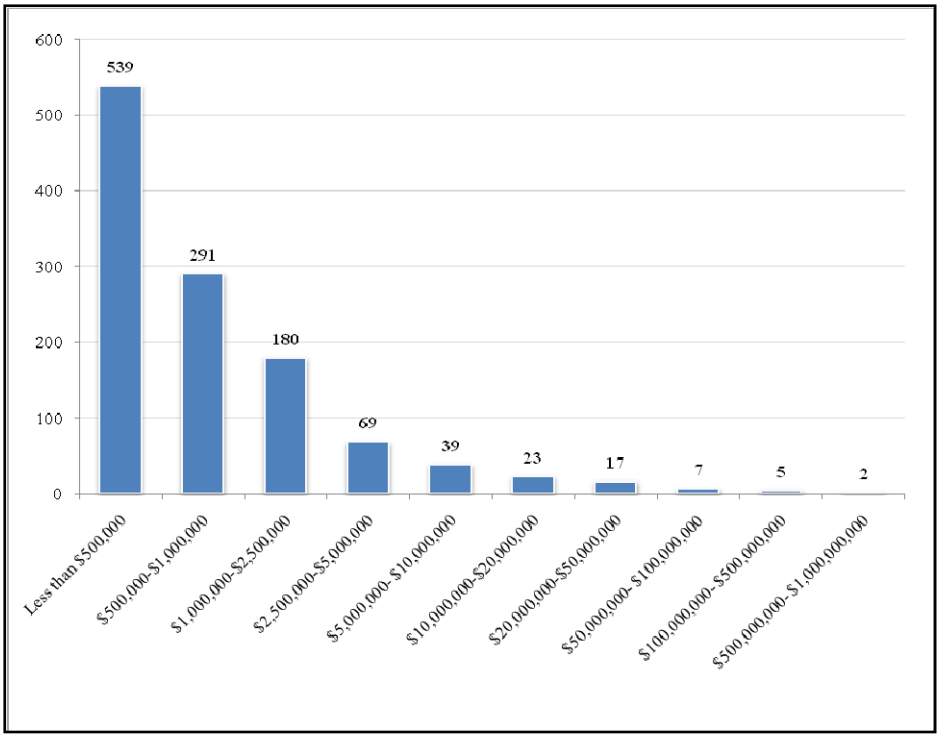
Source: ReferenceUSA (May 2009)

[12] For more information about ReferenceUSA's data collection method, visit: http://referenceusa.com/Static/DataQuality

Sales Volumes

Another important business indicator is the sales volumes for establishments operating in Town, as reflected in Figure 3.9. According to ReferenceUSA, slightly fewer than half (46%) of local businesses gross less than $500,000 annually in sales, while another quarter (24.8%) gross between $500,000 and $1 million in sales per year. Only fifty-four (54) businesses, or 4.6% of all businesses, gross more than $10 million in sales per year.

Figure 3.9: Annual Sales Volumes for all Chelmsford Businesses in 2009



Source: ReferenceUSA (May 2009)

Municipal Taxation and Spending

Compared to communities in the region, Chelmsford has the third highest percentage of commercial and industrially-zoned land of the nine communities in the NMCOG region, after Billerica and Lowell. Additionally, the town has a single-rate tax policy, which many companies consider to be an advantage to locating in the town (CCD Business Survey completed in 2008, *Chelmsford Economic Development Guide*). In Fiscal Year 2010, Chelmsford had the third-highest commercial and industrial property tax rate in the region ($15.15). However, the relatively low tax rate makes the town an attractive location for businesses and industries looking to locate in the Greater Lowell area. These tax rates for the communities in the Greater Lowell region are illustrated in Table 3.10 on the following page.

TABLE 3.10
CHELMSFORD'S TAX RATES COMPARED TO COMMUNITIES IN THE REGION, FY 2010

Community	Residential	Open Space	Commercial	Industrial	Personal Property
Billerica	$12.53	-	$28.47	$28.47	$28.47
Chelmsford	$15.15	-	$15.15	$15.15	$15.15
Dracut	$11.81	-	$11.81	$11.81	$11.81
Dunstable	$13.97	-	$13.97	$13.97	$13.97
Lowell	$13.27	-	$27.46	$27.46	$27.46
Pepperell	$12.58	-	$12.58	$12.58	$12.58
Tewksbury	$12.55	-	$19.77	$19.77	$19.77
Tyngsborough	$13.95	-	$13.95	$13.95	$13.95
Westford	$14.63	-	$14.82	$14.82	$14.63

Source: MA Department of Revenue Division of Local Services At a Glance Report *(January 22, 2010)*

According to the Massachusetts Department of Revenue's Division of Local Services, $73,559,750 in property taxes were levied during Fiscal Year 2010. Approximately 80.6% of these taxes were obtained through residential properties, which had a total assessed value of about $3.9 million. Commercial and industrial properties yielded approximately $6 million each, as illustrated in Table 3.11 below. In FY 2010, the Town generated an additional $2,210,511 in revenue from property taxes, primarily due to the increase in the tax rate (15.15 versus 14.07, respectively). According to the Town's FY 2009 assessor's database, just over 2,317 acres of land were exempt from paying property taxes, due to being either publicly-owned or owned by a nonprofit.

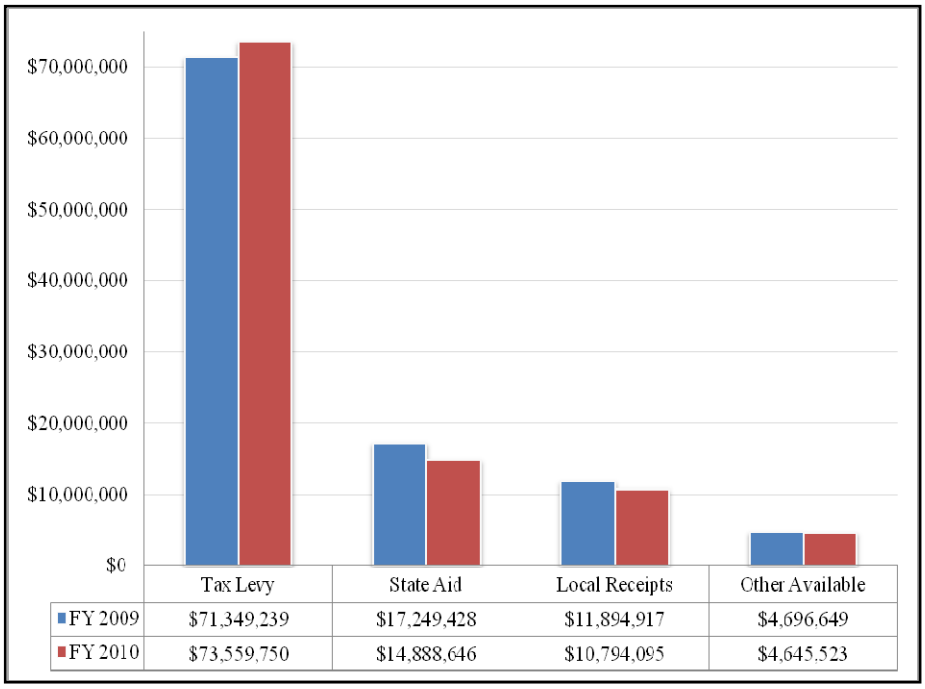
TABLE 3.11
FISCAL YEAR 2010 TAX CLASSIFICATION

Tax Classification	Assessed Values	Tax Levy	Tax Rate
Residential	$3,913,682,175	$59,292,285	$15.15
Open Space	$0	$0	0
Commercial	$399,855,510	$6,057,811	$15.15
Industrial	$391,746,900	$5,934,966	$15.15
Personal Property	$150,144,440	$2,274,688	$15.15
Total	$4,855,429,025	$73,559,750	$15.15

Source: MA Department of Revenue Division of Local Services At a Glance Report *(January 22, 2010)*

Like every municipality in the Commonwealth that depends on state and federal monies to fund local initiatives, Chelmsford has been affected and will continue to feel constraints on their annual operating budgets due to the national economic recession. Figure 3.10 illustrates the breakdown of municipal revenue sources for Fiscal Years 2009 and 2010. In FY 2009, more than two-thirds of the Town's budget (67.8%) came from levied taxes, while 16% of the budget came from State sources. Another 11% of the Town's budget came from local receipts, while 4.4% of the budget came from "other" sources.

Figure 3.10: Municipal Revenue Sources, Fiscal Year 2010



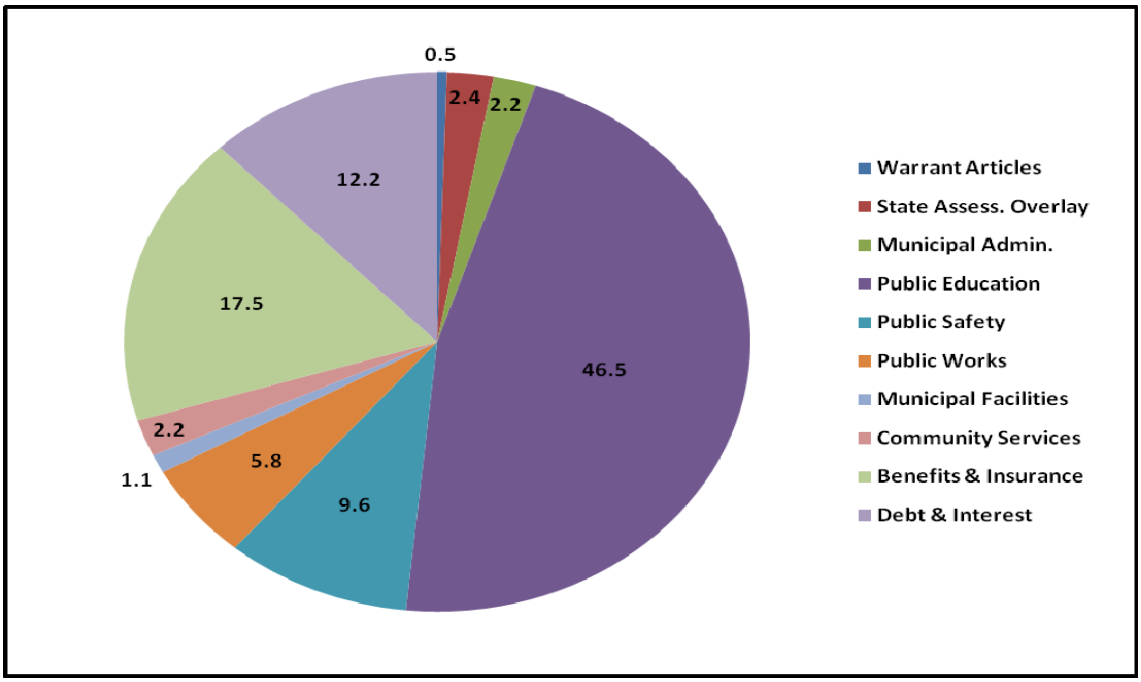
	Tax Levy	State Aid	Local Receipts	Other Available
FY 2009	$71,349,239	$17,249,428	$11,894,917	$4,696,649
FY 2010	$73,559,750	$14,888,646	$10,794,095	$4,645,523

Source: MA Department of Revenue Division of Local Services. At a Glance Report (January 22, 2010)

In FY 2010, approximately 70.8% of municipal revenue came from levied taxes. As previously discussed, this change represents an increase of $2,210,511 in levied taxes from property owners in town. Due to the constraints on the state budget, State Aid decreased by $2,360,782, or 13.7%. Local aid and "other" sources of revenue also decreased, by $1,100,822 (9.3%) and $51,126 (10.9%), respectively. In total, despite the increase in tax revenue, Chelmsford's municipal revenue sources decreased by $1,302,219 between FY 2009 and FY 2010.

This decrease in municipal revenue directly impacts municipal expenditures. Figure 3.11 on the next page shows municipal spending in Chelmsford for FY 2011. Local programs such as education and public works projects, comprise well over half of the total municipal expenditures in FY 2011.

Figure 3.11: Municipal Expenditures FY 2011



Source: "Fiscal Year 2011 Budget Report" prepared by Paul Cohen, Town Manager.

COMMUNITY ASSETS AND LIABILITIES

In assessing the economic development potential of a community, it is important to determine what the assets and liabilities of a community are through the perspective of the business community. The Northern Middlesex Council of Governments (NMCOG) worked with the Master Plan Committee to conduct a Visioning Session specifically for the business community as part of the public outreach process. Through the combined efforts of the Master Plan Committee, NMCOG, the Chelmsford Business Association (CBA) and the Greater Lowell Chamber of Commerce, members of the business community were contacted. The Chelmsford Business Vision Quest 2020 was held on May 6, 2009 at the Chelmsford Police Station and was well attended. The event was also covered by the local cable channel so that other business representatives could submit their comments directly to the Master Plan Committee or the Community Development Department.

The Chelmsford Business Forum was structured to provide an overview of the Chelmsford Master Plan Update process, describe the components of this plan and demonstrate how the economic development section ties in with NMCOG's regional economic development planning process under the Comprehensive Economic Development Strategy (CEDS) established by the Economic Development Administration (EDA) of the U.S. Department of Commerce. The SWOT (Strengths, Weaknesses, Opportunities and Threats) Analysis conducted by NMCOG enabled the representatives of the business community to express their ideas, concerns,

suggestions and recommendations within a structured framework. The strengths and weaknesses outlined below summarize the assets and liabilities of the community.

In response to the following question: "What are the strengths and weaknesses of doing business in Chelmsford?" the business participants initially focused upon the town's strengths related to its location, workforce, infrastructure and the working relationship with the Town. The major strengths identified are listed below in the text box below.

Strengths

- Proximity to 1-495 and Route 3 and availability of sewer
- Chelmsford Business Association
- Location in region and state
- Professional planning staff at town hall
- Improved communication between the Town and business community
- Variety/depth/types of businesses: diversity of industry types
- Educated labor force
- Responsive Building Department for permitting and approvals
- Proximity to UMass Lowell
- Single tax rate
- History of high quality of life/livability
- Representative Town Meeting form of government
- Number of state representatives
- Access to commuter rail service

When focusing upon the weaknesses within the community, the participants identified permitting issues before the Planning Board and Zoning Board of Appeals, transportation issues (public transit, parking, traffic, etc.), redevelopment issues, enforcement standards, taxes (vis-à-vis New Hampshire) and housing. The major weaknesses identified are offered in the text box on the next page.

Weaknesses

- Lack of predictability/uniformity from Planning Board
- Excessive parking requirements for businesses over 10,000 square feet
- Use variances, shifted from ZBA to Town Meeting, can take one year
- Being represented by four state representatives
- Length of permitting approval process and timing of board/commission meetings
- Lack of enforcement of sign bylaw
- Ad hoc signs on utility poles are not removed in a timely manner
- Existing buildings may not meet current needs of businesses; mismatch between what is available for redevelopment and market demand
- Lack of definition of "center of excellence"; strength and character of the community is not well-defined
- Lack of public transit service to the commuter rail station
- Lack of parking in the Town Center
- Lack of an overlay district along Route 110 and Town Center to support redevelopment; need to address what is allowed by special permit vs. variance
- Need to create overlay district with design standards similar to what is in place in Wilmington
- Lack of undeveloped land zoned for industrial use
- Mixed use is not allowed in Town Center
- Need infill housing
- Lack of foot traffic in business areas
- Disadvantage from a tax perspective due to proximity to New Hampshire
- Town does not hold itself to the same standards as the business community

The image displayed below illustrates the limited parking opportunities in the center of Town. Traffic congestion and parking issues were repeatedly articulated as an economic development potential weakness by residents and members of the Master Plan Committee.



Traffic Congestion and limited parking opportunities were identified as overall weaknesses of Chelmsford Town Center. (*Source: Pictometry International, 2008)*

The business participants were then asked: What opportunities should Chelmsford take advantage of to stabilize and expand its business community? The business community identified many opportunities for the Town of Chelmsford, including funding, internet/Wi-Fi services, the commuter rail station in Vinal Square, redevelopment of various properties in the Center Village and Vinal Square, one-stop permitting opportunities, landscape improvements and networking opportunities through the Chelmsford Business Association and the Greater Lowell Chamber of Commerce. The major opportunities were identified as follows:

Opportunities

- UMass Lowell spinoffs and incubator model could be tapped for redeveloping existing buildings
- Verizon FIOS service
- Free Wi-Fi in Town Center
- UMass Lowell Center for Sustainability could assist with efforts to redevelop North Chelmsford
- Grant money under the Green Communities Act
- Grants/monies available through the American Recovery and Reinvestment Act (aka the Stimulus Bill)
- Grant person at Town Hall to identify the various funding sources available
- Commuter rail station in North Chelmsford/opportunity for redevelopment of Vinal Square
- Better pedestrian accommodations in Vinal Square
- Apply Village Center concept to additional areas of town
- Engage interns from colleges and universities with training in planning and public administration
- Redevelop mills in North Chelmsford and redevelop portions of the Town Center
- Redevelop UMass Lowell West Campus
- Sites selected for redevelopment need additional trees and landscape improvements
- Additional landscaping and plantings are needed in the Town Center
- Need to define uses for vacant properties and buildings
- A market study should be considered as part of the Master Plan
- Availability of data lacking, particularly information regarding home occupations/self-employed
- Permitting requirements for home businesses should be clarified
- Need one-stop shopping for permitting
- Town-owned property on Wilson Street should be redeveloped under a land lease agreement
- Create a small business center
- Businesses should better utilize networking opportunities through the Chelmsford Business Association and the Greater Lowell Chamber of Commerce

The business participants were then asked: What future threats do you see to the business community in Chelmsford? The major threats identified by the business community were local and state taxes, the cost of health insurance, traffic congestion, limitations on the use of land, limited funding and the lack of definition by the town as to the types of industries it wants to attract. A complete list of the threats identified by the business community is offered in the text box on the following page.

Threats

- Traffic congestion in the town center
- Local property taxes
- Limitations of uses of land, unreasonable landscaping requirements, and limits on density of development
- Chelmsford does not receive its fair share of local, particularly monies received through the state school aid funding formula (Chapter 70)
- Having four state representatives
- State taxes
- Cost of health insurance (for the Town); municipalities should have the same rights as the State to insure their employees through GIC
- Lack of definition of industries desired by the town contributes to conflicts in permitting and zoning
- Health insurance costs for businesses due to a lack of state regulation of the insurance industry in terms of allowed rate increases; perhaps businesses can be allowed to join the GIC

Finally, the business participants were asked: What can the Master Plan do to address your concerns? The two major suggestions were as follows:

- Create stability by focusing on what exists presently, preventing additional urbanization, density and traffic;
- Promote partnerships with the State, such as providing additional tax incentives for job creation and seeking state funding to grow local businesses.

INFRASTRUCTURE ANALYSIS

This section examines the existing sewer, water supply, and utilities infrastructure in town. By understanding the current infrastructure system, we can begin to assess what additional improvements will be necessary to accommodate future economic development activities.

Sewer Capacity and Wastewater Management

The provision of adequate sewer infrastructure greatly enhances the economic development potential of a town. Beginning in 1984, the town embarked on an $800 million dollar initiative to provide public sewers for residences and businesses. Between 1986 and 2005, twenty-two bond issues totaling $108,900,000 were issued to cover the cost of design and construction for 36 sewer construction contracts (Phase 1A [Contract 85-1] through Phase 4E [Contract 02-1]). In November 2007, the first ten bonds, totaling approximately $36,667,000, had been retired. The remaining twelve bonds (totaling $72,150,000) were to be retired between 2008 and 2025.

Additionally, in 2003 a special town meeting authorized an expenditure of $5 million from the town's betterment account to fund Contract 02-2. One year later, another special town meeting authorized a $16.5M expenditure to fund four additional contracts (Phase 4F and 4G). At the April 2007 town meeting, a $0.50 user charge rate increase was approved in order to fund an $11M deficit in the 2004 betterment authorization. As of September 2008, approximately 93%

of the Town's sewer program had been completed, through the construction of 170 miles of sewer infrastructure which serves approximately 11,200 properties across town.

Efforts have been focused primarily on residential areas, although the ultimate goal is to provide infrastructure to all sections of Town, especially given the importance of sewer to business development. According to the 2009 Annual Report, 262 new sewer connections had been added. As of 2010, the final phase of approximately 20 miles of sewer line, fronting 865 improved properties, is being installed. The areas being sewered include the Park Road/Cambridge Street and Moore Street/ Ledge Road areas. The estimated price tag for the remaining portion is estimated at $12.5 million, to be funded through a combination of betterments and a sewer user surcharge.

In its March 2008 Sewer Project Update presentation, the Town reported that the average residential home produces approximately 65,000 gallons of wastewater per year. In Fiscal Year 2008, the residential sewer rate in town was $3.20/ 1,000 gallons, amounting to an average annual bill of $208. Compared to the rest of the region, Chelmsford's sewerage costs fell in the middle, with some communities, such as Billerica and Lowell, instituting lower rates ($2.46/ 1,000 gallons for both municipalities), and others instituting higher rates (Tewksbury charges $9.35/1,000 gallons while Dracut has a flat fee of $300 per annum for sewer services). The update called for another raise in the rate for Fiscal Year 2009 in order to help cover capital expenses. The proposed increase was $.77, or $3.97/1,000 gallons. This hike would increase the average annual bill to $258 for an average single-family home.

Sewerage effluent is pumped and treated at the Greater Lowell Wastewater Utility-- a facility that treats waste from Lowell, Tewksbury, Dracut, and Tyngsborough, and Chelmsford. This partnership between the Town and the City of Lowell was enacted through a 30-year contract which began in 1986 and is slated to expire in 2016. The 2008 *Economic Development Plan* for Chelmsford assessed usage rates in order to determine the existing and future capacity of this system. According to the plan, the Town of Chelmsford has purchased 3,010,000 gallons per day of average daily flow sewer capacity from the Greater Lowell Wastewater Utility. The Town has, in turn, sold 350,000 gallons of that capacity to the Town of Tyngsborough. This leaves Chelmsford with a remaining capacity of approximately 2,660,000 gallons per day. The current flow sent to the Greater Lowell plant is approximately 2,450,000 gallons per day (50,000 comes from Tyngsborough). Average and total sewer flow data for 2006 through 2008 is represented in Table 3.12, while Table 3.13 provides data about the plant's capacity relative to the Town's usage.

TABLE 3.12
SEWER FLOW IN CHELMSFORD, 2006-2008

Year	Plant: Inf. Flow (MG)		Plant: Eff. Flow		Daily Plant Inf. Flow		Daily Plant Eff. Flow	
	Average	Total	Average	Total	Average	Total	Average	Total
2006	N/A	N/A	1,021.00	12,250.63	N/A	N/A	33.59	403.1
2007	N/A	N/A	951.00	11,415.20	N/A	N/A	31.25	374.98
2008	1,154.75	13,857.01	1,067.22	12,806.66	38.05	456.66	35.17	421.98

Source: Greater Lowell Regional Water Utility

TABLE 3.13
TOWN AND PLANT FLOWS, 2006-2008

Year	Town Flow		Daily Town Flow	Town Allotment	Percent of Town Allotment	Percent of Plant Flow
	Average	Total	Average	Total	Average	Average
2006	73.1	877.25	2.4 million	3.01 million	79.88	7.38
2007	68.66	823.89	2.3 million	3.01 million	74.99	7.40
2008	75.82	909.78	2.5 million	3.01 million	82.97	7.24

Source: Greater Lowell Regional Water Utility

With approximately 1,000 homes left to connect to the system, the 2008 *Economic Development Plan* determined that Chelmsford is running out of sewer capacity. Presently, the Town is in the process of assessing different strategies for increasing wastewater treatment capacity, including partnering with Billerica, which also has a facility, or creating a sewer "bank," which involves implementing a variety of water conservation measures with the ultimate goal of reducing demand for the resource. The town will also attempt to work with the Greater Lowell Regional Water Utility to determine what other options are available under the renegotiation of its contract in 2016.

Public Water Supplies

Approximately 95% of the Town is serviced by public water systems through one of three water districts – Chelmsford Water District, North Chelmsford Water District and the East Chelmsford Water District. This section examines the specific characteristics of these three water districts, including usage and capacity issues, fee structures, and environmental profiles.

Water Supply Districts

1. Chelmsford Water District

User Demand and District Capacity

The Chelmsford Water District pumps water from 15 wells, with a combined yield of 5,800 gallons per minute. The District serves approximately 7,900 customers. The Chelmsford Water District also sells 26.7 million gallons of water to the East Chelmsford Water District.

The Chelmsford Water District withdraws approximately 1.42 million gallons of water daily from the Concord River Basin, and an additional 1.53 million gallons daily from the Merrimack River Basin. According to the 2009 Water Management Act Annual Report for the District, the actual withdrawal of water from these two basins is nearly at the capacity permitted to be withdrawn. The most significant constraint on resources that was identified by representatives of the Chelmsford Water District is the potential passing of House Bill 834 ("The Sustainable Water Resources Act"). This bill, which is intended to promote the sustainable consumption of water resources and protect aquatic ecosystems[13], is seen as a major threat to water district capacity, as its passage will mandate new water withdrawal standards and effectively put a moratorium on new connections within the districts.

Water District Fee Structures

Table 3.14 illustrates water usage rates in 2009 for Chelmsford Water District customers. The District charges a minimum fee of $33.60 per quarter for up to 7,000 gallons of usage, and charges rates per 1,000 gallons thereafter. Usage between 7,001 and 25,000 gallons is charged at the rate of $4.80 per 1,000 gallons; 25,001 to 50,000 gallons is charged at the rate of $5.75 per 1,000 gallons, and anything more than 50,000 gallons is charged at the rate of $7.25 per 1,000 gallons.

TABLE 3.14
WATER USAGE RATES IN THE CHELMSFORD WATER DISTRICT: 2009

Level	Usage	Rate
Minimum Charge	0-7,000 gallons	$33.60
Step 1	7,001 – 25,000 gallons	$4.80 per 1,000 gallons
Step 2	25,001 – 50,000 gallons	$5.75 per 1,000 gallons
Step 3	More than 50,000 gallons	$7.25 per 1,000 gallons

Source: Chelmsford Water District, 2009

TABLE 3.15
NEW SERVICE CONNECTION RATES: 2009

Pipe Size	Fee
Up to 1.5"	$2,500
Multiple Dwellings	$2,500 per unit
2"	$3,500
4"	$7,500
6"	$10,000

Source: Chelmsford Water District, 2009

New service connection rates for Chelmsford Water District customers are determined by the size of the pipe being connected to the water supply. One and a half-inch pipes are

[13] For full text of the proposed legislation, visit: http://massriversalliance.org/SustainableWaterResources.pdf

connected for a $2,500 fee, which also applies to multiple dwellings also, as reflected in Table 3.15. Two, four, and six-inch pipes are connected to the water supply at fees of $3,500, $7,500, and $10,000, respectively.

Debt bond fees are charged by the district on a quarterly basis, and are determined by pipe size. These rates are represented in Table 3.16, and range from $33 per quarter for 0.75" pipes to $300 per quarter for 6" pipes.

TABLE 3.16
DEBT BOND FEE: 2009

Pipe Size	Per Quarter
.75"	$33
1"	$62
1.5"	$82
2"	$104
3"	$150
4"	$200
6"	$300

Source: Chelmsford Water District, 2009 Note: Multiple Dwelling Services $33/ unit

One of the services provided by the water districts in Chelmsford is a fire protection demand analysis. The fee for this service is determined by the size of the building being constructed, and ranges from $650 for a building under 20,000 square feet to $3,900 for a building larger than 100,000 square feet. The fee structure for fire protection demand analyses for new constructions is illustrated in Table 3.17.

TABLE 3.17
FIRE PROTECTION DEMAND CHARGES FOR NEW CONSTRUCTION: 2009

Building Size	Fee
Up to 19,999 sq ft	$650
20,000 to 39,999 sq ft	$1,300
40,000 to 59,999 sq ft	$1,950
60,000 to 79,999 sq ft	$2,600
80,000 to 99,999 sq ft	$3,250
More than 100,000 sq ft	$3,900

Source: Chelmsford Water District, 2009

Another fire protection-related service provided by the water districts in Town is an annual fire protection sprinkler system service. These charges are listed in Table 3.18. The fees for this service are also determined by the size of the building, and range from $130 for buildings smaller than 10,000 square feet to $1,560 for buildings larger than 200,000 square feet.

TABLE 3.18
ANNUAL FIRE PROTECTION SPRINKLER SYSTEM FEES: 2009

Area of Building	Chelmsford Water District
Up to 9,999 sq ft	$130
10,000 to 19,999 sq ft	$195
20,000 to 29,999 sq ft	$260
30,000 to 39,999 sq ft	$325
40,000 to 49,000 sq ft	$390
50,000 to 59,999 sq ft	$455
60,000 to 69,999 sq ft	$520
70,000 to 79,999 sq ft	$585
80,000 to 89,999 q ft	$650
90,000 to 99,999 sq ft	$715
100,000 to 149,999 sq ft	$1,040
150,000 to 199,999 sq ft	$1,332
More than 200,000 sq ft	$1,560

Source: Chelmsford Water District, 2009

Environmental Quality of the District

All fifteen of the wells in this district are located in two separate Zone II water supply protection areas, and each also has a 400-foot Zone I radius. Because of a lack of subsurface hydro-geologic barriers (i.e. clay) which helps prevent contaminant migration, the fifteen wells are considered to be located in an aquifer with a *high* vulnerability of contamination. Presently, two of the wells—both located on Canal Street—are reserved for emergency purposes only; however, it is expected that both will soon be returned to regular productive use.

According to the District's 2004 *Source Water Assessment and Protection Report*, numerous potentially contaminating land uses are located within the Zone II water supply protection boundaries. These include agricultural activities-- such as fertilizer storage facilities and commercial nurseries; commercial uses, including, but not limited to, a body shop, several gas stations, bus and truck terminals, dry cleaners, and a rail yard; industrial uses, including an asphalt plant, chemical manufacturer and storage center, and an electroplater; and a variety of residential and miscellaneous environmental threats. There are more than 35 underground storage tanks located within the protection boundaries, and five Tier-Classified 21-E (brownfield) sites, including the Silicon Transistor Corporation site, which is classified as a Tier 1A site.[14] The Silicon Transistor Corporation site is located less than 1,000 yards from two separate Chelmsford Water District wells. The road network that traverses these two districts also poses a threat, as roadsides are often where hazardous materials are dumped illegally, and stormwater runoff contains a number of pollutants.

Given the susceptibility of the water supply protection areas in Chelmsford, the Massachusetts Department of Environment (DEP) has offered a number of planning strategies which could be employed to help mitigate the risk of groundwater contamination in Town. In terms of transportation corridor issues, the state recommended partnering with neighboring water districts to submit formal requests to the MassDOT and the Town of Chelmsford to have areas of the roadways designated as "Low Salt Areas". A second strategy articulated was to design stormwater drainage systems along the main corridors, particularly Route 3. Similar to the road network strategies, the state recommended that a best management practices plan be instituted for the rail right-of-ways to address herbicide and pesticides overuse and help mitigate the negative impacts of cargo spills and leaks on the tracks.

In terms of the threat of environmental contamination from businesses operating in the water supply protection areas, Massachusetts DEP recommends that the water district work with local business owners to train them in the proper use, disposal, and emergency response to hazardous materials that they handle in their daily operations. Ultimately, a Best Management Practices

[14] Tier IA sites pose the highest level of risk, with a release receiving a total score equal to or greater than 550. These sites/releases require a permit and the person undertaking response actions must do so under direct MassDEP supervision.

and Inspection program would be devised to ensure that businesses are properly handling, storing, and disposing of hazardous chemicals and pollutants.

2. East Chelmsford Water District

User Demand and District Capacity

The East Chelmsford Water District owns two wells located on Canal Street with a combined yield of 700 gallons per minute. The District serves approximately 700 customers, including 324 residences and 70 businesses. East Chelmsford is fairly built out, and at this point no capacity constraints are being experienced by the District. There are two residential properties located at 243 and 62 Riverneck Road which could potentially be developed and impact the capacity of the District. There are also two commercial properties, located on Route 129 and Mill Road, which could be developed. The owners of these properties purchased them more than ten years ago, but have not developed them due to the state of the economy. The District expects that once the real estate development rebounds, these properties will be developed and the District will experience an increased demand for services.

Water District Fee Structures

Table 3.19 illustrates quarterly water usage rates in 2008 for East Chelmsford Water District customers. For residential uses, a charge of $81.02 is levied for up to 12,500 gallons, while $6.48 is charged per 1,000 gallons for usage exceeding 12,500. Senior citizens pay significantly less for water: $28.93 for the first 12,500 gallons and $6.48 per 1,000 gallons beyond that.
Light commercial and commercial/industrial users pay $138.91 and $231.52 for the first 10,000 gallons used, respectively. Usage beyond 10,000 gallons is billed at $8.50 per 1,000 gallons.

TABLE 3.19
QUARTERLY SERVICE RATES: 2008

Customer Type	Rate
Residential Uses	$81.02 per 12,500 gallons; $6.48 per 1,000 gallons over
Senior Citizens	$28.93 per 12,5000 gallons; $6.48 per 1,000 gallons over
Light Commercial	$138.91 per 10,000 gallons; $8.50 per 1,000 gallons over
Commercial/ Industrial	$ 231.52 per 10,000 gallons; $8.50 per 1,000 gallons over

Source: East Chelmsford Water District, 2009

TABLE 3.20
NEW SERVICE FEES: 2008

Customer Type	Rate
Commercial/ Industrial	$2,000 for up to 15,000 sq ft; $100 per additional 1,000 sq ft
Residential	$2,000 per unit

Source: East Chelmsford Water District, 2009

New service fees are determined by the type of user. For residential users, a $2,000 fee is charged for structures up to 15,000 square feet, with an additional fee of $100 per 1,000 square feet above 15,000 square feet. These fees are described in Table 3.20.

TABLE 3.21
ANNUAL FIRE PROTECTION FEES: 2008

Area of Building	East Chelmsford Water District
10,000 to 19,999 sq ft	$1,200
29,999 sq ft to 39,999 sq ft	$1,400
40,000 to 59,999sq ft	$1,800
60,000 to 79,999 sq ft	$2,400
80,000 to 99,999 q ft	$2,900
100,000 to 110,000 sq ft	$3,400
100,001 to 150,000 sq ft	$3,900
150,001 to 200,000 sq ft	$4,400
200,001 to 250,000 sq ft	$4,900
250,001 to 299,999 sq ft	$5,300

Source: East Chelmsford Water District, 2009

Table 3.21 lists the annual fire protection fees, which are determined by the area size of the building.

Environmental Quality of the District

Like the two other districts operating in town, the East Chelmsford Water District's wells are considered to be at high risk for contamination, especially from roadway stormwater runoff and from local businesses using hazardous materials in their operations. The recommendations for mitigating these risks are identical to those described with the other two districts: improving stormwater runoff through roadside capture basins and other low-impact design (LID) techniques, formally requesting that some roads be designated for "Low Salt Use," and partnering with business owners to train them in the proper use, handling, and disposal of chemicals.

3. North Chelmsford Water District

User Demand and District Capacity

The North Chelmsford Water District owns four wells within the Bomil Wellfield off Richardson Road, with a combined yield of approximately 1,450 gallons per minute. The District serves approximately 2,400 customers. In June 2009, the district received the regulatory approval to move forward with constructing a new, 13,000 ft², $7.8 million dollar water treatment plant intended to improve the quality of drinking water for North Chelmsford residents and reduce the district's dependence on the City of Lowell for drinking water. The water treatment plant is currently under construction and should be completed within the next year.

The North Chelmsford Water District does not operate with any significant constraints to capacity. However, they have noted that they will need to obtain a permit for their proposed Water Treatment Facility and add an additional two wells in order to continue to operate without constraint in the future.

Water District Fee Structures

Residential properties are allowed 15,000 gallons every six months. Meters are read and customers billed for their usage biannually. The minimum charge for 15,000 gallons is $65, and an additional $3.50 per 1,000 gallons is charged in excess of 15,000 gallons. Commercial and industrial properties, on the other hand, have a 20,000 gallon minimum usage per quarter at a rate of $65.00 per quarter. Excess usage is billed at the rate of $3.50 per 1,000 gallons in excess of the minimum 20,000 gallon allowance. Buildings containing more than one unit are billed at $65.00 per unit, per quarter, and allowed 20,000 gallons per unit or actual water usage, whichever is greater.

As reflected in Table 3.22, the North Chelmsford Water District charges a domestic demand charge for customers based on their water pipe charge. These rates range from $3,000 for a three-quarter inch pipe to $6,000 for a six inch pipe. Multiple dwellings on a site, whether residential or commercial, are charged a $3,000 hook-up fee.

TABLE 3.22
DEMAND CHARGE BY WATER PIPE SIZE: 2009

Pipe Size	Domestic Demand Charge
0.75"	$3,000
1"	$3,000
1.5"	$4,000
2"	$4,000
4"	$4,000
6"	$4,000
Multi-dwellings (Residential or Commercial, per unit)	$3,000

Source: North Chelmsford Water District, 2009

Unlike the Chelmsford Water District, which charges the same bond debt fee for residential and commercial customers, the North Chelmsford Water District has configured rates for residential, commercial, and hotel customers. Like the other two districts, these fees are determined by pipe size. For residential customers, fees range from $60 biannually for 5/8' or ¾"-inch pipes to $175 for 4" pipes. Commercial and hotel rates range from $50 to $175 per quarter. These rates are illustrated in Table 3.23.

TABLE 3.23
BOND DEBT FEES FOR RESIDENTIAL, COMMERCIAL AND HOTEL PROPERTIES: 2009

Pipe Size	Residential	Commercial	Hotel
5/8" or 3/4"	$60	$50	$50
1"	$75	$75	$75
1.5"	$100	$100	$100
2"	$125	$175	$175
3"	$150	$175	$175
4"	$175	$175	$175

Source: North Chelmsford Water District , 2009

The North Chelmsford District provides a Sprinkler Demand service for new constructions similar to the other two districts. The fee for this service is determined by the size of the new construction, and ranges from $3,000for a building smaller than 20,000 square feet to $8,000 for a building larger than 100,000.00 square feet. These rates are listed in Table 3.24.

TABLE 3.24
SPRINKLER DEMAND CHARGES: 2009

Building Size	Fee
Up to 19,999 sq ft	$3,000
20,000 to 39,999 sq ft	$4,000
40,000 to 59,999 sq ft	$5,000
60,000 to 79,999 sq ft	$6,000
80,000 to 99,999 sq ft	$7,000
More than 100,000 sq ft	$8,000

Source: North Chelmsford Water District, 2009

The North Chelmsford Water District also offers an Annual Fire Protection Sprinkler System service to its customers, whose fee is based on building size. Fees range from $200 annually for buildings with an area smaller than 10,000 square feet to $1,500 annually for buildings larger than 200,000 square feet. Table 3.25 on the next page summarizes the 2009 fee structure for this service.

TABLE 3.25
ANNUAL FIRE PROTECTION SPRINKLER SYSTEM FEES: 2009

Area of Building	North Chelmsford Water District
Up to 9,999 sq ft	$200
10,000 to 19,999 sq ft	$220
20,000 to 29,999 sq ft	$240
30,000 to 39,999 sq ft	$300
40,000 to 49,000 sq ft	$360
50,000 to 59,999 sq ft	$420
60,000 to 69,999 sq ft	$480
70,000 to 79,999 sq ft	$540
80,000 to 89,999 q ft	$600
90,000 to 99,999 sq ft	$660
100,000 to 149,999 sq ft	$960
150,000 to 199,999 sq ft	$1,230
More than 200,000 sq ft	$1,500

Source: North Chelmsford Water District, 2009

In addition to a land use-based bond debt fee (residential, commercial, or hotel), the North Chelmsford Water District charges a sprinkler bond debt fee, based on the area of a building. These fees are billed quarterly and range from $50 per quarter for buildings smaller than 10,000 square feet to $1,250per quarter for buildings larger than 250,000 square feet. The fee structure for this service is provided in Table 3.26.

TABLE 3.26
SPRINKLER BOND DEBT FEES: 2009

Area of Building	Fee
Up to 9,999 sq ft	$50.00
10,000 to 19,999 sq ft	$100.00
20,000 to 29,999 sq ft	$150.00
30,000 to 39,999 sq ft	$200.00
40,000 to 49,000 sq ft	$250.00
50,000 to 59,999 sq ft	$300.00
60,000 to 69,999 sq ft	$350.00
70,000 to 79,999 sq ft	$400.00
80,000 to 89,999 q ft	$450.00
90,000 to 99,999 sq ft	$500.00
100,000 to 149,999 sq ft	$750.00
150,000 to 199,999 sq ft	$1,000.00
200,000 t0 249,999 sq ft	$1,125.00
More than 250,000 sq ft	$1,250.00

Source: North Chelmsford Water District, 2009

Environmental Quality of the District

Similar to the wells operated by the Chelmsford Water District, the North Chelmsford Water District water supply is designated at high risk for contamination because of a lack of hydrogeologic barriers and because of the mix of commercial, industrial, residential, and transportation uses within the Zone II protection area. Many of the key issues and planning strategies identified in the Chelmsford Water District's *Source Water Assessment and Protection Plan* are applicable for the North Chelmsford Water District, especially in terms of transportation corridors, rail rights-of-way, and local business owners. However, the North Chelmsford report incorporates an action plan for mitigating pollution and runoff caused by improper road salt storage facilities, one of which is located in the wellhead protection areas for the district.

Utilities and Telecommunications

Chelmsford is well serviced in terms of utilities and telecommunications. Gas and electricity are provided by National Grid, while Comcast provides cable and cable internet services to residents and business owners in town. Table 3.27 depicts the pricing scheme for energy delivery services. These service rates are for small commercial and industrial customers with average usage less than 10,000 kWh per month or 200 kW of demand.

Table 3.28 illustrates Demand Service rates designed for commercial and industrial customers with average use exceeding 10,000 kWh

TABLE 3.27
NATIONAL GRID RATES AND SERVICE DELIVERY

Type of Charge	Rate
Customer Charge	$10.00/month
Distribution Charge	
First 2,000 kWh*	3.085¢/kWh
Excess of 2,000 kWh*	4.908¢/kWh
Transmission Charge	1.453¢/kWh
Transition Charge	0.116¢/kWh
Energy Efficiency Charge	0.250¢/kWh
Renewables Charge	0.050¢/kWh

Source: National Grid Rates and Pricing, February 2010

*Includes: Basic Service Adjustment Factor (0.089¢), Residential Assistance Adjustment Factor 0.120¢, Customer Credit (0.007¢), Storm Recovery Adjustment Factor 0.034¢, Pension/PBOP Adjustment Factor 0.152¢, Service Quality Credit (0.393¢), and Standard Offer Adjustment Factor 0.248¢.

TABLE 3.28
DEMAND SERVICE RATES

Type of Charge	Rate
Customer Charge	$16.56/month
Distribution Demand Charge	$6.00/kW
Distribution Energy Charge*	0.146¢/kWh
Transmission Charge	1.408¢/kWh
Transition Demand Charge	$0.11/kW
Transition Energy Charge	0.123¢/kWh
Energy Efficiency Charge	0.250¢/kWh
Renewables Charge	0.050¢/kWh

Source: National Grid, February 2010

* Includes: Basic Service Adjustment Factor (0.089¢), Residential Assistance Adjustment Factor 0.120¢, Customer Credit (0.007¢), Storm Recovery Adjustment Factor 0.034¢, Pension/PBOP Adjustment Factor 0.152¢, Service Quality Credit (0.393¢), and Standard Offer Adjustment Factor 0.248¢.

per month and demand not exceeding 200 kW.

For large commercial and industrial customers with demand greater than 200 kW, energy services are charged on the basis of time-of use. The fee structure for time-of-use service is illustrated in Table 3.29 on the following page. Fees differ depending on whether energy is consumed during peak or non-peak times. Between January 1st and March 7th, peak hours run from 8:00AM to 9:00PM, while from March 8th to April 4th, peak hours are from 9:00AM to 10:00PM. Beginning April 5th and ending October 24th, peak hours return to 8:00AM to 9:00PM. For one week (October 25th to the 31st) peak hours are set back to 7:00AM to 8:00PM, and between November 1st and December 31st they return to 8:00AM to 9:00PM.

TABLE 3.29
TIME- OF-USE FEE STRUCTURE

Type of Charge	Rate
Customer Charge	$200.00/month
Distribution Demand Charge	$3.92/kW
Distribution Charge	
Peak Hours*	0.839¢/kWh
Off-Peak Hours*	0.065¢/kWh
Transmission Charge	1.192¢/kWh
Transition Demand Charge	$0.19/kW
Transition Energy Charge	0.061¢/kWh
Energy Efficiency Charge	0.250¢/kWh
Renewables Charge	0.050¢/kW

Source: National Grid Rates and Pricing, February 2010

* Includes: Basic Service Adjustment Factor (0.089¢), Residential Assistance Adjustment Factor 0.120¢, Customer Credit (0.007¢), Storm Recovery Adjustment Factor 0.034¢, Pension/PBOP Adjustment Factor 0.152¢, Service Quality Credit (0.393¢), and Standard Offer Adjustment Factor 0.248¢.

COMMERCIAL AND INDUSTRIAL ACTIVITY

This section examines commercial and industrial permit trends in order to gauge the level of economic development activity in Chelmsford. Following the permit analysis, a summary of some of the economic development incentives that the town promotes are offered.

Commercial Building Permits Issued

The commercial and industrial activity in a town can be partially measured by the number of building permits issued over time. Between 2004 and 2006, six commercial (valued at $2,635,000) and zero industrial permits were issued in Chelmsford, compared to the one hundred forty-five residential permits (valued at $27,851,745) for the same time period. Compared to the other communities in the region, Chelmsford issued fewer permits than Billerica, Dracut, Lowell, Tewksbury, and Westford. These figures are listed on the next page in Table 3.30. In 2007 and

2008, the Town of Chelmsford issued three (3) commercial and one industrial (1) industrial permit in each year. In 2009, the town issued four (4) commercial and one (1) industrial building permit. These five permits represented nearly 28% of all building permit activity in 2009.

During the *Master Plan Update* public input sessions, residents articulated a desire to boost the amount of commercial and industrial activity in Chelmsford in order to alleviate some of the tax burden on homeowners. The town is also committed to promoting commercial and industrial development in order to bolster the local tax base and help remedy the deficits in its operating budgets. A number of strategies have been implemented to help promote commercial and industrial development and expansion in town.

TABLE 3.30
COMMERCIAL AND INDUSTRIAL PERMITS ISSUED IN THE NMCOG REGION: 2004-2006

Community	Year	Commercial		Industrial	
		Permits	Valuation	Permits	Valuation
Billerica					
	2004	4	$968,760	11	$1,391,900
	2005	2	$1,810,000	0	$0
	2006	2	$90,000	0	$0
	Totals	8	$2,868,760	11	$1,391,900
Chelmsford					
	2004	1	$1,441,000	0	$0
	2005	5	$1,194,000	0	$0
	2006	0	$0	0	$0
	Totals	6	$2,635,000	0	$0
Dracut					
	2004	2	$675,000	0	$0
	2005	2	$675,000	0	$0
	2006	4	$144,000	0	$0
	Totals	8	$1,494,000	0	$0
Dunstable					
	2004	0	$0	0	$0
	2005	0	$0	0	$0
	2006	0	$0	0	$0
	Totals				
Lowell					
	2004	162	$35,783,802	0	$0
	2005	170	$20,524,426	0	$0
	2006	157	$25,410,874	0	$0
	Totals	489	$81,719,102	0	$0
Pepperell					
	2004	0	$0	0	$0
	2005	1	$1,000,000	1	$500,000
	2006	2	$486,000	0	$0
	Totals	3	$1,486,000	1	$500,000
Tewksbury					
	2004	2	$1,142,160	0	$0
	2005	5	$1,726,300	0	$0

TABLE 3.30
COMMERCIAL AND INDUSTRIAL PERMITS ISSUED IN THE NMCOG REGION: 2004-2006

Community	Year	Commercial		Industrial	
		Permits	Valuation	Permits	Valuation
	2006	9	$9,561,135	0	$0
	Totals	16	$12,429,595	0	$0
Tyngsborough					
	2004	3	$1,970,800	1	$565,000
	2005	2	$2,152,444	0	$0
	2006	2	$3,000,000	0	$0
	Totals	7	$7,123,244	1	$565,000
Westford					
	2004	0	$0	0	$0
	2005	1	$1,330,000	0	$0
	2006	9	$6,592,037	0	$0
	Totals	10	$7,922,037	0	$0

Source: City and Town Building Departments

DEVELOPMENT INCENTIVES, TAX INCENTIVES AND EXPEDITED PERMITTING

The Town of Chelmsford is an active participant in the Commonwealth's *Economic Development Incentive Program* (EDIP), which is a three-way partnership between the Commonwealth of Massachusetts, a municipality located within an Economic Target Area (ETA), and a growing company. The process for this incentive program is as follows: first, a company and the respective municipality agree to a tax exemption schedule on future real property taxes reputed to the added value. The company then obtains state approval for a 5% investment tax credit. This credit takes the form of a state income tax reduction. Thirdly, the company commits to a job growth and private investment schedule. These incentive programs typically continue for five to twenty years. The EDIP program offers



Hittite Microwave Corporation headquarters is one of three companies participating in the Economic Development Incentive Program (EDIP). The company employs 332 workers from across the community and region. (*Source: Pictometry International, 2008)*

several advantages to growing companies, including reducing the financial burden required to grow a company and providing a flexible framework which can accommodate variable tax exemption structures and agreement durations. The companies that presently are involved with the EDIP program are Arbor Networks (6 Omni Way), Circles (300 Apollo Drive) and Hittite Microwave (20 Alpha Road). In January 2010 the state issued new regulations for the EDIP program, which permit manufacturers to apply directly to the state.

Business Licensing and Permitting Assistance

The Town's Community Development Department is eager to work with businesses and assist them in the development review process, including helping companies identify appropriate zoning and development permits, filing fees, and anticipated time frames for each permit. The Department also serves as the key point of contact for the Town's land development Boards and Commissions and technical review meetings.

BALANCE BETWEEN ECONOMIC GROWTH AND QUALITY OF LIFE

The Master Plan Committee and NMCOG worked together to focus upon a draft Vision Statement and individual goal statements for each technical area. Based upon the input provided through the SWOT sessions held with the public, the business community and the Master Plan Committee itself, a draft Vision Statement and individual goal statements were established prior to the hosting of the Public Forum sessions. These Public Forums began with the Land Use/Economic Development/Housing Public Forum held at the Chelmsford Senior Center on June 3, 2009, where the public was invited to offer their opinions on the respective topics. Local cable television recorded the proceedings and viewers were encouraged to submit their recommendations and comments.

At the outset of the Public Forum, the draft Vision statement and goal statements for Land Use/Zoning, Economic Development and Housing were presented and the participants were asked for feedback throughout the process. As a result of the input from the Master Plan Committee, the business community and the public, the Economic Development goal statement was established as follows:

> *Establish an active economic development program to retain and attract "growth" businesses, which enhance the town's tax base and create well-paying jobs for Chelmsford residents in a manner that balances job creation with the quality of life.*

This statement incorporated the suggestions made by the business community regarding opportunities and threats and reflected the need to achieve a balance between economic development and the quality of life in the community. The participants at the Public Forum then offered their recommendations for the Economic Development portion of the Master Plan as follows:

- Town should promote commercial development, but in line with character of town.
- Would like to see more industrial and commercial growth.
- Lack of industrial land, industry is critical to increasing tax base.
- Limited sewer capacity limits growth especially residential development and hinders the town's ability to attract businesses. This should be addressed.
- Responsible commercial and residential development, fair and equitable.
- Policies should promote redevelopment and rehabilitation.
    - Wilson Street – Fire Dept site?
    - Rte 3 and I-495 down to Chelmsford Center has many vacancies and commercial development opportunities.
    - Ball fields – relocate to develop 100 year leases for properties.
- Do not develop ball fields.
- Vinal Square has many prime redevelopment districts.
- Inadequate space for children to play.
- Address traffic congestion.
- Reoccupation of vacant buildings on Route 129 should be addressed.
- Redevelop mills and row houses in North Chelmsford.
- Revise zoning regulations if businesses agree to be an anchor tenant.
- Need to analyze demographics to better understand local and regional market.
- Distribution companies should be encouraged to take advantage of location at the junction of Route 3 and I-495.
- Actively engage landlords and property owners rather than through generic mailings.
- PILOT program for nonprofit organizations in town.
- Town needs a grant specialist for economic development initiatives – no money for that position at this time.
- Mixed-use zoning on Route 129 should be allowed to improve traffic in the town center.
- Warehouse space on Brick Kiln Road could be used for distribution business (Best Buy)
- Don't turn Rte 129 into Rte 110.
- Why not preserve ball fields as open space?
- Concentrate on occupancy, not new development, especially on Route 129.
- Promote new technologies and revamp town partnerships; boost economic development commitment.
- Encourage more family-friendly businesses and entertainment, e.g. birthday party center, bowling, etc.
- Work with property owners to support start-up companies through incubator space.
- Need to brand Chelmsford.
- Rte 129 corridor:
    - Good access and hotel, but a disjointed area
    - Find a high tech anchor business for that area in hopes that it will attract other high tech businesses.
    - Need to attract green technology companies.
    - Green Community: try to site solar facilities on building rooftops to help with the Governor's plan and promote Chelmsford as a renewable community.
    - Increase height limits allowed.
- Eliminate mixed-use restriction on Rte 129. Need services for employees in that area.

- New strip mall on the other side of Rte 3 in Billerica provides services for Chelmsford businesses. Need to rectify the disjointed look of the corridor.

ECONOMIC DEVELOPMENT OPPORTUNITIES

In late 2008, the Town's Department of Community Development published an *Economic Development Plan*, which among other things, identified seven areas of town where future development and economic revitalization efforts should be targeted. These areas are Center Village, the Route 129 Technology Corridor, Drum Hill/ Technology Drive, Vinal Square/ North Chelmsford Mill District, the Route 3/ Route 40 Interchange, Route 110/ Littleton Road, and the Route 110/Route 3 Shopping District. The following section summarizes the economic development visions for these areas that were articulated in the town's *Economic Developemnt Plan*-and represent the views of the Community Development Department, not the Master Plan Committee. Number labels included on the flyover images correspond to the numbers attributed to specific sites discussed in the text of this section.

Center Village

Center Village is the historic downtown area of Chelmsford, containing a mix of residential and commercial land uses in addition to churches, open space, and the town's civic institutions (Photo below).



Aerial image of Center Village (*Source: Pictometry International, 2008*)

The CVS site (1) and Papa Gino's site (2) on Chelmsford Street are both considered to be underutilized. A number of historic properties, such as the Old Town Hall (3) on North Street

and the Odd Fellow's Building (4) in Central Square, are located in Center Village and have been identified as key opportunities to promote economic redevelopment while preserving the historic integrity of the downtown.

There are also a number of underutilized and vacant properties in Center Village, such as a 217,800 square foot former lumberyard (5) and an 8.45-acre Stop and Shop site (the store announced plans to relocate to the former Chelmsford Cinema site). For both of these properties, the 2008 *Economic Development Plan* suggested the development of additional housing as a way to increase foot traffic in the downtown. The Stop and Shop site has also been identified as a potential candidate for a MGL 40R mixed-use development, which would include multifamily housing and office and retail space.

Additionally, the *Economic Development Plan* recommended that the Town determine the long-term future uses of the properties that it owns in Center Village and reutilize a number of commercial properties along Chelmsford Street (1 and 2). By addressing these objectives, the Town hopes to transform the area into a "lively, mixed-use village district with strong retail, commercial uses, and housing" (Chelmsford Economic Development Plan, 46).

Route 129 Technology Corridor

The technology corridor located along Route 129 is Chelmsford's largest commercial and industrial business district, with thirteen of the town's top fifteen employers located there. Past infrastructure improvements to the area have benefitted existing businesses; however, the recent economic recession impacting the region is reflected in the estimated 600,000 square feet of vacant space along the corridor (Chelmsford Economic Development Plan, 47). Additionally, there are many first generation, single story buildings located in the area, as shown in aerial photograph to the right.



Route 129 Technology Corridor (*Source: Pictometry International, 2008)*

Rather than completely redevelop these vacant properties, the Town has chosen a strategy of using Tax Increment Financing (TIF) to attract new businesses to the empty spaces. Additional plans for the corridor include adding some amenities such as restaurants, extended stay facilities and conference space and

personal services within a walkable distance to the technology park, clarifying the Town's zoning bylaw with respect to biotechnology and research and development firms so as to promote the area as a welcoming place for these types of industries, and upgrading the first generation buildings, which now serve as affordable space for small and start up businesses. In the long term, as vacant properties fill up, there are two sites (a 10-acre undeveloped site and a 5-acre former mulch processing facility) identified for possible new office or commercial construction. Ultimately, the town hopes to promote the Route 129 Technology Corridor as one of the "premiere corporate destinations in the Merrimack Valley" (Chelmsford Economic Development Plan, 49).

Drum Hill/ Technology Drive

The Drum Hill Technology Park was originally conceived as the future home for high tech businesses in Chelmsford. However, the development of the area has mirrored the ups and downs of the regional real estate market and has ultimately taken on a much more diverse character which includes office buildings, research and development firms, a medical center, and specialized senior housing. In part because of road and infrastructure improvements which have attracted developers to the area, this district is quickly approaching maximum build-out (the Town identified one 3.9 acre undeveloped parcel in the area).

There are a handful of significant redevelopment opportunities, however, including two small underutilized parcels on Jean Avenue and Wesley Street (1 and 2), the environmental remediation and redevelopment of the 30-acre Glenview Sand and Gravel site (3), and a 30-acre site owned by UMass Lowell which is currently being leased as a live-in correctional facility for adolescent girls. The Town envisions this area as "an attractive and convenient shopping and business location…[where] the development of large sites on the periphery of the district serve to strengthen the community tax base and create new centers of activity" (Chelmsford Economic Development Plan, 52). Two of the key steps toward achieving this vision are completing infrastructure projects, particularly road and traffic improvements, as well as developing design guidelines to promote a

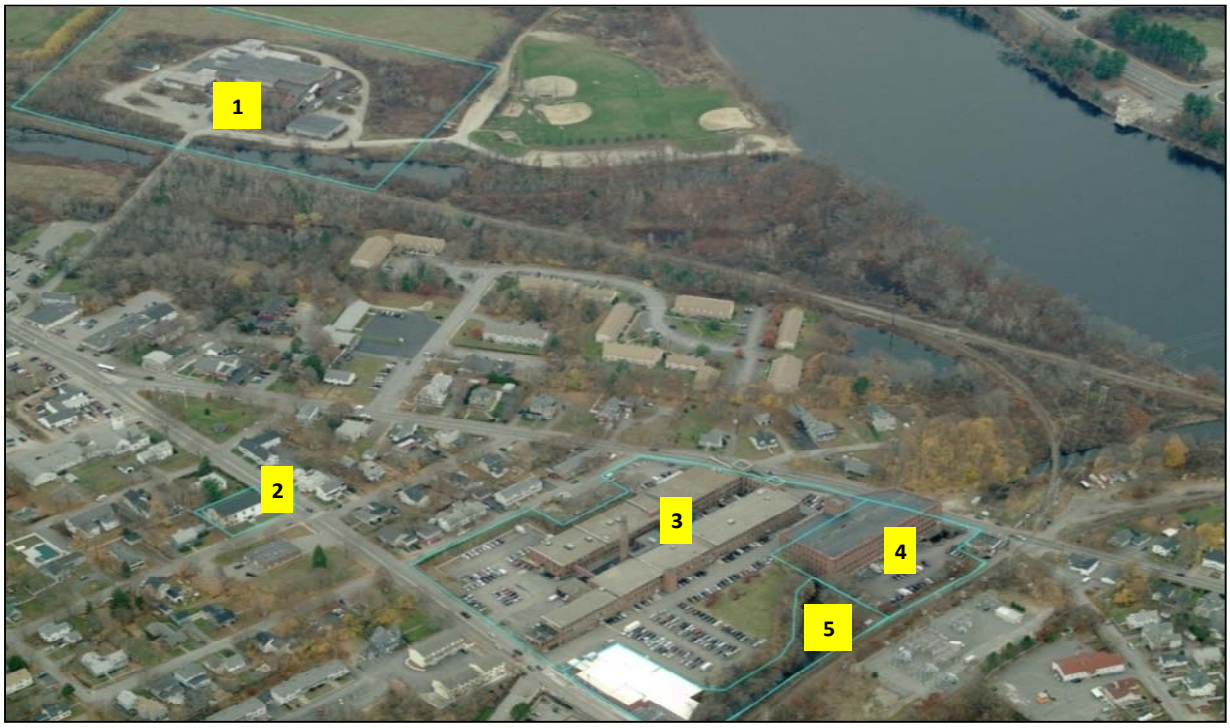


Drum Hill/Technolgy Drive (*Source: Pictometry International, 2008)*

consistent aesthetic to the area. NMCOG worked with the Town of Chelmsford and the business community in this area to make additional recommendations for Drum Hill. These recommendations from the Community Development Department should be implemented as part of the Master Plan. These opportunity sites are illustrated in the aerial image to the left.

Vinal Square/ North Chelmsford Mill District

The Vinal Square/ Mill District area of North Chelmsford contains a number of significant economic development opportunities, including the revitalization of the former Southwell Combing Company mill (1) ,the North Chelmsford Town Hall (2), and the historic mills located at 51 and 61 Middlesex Street (3 &4) and 70 Princeton Street (5). The town is currently working with a consultant to develop a Mill Revitalization Overlay District for the purpose of rehabilitating and reutilizing Chelmsford's historic mill buildings into additional commercial and industrial space, as well as multifamily housing. Opportunity sites are in the Vinal Square/ North Chelmsford Mill District as shown in the image below.



Aerial imagery of Vinal Square and the North Chelmsford Mill District. (*Source: Pictometry International, 2008)*

Many residents and business owners have also advocated for the construction of a commuter rail stop in this district, should the proposed extension of the Lowell MBTA line into New Hampshire be implemented. Adding a stop would bolster perceptions that the district is an ideal location for commuters to live, and improve the area as a candidate for transit-oriented development funding. This new and lively mixed-use center, while honoring the industrial history of the town, would become a model for compact, mixed-use development in the future.

Route 3/ Route 40 Interchange

This area is primarily composed of undeveloped, industrially zoned land. Many of the parcels are large and have tremendous economic development potential. For instance, a 66.37-acre town-owned parcel located on Oak Hill Road has the potential to be developed into affordable housing, as articulated by the 2008 *Economic Development Plan.* A 22.76-acre undeveloped parcel that was historically part of the Fletcher Granite Company's quarry holdings is another parcel with excellent development potential (See image on the following page).

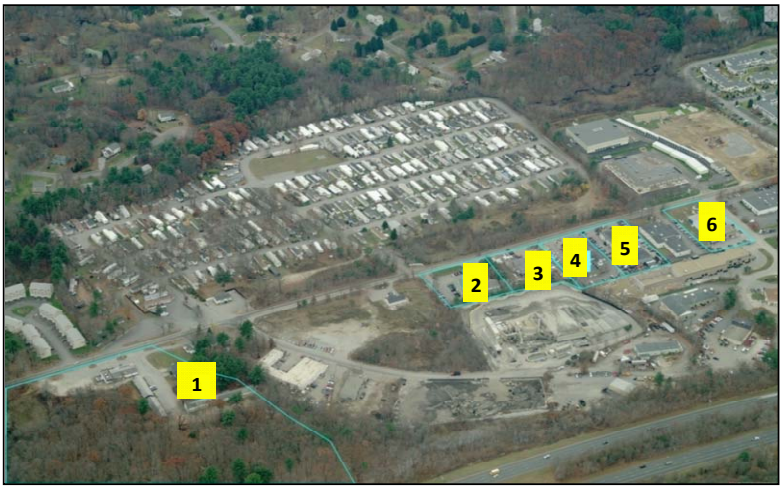


Image of the Fletcher Granite Company's quarry (*Source: Pictometry International. 2008)*

The primary constraints to promoting economic development in this district is a lack of infrastructure (i.e. sewer and roads), legal frontage and land assembly issues. As these infrastructure improvements are made over time, the Route 3/Route 40 Interchange will be transformed from a largely undeveloped area into a host for "major new commercial and mixed-use development…[helping to] minimize traffic congestion and maximize growth in the community's commercial tax base" (Chelmsford Economic Development Plan, 59).

Route 110/ Littleton Road

Littleton Road is a main commercial artery in Town, hosting a variety of uses ranging from light industrial businesses to automobile repair; convenience retail to an asphalt plant. It is an area that has seen multiple 40B affordable housing development proposals, and there is a large manufactured housing (mobile home) park across the street from the neighborhood commercial district.



Route 110 Corridor/Littleton Road (*Source: Pictometry International, 2008)*

Many of the properties in this area have fallen into disrepair and/or underutilization. There are a handful of larger parcels, for

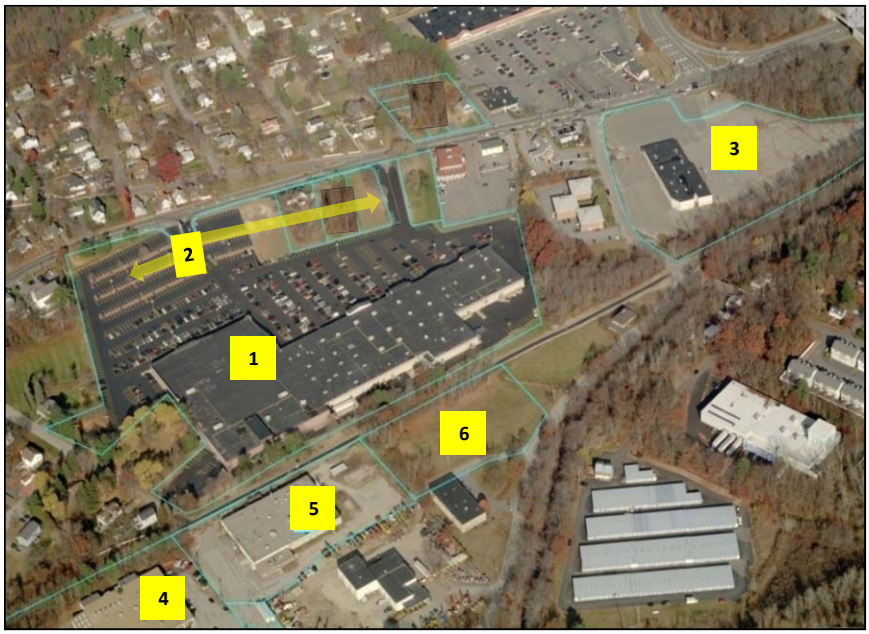
example a 15-acre parcel on Littleton Road that is currently underutilized and an 11-acre parcel on Hunt Road (1), both of which would be ideal mixed-use development sites. The town expects that in the future, many of the smaller underutilized parcels will be assembled into larger sites (2-6). Future growth in the area could include commercial and light industrial uses as well as services for residents living in the manufactured housing park and new multi-family housing.

Route 110/ Route 3 Shopping District

There are many opportunities for economic revitalization and redevelopment within the Route 110/ Route 3 shopping district, as illustrated in image below. Infill development on the underutilized parking lot of the Chelmsford Mall (1) was one strategy articulated in the 2008 *Economic Development Plan.* Vacant properties such as the four commercially zoned parcels and upper parking lots abutting the Chelmsford Mall (2), and the former Chelmsford Cinema (3) are prime candidates for redevelopment. There is superb access to infrastructure, legal frontage, and proximity to thriving residential neighborhoods.

The section of Route 110 (Chelmsford Street) from I-495 to Route 3 has two (2) distinct sides. The even-numbered side of Chelmsford Street is primarily comprised of residential properties and is zoned RB. Whereas, the odd-numbered side is a combination of commercial spaces and is zoned CA, CB, CC and CD. Any future development along the even-numbered side should remain residential.

Furthermore, a Town-owned brownfield property (the former site of the Silicon Transistor Corporation) located at 29 Katrina Road holds great potential, which will be realized once an environmental strategy has been developed and implemented for the site (4-6). The property has been designated as a priority development site (PDS) by the Interagency Permitting Board under Chapter 43D. Town officials envision this area becoming a "premiere local retail district" which is free from environmental contamination and serves to buffer residences from future development.



Route 110/Route 3 Shopping District (*Source: Pictometry International, 2008)*

ISSUES AND OPPORTUNITIES

The establishment of a public/private partnership through the initiatives of the Town of Chelmsford, the CEDC and the private sector will help fill vacant commercial space and redevelop industrial properties to the benefit of the tax base and local residents. The Town has demonstrated resiliency in redeveloping former restaurants at a time when the economy has been the worst in thirty years. The private market has determined that there is significant value in a Chelmsford location, principally due to its regional consumer market that has ready access through Route 3 and I-495. Over the last six years, the commercial/industrial portion of the Town's tax levy increased from 14.4% in FY2005 to 16.3% in FY 2010. While businesses and industries have increased their share of the tax levy, it has not increased enough to maintain the level of services for local residents. An increase in the commercial/industrial tax base to a level that does not negatively affect the quality of life in town through redevelopment projects will fund the level of services needed to support the community.

The establishment of the Chelmsford Economic Development Commission (CEDC) in 2009 provides a focus on economic development initiatives that did not exist previously. Designed to "assist in the recruitment, retention and expansion of businesses in the Town", the CEDC will provide active support to the Town Manager and Community Development Director in the implementation of the town's economic development policies. As an advocate for businesses and an advisor to the Board of Selectmen and Town Manager on economic development proposals, the CEDC will bring together the public and private sectors in order to create jobs in the community and assist in filling vacancies for commercial and industrial properties Through its advocacy of expedited permitting processes for retail, commercial and industrial development, the CEDC will ensure that private development proposals are acted upon within 180 days consistent with the State's expedited permitting process guidelines. The CEDC outlined its Chelmsford Brand Strategy in April 2010, which focused on the strengths of the community in order to attract small and medium-sized businesses to the community. The Town has also worked with the communities along Route 3 – Burlington, Bedford, Billerica and Lowell – to identify barriers to the development of priority development sites, as well as to develop a marketing brand for Route 3 that will benefit the region in attracting private investment. The Town needs to maintain and increase its Site Finder Database and update its annual survey of the Chelmsford business community.

The expedited permitting process should be adopted by the Town of Chelmsford to ensure that permitting decisions on industrial, commercial and residential applications are acted upon within the state's 180-day guidelines. Specific procedures and processes for expedited permitting should be adopted by all boards and commissions involved in the land use permitting process to ensure that this timeframe is met. The Community Development Department should develop a Permit Streamlining Guide that summarizes the town's policies and procedures in relation to the Best Practices Guide developed by the Massachusetts Association of Regional Planning

Agencies (MARPA) in 2007 and identify improvements that can be made to expedite the current permitting process. In addition, the Town should develop a Permitting Manual that describes the permitting process to the public, summarizes the roles and responsibilities of each board, commission and department and identifies the local contact people for each board, commission and department. This Permitting Manual can be made available to the public online, as well as in hard copy at the Town Clerk's Office or at the Community Development Office. The adoption of an expedited permitting process will ensure that the private sector recognizes that the Town of Chelmsford is interested in their business. The Master Plan Committee recommends streamlining and improving the Town's development permitting process to encourage targeted commercial redevelopment activities, such as through expedited permitting along Route 129/Billerica Road.

The Town of Chelmsford must remain competitive with other communities in Massachusetts and New Hampshire in attracting and retaining businesses. In order to remain competitive, the Town needs to have as many economic development tools available as possible. Currently, a portion of the Town falls within the City of Lowell's Economic Target Area (ETA) and tax incentives are available to businesses locating in this specific area. However, businesses located outside this area aren't offered similar incentives. In order to level the playing field, the ETA should be extended to include the entire community. Due to the limited economic distress criteria associated with the community, the Town should consider establishing a Regional Technology Center under subsection (j) of the Economic Development Incentive Program (EDIP). Designation of the entire community as an ETA would make these businesses eligible for Recovery Zone Bonds (RZBs) as well. Recently, the Town of Billerica received the first RZB in the Commonwealth of Massachusetts in attracting Pharmalucence, a biotech company, to the community.

The future economic development opportunities within the community, based upon the build-out study completed by NMCOG, will be principally redevelopment opportunities. Consistent with the Land Use and Zoning section, the town's zoning bylaw will need to be modified and strengthened to manage, guide and incentivize redevelopment activities. The Master Plan Committee has identified the following areas as being suitable for redevelopment: Route 129 corridor (from Riverneck Road to the Billerica town line), Vinal Square, Center Village, the Route 110 corridor between the town center and I-495 and the Drum Hill area in the vicinity of Glenview Sand and Gravel and Drum Hill Road. The Master Plan Committee recommends the establishment of a mixed-use Redevelopment District along Route 110, from the Westford side of Hunt Road to Chamberlain Road. Other areas suitable for mixed-use redevelopment projects include Chelmsford Street from the Town Center to the Center side of Fletcher Street, Technology Drive and the mill complexes of North Chelmsford. The concept of a Mill Reuse Overlay District in North Chelmsford is consistent with the balanced growth philosophy of the Master Plan Committee.

The Board of Selectmen currently sets the tax rates annually to determine the proper balance in tax rates and tax burdens. Currently, the town has a flat tax rate that treats each tax classification equally.

Manufacturing continues to play a major role in the Greater Lowell region even though the number of businesses and employees has declined over the past few years. Yet, manufacturing still is a major contributor to wealth generation in northeastern Massachusetts and southern New Hampshire due its concentration of 1.5 to 2 times the manufacturing composition generally found in Massachusetts, New Hampshire and the United States. A large portion of the manufacturers in the region utilize sophisticated technologies in the areas of nanotechnology, robotics, sensors, biometrics, electro-optics and lasers according to the Asset Map for the Manufacturing Sector developed by Mt. Auburn Associates on behalf of the Greater Lowell and Merrimack Valley Workforce Investment Boards and the New Hampshire Office of Workforce Opportunity. The Town of Chelmsford should work with the Greater Lowell Workforce Investment Boards to focus on the employment needs of those sophisticated manufacturing firms that represent the region's economic future. The three emerging technologies identified in this report are nanotechnology, robotics and clean energy.

In assessing the infrastructure system related to sewer, water and telecommunications, the completion of the town-wide sewer system, the availability of water through the three water districts and the telecommunication options in the community place the town at a high level of infrastructure compared to other communities in the region. The major issue facing the community remains the sewer capacity issue and, to a lesser extent, the water capacity issue. Additional sewer capacity needs to be obtained through the renegotiation of the contract with the Lowell Regional Wastewater Utility or through an agreement with the Town of Billerica. The town has begun to explore the use of a "sewer bank" to promote more efficient use of the limited sewer and water resources. The water districts believe that there will be sufficient water resources in the future, but conservation initiatives have been started to ensure that the resources will be there. The town will need to work with NMCOG and the other communities in the region to address the need for additional sewer and water capacity on a regional basis.

In continuing to redevelop the Center Village and Vinal Square, the Town should actively pursue state and federal funding to implement critical projects in these areas. As a first step to applying for these funds, the Town needs to meet with the business owners and residents to discuss their vision for these town centers and to educate them on what other communities have done to increase economic activity, encourage redevelopment projects and maintained the historic nature of the two centers. Would a Business Improvement District (BID), which is designed to help the local businesses establish special assessments for supplemental services, work in either location? Should the Town apply for financing under the District Improvement Financing (DIF) program to fund public works, infrastructure and development projects through incremental tax revenues from the affected businesses? Should the Town apply for funds under the Community Development Action Grant (CDAG) program to improve the physical conditions in these two

village centers or Community Development Block Grant (CDBG) funds to address a number of design issues in these areas? These are the types of discussions the Town should have with the business owners and residents to plan the future for these village centers.

In redeveloping its commercial centers, the Town should identify the types of businesses that would address a real need in the community. Working with the Economic Development Commission, the Chelmsford Business Association and the Greater Lowell Chamber of Commerce, the Town could develop a survey for its residents and employees at local businesses to assess what the commercial needs are for the community. Once the survey results have been tabulated, the Economic Development Commission could then work with MassDevelopment and the Massachusetts Alliance for Economic Development (MassEcon) to identify the specific businesses that would address these unmet needs. After these businesses are identified, the Economic Development Commission could utilize the Site Finder Database to recommend specific locations in Chelmsford that would meet the property needs of these businesses.

The Chelmsford 2008 Economic Development Plan identified seven principal commercial and industrial development areas: Center Village/Chelmsford Street, the Route 129 Technology Corridor, Drum Hill/Technology Drive, Vinal Square/North Chelmsford Mill District, Route 3/Route 40 Interchange, Route 110/Littleton Road and Route 110/Route 3 Shopping District. The Master Plan Committee has identified the following general areas as being suitable for redevelopment: Route 129 corridor (from Riverneck Road to the Billerica town line), Vinal Square, Center Village, the Route 110 corridor between Village Center and I-495, and the Drum Hill area in the vicinity of Glenview Sand and Gravel. The Master Plan Committee recommends the establishment of a mixed-use Redevelopment District along Route 110 (the Westford side of Hunt Road to Chamberlain Road) and identifies the Center Village, Route 110 from the Center Village to the Center Village side of Fletcher Street, Technology Drive, Vinal Square and the mill complexes of North Chelmsford as appropriate areas for mixed-use development. These issues are discussed at greater length in the Land Use and Zoning section.

The Center Village/Chelmsford Street area provides extensive redevelopment and mixed-use opportunities. The future development of the Stop & Shop site for mixed-use development - would have an impact upon the economic vitality of the Center Village. The re-use of Old Town Hall will add to the activity in the Center Village, as would the redevelopment of 11 Cushing Place for housing. The re-use of the Odd Fellow's Building at 44 Central Square for housing would maintain the historic nature of the building, address the housing needs in the community and fill a vacant building with activity and the town should actively encourage this to occur.

The Route 129 Technology Corridor offers the best opportunity for industrial development through the redevelopment of existing complexes. The Master Plan Committee recommends that the height limits for buildings along Billerica Road from the Billerica town line to Alpha Road Route 3 be raised to allow structures of four to six stories. This area backs onto the heavily trafficked Routes 3 and 495 which are major transit routes to Boston, New Hampshire, Maine

and Southern New England. The additional height will make these buildings visible from both Routes 3 and 495. This visibility, combined with the excellent access to Route 3, Interstate 495 and the Lowell Connector, make this a prime site for emerging medium-sized companies, consortia, industry groups and coalitions of technology-based research, development and manufacturing concerns that routinely emerge from efforts like the Commonwealth's investment in bio- and nano-technologies. Keeping to the MPC's goal of managed growth through redevelopment, a portion of the increase in useable floor space derived from the additional height will be offset by gaining a significant increase in open space exceeding our existing requirements. The resulting park-like complex has the potential to anchor a prestigious development that can generate higher tax revenues and in its success, could spawn secondary re-development in the neighboring office parks along Mill and Apollo Roads, which, though lacking visibility, have excellent highway access. These neighboring office complexes would be excellent locations for start-up and spin-offs to begin operations. As a part of ensuring that vital commercial support services are available for businesses and employees while managing growth, the MPC recommends that ancillary support services be permitted from the Billerica town line to Riverneck Road. The development of an extended stay residence at Mill Road and Billerica Road would complement the business activities in the area.

The availability of TIF Agreements for these properties, as well as the development of a branding strategy for the Billerica Road area, will help encourage private investment in this area. This area could be designated as the Regional Technology Center under subsection (j) of the EDIP legislation that would ensure that the entire community is located within an Economic Target Area (ETA). The Master Plan Committee recommends that expedited permitting procedures be established for this area to convince private industry that the Town is serious about development. There are also some development parcels in this area that should be considered as well.

The Drum Hill/Technology Drive area is one of the major retail corridors in Chelmsford. The Town should begin by implementing the recommendations outlined in the Drum Hill Study conducted by NMCOG in 2008 to address traffic, design guidelines and streetscape issues. This area consists of the major retail operations at Drum Hill and the office/R & D buildings, medical center and specialized housing at Drum Hill Technology Park. Its close proximity to the UMass Lowell West Campus could provide additional development opportunities in the area depending on the future redevelopment of the campus site. The Master Plan Committee recommends that a redevelopment master plan be prepared for the overall Lowell West Campus. The 30-acre Glenview Sand and Gravel site at 152 Steadman Street offers a future development opportunity once the contamination issues are addressed with the assistance of the Massachusetts Department of Environmental Protection. Development and redevelopment opportunities at 10 Technology Drive and Jean Avenue/Wesley Street were also identified in the Chelmsford 2008 Economic Development Plan.

The Vinal Square/North Chelmsford Mill District represents a mixed-use development area with tremendous potential. The Master Plan Committee is supportive of the extension of commuter rail service from Lowell to Nashua and Manchester and the Town has expressed an interest in establishing a commuter rail station within North Chelmsford, providing that there is proper community input and that adequate traffic mitigation is provided in North Chelmsford and elsewhere. The establishment of a Mill Reuse Overlay District in North Chelmsford is worth pursuing since it would protect the neighborhood from the loss of historic buildings, encourage the reuse of these buildings should a vacancy occur and add value to the properties. The re-use of North Chelmsford Town Hall will add economic vitality to Vinal Square. A District Revitalization program should be considered as part of the revitalization efforts.

The Route 3/Route 40 Interchange area has undeveloped, industrially zoned land adjacent to the Westford border north of Groton Road (Route 40) and adjacent to the Route 3/Route 40 interchange. Within the Land Use and Zoning section, the zoning and land use conflicts along the Route 40 corridor between Route 3 and the Westford town line are identified. It is recommended that the town revise the zoning in the area and use transitional zoning as a means to reduce these conflicts. Within the Housing section, the town-owned 66-acre Oak Hill Road parcel, the North Chelmsford Congregational Church parcel and the 19 acre Oak Hill Road parcel were recommended for housing and open space uses. There are additional properties in the area, such as 540 Groton Road, that could be developed for industrial purposes.

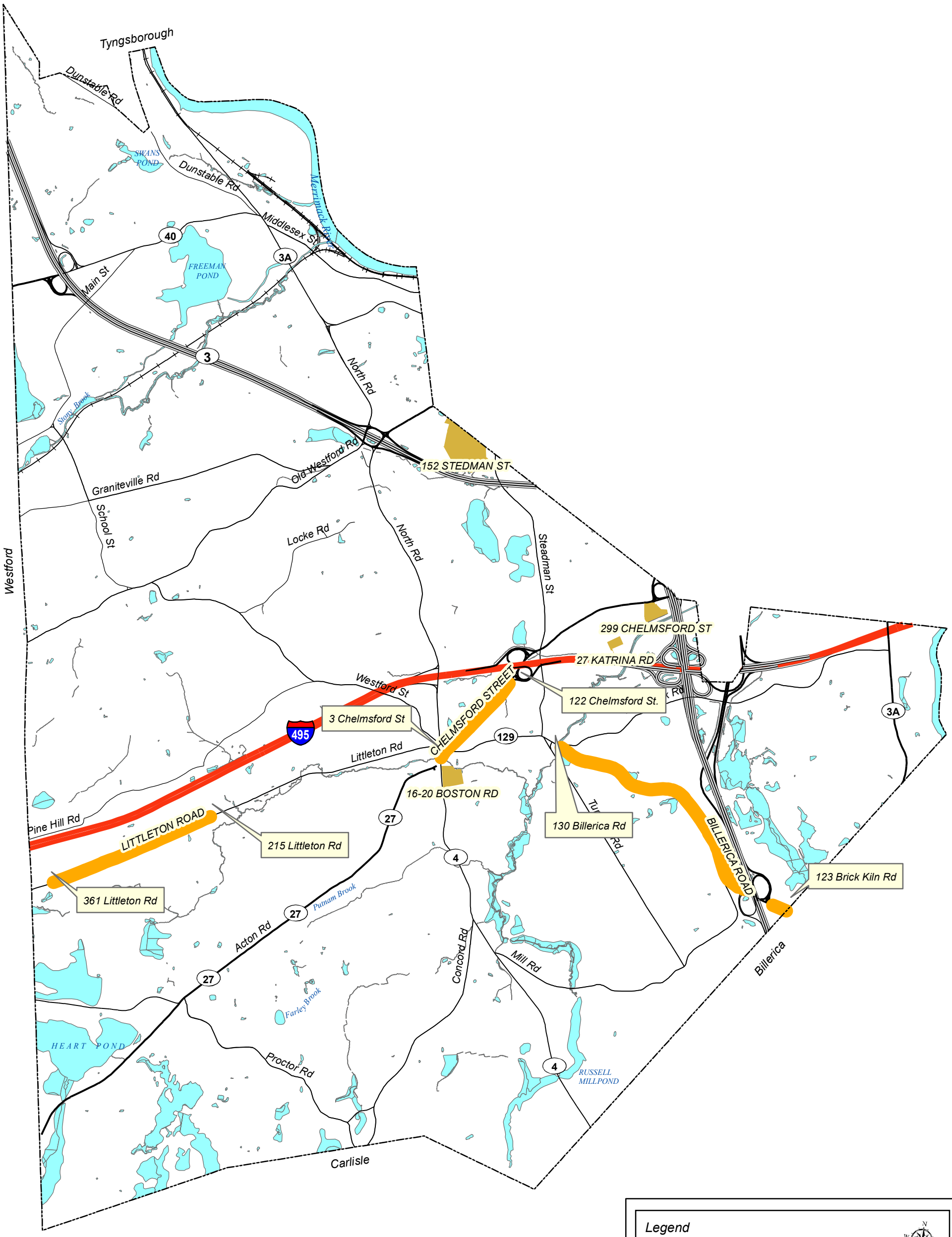
The Route 110/Littleton Road area extends from the Center Village to the Westford line. The Master Plan Committee recommends that the establishment of a mixed-use Redevelopment District along Route 110, from the Westford side of Hunt Road to Chamberlain Road, be further explored. This Redevelopment District would incorporate commercial and residential properties and ensure that land use or zoning conflicts created by industrial properties are minimized with the abutting residential areas. The Master Plan Committee recommends that the properties on Littleton Road from- Hunt Road to Chamberlain Road be addressed as part of the Redevelopment District.

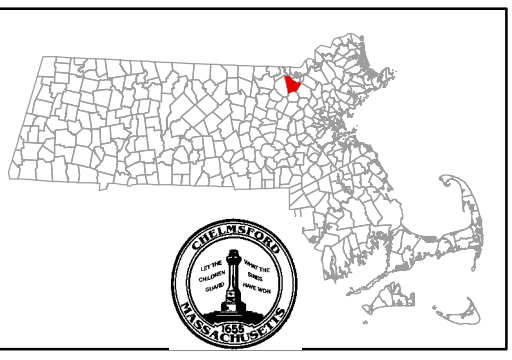
The Route 110/Route 3 Shopping District has benefited from the Route 3 widening project. Due to its access to both Route 3 and I-495, this area has the potential to attract additional private investment. With the development of the Stop & Shop project at the former Chelmsford Cinema site, there will be increased incentive for businesses to locate in this area. The redevelopment of the town's only Chapter 43D site at 25-29 Katrina Road will help clean up the former Silicon Transistor Corporation property, generate property taxes for the Town and create new employment opportunities for Chelmsford residents. The Master Plan Committee recommends that the upper parking lots and four commercially zoned parcels in front of the Chelmsford Mall be rezoned neighborhood commercial type uses with strict design guidelines, thereby creating transitional zoning, which would provide additional buffering and screening for abutters and protect the neighborhood character. Redevelopment opportunities in this area are likely to

develop as the economy improves and major private investments are made. The Town should take advantage of these emerging opportunities.

In identifying potential economic redevelopment/development sites, the Chelmsford Master Plan Committee focused upon a handful of parcels – 29 Katrina Road, the Glenview Sand and Gravel site, the Stop & Shop Plaza on Boston Road and the former Route 3 Cinema site – and three redevelopment corridors – Route 129 (Riverneck Road to the Billerica town line), Route 110 (Center Village to Route 495), and Littleton Road (the Westford side of Hunt Road to Chamberlain Road). These potential economic redevelopment/development sites offer real opportunities to create jobs in the future. These sites are depicted on Map 6 on the following page.

Map 6: Potential Economic Redevelopment/Development Sites





Data provided by the Town of Chelmsford, MassGIS, MassDOT and The Northern Middlesex Council of Governments.
The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

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The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

08/25/2010

JCM

Legend

- Town Boundary
- Economic development corridors

Major Roads

- Interstate
- Limited access
- Arterials
- Collectors
- Redevelopment or economic development parcels
- Lakes, ponds, and open water
- Rail lines

0 0.25 0.5 0.75 1 Miles

RECOMMENDATIONS

- Support the efforts of the Chelmsford Economic Development Commission (CEDC) in recruiting, retaining and expanding businesses for the community. Tie together the efforts of the CEDC with the Community Development Department to update and maintain the Site Finder Database and update the annual survey of the Chelmsford business community.

- Build upon the Chelmsford Brand Strategy developed by the CEDC in April 2010 by incorporating it within the regional "brand strategy" being developed for the Route 3 corridor from Route 128 to I-495. Work with the state economic development agencies to promote the adopted brand strategy for Route 3.

- Adopt the specific procedures and processes for expedited permitting to ensure that permitting decisions for industrial, commercial and mixed-use applications are acted upon within the state's 180-day guidelines. The Community Development Department should develop a Permit Streamlining Guide and a Permitting Manual, as recommended in the Chelmsford 2008 Economic Development Plan. The Permitting Manual should be made available on line and through the Town Clerk's Office and the Community Development Department. Initially establish expedited permitting for projects within the Route 129 corridor but look at other areas in town where this may be appropriate.

- Extend the benefits of the EDIP program to the entire community by expanding the current Economic Target Area (ETA) through the establishment of a Regional Technology Center. Work with local businesses to apply for Recovery Zone Bonds (RZB) from the Commonwealth.

- Prioritize redevelopment initiatives along the Route 129 corridor (from Riverneck Road to the Billerica Town line), in the Center Village and Vinal Square, in the Drum Hill area on Drum Hill Road and in the vicinity of Glenview Sand and Gravel and along the Chelmsford/Route 110 corridor between the Center Village and I-495. Explore the establishment of a mixed-use Redevelopment District along Route 110 from the Westford side of Hunt Road to Chamberlain Road. Promote mixed-use redevelopment projects on Chelmsford Street/Route 110 from the Town Center to the Town Center side of Fletcher Street, along Technology Drive and at the mill complexes of North Chelmsford (Mill Reuse Overlay District).

- The Board of Selectmen should continue to review tax policy on an annual basis as a means to determine the proper balance in terms of tax rates and tax burdens.

- Work with the Greater Lowell Workforce Investment Board (GLWIB) to focus on the employment needs of those manufacturing industries with sophisticated technologies in the areas of nanotechnology, robotics, sensors, biometrics, electro-optics, lasers and clean energy.

- Expand the public/private partnership initiated by the CEDC by working with the private sector to fill vacant commercial space and redevelop industrial properties. Through the utilization of the Site Finder Database, the Town can provide updated property information for prospective tenants and businesses.

- Develop strategies to increase the capacity of the sewer and water systems to meet the growing demands of the business community and local residents. Renegotiate the contract with the Lowell Regional Wastewater Utility and/or develop an agreement with the Town of Billerica to increase sewer capacity for the future. Work with NMCOG and the other communities in the region to address infrastructure issues that impact future economic development initiatives.

- Direct the CEDC to host regular sessions for the residents and business owners in Center Village and Vinal Square to hear their vision for these town centers and to educate them on what other communities have done to revitalize their town centers. Explore funding opportunities under the Business Improvement District (BID), District Improvement Financing (DIF), Community Development Action Grants (CDAG) and Community Development Block Grant (CDBG) programs in order to assist in the revitalization of these town centers.

- Working with the CEDC, the Chelmsford Business Association and the Greater Lowell Chamber of Commerce, the Town should develop a survey for its residents and employees at local businesses to assess what the commercial needs are for the community. The CEDC and Community Development Director could then work with MassDevelopment and the Massachusetts Alliance for Economic Development (MassEcon) to identify specific businesses that would address these needs.

- Focus on the extensive redevelopment and mixed-use opportunities in the Center Village/ Chelmsford Street area. The area between the Center Village and I-495 should be the focus of redevelopment activities, while mixed-use development should be targeted for the area from Center Village –to the Center Village side of Fletcher Street.

- Encourage industrial development in the Route 129 Technology Corridor through the redevelopment of existing buildings and zoning changes related to the maximum building height and commercial support services such as cleaners, financial businesses, day care

support, extended stay and conference facilities and restaurants. Utilize expedited permitting procedures for economic development projects in this area.

- Implement the recommendations in the Drum Hill Study conducted by NMCOG in 2008 to address traffic, design guidelines and streetscape issues. In cooperation with UMass Lowell, develop a redevelopment master plan for the UMass Lowell West Campus Identify development opportunities related to the Glenview Sand and Gravel site. Implement development and redevelopment opportunities at 10 Technology Drive and Jean Avenue/Wesley Street.

- Support the extension of commuter rail service from Lowell to Nashua and Manchester and establish a commuter rail station with North Chelmsford, providing that there is proper community input and that adequate traffic mitigation is provided in North Chelmsford and elsewhere. Establish a Mill Reuse Overlay District in North Chelmsford and implement a District Revitalization program as part of the overall revitalization efforts in Vinal Square.

- Address zoning and land use conflicts in the Route 3/Route 40 Interchange area so as to encourage a balance between industrial development, commercial redevelopment and housing initiatives. Utilize transitional zoning as a means to reduce these conflicts and to protect the residential neighborhoods adjacent to this corridor.

- Explore the establishment of a mixed-use Redevelopment District along Route 110 from the Westford side of Hunt Road to Chamberlain Road. Address the properties on Littleton Road and at 50 Hunt Road as part of the Redevelopment District.

- Build upon the redevelopment opportunities in the Chelmsford Street/Route 110/Route 3 Shopping District principally through the Stop & Shop project at the former Chelmsford Cinema site and the Chapter 43D site at 29 Katrina Road. These development projects will attract additional private investment to this area. Rezone the upper parking lots and four commercially zoned parcels in front of the Chelmsford Mall as neighborhood commercial type uses with strict design guidelines, thereby creating transitional zoning, which would provide additional buffering and screening for abutters and to protect the neighborhood character.

- Prioritize the Potential Economic Development Sites for the CEDC and Community Development Department to implement.

V. TRANSPORTATION AND CIRCULATION

INTRODUCTION

A multi-modal transportation system is essential to a community's vitality by providing access to housing, employment centers, local services, retail establishments and recreational amenities. A transportation system must safely and efficiently accommodate all its users, including motorists, pedestrians, bicyclists and public transit riders. Chelmsford's streets, sidewalks, trails and regional transit services exert a significant influence on the health, well-being and quality of life of its residents. The purpose of the Master Plan is not only to strengthen Chelmsford economically, but also to preserve its community character and quality of life.

The Transportation and Circulation section provides an overview of the Chelmsford's existing transportation system, presents an assessment of safety and operational issues at specific intersections selected by the Master Plan Committee, and outlines recommendations for addressing deficiencies identified within the community's transportation network. An assessment of existing conditions was prepared through background research, field reconnaissance and input received from town officials, town staff, and the public input process. Data collection and analysis included traffic volumes, levels of service analysis at key locations, crash rates, and ridership information from the public transit service providers. Some of the information used in the analysis was derived from the *Regional Transportation Plan*[15], the region's *Transportation Improvement Program (TIP)*[16], I-*495 Corridor Transportation Study*[17], the *Drum Hill Area*

Goal Statement: ***Improve and enhance the community's established transportation network by expanding public transit options, promoting alternative transportation modes and implementing traffic improvements that are directed at alleviating congestion and improving safety.***

- ***Reduce vehicle use and vehicle miles traveled by accommodating and encouraging alternative modes of transportation, such as public transit, ridesharing, walking and bicycling.***
- ***Improve the quality of life in Chelmsford neighborhoods through traffic calming, where feasible and practical.***
- ***Maintain and improve the town's transportation infrastructure to reduce long-term reconstruction and replacement costs.***
- ***Improve the management of parking to better serve the needs of residents, businesses and visitors.***
- ***Create a bicycle and pedestrian friendly transportation network that is safe for people of all ages and abilities.***
- ***Improve transportation access and service for seniors and for persons with disabilities.***
- ***Ensure that future development projects do not negatively impact existing travel and safety conditions within the community.***

[15] Transportation Plan for the Northern Middlesex Region, 2007-2030, Northern Middlesex Council of Governments for the Northern Middlesex Metropolitan Planning Organization
[16] FY 2010-2013 Transportation Improvement Program for the Northern Middlesex Region, Northern Middlesex Council of Governments for the Northern Middlesex Metropolitan Planning Organization, September 2009
[17] I-495 Corridor Transportation Study: Developing Transportation Solutions for the I-495 Corridor from Westford to Salisbury , Massachusetts Executive Office of Transportation and Public Works, June 2008.

Conceptual Master Plan[18] and the *Drum Hill Master Plan: Updated Recommendations and Next Steps*[19].

EXISTING CONDITIONS

The Town of Chelmsford is located in northern Massachusetts, southwest of Lowell and west of Billerica. Situated at junction of Interstate 495 and U.S. Route 3, the Town is well-served by the regional and interstate highway systems, with direct access to I-495 via Route 110 and Route 4. Access to Route 3 is provided on State Routes 129 and 110.

Highways and local roadways are the basis of the town's infrastructure and vital to its economic growth and prosperity. Roadways are classified according to their function and purpose, in a hierarchy based on mobility and access, which is outlined in guidelines established by the Federal Highway Administration[20]. Functional classification is based on a process by which the nation's network of streets and highways are ranked according to the type of service they provide. Functional class describes how travel is "channelized" within the roadway network, by defining the role that any road or street plays in serving the flow of trips through a community or region.

Map 7 on the following page shows all roadways in Chelmsford by their functional classification. Chelmsford has a total of 200 centerline miles (450 lane miles) of roadway, ranging in functional class from interstate highway to local streets. Table 4.1 below summarizes the lane mileage for each functional class.

TABLE 4.1
FUNCTIONAL CLASSIFICATION OF ROADWAYS WITHIN CHELMSFORD

	Interstate	Arterial	Collector	Local	Total
Roadway Centerline Mileage	6.70	48.11	9.20	136.23	200.23
Roadway Lane Mileage	40.17	126.77	18.40	264.29	449.63

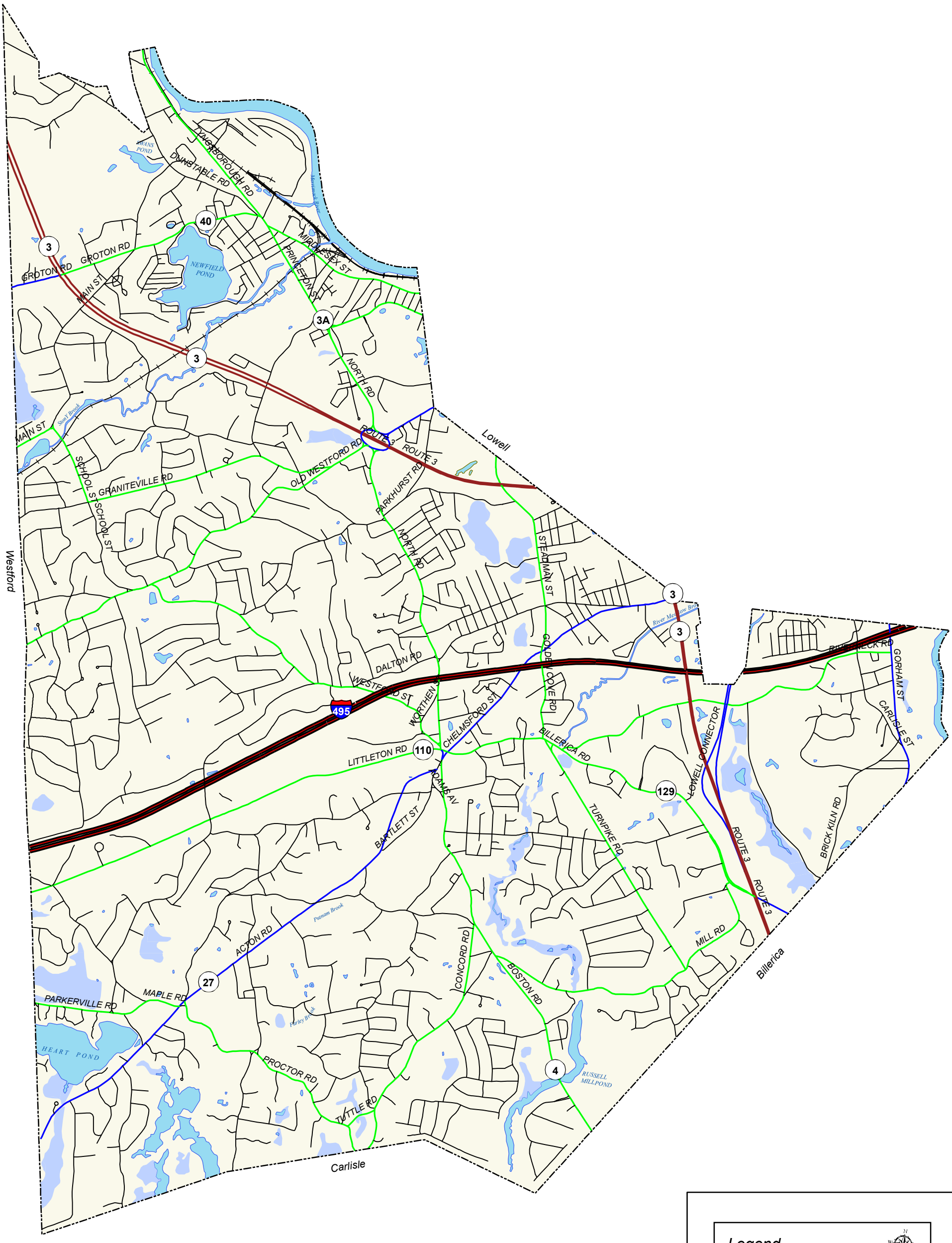
Source: Roadway Inventory File, MassDOT, 2009

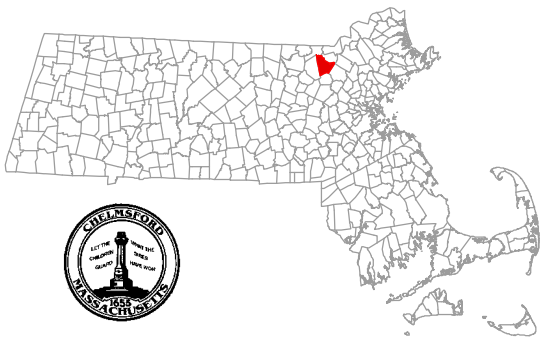
Interstate Highways and Principal Arterials

Interstate Highways and Principal Arterials form the basic framework for the roadway network. The most mobile of the functional classes, interstates and principal arterials serve the primary function of being a major conduit for interstate travel and commerce. In addition, they help link major geographic and economic regions, and urban centers. This class of roadway carries high volumes of traffic and should have limited access throughout. Examples in Chelmsford include I-495 and Route 3. A description of the Town's principal arterials is provided on the following page:

[18] Drum Hill Conceptual Master Plan, Northern Middlesex Council of Governments, 2000.
[19] Drum Hill Master Plan: Updated Recommendations and Next Steps, Northern Middlesex Council of Governments, December 2008.
[20] FHWA Functional Classification Guidelines, Federal Highway Administration, U.S. Department of Transportation, Updated 1984.

Map 7: Functionally Classified Roadways





The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Data provided by MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

Produced by:
The Northern Middlesex
Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
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Legend

- Town Boundary
- Interstate
- Principle Arterial
- Urban Principal Arterial
- Urban Minor Collector
- Local Road
- Rail Lines

0 0.3 0.6 0.9 1.2
Miles

- **Interstate 495** extends in a general northeast/southwest direction within the Town of Chelmsford, for approximately 3.4 miles. The highway has three travel lanes in each direction, providing access to Chelmsford at interchanges with State Route 4 (Exit 33) and Route 110 (Exit 34). The interchange with U.S Route 3 is partly in the Town of Chelmsford and partly in the City of Lowell. Average Daily Traffic (ADT) volumes on I-495 range from 97,000 to 113,000 vehicles per day.
- **U.S. Route 3** runs in a general north/south direction for approximately 6.2 miles within Chelmsford and is classified as a principal arterial. The highway has three travel lanes in each direction, providing access to Chelmsford at interchanges with State Route 129 (Exit 29), Drum Hill Square (Exit 32), and Route 40 (Exit 33). The interchange with I-495 is partly in Chelmsford and partly in Lowell. ADT volumes range from 92,900 to 118,600 vehicles per day.
- **Route 129** is designated as an urban principal arterial east of its interchange with Route 3. Land uses in this area are principally commercial and industrial in character.
- **Route 110** is classified as an urban principal arterial from Central Square to the Lowell line. This section of Route 110 is largely commercial in character.
- **Route 40** is considered an urban principal arterial from U.S. Route 3 to the Westford line. Development along this section of Route 40 is a mix of residential and industrial uses.
- **Route 27** is classified as an urban principal arterial from the Westford town line to Central Square.

Minor Arterials

Minor arterials also serve longer distance traffic movements, yet are considered secondary to urban principal arterials. Minor arterials primarily serve as links between major population centers within or between distinct geographic and economic regions. They may also serve as regional links between two or more urban principal arterials. In the Town of Chelmsford, State Routes 3A, 4, 40, 110, and 129 are classified as urban minor arterials, and are further described as follows:

- **Route 3A** is a two-lane urban minor arterial running from Lowell to Tyngsborough.
- **Route 4** is a two-lane urban minor arterial traversing Chelmsford in a north/south direction from the Billerica Town Line to Princeton Street.
- **Route 40** is a two- lane urban minor arterial extending from Vinal Square to Route 3, where the roadway becomes a principal arterial until reaching the Westford Town Line.
- **Route 110** is a two-lane urban minor arterial, from the Westford Town Line to Central Square. From Central Square to the Lowell City Line, the road becomes a principal arterial crossing both Route 3 and I-495.
- **Route 129** is an urban minor arterial between Route 3 and Central Square.

Collector Roadways

Collector roads differ from arterials by the size of their primary service areas. Collector roads are generally shorter and serve to gather trips from local roads and distribute them to arterials. In designated urban areas, such as Chelmsford, there is no differentiation between major and minor collector roads. In the Town of Chelmsford, there are 9.2 centerline miles of urban collector roadways. Examples include Parkhurst Road, Dalton Road, Brick Kiln Road, Main Street, Dunstable Road, and School Street.

Local Roads

Local roads are used primarily to provide access to adjacent properties. Often there are numerous turning movements and slower speeds, as vehicles use these roads to access residential areas. In Chelmsford, there are 136 centerline miles designated as local roadways.

Roadway Maintenance

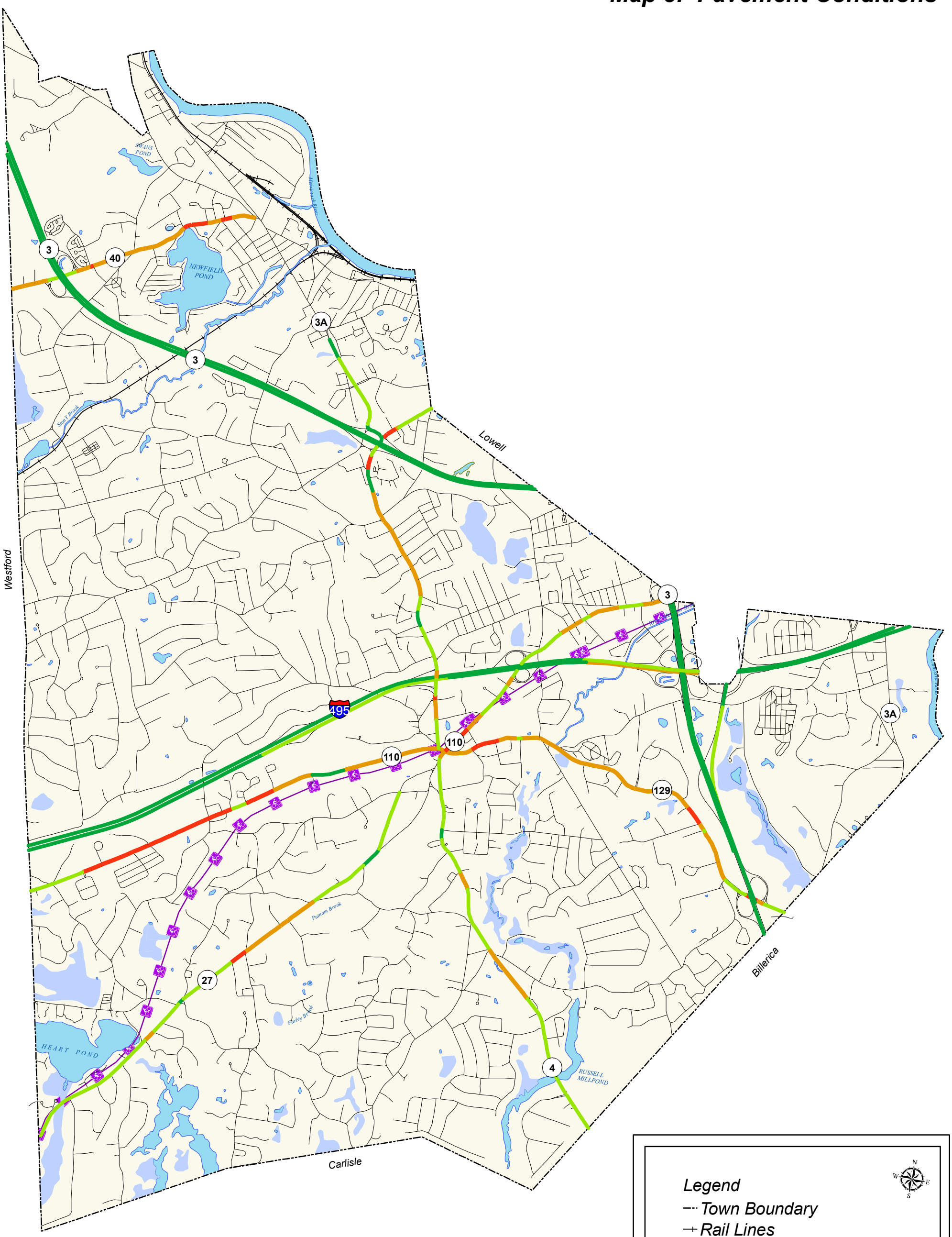
The Town's Department of Public Works (DPW), Highway Division maintains all town-owned roadways within the community. The Highway Division currently has 19 employees, but is undermanned due to budget cuts and reductions in local aid. During the public process, the DPW indicated that a pavement management program is needed to adequately manage and maintain the town's roadway infrastructure. Presently, many of the town's roadway assets are in excellent condition, as a result of roadway reconstruction and resurfacing undertaken as part of the town-wide sewer construction program. Reallocating resources for preventive maintenance, such as crack sealing, can increase the life-cycle of certain roadways, while deferring maintenance can lead to a need for full depth reconstruction, which is far more costly.

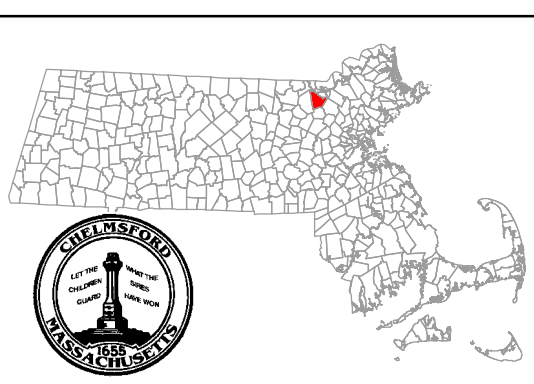
Map 8 on the following page shows the pavement condition on state number routes within Chelmsford. This condition inventory was prepared by the Massachusetts Department of Transportation (MassDOT) as part of its pavement management program and is used to prioritize roadway maintenance within each MassDOT district.

Bridges

MassDOT uses standards developed by the American Association of State Highway and Transportation Officials (AASHTO) to rate all bridges in Massachusetts based on their condition. Forty- nine bridges in the Town of Chelmsford have been evaluated by MassDOT and rated on a scale of 0 to 100, with 100 being the best condition possible. Bridges that score low on the scale are classified as functionally obsolete or structurally deficient. A functionally obsolete classification indicates that the bridge is still structurally sound but does not meet current design standards for the level of traffic on the bridge. A structurally deficient classification indicates a deterioration of significant bridge elements, which may require a restriction in the load capacity of the bridge. It does not necessarily mean the bridge is unsafe but

Map 8: Pavement Conditions





The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Data provided by MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

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Legend

- *Town Boundary*
- *Rail Lines*
- *Bruce Freeman Rail Trail*

Pavement Condition

- *Poor (Rating less than 2.3)*
- *Fair (2.3 to 2.79)*
- *Good (2.8 to 3.49)*
- *Excellent (3.5 or above)*

N W E S

Miles
0 0.25 0.5 0.75 1

that repairs should be made before the condition deteriorates further. Currently, there are six structurally deficient (SD) bridges and five functionally obsolete (FO) bridges in Chelmsford, as shown in Table 4.2 below.

TABLE 4.2
STRUCTURALLY DEFICIENT AND FUNCTIONALLY OBSOLETE BRIDGES

Bridge Number	Over	Under	Owner	Functional Class	Year Built	AASHTO Rating	Deficiency
C-08-005	School St.	Stony Brook	Chelmsford	Urban Minor Arterial	1850	66.4	FO
C-08-007	Turnpike Rd.	Meadow Brook	Chelmsford	Local	1984	77.0	FO
C-08-022	Meadowbrook Rd.	Canal	Chelmsford	Urban Local	1950	56.2	FO
C-08-025	I -495 NB	RT. 110	MassDOT	Freeway/Expressway	1960	52.0	FO
C-08-026	I-495 SB	RT. 110	MassDOT	Freeway/Expressway	1960	52.0	FO
C-08-030	Lowell Connector	I-495	MassDOT	Freeway/Expressway	1959	46.7	SD
C-08-036	Westford St.	I- 495	MassDOT	Urban Minor Arterial	1961	64.57	SD
C-08-37	North Rd.	I-495	MassDOT	Urban Minor Arterial	1959	56.9	SD
C-08-039	Rt. 3A /Gorham St.	I -495	MassDOT	Urban Arterial	1962	49.3	SD
C-08-037	Rt. 4/ North Rd.	I -495	MassDOT	Urban Minor Arterial	1959	56.9	SD
C-08-48	Hunt Road	I-495	MassDOT	Urban Local	1961	78.2	SD

Source: MassDOT Bridge Inspection Program, 2009

MassDOT is undertaking a statewide effort to repair or replace structurally deficient and functionally obsolete bridges. The Westford Street Bridge over I-495 is currently under design, with construction anticipated to begin in the spring 2014. Any structural improvements to town-owned bridges should include bicycle and pedestrian accommodations, if feasible.

COMMUTING PROFILE

A community's commuting profile is generally influenced by its location within the region, land use patterns and availability of transportation infrastructure and services. Chelmsford's proximity to I-495 and U.S. Route 3 provides the community with easy and convenient access to the regional highway network. The 2000 U.S. Census showed that Chelmsford residents still rely on personal vehicles for commuting to work, with over 87.8% of Chelmsford residents driving to work alone. Between 1990 and 2000, the percentage of residents who carpool to work decreased by from 7.7% to 6.0%. Similarly, workers commuting by walking and bicycling and public transportation also decreased to 0.7% and 2.3% respectively. The number of residents

who work from home increased during this same timeframe, with 538 residents, representing 3% of the workforce, reporting that they worked from home in 1999. Table 4.3 below shows mode choices reported by Chelmsford residents, according to the 1990 and 2000 U.S. Census.

TABLE 4.3
MODE CHOICE FOR CHELMSFORD RESIDENTS COMMUTING TO WORK

Mode Choice	1990 Census		2000 Census	
	Number	Percent	Number	Percent
Total Workers	18,276	100.0	17,929	100.0
Drove Alone	15,898	87.0	15,736	87.8
Carpool	1,406	7.7	1,072	6.0
Walk/Bike	277	1.5	122	0.7
Public Transportation	232	1.3	411	2.3
Work at Home	364	2.0	538	3.0
Other	99	0.5	55	0.3

Source: 1990 and 2000 U.S. Census

According to the 2000 U.S. Census, 17,910 of Chelmsford's residents commuted to work in 1999, of which 20.9% worked in town, while the remaining 79.1% were employed at locations outside of town. Approximately 9.5% of Chelmsford residents worked in the City of Lowell, and 27.4% worked along the I-495 corridor in locations outside the Northern Middlesex region. Nearly 15% of Chelmsford residents were employed within the Route 128 belt, and 4.9% worked within the City of Boston. Table 4.4 below provides an overview of commuter destinations for Chelmsford's resident population, based on the 2000 Census.

TABLE 4.4
COMMUTER DESTINATIONS FOR CHELMSFORD RESIDENTS

Chelmsford Resident Commuter Destination	Number of Residents	% of Residents Commuting
Chelmsford	**3,720**	**20.9**
Billerica	775	4.3
Dracut	195	1.1
Dunstable	4	0.0
Lowell	1,685	9.5
Pepperell	30	0.2
Tewksbury	485	2.7
Tyngsborough	190	1.1
Westford	730	4.1
New Hampshire	713	4.0
Boston	880	4.9
Within I-495 (Non NMCOG Region)	4,875	27.4
Outside I-495	883	5.0
Within Route 128 (Greater Boston)	2,654	14.9
Total Residents Commuting	**17,910**	**100.0**

Source: 2000 U.S. Census, Worker Flow Files

As shown in Table 4.5 below, according to the 2000 U.S. Census, approximately 22,687 persons reported working in the Town of Chelmsford in 1999. Of those workers, 18% were Chelmsford residents, while 17.1% were residents of Lowell. Approximately 13.4% of those working in Chelmsford lived in New Hampshire, and 22.5 % commuted into town from within the I-495 and Route 128 belts.

TABLE 4.5
PLACE OF RESIDENCE FOR WORKER EMPLOYED WITHIN CHELMSFORD

Residence of Persons Working in Chelmsford	Number of Workers	% of Workers
Chelmsford	**3,720**	**18.0**
Billerica	945	4.6
Dracut	830	4.0
Dunstable	85	0.4
Lowell	3,530	17.1
Pepperell	255	1.2
Tewksbury	435	2.1
Tyngsborough	570	2.8
Westford	840	4.1
New Hampshire	2,765	13.4
Boston	640	3.1
Within I-495 (Non NMCOG Region)	2,291	11.1
Outside I-495	1,420	6.9
Within Route 128 (Greater Boston)	2,350	11.4
Total	**22,687**	**100.0**

According to 1990 and 2000 US Census figures, the mean commuting time for Chelmsford residents rose by 4.5 minutes over the ten-year period. Workers traveled longer distances, with average travel time increasing from 23 minutes in 1990, to nearly 28 minutes in 2000. Table 4.6 below, provides more detailed information regarding average commute times for the town's resident workers.

TABLE 4.6
AVERAGE COMMUTING TIME FOR CHELMSFORD RESIDENTS

Time Spent Commuting	1990 Census		2000 Census	
	Number	Percent	Number	Percent
Workers not working at home	17,912	100	17,391	100
Less than 5 minutes	397	2.2	251	1.4
5 to 9 minutes	1,643	9.2	1,328	7.6
10 to 14 minutes	2,688	15	2,517	14.5
15 to 19 minutes	2,962	16.5	2,411	13.9
20 to 29 minutes	4,373	24.4	3,717	21.4
30 to 44 minutes	3,800	21.2	3,969	22.8
45 or more minutes	2,049	11.4	3,198	18.4
Mean travel time to work (minutes)	**23.1**	**NA**	**27.6**	**NA**

TRAFFIC VOLUMES

Traffic volume data is available through NMCOG's Traffic Counting Program, MassDOT (formerly MassHighway and EOTPW), and from traffic impact studies prepared for development projects. Generally, each location is counted for a 48-hour period during the months of April through October. Recorded traffic volumes taken over the past several years show that the traffic has increased by approximately 1.2% annually. Map 9 on page 136 shows the average daily traffic volumes on many of the town's roadways. Table 4.7 below, provides an overview of traffic volumes and traffic growth rates at various locations throughout town.

TABLE 4.7
AVERAGE DAILY TRAFFIC VOLUMES

Count Location	First Count Available	Average Daily Traffic (ADT)	Most Recent Count Available	ADT	Annual Growth Rate (%)	Total Growth (1st yr to latest yr), %
Dalton Road West of Route 4 (North Road)	1998	1,900	2007	2,400	2.31	20.83
Graniteville Road South of Richardson Road	1997	4,600	2007	5,800	2.07	20.69
Lowell Connector South of Route I-495	1999	25,700	2007	24,682	-0.52	-4.12
Maple Road West of Rte 27 (Acton Rd)	1998	1,700	2008	3,500	5.14	51.43
Meadowbrook Road South of Main Street	2001	730	2008	870	2.30	16.09
Old Westford Road West of Route 3	2000	8,900	2007	9,500	0.90	6.32
Parkerville Road @ Westford T.L.	1997	2,300	2008	2,000	-1.36	-15.00
Parkhurst Road East of Route 3	2000	8,100	2006	7,700	-0.87	-5.19
Rte 110 (Chelmsford St) North of I-495 Ramp	1998	13,400	2006	14,800	1.18	9.46
Rte 110 (Chelmsford St) South of I-495 Ramp	1997	28,200	2006	24,700	-1.57	-14.17
Rte 110 (Littleton Rd) @ Westford T.L.	1999	8,000	2006	7,900	-0.18	-1.27
Rte 27 (Acton Rd) @ Westford T.L.	1997	4,800	2006	4,500	-0.74	-6.67
Route 3 @ Lowell C.L.	1997	82,200	2006	92,900	1.28	11.52
Route 3 South of Route 40 (Groton Road)	1997	58,400	2006	94,300	4.23	38.07
Rte 3A (Princeton Street) @ Lowell C.L.	1997	6,100	2006	5,100	-2.18	-19.61
Rte 4 (Boston Road) @ Billerica T.L.	1999	7,000	2006	6,100	-2.11	-14.75
Rte 4 (North Road) over I-495	1997	19,300	2006	21,800	1.27	11.47
Rte 40 (Groton Road) East of Route 3 NB	2000	7,000	2008	9,000	2.78	22.22

TABLE 4.7
AVERAGE DAILY TRAFFIC VOLUMES

Count Location	First Count Available	Average Daily Traffic (ADT)	Most Recent Count Available	ADT	Annual Growth Rate (%)	Total Growth (1st yr to latest yr), %
Rte 40 (Groton Road) @ Westford T.L.	1997	10,100	2008	12,700	1.86	20.47
Rte I-495 0.5km South of Rte 4 (North Rd)	1997	93,982	2006	113,100	1.88	16.90
Rte I-495 North of Rte 4 (North Rd)	1999	88,100	2007	101,550	1.66	13.24
Route I-495 South of Route 3	1998	106,700	2007	97,600	-1.04	-9.32
School Street North of Graniteville Road	1998	2,900	2007	3,100	0.72	6.45
Steadman Street @ Lowell C.L.	1997	9,300	2006	8,600	-0.90	-8.14
Westford Street N of Rte 110 (Littleton Rd)	1997	4,300	2006	3,400	-2.94	-26.47
Average for all locations shown above	**1998**	**21,525**	**2007**	**24,031**	**1.21**	**10.43**

As traffic volumes have increased over time, many of the town's intersections have been signalized to address safety and congestion issues. Map 10 on page 137 shows the locations of all signalized intersections within the community.

CRASH AND SAFETY CONDITIONS

Crash records are compiled by the Registry of Motor Vehicles and MassDOT annually. NMCOG analyzes and maintains a database of all crash data reported to the Registry of Motor Vehicles, by community. Table 4.8 below provides a summary of the total number of crashes that have occurred within Chelmsford from 2006 through 2008. This is the most recent information available.

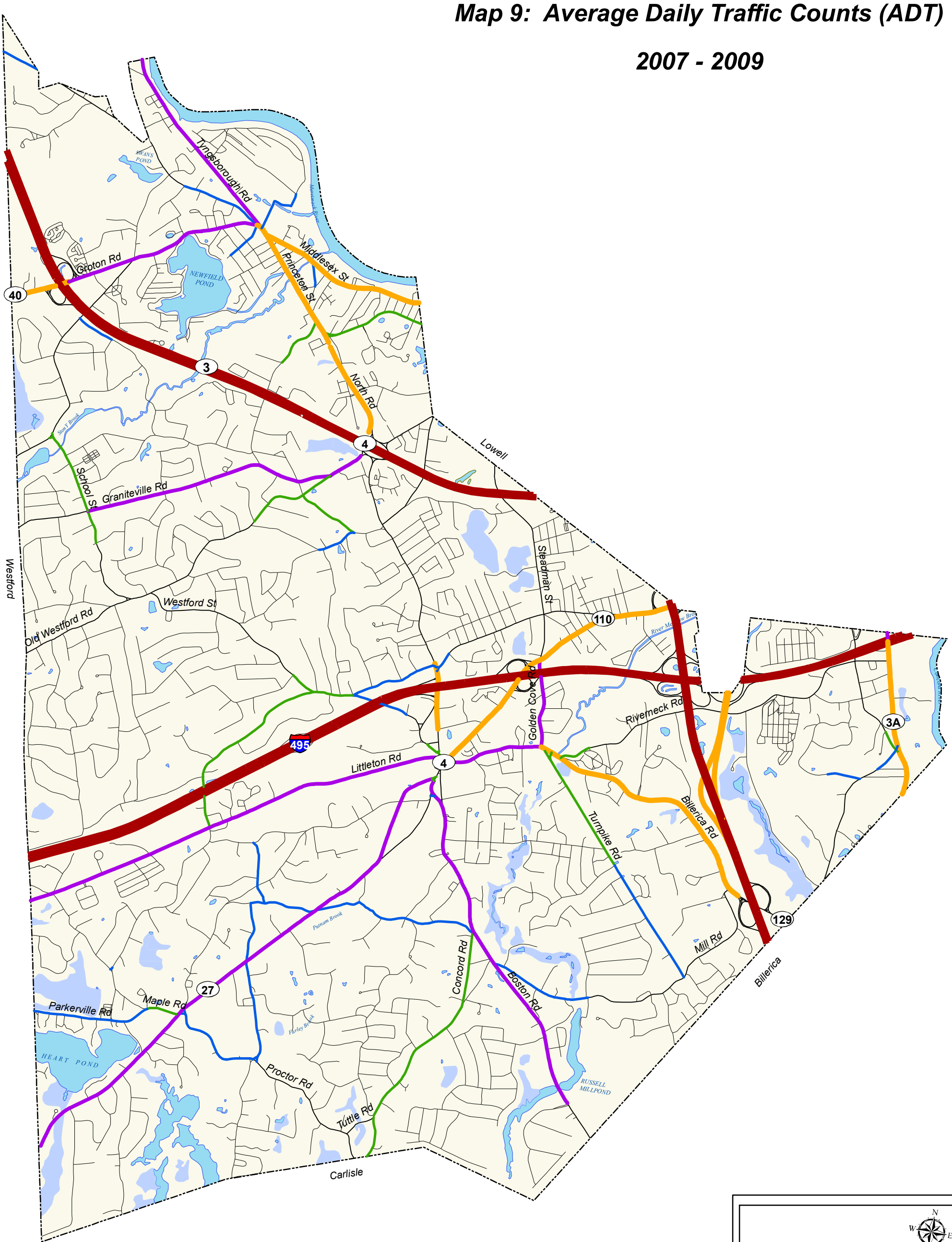
TABLE 4.8
CHELMSFORD CRASH RECORDS SUMMARY

Year	Total Crashes	Total Injuries	Total Fatalities
2006	763	241	2
2007	737	251	0
2008	721	284	2
Average	**740.33**	**258.67**	**1.33**

Source: MassDOT/Registry of Motor Vehicles Crash Reports

Map 9: Average Daily Traffic Counts (ADT)

2007 - 2009



Legend

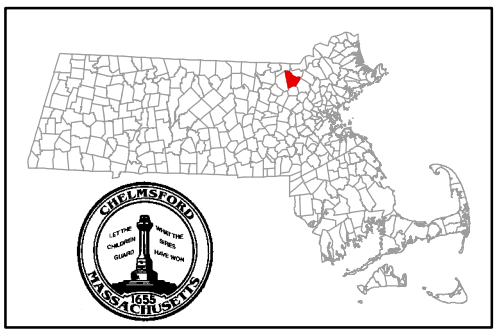
- Town Boundary

Traffic Counts (ADT)

- 210 - 2,500
- 2,501 - 5,000
- 5,001 - 10,000
- 10,001 - 30,000
- 30,001 - 120,000

N W E S

0 0.25 0.5 0.75 1 Miles



The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

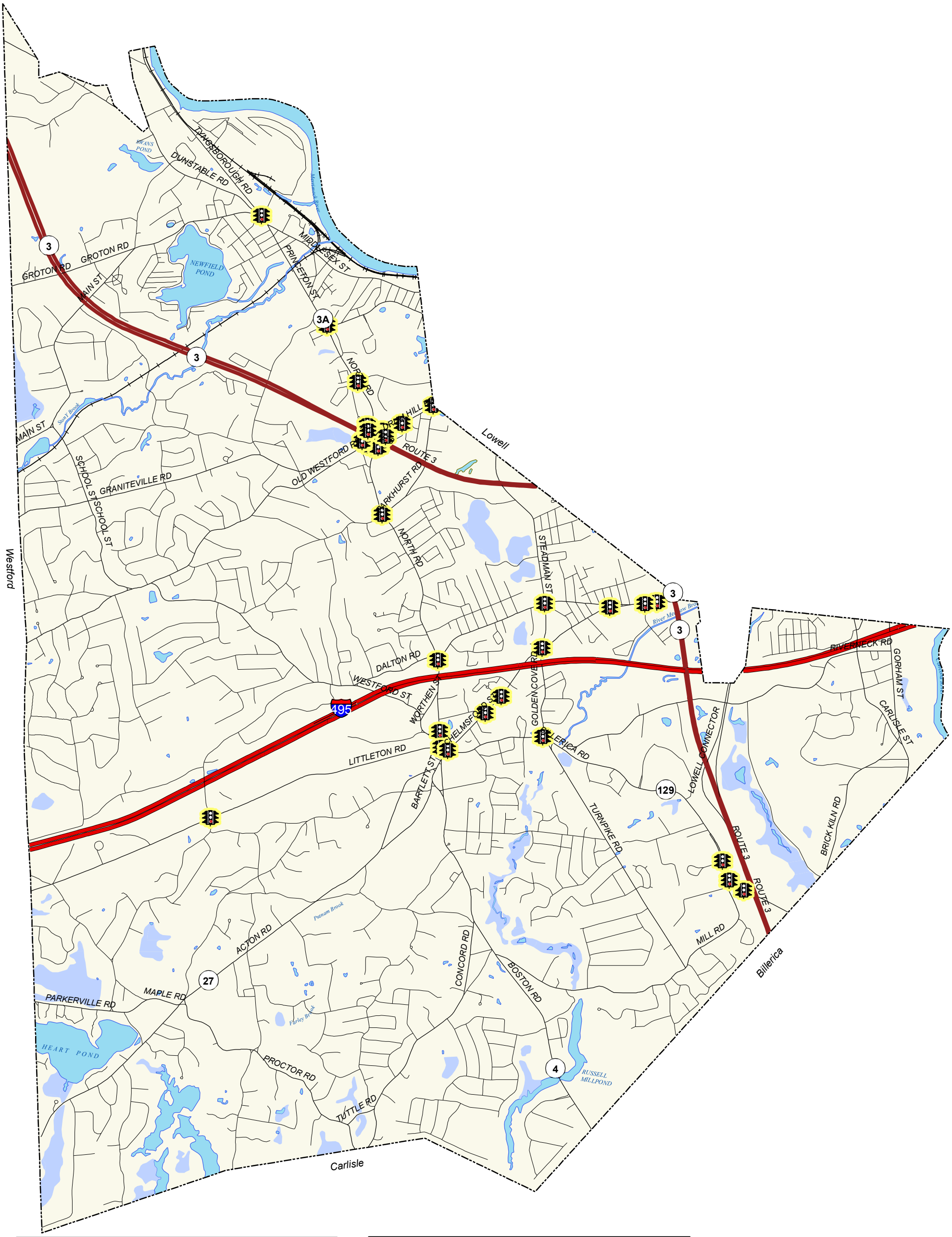
Data provided by MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

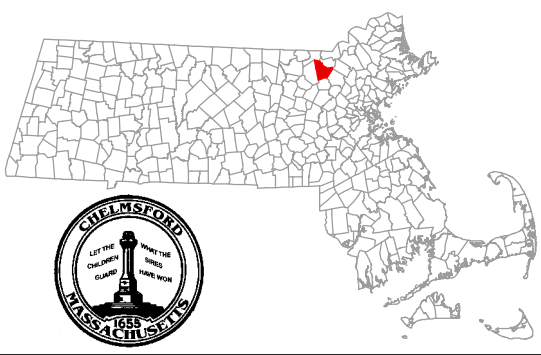
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11/03/2009

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Map 10: Traffic Signal Locations





The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Data provided by the MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

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- *Town Boundary*
- *Traffic Signals*
- *Rail Lines*
- *Roadways*

Miles
0 0.25 0.5 0.75 1

High Crash Locations

High crash locations are identified through the analysis of MassDOT crash data. Three years of data are examined in order to minimize annual variations that can be created by construction, road closures, or various factors that may affect the accident reporting frequency on the part of local police departments.

Top crash locations are ranked based on the Equivalent Property Damage Only (EPDO) method. This ranking serves as a basis for identifying future safety project needs throughout the region. Each crash is assigned a numeric value based on the reported severity of the crash. Using the EPDO system, property damage only crashes are assigned one (1) point, injury crashes are assigned five (5) points, and fatal crashes are assigned ten (10) points. The points assigned to each crash at a given location are then added to determine the intersection's EPDO value. Table 4.9 below, identifies Chelmsford's top crash intersections and their rank within the Northern Middlesex region. These locations are shown on Map 11 on the following page.

TABLE 4.9
HIGH CRASH LOCATIONS, 2006-2008

Rank in Region	Intersection	Intersection Control	Total Crashes	Property Damage Only Crashes	Injury Crashes	Fatal Crashes	EPDO
46	Route 110 (Chelmsford Street) at Route 4 (Boston Road) and Route 129 (Billerica Road)	Traffic Signal	30	21	9	0	66
63	Route 4 (North Road) at Route 110 (Littleton Road)	Traffic Signal	29	21	8	0	61
87	Route 110 (Chelmsford Street) at Stedman Street	Traffic Signal	28	20	8	0	60

Source: Top 100 Crash Locations in the Northern Middlesex Region, 2006-2008 , Northern Middlesex Council of Governments, 2010

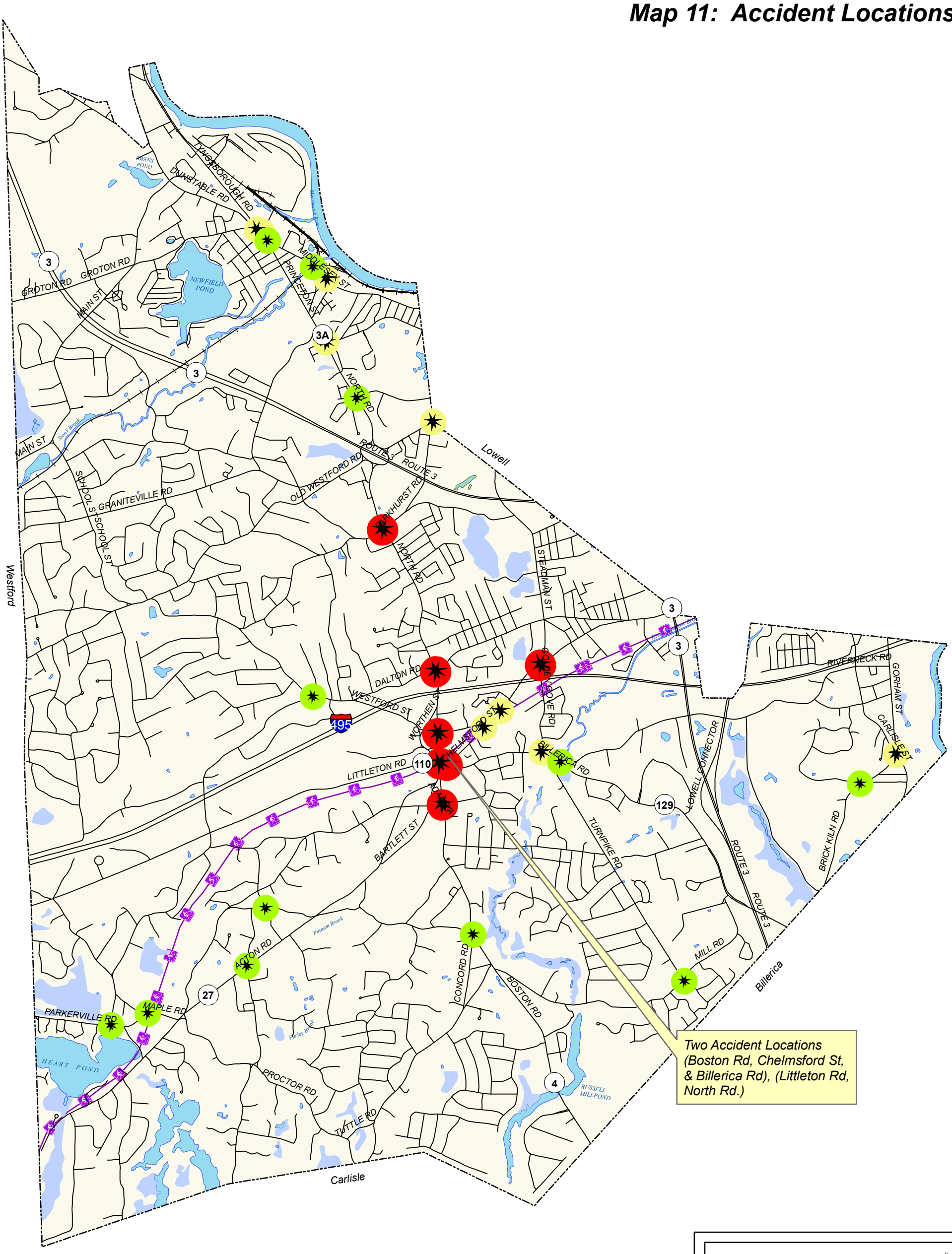
Recent Improvements to Mitigate High Crash Locations: North Road (Route 4) Intersection Projects

Based on crash data analyzed by NMCOG between 2004 and 2006, the intersection of North Road, Parkhurst and Davis Roads, and the intersection North Road and Dalton Road, ranked within the Region's Top 100 high crash locations. The intersection at Parkhurst and Davis Roads was ranked 49th,



Recently improvements at the intersection of North/Dalton Roads (*Source: Pictometry International, 2008)*

Map 11: Accident Locations





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while the intersection at North and Dalton Road was ranked at 87th.

In 2006, MassDOT installed traffic signals at both intersections. The improvements at the intersection of North Road and Parkhurst and Davis Roads included geometric improvements, providing dedicated right turning lanes on the Davis Road and Parkhurst Road approaches, and the installing of left turn lanes on North Road, and sidewalks.

Recent improvements were also completed by MassDOT at the intersection of North Road and Dalton Road. The eastern Dalton Road approach to North Road is offset from the western Dalton Road approach by approximately 110 feet. Additionally, the Dalton Road intersection is approximately 300 feet to the north of the I-495 southbound on and off ramps. The improvements to the intersection included a traffic signal with turning lanes on both North Road approaches to Dalton. Signals and turning lanes were installed between the east and west Dalton Road intersections, which included pedestrian activation and crosswalks crossing North Road, just north of the western section of Dalton Road, and crossing the eastern section of Dalton Road. A continuous sidewalk system was also constructed through the area.



Recently completed improvements at North Road, Parkhurst and Davis Roads (*Source: Pictometry International, 2008)*

The improvements constructed at the above locations have been highly effective in reducing the number of crashes. Analysis of 2006 to 2008 crash data has shown that both intersections no longer rank among the region's top 100 high crash locations.

Highway Interchange Crash Data

Crash data was analyzed for each highway interchange in the Town of Chelmsford, including all interchanges along I-495, U.S. Route 3, and the Lowell Connector. Each interchange was ranked using the EPDO method, as shown in Table 4.10 below.

TABLE 4.10
HIGHWAY INTERCHANGE CRASH DATA, 2006-2008

Location	Total Crashes	Property Damage Only Crashes	Injury Crashes	Fatal Crashes	EPDO
Interstate 495 at U.S Route 3/Lowell Connector	228	156	71	1	521
Interstate 495 at Route 110	118	76	41	0	291
Drum Hill Square (Interchange with US Route 3)	131	100	31	0	255
U.S Route 3 at Route 129	94	68	26	0	198
Interstate 495 at Route 4	78	52	26	0	182
U.S. Route 3 at Route 40	37	24	13	0	89

Source: Top 100 Crash Locations in the Northern Middlesex Region, 2006-2008 , Northern Middlesex Council of Governments, 2010

The Route 3 expansion project has resulted in a considerable reduction in the number of crashes at interchanges within Chelmsford. A comparison between 2004-2006 crash data and 2006-2008 crash data, provided in Table 4.11 below shows a considerable decrease in total crashes, as well as in crashes involving injuries, even though traffic volumes increased overall. The only exception occurred at the interchange of Route 3 and I-495, where crashes increased 7.0%, as volumes increased 13.6%.

TABLE 4.11
ROUTE 3 INTERCHANGE IMPROVEMENTS

Data	Interchange Location			
	Drum Hill Square (Rte 3 at Rte 4)	I-495 at Rte 3	Rte 3 at Rte 129	Rte 3 at Rte 40
2004-2006				
Average Daily Traffic	99,000	92,900	92,900	94,300
Total Crashes	137	213	107	42
PDO Crashes	99	157	70	28
Injury Crashes	38	55	37	14
Fatal Crashes	0	1	0	0
EPDO	289	442	255	98
2006-2008				
Average Daily Traffic	100,800	105,500	105,500	91,200
Total Crashes	131	228	94	37
PDO Crashes	100	156	68	24
Injury Crashes	31	71	26	13
Fatal Crashes	0	1	0	0
EPDO	255	521	198	89
Percent Change				
Average Daily Traffic	2.6	13.6	13.6	-3.3
Total Crashes	-4.4	7.0	-12.1	-48.6
PDO Crashes	1.0	-0.6	-2.9	-14.3
Injury Crashes	-18.4	29.1	-29.7	-7.1
Fatal Crashes	0.0	0.0	0.0	0.0
EPDO	-11.8	17.9	-22.4	-9.2

The interchange of Route 3 and Route 129 in Chelmsford has shown the most improvement during this time period. Although traffic volume increased 13.6%, total crashes decreased by 12.1%, from 107 to 94 and the EPDO rating has dropped 22.4%. Traffic volumes have decreased somewhat at the interchange of Route 3 and Route 40 in Chelmsford. With this decrease, total crashes have decreased 48.6%, with all types of incidents occurring less frequently as well. Continued monitoring of Route 3 interchanges will be conducted as part of NMCOG's ongoing traffic safety program.

Bicycle and Pedestrian Crashes

Between 2006 and 2008, there were a total of 152 crashes involving bicycles and vehicles throughout the Northern Middlesex region. Of those crashes, 8 occurred within the Town of

Chelmsford, and four of the eight crashes involved personal injury. Table 4.12 below provides the locations of these crashes, and it is interesting to note that three of the crashes occurred along Chelmsford Street.

There were 331 crashes across the region involving a pedestrian and a vehicle. Of those, ten crashes occurred within the Chelmsford, five resulted in injuries and one accident, which occurred on the Route 3 mainline, resulted in a fatality. It should be noted that 4 of the 10 pedestrian accidents occurred on Chelmsford Street. It is expected that this situation will improve in the future as a result of the opening of the Bruce Freeman Rail Trail.

Regionally, 62% of pedestrian accidents at intersections occur at unsignalized locations. It is evident that pedestrian phases incorporated into traffic signal cycles provide needed time for protected pedestrian crossing, thereby resulting in increased safety for pedestrians.

TABLE 4.12
CRASHES INVOLVING BICYCLES AND PEDESTRIANS

Location	Severity
Crashes Involving Bicycles	
Rte 110 (Chelmsford St) at Alpine Lane	Non Fatal Injury
Rte 110 (Chelmsford St) at Dalton Rd	Non Fatal Injury
Rte 4 (Boston Rd)	Non Fatal Injury
Dalton Rd at Sylvan Ave	Property Damage Only
Rte 110 (Chelmsford St) at Rte 3 SB Ramp	Non Fatal Injury
5 Drum Hill Rd	Property Damage Only
10 North Rd	Unknown
37 Central Square	Property Damage Only
Crashes Involving Pedestrians	
Davis Rd at Graniteville Rd	Non Fatal Injury
Rte 110 (Chelmsford St) at Golden Cove Rd	Property Damage Only
288 Chelmsford St	Property Damage Only
200 Richardson Rd	Non Fatal Injury
Rte 110 (Chelmsford St) at Evergreen St	Not Reported
20 Boston Rd	Property Damage Only
210 Boston Rd	Non Fatal Injury
Rte 27 (Acton Rd) at Bartlett St	Non Fatal Injury
Rte 110 (Chelmsford St) at Central Square	Non Fatal Injury
Route 3 NB at Ramp to Lowell Connector (on the Route 3 mainline)	Fatal Injury

CRITICAL TRAFFIC AREAS

The Town boards, departments, committees and staff have identified several locations that appear to have significant traffic issues. Such locations include areas with existing congestion or safety concerns, or geometric design issues. Map 12 shows the location of these areas which are discussed in detail in the following section.

Chelmsford Center is the community's historic downtown business district, and contains a mix of business, residential, institutional and government uses. Located at the confluence of State

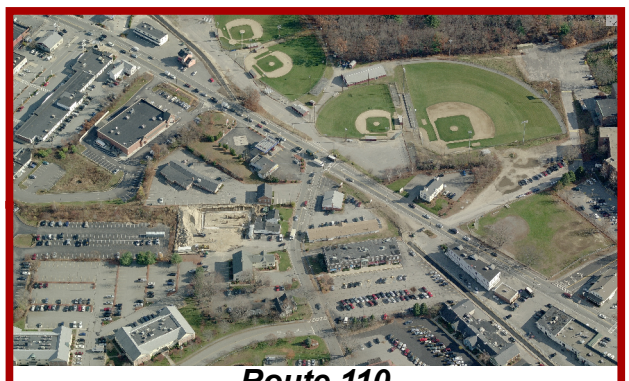
Map 12: Critical Traffic Areas & Key Intersections



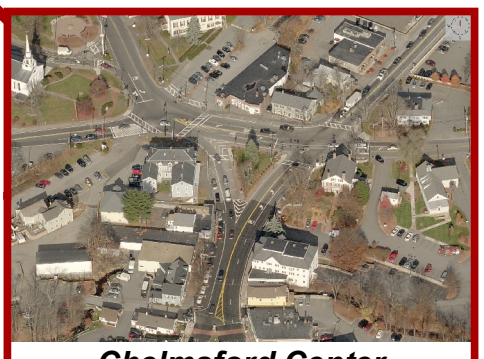
Vinal Square



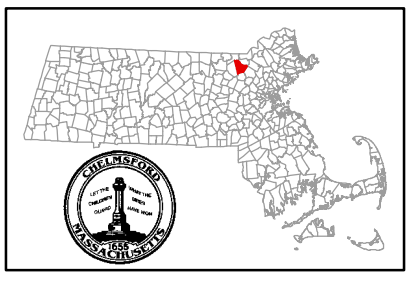
Drum Hill



Route 110



Chelmsford Center



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Data provided by MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

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Legend

- Study Intersections
- Town Boundary
- Bruce Freeman Rail Trail
- Rail Lines

0 0.25 0.5 0.75 1 Miles

Routes 129, 110, 4, and 27, large volumes of traffic pass through the town center each day. Congestion is evident during peak hours and significant queues are often observed. In addition, the intersection of Route 4/110 and 129 is considered a high crash location.[21]



Aerial view of Central Square (*Source: Pictometry International, 2008)*

In 2004, MassDOT (formerly MassHighway) reconstructed Chelmsford's Central Square. The work included the installation of traffic signals at the following three intersections: North Road (Route 4) at Academy Street/Fire Station, North Road (Route 4) at Littleton Road (Route 110), and North Road (Route 4) at Billerica Road (Route 129), Boston Road (Route 4) and Chelmsford Street (Route 110). The project also included cold planing, full depth bituminous concrete pavement, bituminous concrete overlay, drainage, bituminous concrete, cement concrete and brick sidewalks, granite curb, pavement markings, signs, stone masonry walls, and landscaping. Streetscape improvements were provided, including the addition of trees and shrubs, ornamental street lighting, benches and trash receptacles.

In 2008, the Town of Chelmsford made additional improvements to the Central Square area. The improvements included road resurfacing from just south of Billerica Road to the intersection of Boston Road, Adams Street and Summer Street. The town also installed two raised crosswalks on Boston Road, located in front of the Public Library and in front of 34 Central Square (Fish Bones Restaurant). The crosswalks were raised 3 inches from the pavement level in an effort to reduce vehicle speeds in the area. These crosswalks have a textured surface with the color and appearance of brick. This design is compatible with the character of the historic district.

In August 2009, the Bruce Freeman Rail Trail was officially opened to the public. The project has been a tremendous success and has provided a safe travel option for bicyclists and pedestrians. However, there have been concerns expressed regarding the lack of parking for rail trail users, with some businesses indicating that their parking is being utilized by non-customers seeking access to the trail.

Recommendations: Overall, the consensus of local officials is that the traffic improvements outlined above have served to improve traffic flow and safety conditions within the Town Center. Continued monitoring through NMCOG's congestion management, traffic safety and pavement management programs should be a priority, in order to: further assess the full impact

[21] Top 100 Crash Locations in the Northern Middlesex Region, 2006-2008, Northern Middlesex Council of Governments, 2010.

of the improvement projects over time, quantify the level of benefit that has been realized, and identify any remaining traffic congestion or safety issues. Since the improvements were completed, the Town has continued to work with its traffic consultant to adjust signal timing and phasing, in order to optimize traffic flow through the area. The town will need to work with MassDOT to identify options for providing additional parking areas for rail trail users.

Vinal Square is located in North Chelmsford at the junction of Route 40, Dunstable Road, Route 3A, Adams Street, and Wotton Street. This six-legged intersection experiences high volumes of traffic and congestion during peak periods of the day. Though not on the top 100 high crash list, the Square is on NMCOG's list of areas to be monitored for safety. MassDOT updated the traffic signals in Vinal Square in 1998, and also made some minor geometric modifications that resulted in some improvement to safety conditions within the area. In the fall of 2009, MassDOT also completed a cold planing, resurfacing and restriping project within the Square.



Aerial view of Vinal Square (*Source: Pictometry International, 2008)*

NMCOG has initiated a major transportation study of the Vinal Square area. This study will be completed in Fall of 2010, and will outline improvement recommendations to address traffic and safety concerns, parking, public transportation, and bicycle and pedestrian accommodations.[22]

A location for a future commuter rail station site has been identified in the vicinity of Vinal Square, should New Hampshire restore commuter rail service from Lowell to Nashua, Manchester and Concord, New Hampshire. Such a station could potentially generate significant traffic during peak hours, impacting operations within the Square. The NMCOG study will evaluate the impact of a possible future commuter rail station on traffic operations, and will also assess the need for additional LRTA bus service, and bicycle and pedestrian improvements to complement the station.

Recommendations: The Transportation Study being prepared by NMCOG will be completed in the Fall 2010, outlining appropriate measures for addressing traffic issues within the Square. In addition, the Town needs to monitor the progress of New Hampshire's proposal to extend commuter rail service to Nashua and beyond, as discussed in greater detail in subsequent sections of this chapter.

[22] FY 2010 Unified Planning Work Program, Northern Middlesex Council of Governments, September 2009.

Drum Hill area is one of Chelmsford's main retail and business districts. The Drum Hill area consists of four roadways: Drum Hill Road, Technology Drive, Research Place and Parkhurst Road. Drum Hill Road is classified as an urban arterial with traffic volumes ranging from 19,900 to 21,200 vehicles per day.[23] The roadway serves as a major thoroughfare, connecting Route 3 to the Pawtucketville and Middlesex Village neighborhoods of Lowell, and providing access to the Rourke Bridge across the Merrimack River. Land use in the area is mainly retail with several strip malls and stand-alone businesses.



Aerial view of the Drum Hill Area (*Source: Pictometry International, 2008)*

The area is impacted by congestion during peak periods of the day. Capacity analysis performed by NMCOG in 2008, as part of the Drum Hill Master Plan Update, indicated that many of the major intersections within the study area function at an unacceptable level of service (LOS E and F) during the morning and evening peak travel periods.[24] The study outlined several improvements needed to address pedestrian accommodations, access management, and traffic. The recommendations are as follows:

Pedestrian Improvements

- Well-defined pedestrian walkways from parking areas to businesses, as well as pedestrian linkages to public sidewalks, are needed throughout the area. Parking lots should contain six-foot wide, clearly marked pedestrian connections from parking areas to the sidewalk adjacent to the building entrance. To promote pedestrian awareness, the use of alternative material is strongly encouraged as a means of delineating pedestrian traffic areas. In addition, parking aisles should be oriented to minimize the number of parking lanes crossed by pedestrians.

- The existing sidewalk system throughout the area needs to be better maintained. During field visits to the area over the winter, it was observed that snow had not been removed from the sidewalks. In addition, much of the sidewalk is badly cracked and suffering the effects of frost heaves.

[23] 2006 Traffic Count Database, Northern Middlesex Council of Governments.
[24] *Drum Hill Master Plan: Updated Recommendations and Next Steps*, Northern Middlesex Council of Governments, December 2008.

- Sidewalks are needed along the eastern side of Parkhurst Road, with a crosswalk provided to allow for pedestrian access to the Hannaford/Wal-Mart shopping center. At a minimum, the sidewalk should extend from Drum Hill Road to the Route 3 Bridge.

- There is an overall lack of sidewalks throughout the study area. Given the level of development along Drum Hill Road and the high vehicular traffic volumes, sidewalks should be provided along both sides of the roadway. While some segments of sidewalk exist presently, such as in front of Sears, for the most part these sidewalks are not Americans with Disabilities Act (ADA) compliant as they lack concrete ramps and truncated domes, which assist visually impaired persons in recognizing the end of the sidewalk. The only sections of sidewalk that are ADA compliant include the area on the north side of Drum Hill Road near Drum Hill Square completed by MassDOT, and the section recently constructed by McDonald's.

- There are many sidewalk locations along Drum Hill Road, including the section constructed by MassDOT, where utility poles are located in the middle of the sidewalk. This renders the sidewalk completely unusable for a person in a wheelchair. These utilities poles should be relocated. Overall, the sidewalk network should be designed according to American Association of State Highway and Transportation Officials (AASHTO) and MassHighway guidelines.
- There is a lack of pedestrian scale lighting throughout the study area, including the walkway connecting Research Place to Hawthorne Suites and Sears. Furthermore, there are gaps in the sidewalk along Research Place which need to be addressed.

Parking and Access

- Ideally, parking areas should consist of separated parking fields that are aesthetically pleasing, landscaped to screen views, and located so as to not visually dominant the area. Going forward, design guidelines should encourage project proponents to locate parking areas either at the rear and/or side of the building. Existing parking areas could be enhanced by constructing interbay landscape islands of at least 9 feet and landscaped buffer strips to separate parking from the roadway. The buffer strips should be at least 15 feet wide to support the planting of shade trees and other plant materials. Drum Hill Plaza serves as an example of a site where this could be accomplished without the loss of parking spaces.

- Wherever parking fields exceed 200 stalls they should be divided into smaller connected lots to minimize visual impact. The use of significant landscape islands between the parking fields would also soften the visual impact of the parking areas. It is suggested that an average of two shade trees per every five parking stalls be provided.

- The means of access to a site should effectively minimize the number of curb cuts in order to reduce vehicle conflicts along the corridor. The Drum Hill Plaza currently has four very wide curb cuts. It is recommended that two of these access points be eliminated. The Sunoco Gas Station lacks any curb cut control whatsoever.

- Another means of minimizing curb cuts is through shared entrances and exits, where possible. Access easements may be utilized to allow legal use of shared driveways over properties under separate ownership. Wherever possible, access driveways between adjacent properties, under the same or different ownership, should be provided in order to minimize travel and congestion along the corridor.

Traffic

- Drum Hill Road at Drum Hill Square operates at acceptable levels of service, although crashes have declined significantly since the rotary was reconfigured. Signal coordination throughout the corridor could serve to enhance traffic flow. Furthermore, pavement markings within the Square should be maintained on a regular basis to minimize driver confusion and vehicle conflicts.

- Left turning vehicles at the intersection of Drum Hill Road and Drum Hill Shopping Center Entrance experience significant delays on the shopping center approach during peak hours. Much of this delay is due to congestion on Drum Hill Road backing into the intersection, thereby blocking movements from the minor street. Signage warning drivers not to block the intersection should be added and enforcement increased during peak hours, to improve both the traffic flow and safety conditions. Signal timing and phasing should be adjusted at this intersection as well.

- The intersection of Drum Hill Road at Parkhurst Road operates at acceptable levels of service during the peak hours of the day. Crash totals and rates are low when compared with MassDOT district averages. However, this intersection does experience congestion as a result of overall corridor congestion during the peak hours of the day. Signal coordination and phasing analysis should be performed as part of an overall corridor improvement plan that will be undertaken as part of the Wood Street/Rourke Bridge Feasibility Analysis and Traffic Study being funded by MassDOT.

- The intersection of Westford Street at Technology Drive experiences delays by vehicles turning onto Drum Hill Road from Technology Drive. During peak hours of the day, gaps in traffic on the mainline are insufficient for turning vehicles on the minor approach. Crash statistics show that crash rates at this location are higher than the average rates for unsignalized intersections within the MassDOT District 4 area. In order to alleviate delays for Technology Drive and lessen crashes, a traffic signal should be placed at this location. Along with placement of a traffic signal, better lane delineation in the form of

signage and pavement markings should be put into place. An exclusive left turn lane on Westford Street northbound would also improve safety by designating an area for turning vehicles. Although this intersection is located in Lowell, the Town should work with the City of Lowell and Nordblom relative to implementing this recommendation, given that this was a mitigation commitment made as part of the permitting process for the Drum Hill Technology Center.

Recommendations: The Drum Hill corridor will continue to be monitored as part of NMCOG's congestion management process. Implementation of the recommendations of the Drum Hill Master Plan Update should be pursued by the Town. Currently a Request for Proposals for a Wood Street/Rourke Bridge Feasibility Analysis and Traffic Study is being developed by NMCOG. This study will examine the corridor between Route 3 and Pawtucket Boulevard in Lowell, and will develop alternatives for improving traffic congestion and increasing mobility.

Route 110 Corridor which extends in a northeast-southwest direction from Lowell line into Chelmsford Center, experiences high volumes of traffic throughout the day, with average daily traffic volumes ranging from 14,800 to 24,000 vehicles per day.[25] The corridor provides access to U.S. Route 3 and I-495.



Route 110 Corridor near Wilson Street (*Source: Pictometry International, 2008)*

A high crash location has been identified at the intersection of Route 110 and Steadman Street, where a total of 28 crashes were reported over a three-year study period.[26] The signal hardware at this location is in need of upgrading. In addition, left-turn conflicts were observed. Additional study is needed to determine whether the addition of exclusive left-turn lanes with protected left-turn phases will mitigate safety issues adequately.

The Traffic Impact Study prepared for the Skip's Redevelopment project found that the intersections of Route 110 and Fletcher Street, and Route 110 and Alpine Lane, will continue to operate at an overall acceptable of level of service through 2013.[27] However, specific movements within each intersection fail during the afternoon peak period (e.g., the Fletcher Street eastbound left- turn and the Alpine Lane eastbound left-turn). The study recommended

[25] I-495 Corridor Transportation Study: Developing Transportation Solutions for the I-495 Corridor from Westford to Salisbury, Massachusetts Executive Office of Transportation and Public Works, June 2008.
[26] Top 100 High Crash Locations, Northern Middlesex Council of Governments, 2010.
[27] Traffic Impact and Corridor Study for the Skip's Redevelopment Project, McMahon and Associates, August 2008.

minor adjustments to the signal timings at both locations, in order to optimize traffic flow along the corridor.

The I-495 Corridor Study, completed by MassDOT in 2008, identified the need for the following improvements at the I-495 and Route 110 interchange:

- Exit 34 Northbound/Route 110: Installation of a new traffic signal system at the end of the off-ramp, and creation of a new left-turn lane on Route 110 to serve the on-ramp to I-495 northbound by restriping existing pavement; and
- Exit 34 Southbound/Route 110: Installation of a traffic signal and creation of a new left-turn lane on Route 110 by restriping the existing pavement, and the lengthening of the existing acceleration lane by 320 feet, to 820 feet. This could be accomplished by restriping existing pavement. The deceleration lane should also be lengthened from 300 feet to 520 feet.

Recommendations: Monitoring of the Route 110 corridor is needed to address congestion and delay issues. The intersection of Route 110, Golden Cove Road and Steadman Street should be further evaluated to address safety issues and outline appropriate mitigation. The improvements for Exit 34 that are outlined in the I-495 Corridor Study should be implemented. While these improvements are the responsibility of MassDOT, the community will need to work with the MPO to advance the project through the region's Transportation Improvement Program.

KEY INTERSECTIONS

Typically, a master plan addresses transportation by integrating traffic and circulation issues into a community's overall physical planning process. A master plan usually suggests town-wide policies that a community may adopt to promote transportation-related goals, and does not focus on projects or improvements that pertain to specific locations. The Chelmsford Master Plan Committee, with input from the Police Department, Department of Public Works, and the Bicycle and Pedestrian Advisory Committee, compiled a list of fifteen key intersections to be studied as part of the master plan update. These intersections are listed in Table 4.13 below and shown in Map 12.

TABLE 4.13
KEY INTERSECTIONS

Intersection	Intersection
Route 27 (Acton Road) at Byam/Parker Roads	Mill Road at Turnpike Road
Westford Street at Pine Hill Road	Brick Kiln Road at Moore Street
Byam Road at Locust Avenue	Route 27 (Acton Road) at Barton Hill/Park Roads
Parkerville Road at Garrison Road	Route 3A (Princeton Street) at Richardson Road
Route 3A (Gorham Street) at Brick Kiln/Carlisle Roads	Middlesex Street at Quigley Avenue
Route 129 (Billerica Road) at Riverneck Road	Davis Road at Locke Road
Old Westford Road at Davis Road	Maple Road at Parkerville Road
Route 4 (Nashua Road) at Concord/Parker Roads	

Information and analysis has been provided within the Master Plan for each of the study locations, including the following:

- An Assessment of Existing Conditions (geometry, land use, functional classification, etc.);
- Turning Movement Counts ;
- Intersection Capacity Analysis and Level of Service;
- Crash Data Analysis;
- Traffic Signal Warrant Analysis (where necessary); and
- Improvement Recommendations.

The evaluation process involved inventorying the physical characteristics of each intersection to obtain data on geometrics such as roadway widths, lane widths, parking, sight distances, and lane configurations. Manual turning movement counts were collected at each location during the A.M. and P.M. peak travel periods. Capacity analysis calculations, based on the turning movement count data, were performed to determine existing operational levels of service (LOS) during each of the peak travel periods. Crash data was analyzed to identify the types of crashes most prevalent at each location, and to evaluate factors that may have contributed to such crashes. Mitigation strategies were then assessed and analyzed in order to formulate recommendations for each location.

Several of the recommendations outlined in this section will be advanced through the design and environmental permitting processes. It is expected that the town will elect to seek state and federal funding for many of these projects through the metropolitan planning process. The Town should develop a comprehensive Bicycle and Pedestrian Plan which may include recommendations for these key intersections, as well as other locations that may be deemed critical in the future. All future design efforts will address the need for pedestrian and bicycle accommodations, in accordance with this plan.

Route 27 (Acton Road) at Byam Road/Parker Road

Route 27, Byam Road and Parker Road intersect to form a skewed four-legged intersection with all movements allowed. Route 27, with a posted speed limit of 40 mph, is classified as an urban principal arterial and extends in a north-south direction, from Chelmsford Center to the Westford line. Byam Road and Parker Road are classified as local roadways, providing access from residential homes to Route 27. The speed limit on both roads is posted at 30



Route 27: Byam Road and Parker Road (*Source: Pictometry International, 2008)*

mph and both roadways handle very low traffic volumes.

This intersection is stop-controlled on the minor street movements. Sight distance deficiencies are a problem for the minor street movements. Intersection sight distances should be 445 feet, according to accepted engineering standards. Deficiencies were observed for Parker Road looking north and Byam Road looking south, with sight distances of 298 and 350 feet respectively. In addition, turning radii for right turns out of Byam and Parker are inadequate for large emergency vehicles. Observations made at the intersection show tire marks made from turning vehicles crossing into opposite travel lanes.

Intersection operations and safety analyses completed for this location show that traffic operating conditions are acceptable during peak periods of the day. The roadways are well under capacity and delays are minimal for turning vehicles. Furthermore, crash data analysis shows that safety is not an issue. Crash rates are lower than average MassDOT District 4 crash rates for typical unsignalized intersections. The three crashes reported resulted in property damage only, with no injuries reported during the three year study period of 2004-2006. Table 4.14 below summarizes the results of the analysis for this intersection.

TABLE 4.14
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: ROUTE 27 AT BYAM/PARKER ROADS

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Route 27	7,600
Byam Road	370
Parker Road	950

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
3	3	0	0	3	0.45	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Westbound	0.17	15	C
	Eastbound	0.06	13.2	B
PM	Westbound	0.03	12.8	B
	Eastbound	0.13	14.8	B

Recommendations: The main issues at this intersection are sight distance and turning radii deficiencies. Because the accident data does not indicate any safety problems at this location, and given that minor street volumes are very low, no mitigation is necessary at this time.

Mill Road at Turnpike Road

Mill Road and Turnpike Road intersect to form a "T" intersection with all movements allowed. Turnpike Road is stop controlled at the intersection. Mill Road is classified as an urban minor arterial running in a general east-west direction, from Route 129 near Route 3 to Route 4 in South Chelmsford, with a posted speed limit of 30 mph. Turnpike Road is classified as an urban minor arterial, running in a general north-south direction from Route 129 to Mill Road. The speed limit is posted at 30 mph. Both roadways process about 2,500 vehicles per day.



Turnpike Road and Mill Road (*Source: Pictometry International, 2008)*

Geometric conditions create an existing sight distance issue for vehicles on Turnpike Road attempting to turn left. Measurements made at this intersection show that there is 234 feet of intersection sight distance available, short of the 335 feet required by current design standards. In addition, pavement markings and signage are lacking, with the stop line faded and no "Stop Ahead" warning sign for Turnpike Road.

Intersection operations and safety analyses showed that traffic operating conditions are acceptable during peak periods of the day, as summarized in Table 4.15 below. The roadways are operating well under capacity and delays are minimal for turning vehicles. Crash analysis showed that safety problems are not an issue at this location. Crash rates were lower than the average MassDOT District 4 crash rates for typical unsignalized intersections. One crash involving an injury was reported at this intersection during the three-year study period.

TABLE 4.15
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: MILL ROAD AT TURNPIKE ROAD

Traffic Volumes						
Roadway				**Average Daily Traffic, Vehicles per day**		
Mill Road				2,500		
Turnpike Road				2,400		
Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
1	0	1	0	5	0.19	Lower
Level of Service (LOS) Analysis						

TABLE 4.15
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: MILL ROAD AT TURNPIKE ROAD

Peak Period	Significant Movement	Volume/Capacity Ratio, v/c	Control Delay, seconds per vehicle	Level of Service
AM	Southbound	0.26	12.1	B
PM	Southbound	0.12	11.5	B

Recommendations: The intersection operates well under existing conditions with no existing safety and operations issues evident. Some low cost improvements that could be considered include upgraded signage and pavement markings along Turnpike Road.

Westford Street at Pine Hill Road



Westford Street at Pine Hill Road (*Source: Pictometry International, 2008)*

Westford Street and Pine Hill Road intersect to form a skewed "T" intersection with all turning movements allowed. Stop control exists for all Pine Hill Road movements. Westford Street carries 4,800 vehicles per day and is classified as an urban minor arterial. It runs in a general east-west direction between Chelmsford Center and Old Westford Road, and has a speed limit of 30 mph. Pine Hill Road is classified as a local road, carries 2,800 vehicles per day, and runs in a north-south direction, from Westford Street to the Westford Town Line. Pine Hill Road has a posted speed limit of 30 mph.

The intersection itself is quite large in area. Pine Hill Road has separate lanes designated for right and left turns. Westford Street has one designated lane in each direction, but the roadway width is large enough to accommodate a left turn lane for westbound traffic. Larger vehicles turning right from Westford Street onto Pine Hill Road have been observed crossing into opposing lanes of traffic in order to make the turning movement successfully, indicating that the turning radius is too small for these larger vehicles.

Intersection operations and safety analyses were completed and are presented in Table 4.16 on the following page. Traffic operating conditions are acceptable during peak periods of the day, with the greatest delay experienced by northbound left turns during the evening peak hour. There were two reported crashes during the three-year study period, each involving an injury. The crash rate is well below MassDOT District 4 average rates for unsignalized intersections.

TABLE 4.16
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: WESTFORD STREET AT PINE HILL ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Westford Street	4,700
Pine Hill Road	2,800

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
2	0	2	0	10	0.16	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Northbound Left	0.09	14.3	B
	Northbound Right	0.13	11.4	B
PM	Northbound Left	0.51	29.7	D
	Northbound Right	0.31	10.9	B

Recommendations: The intersection of Westford Street and Pine Hill Road operates well during both peak and off peak periods of the day. The intersection was found to be safe based on accident history and no real issues exist with sight distances. Better delineation of the intersection with updated pavement markings and signage is needed to guide vehicles through the intersection. Left turn lanes should be striped for westbound Westford Street so that drivers have a better understanding of how to maneuver within the large open area that currently exists. In the future, the town should consider correcting the turning radius. Given the moderate traffic volumes at this location, and the fact the percentage of heavy vehicle traffic is relatively low, the turning radius does not appear to be an urgent problem at this point in time.

Route 3A (Gorham Street) at Brick Kiln Road/Carlisle Road

The intersection of Route 3A and Brick Kiln Road/Carlisle Road intersects to form a split "T" configuration. Route 3A in Chelmsford is classified as an urban principal arterial with a speed limit of 35 mph, and carries 9,800 vehicles per day. Brick Kiln Road, which carries 1,800 vehicles per day, and Carlisle Road which carries 3,900 vehicles per day, are classified



Route 3A at Brick Kiln Road/Carlisle Road (*Source: Pictometry International, 2008)*

as collector roads, and run in a north-south direction. The minor streets are posted at 30 mph and are stop-controlled at the intersection with Route 3A. Brick Kiln Road also has stop control where it crosses Carlisle Road, just west of the intersection with Route 3A.

An inventory of pavement markings showed faded or missing stop lines for each approach to the intersection. Some pavement condition deterioration was evident as well. Signage seemed to be lacking on Carlisle Road, with no "Intersection Ahead" or "Stop Ahead" warning signs for drivers. It was also noted that the existing sidewalk in this area was not ADA accessible and showed signs of cracking and fatigue.

The results of the intersection operations analysis are presented in Table 4.17 below, showing that traffic operations are acceptable during peak periods of the day. Safety analysis shows a higher than average crash rate for an unsignalized intersection, when compared to MassDOT District 4 averages. There were eight reported crashes during the three-year study period, with five crashes resulting in injuries.

TABLE 4.17
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: ROUTE 3 AT BRICK KILN ROAD/CARLISLE ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Route 3A	9,800
Brick Kiln Road	1,800
Carlisle Road	3,900

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
8	3	5	0	28	0.76	Higher

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Eastbound Left	0.04	15.9	C
	Eastbound Right	0.37	13.7	B
PM	Eastbound Left	0.11	20.0	C
	Eastbound Right	0.29	12.7	B

Recommendations: Low cost improvements recommended at this intersection include upgrading the signage and pavement markings to ensure all motorists are aware of the intersection and have a clear understanding of the right of way and turning movements. Sidewalk improvements and resurfacing are also needed at this location. The Town is planning to create a three-way stop at this intersection with the northbound movements having the right-of-way in order to avoid queuing onto Route 3A. Once these improvements are in place, a crash

analysis showed be conducted to determine if the crash rate has improved as a result or if additional mitigating measures need to be taken.

Brick Kiln Road at Moore Street



Brick Kiln Road at Moore Street (*Source: Pictometry International, 2008)*

The intersection of Brick Kiln Road and Moore Street forms a stop-controlled "T" intersection, with all movements allowed. Brick Kiln Road is classified as an urban collector road, running north-south between Route 3A and Route 129. Moore Street is classified as a low-volume local road, connecting residential homes to Brick Kiln Road. The speed limit for both roads is posted at 30 mph. The William H. Flaherty Education Center is located across from this intersection, bringing added traffic volumes to the area during school drop-off and pick-up times.

Observational analysis showed acceptable sight distances at this intersection. The design sight distance requirement is 335 feet, while the measured sight distances in each direction at Moore Street are over 500 feet. However, a utility pole located within the sight triangle may inhibit the motorist's decision to make a turning movement. In addition, the turning radius was observed to be too small for right turning vehicles from Moore Street to southbound Brick Kiln Road. Several tire marks show that vehicle tires cross into northbound traffic. Finally, observations made at the site show no stop-line pavement marking present on Moore Street.

Intersection operations and safety analysis results are presented in Table 4.18 below. The results show that traffic operations are acceptable during peak periods of the day. Crash data analysis found that there were no reported crashes during the three-year study period.

TABLE 4.18
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: BRICK KILN ROAD AT MOORE STREET

Traffic Volumes						
Roadway				**Average Daily Traffic, Vehicles per day**		
Brick Kiln Road				1,800		
Moore Street				340		
Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only**	**Crash Rate, per million entering**	**Comparison to MHD District 4 Crash Rate Average**

TABLE 4.18
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: BRICK KILN ROAD AT MOORE STREET

				Rating	vehicles	
0	0	0	0	0	0.00	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Eastbound	0.04	9.8	A
PM	Eastbound	0.02	9.6	A

Recommendations: The intersection operates well and safety has not been an issue. Recommendations include updating pavement markings on Moore Street and moving of the utility pole currently in the sight triangle.

Byam Road at Locust Avenue



Byam Road at Locust Avenue (*Source: Pictometry International, 2008)*

Locust Avenue forms a split "T" intersection with Byam Road. A median separates left-turning and right-turning vehicles on Locust Avenue which is stop controlled. Both Byam Road and Locust Avenue are classified as local roads and have designated speed limits of 30 mph.

Geometric challenges are quite evident at this intersection. Locust Avenue is approximately 10 feet higher in elevation than Byam Road. Thus, the intersection, located on a curve, includes an inclined median. The median inhibits sight distances for vehicles turning from Locust Avenue. Both legs of Locust Avenue have insufficient sight distances at 292 feet for left turns and 170 feet for right turns, much less than design guideline of 335 feet. In addition, the two split-legs of Locust Avenue are not wide enough to appropriately handle two passing vehicles. Fortunately, traffic volumes are low, ranging from 370 to 500 vehicles per day, so vehicle conflicts are not seen frequently. Pavement markings and signage are lacking on all approaches, including stop lines or stop signs.

Intersection operations and safety analyses were completed and are presented in Table 4.19 on the following page. The results show that traffic operating conditions are acceptable during peak periods of the day. Crash analysis did not identify any reported motor vehicle accidents during the three-year study period.

TABLE 4.19
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: BYAM ROAD AT LOCUST AVENUE

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Byam Road	370
Locust Avenue	610

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
0	0	0	0	0	0.00	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Southbound Left	0.02	8.8	A
	Southbound Right	0.02	8.4	A
PM	Southbound Left	0.02	9.0	A
	Southbound Right	0.01	8.4	A

Recommendations: This low-volume intersection operates at acceptable levels of service during peak periods of the day. No crashes were reported during the three-year study period. The median inhibits sight distance for turning vehicles. Geometric improvements should be considered for this location in the future to address this issue. The installation of a stop sign on the Locust Avenue approach and the addition of appropriate pavement markings are low-cost improvements that should be provided as a short-term measure.

Route 27 (Acton Road) at Barton Hill Road/Park Road

Route 27 at Barton Hill Road and Park Road is a two-way, stop-controlled, four-legged intersection with all turning movements allowed. Route 27 is classified as an urban principal arterial with a posted speed limit of 40 mph. Both Barton Hill Road and Park Road are classified as local roads, each running in a general east-west direction, and with posted speed limits of 30 mph. Traffic volumes on both minor approaches are low.



Route 27 (Acton Road) at Barton Hill Road/Park Road (*Source: Pictometry International, 2008)*

Sight distance deficiencies exist on Park Road looking south, with an intersection sight distance of 328 feet, less than the design standard of 445 feet. The other approaches have sufficient sight

distances, but it should be noted that brush along the side of Route 27 should be maintained in order to ensure proper intersection sight distance. There is no stop line provided on Park Road.

Intersection operations and safety analyses were completed and are summarized in Table 4.20 below. The analyses showed that traffic operations are acceptable during peak periods of the day. Crash analysis found a slightly higher than average crash rate at this intersection than one would expect. Three of the five crashes reported involved angle collisions, with two crashes resulting in injuries. One crash was the result of a vehicle hitting a deer on Barton Hill Road during slushy weather conditions. The fifth crash was an unknown single-vehicle accident where the operator seemingly lost control while heading northbound on Route 27.

TABLE 4.20
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: ROUTE 27 AT BARTON HILL/PARK ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Route 27	7,600
Barton Hill Road	350
Park Road	1,400

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
5	3	2	0	13	0.62	Higher

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Eastbound	0.07	10.7	B
	Westbound	0.05	13.2	B
PM	Eastbound	0.13	13.3	B
	Westbound	0.04	14.5	B

Recommendations: A stop line should be added to the Park Road approach. Maintenance of the brush around the intersection is key to keeping the sight triangle open for the Barton Hill Road approach. Sight distance is still an issue for Park Road, with insufficient distance looking south of the intersection. Low cost mitigation includes signage warning of the intersection ahead, and tree and brush removal along Route 27 just south of the intersection.

Parkerville Road at Garrison Road

Located in South Chelmsford, this intersection is a split "T" intersection with all movements allowed. Parkerville Road is classified as an urban minor arterial, carrying 2,300 vehicles per day, and runs in a general east-west direction. Parkerville Road connects Route 110 in Westford to Route 27 in Chelmsford. Running in a north-south direction, Garrison Road is classified as a local road, carries 330 vehicles per day and is stop-controlled at the intersection.



Parkerville Road at Garrison Road (*Source: Pictometry International, 2008)*

Few issues of concern were identified at this location. The lack of pavement markings at the intersection, as well as the absence of stop signs on Garrison Road, may confuse drivers unfamiliar with the area. Upgrading the pavement markings and signage are low cost improvements that can help delineate the intersection and lessen any confusion. Sight distances measured were acceptable, with all lengths greater than the 335 foot required under design guidelines.

Intersection operations and safety analysis were completed and are presented in Table 4.21 below. The results show that traffic operations are acceptable during peak periods of the day. In addition, no crashes were reported at this intersection over the three-year study period.

TABLE 4.21
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: PARKERVILLE ROAD AT GARRISON ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Parkerville Road	2,300
Garrison Road	330

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
0	0	0	0	0	0.00	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Southbound Left	0.01	9.9	A

TABLE 4.21
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: PARKERVILLE ROAD AT GARRISON ROAD

	Southbound Right	0.01	8.8	A
PM	Southbound Left	0.01	10.5	B
	Southbound Right	0.02	9.1	A

Recommendations: The intersection operates well and there have been no reported crashes at this location. Upgrading the pavement markings and adding stop signs will help to lessen driver confusion. This lack of visible control is a safety issue that can easily be mitigated.

Maple Road at Parkerville Road



Maple Road at Parkerville Road (*Source: Pictometry International, 2008)*

Maple Road and Parkerville Road form a skewed "T" intersection with all movements allowed. The entrance to the Byam School is located in close proximity to this intersection, in essence adding another leg to create a "K" intersection. In addition, the Bruce Freeman Rail Trail crosses Maple Road just east of this intersection, bringing a large contingent of bicyclists and pedestrians to the area. The Agway Store is located on the southern edge of the intersection, adding additional turning conflicts.

Maple Road carries 3,500 vehicles per day and is classified as an urban minor arterial. The posted speed limit is 30 mph, which is reduced to 20 mph when the school zone flashers are functioning. At the intersection, Maple Road becomes a locally classified roadway. Parkerville Road is classified as an urban minor arterial, from this intersection to Route 110 in Westford. Parkerville Road carries 2,300 vehicles per day.

Measurements show that the sight distances on each approach are in the acceptable range. However, at the stop sign on Maple Road, vehicles often move out into the intersection in order to have a clearer sight line. The intersection corner has been landscaped in such a way that the sight line is often partially blocked. Observations show that right turns from Maple Road onto Parkerville Road westbound are crossing into opposite travel lanes in order to make the movement.

Intersection operations and safety analyses were completed and are presented in Table 4.22 below. The results show that traffic operations are acceptable during peak periods of the day. In addition, no crashes were reported at this intersection over the three-year study period.

TABLE 4.22
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: MAPLE ROAD AT PARKERVILLE ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Maple Road	3,500
Parkerville Road	2,300

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
0	0	0	0	0	0.00	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Maple Road	0.09	10.0	B
	Byam School Entrance	0.35	14.9	B
PM	Maple Road	0.11	11.1	B
	Byam School Entrance	0.05	10.9	B

Recommendations: Though there are no existing operational issues or crashes reported, this intersection contains numerous vehicle conflict points that may affect the safety of motorists, pedestrians, and bicyclists. A feasibility study should be conducted to see if this location is a candidate for a round-about, which could reduce the number of conflicts. More immediate low cost improvements include updating the signage around the intersection, and modifying the landscaping at the corner of Maple Road and Parkerville Road to improve sight distances to the west. The town plans to add sidewalks along Parkerville Road from Maple Road to Garrison Road, and along Maple Street in the vicinity of the Byam School.

Middlesex Street at Quigley Avenue

Middlesex Street intersects with Quigley Avenue to form a skewed “T” intersection. Only one movement is allowed at this location. Eastbound traffic may turn right onto Quigley Avenue southbound. All other movements are prohibited. Middlesex Street is classified as an urban minor arterial, running in an east-west direction, with a posted speed limit of 35 mph, and carries 11,200 vehicles per day. Quigley Avenue is a local roadway with a speed limit of 30 mph. Quigley Avenue carries two-way traffic in a north-south direction until its intersection with Middlesex Street, where the road becomes one-way southbound.

Because right turns are the only movement allowed, sight distance and turning radii are not considered issues at this location. Pavement markings are somewhat faded on Middlesex Street and the left turn prohibition sign should be more visible to drivers.



Middlesex Street at Quigley Avenue (*Source: Pictometry International, 2008)*

Left turns from Middlesex Street and all turns from Quigley Avenue are prohibited, so traffic operations analysis is unnecessary at this location. Safety analysis showed a lower than average crash rate with only two reported incidents during the three-year study period. Table 4.23 below summarizes the results of the crash analysis conducted for this intersection.

TABLE 4.23
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: MIDDLESEX STREET AT QUIGLEY AVENUE

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Middlesex Street	11,200
Quigley Avenue	210

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
2	2	0	0	2	0.23	Lower

Recommendations: Improve visibility of the intersection by relocating the "No Left Turn" sign on westbound Middlesex Street. Pavement markings are faded and need repainting. No major changes are needed at this location

Route 3A (Princeton Street) at Richardson Road

Richardson Road and Route 3A form a "T" intersection with all turns allowed. Route 3A is classified as an urban minor arterial, has a posted speed limit of 35 mph, and carries 12,100 vehicles per day. Richardson Road runs in a north-south direction from Route 3A to Graniteville Road. The roadway is classified as a local road, has a speed limit of 30 mph, and carries 3,600 vehicles per day.

Field reconnaissance showed acceptable sight distances at this location. However, brush is overgrown on the west side of the intersection and should be cut, as it obstructs some of the signage. It should be noted that there is a traffic signal approximately 1,000 feet south of the intersection which helps to create some breaks in the traffic flow for left-turning vehicles.



Route 3A (Princeton Street) at Richardson Road (*Source: Pictometry International, 2008)*

Intersection operations and safety analyses were completed and are summarized in Table 4.24 below. Results show that the morning peak period experiences unacceptable delays for vehicles turning from Richardson Road onto Route 3A. This is due to the high number of vehicles using Richardson Road to access the public schools near Graniteville Road. Safety analysis showed lower than average crash rates at this location. The eight reported crashes are considered low for the volume of vehicular traffic in the area.

TABLE 4.24
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: ROUTE 3A AT RICHARDSON ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Route 3A (Princeton Street)	12,100
Richardson Road	3,600

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
8	6	2	0	16	0.53	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Eastbound	0.73	42.9	E
PM	Eastbound	0.60	28.8	D

Recommendations: To alleviate the delays at this intersection, a fully actuated traffic signal is recommended. A traffic signal feasibility analysis was performed and this intersection passes four of the traffic signal warrants required in the Manual of Uniform Traffic Control Devices

(MUTCD). Upgraded signage and pavement markings should be included as part of any traffic signal design.

Davis Road at Locke Road



Intersection of Davis Road and Locke Road (*Source: Pictometry International, 2008)*

Davis Road and Locke Road intersect to form a skewed "T" intersection. Right turns are prohibited from Davis Road eastbound to Locke Road southbound. Davis Road is classified as a local road and carries 3,100 vehicles per day. It runs east-west from Route 4 to Graniteville Road, and has a posted speed limit of 30 mph. Davis Road eastbound is stop-controlled. Locke Road is also classified as a local road, running north-south from this intersection to Westford Street, and has a posted speed limit of 30 mph.

Left turning vehicles from Davis Road eastbound have a sight distance of 178 feet looking south on Locke Road, much less than the MassDOT standard of 335 feet. The turning radius is also an issue for large vehicles turning left from Locke Road to Davis Road. Intersection operations and safety analyses were completed and are summarized in Table 4.25 below. Results show that the intersection works well from an operational and safety perspective. No crashes were reported during the three-year study period.

TABLE 4.25
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: DAVIS ROAD AT LOCKE ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Davis Road	3,100
Locke Road	2,000

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
0	0	0	0	0	0.00	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Eastbound	0.14	10.7	B
PM	Eastbound	0.37	13.1	B

Recommendations: From an operational perspective this intersection functions at a high level of service. There were no crashes reported during the three-year study period. There are some existing sight distance limitations on Davis Road, as outlined above. Improved "intersection ahead" warning signage along Locke Road should be installed.

Old Westford Road at Davis Road

Old Westford Road and Davis Road form a four-legged intersection with two-way stop control on the Davis Road approach. All turning movements are allowed at this intersection and a flashing beacon is currently in place. Old Westford Road is classified as an urban minor arterial, running in a general north-south direction, from Drum Hill Square to the Westford Town Line. The roadway carries 4,200 vehicles per day and has a posted speed limit of 35 mph. Davis Road is classified as a local road and runs generally east-west, from Route 4 to Graniteville Road. The roadway carries 3,100 vehicles per day and has a posted speed limit of 30 mph.



Old Westford Road at Davis Road (*Source: Pictometry International, 2008)*

There are existing sight distance deficiencies for Davis Road eastbound motorists looking south on Old Westford Road. The existing 248 feet of intersection sight distance is less than the 335-foot design standard. Intersection operations and safety analyses were completed and are presented in Table 4.26 below. Operationally, the intersection functions at LOS B during the A.M. peak and LOS C during the P.M. peak. However, safety concerns at this location are significant, with eighteen crashes reported during a three year period and a crash rate of 1.83. Of the eighteen crashes reported, sixteen were angle type collisions.

TABLE 4.26
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: OLD WESTFORD ROAD AT DAVIS ROAD

Traffic Volumes						
Roadway				**Average Daily Traffic, Vehicles per day**		
Old Westford Road				4,200		
Davis Road				3,100		
Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
18	14	4	0	34	1.83	Higher

TABLE 4.26
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: OLD WESTFORD ROAD AT DAVIS ROAD

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Westbound	0.25	12.8	B
	Eastbound	0.23	12.2	B
PM	Westbound	0.58	23.4	C
	Eastbound	0.50	20.6	C

Recommendations: Due to the low traffic volumes at this location, the intersection does not meet the warrants necessary to justify a traffic signal. However, since the traffic volumes on Old Westford Road and Davis Road are similar, an all-way stop should be installed. The sight distance deficiencies and the high number of right-angle crashes indicate that all-way stop control is the best mitigation to address the identified safety problems. "Intersection Ahead" warning signs should also be installed in advance of the intersections.

Route 129 (Billerica Road) at Riverneck Road

Route 129 and Riverneck Road form a "T" intersection with all turns allowed. Route 129 is classified as an urban minor arterial, and runs in an east-west direction between Billerica and Chelmsford Center. The roadway carries 11,700 vehicles per day and has a posted speed limit of 35 mph. Riverneck Road is classified as an urban minor arterial, starting at this intersection and running north to Lowell. This roadway carries 3,200 vehicles per day and has a posted speed limit of 35 mph.



Route 129 (Billerica Road) at Riverneck Road (*Source: Pictometry International, 2008)*

Geometrically, the intersection is quite wide and sight distances are well over minimum standards. Safety is not an issue at this location, with only five reported crashes occurring during the three-year study period. However, the level of service is poor, with the southbound left turns operating at LOS F during both the A.M. and P.M. peak periods. This is caused by insufficient gaps in the traffic stream on Route 129, due to the high volume of traffic being carried by the roadway. Table 4.27 on the following page summarizes the operational and safety analyses conducted for this intersection.

TABLE 4.27
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: ROUTE 129 AT RIVERNECK ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Route 129	11,700
Riverneck Road	3,200

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
5	3	2	0	13	0.26	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Southbound Left	0.66	103.4	F
	Southbound Right	0.36	10.8	B
PM	Southbound Left	0.51	68.7	F
	Southbound Right	0.54	36.7	E

Recommendations: This intersection meets MUTCD traffic signal warrants for eight hour, four hour, and peak hour traffic volumes. It is recommended that a fully-actuated traffic signal be installed and coordinated with the traffic signal already in place at the intersection of Route 129 and Golden Cove Road. In discussing the improvement strategy for this location, the DPW has indicated that the town intends to redesign this intersection, ultimately pursuing funding for the project through MassDOT.

Route 4 (Boston Road) at Concord Road/Parker Road

Route 4 (Boston Road) and Concord Road/Parker Road intersect to form a "K" intersection with all turns allowed. Route 4 is classified as an urban minor arterial, runs in a general north-south direction from Billerica to North Chelmsford, and carries 6,300 vehicles per day. Concord Road is classified as an urban minor arterial, extending from the Carlisle line to Route 4, and carries 4,800 vehicles per day. Parker Road is a local road running from Route 27 to Route 4 in Chelmsford, and carries only 950 vehicles per day.



Route 4 (Boston Road) at Concord Road/Parker Road (*Source: Pictometry International, 2008)*

This intersection has numerous geometric issues that should be studied further. Intersection sight distance looking northbound along Route 4 is marginal. Signage is lacking for southbound Route 4 and Parker Road. The design of the intersection does not provide any clear maneuvering guidance for drivers entering the intersection, especially from Parker Road. Vehicles were observed making turns from many different locations within the intersection. Better channelization, signage and striping are needed to direct traffic and reduce potential vehicle conflicts. The difficult geometry at this intersection is compounded by the fact that most motorists turning right onto Concord Road from Route 4 southbound do not slow down as they enter the intersection.

Intersection operations and safety analyses were completed for this location and are presented in Table 4.28 below. Operations analysis shows that the intersection currently operates at acceptable levels of service during peak periods. The safety analysis found only four reported crashes and a low overall crash rate during the three-year study period.

TABLE 4.28
INTERSECTION OPERATIONAL AND SAFETY ANALYSIS: ROUTE 4 AT CONCORD/PARKER ROAD

Traffic Volumes	
Roadway	**Average Daily Traffic, Vehicles per day**
Route 4	6,300
Concord Road	4,800
Parker Road	950

Crash Data and Analysis						
Total Crashes	**Property Damage Only**	**Injury**	**Fatal**	**Equivalent Property Damage Only Rating**	**Crash Rate, per million entering vehicles**	**Comparison to MHD District 4 Crash Rate Average**
4	4	0	0	4	0.39	Lower

Level of Service (LOS) Analysis				
Peak Period	**Significant Movement**	**Volume/Capacity Ratio, v/c**	**Control Delay, seconds per vehicle**	**Level of Service**
AM	Eastbound	0.58	21.3	C
PM	Eastbound	0.70	26.7	D

Recommendations: The intersection meets the MUTCD Four-Hour traffic signal warrant which means that a traffic signal can be considered at this intersection. It is recommended that a fully-actuated traffic signal be installed. In addition, the intersection should be redesigned to reduce vehicle conflicts by improving the geometry, adding channelization, striping and signage, as described above.

I-495 CORRIDOR STUDY RECOMMENDATIONS FOR CHELMSFORD

In 2008, MassDOT, in partnership with NMCOG and the Merrimack Valley Planning Commission, released the *I-495 Corridor Transportation Study*, which documented existing conditions along the corridor relative to transportation, land use, socio-economic characteristics and the environment. The study also projected conditions in the year 2030, and analyzed how well the I-495 mainline and interchanges would function, using the concept of level of service (LOS), a measure of the efficiency of traffic operations. The study concluded that additional public transit service and the development of park and ride lots will not be sufficient measures to negate the need for providing additional capacity along the corridor in the future.

As part of the I-495 study, the following locations within the Town of Chelmsford were analyzed:

- Exit 33/Route 4 (North Road)
- Exit 34/Route 110 (Chelmsford St.)
- Exit 35/U.S. Route at the Lowell/Chelmsford town line

The study evaluated the traffic volumes at these locations and calculated AM and PM peak period Levels of Service (LOS). Based on the analysis, the study made the following recommendations:

- Exit 33 (North Road) Northbound: The LOS during both the AM and PM peak periods is F. The study recommended installing traffic signals at Route 4. The improvements would bring the AM peak period to LOS B and the PM peak period to LOS A.
- Exit 34 (Route 110/Chelmsford St.) Northbound: The study recommended signalizing the intersection and adding a left turn lane from Rt. 110 to the I-495 northbound ramp. This would bring the AM LOS from C to B, and the PM LOS from F to B.
- At Exit 34 (Route 110/Chelmsford Street) Southbound: The study recommended signalizing the intersection and adding a left turn lane from Rt. 110 to the ramp. This would improve the AM LOS from C to A, and the PM LOS from F to A.

These recommendations are considered to be mid-term improvements which could be implemented in the next 3 to 8 years. The study also identified long-term improvements (more than 8 years). Numerous sections of the mainline will function at LOS E or F by 2030. The proposed solution for addressing these operational deficiencies is to add additional lane capacity from Exit 32 to Exit 40 (which would obviously include exits 33, 34 and 35). This is a distance of 15 miles. All widening would occur in the median, and following the widening, all merge and diverge movements would operate at acceptable levels of service, with the exception of the weave movement from I-495 NB to Route 110/Route 3. Redesign/relocation of this interchange

would be needed to address this problem. The overall cost of the I-495 widening and related improvements is currently estimated at $102 million.

It is assumed that the short-term recommendations outlined in the study will be implemented by MassDOT, as part of its ongoing maintenance program or under a district-wide contract. The mid-term and long-term improvements will need to be programmed in the region's Transportation Improvement Program and in the State Transportation Improvement Program, through the metropolitan planning process. The improvements outlined in the study will be critical to providing the transportation infrastructure necessary for the future economic growth and prosperity of the region.

PARKING ISSUES

Parking within Chelmsford Center and Vinal Square has been identified as both a transportation-related challenge and an economic development issue. Chelmsford's Central Square has a number of shops, restaurants, banks, the public library and the recently opened Bruce Freeman Rail Trail, creating an increased demand for parking. There is limited on-street parking, with 18 available spaces. The town has leased 70 spaces from the Sovereign Bank on Billerica Road; however, it is an at-will lease agreement which means the Bank may recall the lease at any point. The Library has 73 spaces, however, when certain activities are held at the Library the lot fills up quickly and a number of attendees must park across the street in the supermarket parking lot. In the Fall of 2009, the lot behind the Old Town Hall was expanded from 30 spaces to 50 spaces, through a voluntary contribution from Aggregate Industries. This lot provides direct access to the Bruce Freeman Rail Trail. It should be noted that this lot also provides parking for events on the Town Common, given that parking is prohibited on North Road and Academy Street.

Vinal Square is a Historic Village in North Chelmsford, where Tyngsborough Road (Rt. 3A), Dunstable Road, Groton Road (Rt. 40) and Adams St. intersect with Wotton Street, Princeton Street and Middlesex Street making the area challenging to access. There are several small businesses located in Vinal Square that utilize the 35 on-street parking spaces in the Square. An additional 12 to 15 spaces which are not striped, but parking is permitted. There are two municipal parking lots located in Vinal Square: one on the north end of the Square provides 44 spaces; and the second lot is located off Wotton Street and has 118 spaces in total. An unpaved privately-owned lot also exists where Princeton Street enters the Square. This lot could be designed to accommodate approximately 30 to 35 spaces.

PEDESTRIAN AND BICYCLE FACILITIES AND THE PLANNING PROCESS

Communities that promote walking and other forms of non-motorized transportation can reap significant social, environmental, and health benefits that are often not available in predominantly auto-oriented places. Safe, convenient, and comfortable trails, sidewalks, and

walkways provide opportunities for exercise, help people meet and socialize, and give children and others who do not drive mobility options. With the option to walk or bike available to all residents, shoppers and workers, communities can reduce the number of vehicles on the roadways, thereby reducing traffic congestion, air pollution and the need for large parking facilities. The Town has established the Bicycle and Pedestrian Advisory Committee (BPAC) to provide input to the Board of Selectmen, and to help advance bicycle and pedestrian planning within the community.

Municipalities can support walking and biking by planning, building, and maintaining public facilities for pedestrians and bicyclists. The following measures are typically utilized to identify and address bicycle and pedestrian needs in a community:

- assess local needs for pedestrian, bicycle, and trail access and mobility;
- create a plan for upgrading existing facilities, building future networks, and obtaining funding for the work;
- build and maintain local pedestrian, bicycle, and trail facilities using Community Preservation funds and state and federal grant funds;
- coordinate facility planning and development with adjacent communities;
- enact local bylaws and subdivision regulations that enhance compact development and encourage walking and bicycling; and
- consider pedestrian and bicycle needs within site plan and subdivision review.

When considering improvements to bicycle and pedestrian facilities it is important to take into consideration all users, including those with physical impairments. Sidewalks should be wide enough to safely accommodate wheelchairs, and wheelchair ramps at crosswalks should meet ADA standards. When upgrading pedestrian-actuated signals at crosswalks, consideration should be given to those with visual impairments by providing an audible indicator.

Chelmsford prepared its first pedestrian plan in 1981, which largely focused on the areas adjacent to the schools, the commercial districts and the recreation areas.[28] The Plan established design parameters for pedestrian construction projects, prioritized locations for improvements, and developed cost estimates for implementation. This pedestrian plan was updated again in 1996. However, given that the 1996 plan is nearly fifteen years old, the Town should consider developing bicycle and pedestrian plan based on existing conditions.

Sidewalks

While the Town has made a concerted effort to expand its sidewalk network by completing 10 miles of sidewalk over a seven-year period, residents feel that a lack of sidewalks or gaps in the

[28] Pedestrian Safety Study, Chelmsford, Massachusetts, Edward McCann Associates, June 1981.

existing sidewalk network, poor maintenance, and substandard pedestrian crossing locations create barriers to walking. Chelmsford's suburban development pattern, narrow colonial-era roadways, and tight municipal budget present significant challenges for providing sidewalks throughout the town.

While it may not be practical to provide sidewalks on every street, a lack of accessible sidewalks in critical areas creates public safety concerns. These concerns have been the topic discussion in Chelmsford for some time, as was indicated during the public input process for the Master Plan. Specifically, a lack accessible sidewalks near schools and other public facilities, deficiencies in sidewalk maintenance, and the need to improve sidewalk snow and ice removal during the winter months, were identified by residents as concerns. During the public process, residents indicated that priority should be given to schools and government buildings, roadways that connect neighborhoods, and areas with high pedestrian concentrations.



Snow-obstructed sidewalks on Drum Hill Road

While there is a perception that sidewalks are lacking at the schools, accessible sidewalks have been constructed at all schools, except the Byam School. The town has plans to add sidewalks on both Parkerville Road and Maple Road in the vicinity of the Byam School.

At the September 17, 2009 Public Forum, citizens commented on the morning traffic congestion on Graniteville, Old Westford and Davis Road due to bus and automobile traffic. Some residents suggested that the implementation of the bus fee for school children has increased the number of parents dropping their children off at school, in order to avoid paying the fee. A well-maintained sidewalk system, as well as participation in programs like Safe Routes to School, could minimize the number of vehicle trips and help reduce morning traffic congestion in the immediate vicinity of the schools.

In the winter of 2008, NMCOG updated the Drum Hill Master Plan. While conducting field for the study, it was observed that snow was not removed from sidewalks in the area. In fact, snow from many of the parking lots was deposited on the sidewalks, rendering them impassable. The Town of Chelmsford's by-law (Section 142-34) states that property owners shall not: *"pile, push, throw, shovel or by any other means cause snow to be deposited or placed on any public roadway or sidewalk or fire hydrant or other similar device in the Town so as to impede, obstruct or interrupt or otherwise adversely affect the unrestricted flow of traffic, or conceal any fire hydrant or other similar device, or the safe travel of any pedestrian on such roadway or sidewalk"*. Violations of this bylaw section are punishable by a fine of $25 for each violation.

Enforcement of this by-law needs to be improved, as was mentioned by several residents during the public input process.

Sidewalk construction is expensive and funding sources are very limited. Without a dedicated funding source, even the best-crafted plan cannot be implemented. The most likely funding source for sidewalk construction is local revenue that provides a predictable capital outlay through the town budget. However, given the recent state aid cuts and the Town's budgetary situation, this may not be possible. State grant programs have been cut back as a result of the same budgetary challenges that confront municipalities. The most realistic funding source for implementing sidewalk improvements may be investment negotiated as part of the approval process for private development and redevelopment projects. As part of its site plan process, the town currently requires developer contribution of $100 per new parking space into a 53g account for traffic and pedestrian improvements.

Bikeways and Trails

Accommodating bicyclists through on-road road and off-road facilities such as bike lanes, bike paths, and the use of wider roadway shoulders, encourages the use of bicycling as a form of transportation and provides for a safer bicycling experience. During the public input session, residents noted that the Town needs to provide additional facilities for bicycling and walking.

On-Road Bicycle Facilities

Chelmsford's roadways currently have no designated on-road bicycle accommodations, such as signed bike routes or marked bike lanes. Such accommodations are important in commercial centers, office parks, and public facilities, including schools, libraries and community centers, as one measure for reducing vehicle trips and resultant traffic congestion. The Town should implement a policy of providing such accommodations whenever road improvement projects are being designed.

At the September 17, 2009 Public Forum residents commented that Route 27 is quite popular with bicyclists but without a designated bicycle lane or adequate shoulders the roadway has become a hazard. The recent opening of the Bruce Freeman Rail Trail provides a safer, off-road alternative to Route 27 for cyclists.

Off-Road Bicycle Trails

The completion of Phase I of the Bruce Freeman Rail Trail has provided an important and popular transportation and recreation asset for the Town and the region. Phase I of the trail extends from the Lowell/ Chelmsford town line near Cross Point Towers to the Route 27/225 intersection in Westford, a distance of 6.8 miles of which 5.2 miles is located within Chelmsford. The trail consists of a 10-foot wide paved path with a 2-foot wide shoulder on each side.

Phase I was opened to the public in August 2009. In September 2009, the Chelmsford Bicycle and Pedestrian Advisory Committee (BPAC) conducted a Saturday trail count and approximately 1,200 people were using the trail on that day. The popularity of the trail has created some parking issues and there is a need to create additional parking areas for trail users. At the September 17th Public Forum, a business owner expressed concern that trail users were parking in and around the Town Center, and taking away parking from retail customers. Currently, public parking for the trail is available at the following locations:

- Old Town Hall, 4 North Road;
- Cushing Place;
- The municipal lot behind Sovereign Bank, 5 Billerica Road;
- Byam School (during off school hours), 25 Maple Road;
- Town land located on Heart Pond, at 2 Pond Street;
- The lot to the rear of the Town Offices; and
- Red Wing Farm.

In addition, parking for the rail trail will be created as part of the future Stop and Shop project on Chelmsford Street. The Town is also in the process of permitting and constructing additional parking at Lewis Farm, and is exploring the possibility of creating 15-20 additional spaces along the rail trail right-of-way in the Center Village.

Concerns have been raised about the safety of the Bruce Freeman Rail Trail crossings at Golden Cove Road and High Street. The Police Department has not received any reports of an accident occurring at either of these locations.



View of the Bruce Freeman Trail in the Town Center and countryside.

The Bicycle and Pedestrian Advisory Committee has been researching additional opportunities to link the Bruce Freeman Rail Trail with other off-road bike paths, including a proposed future link to the Middlesex Canal tow path. The Open Space Stewards have also been examining

future pedestrian connections between key parcels of town-owned open space, as well as possible trail extensions into other communities. The Open Space Stewards and Conservation Commission have made the town trail maps of Conservation Reservations available on their website and through Google.

PUBLIC TRANSPORTATION

Chelmsford lies within the Lowell Regional Transit Authority's (LRTA) service area. The LRTA is one of sixteen regional transit authorities across the Commonwealth of Massachusetts dedicated to the mission of increasing the use of mass transit on a regional basis. In addition to Chelmsford, the LRTA service area includes Acton, Billerica Dracut, Dunstable, Groton, Lowell, Maynard, Pepperell, Tewksbury, Townsend, Tyngsborough and Westford. The LRTA provides both fixed route bus service and paratransit service. Chelmsford is also included in the Massachusetts Bay Transportation Authority (MBTA) assessment area, as the Town is contiguous to the communities of Lowell and Billerica, both of which are served by MBTA commuter rail service.

Commuter Rail

MBTA operates commuter rail between the Gallagher Terminal in Lowell and North Station in Boston. The service consists of twenty-two daily inbound trains operating between 5:35 A.M and 12:10 A.M. Headways are 30 minutes during the peak travel periods, and approximately hourly during other times of the day. In addition to Lowell, the train stops at North Billerica, Wilmington, Anderson, Mishawum, Winchester, Wedgemere and Medford. Weekend and holiday commuter rail service consists of eight daily round trips between Lowell and Boston.

Commuter Rail Ridership

Commuter rail ridership from Lowell has increased from 655 inbound passengers in March 1975 to 1,437 inbound passengers in December 2008. Passenger ridership has fluctuated over the years, reaching a high of 1,777 inbound passengers in February 2002, and a low of 476 inbound passengers in June 1986, due to a B & M rail strike. Similarly, the rail ridership from the North Billerica Station increased from 185 inbound passengers in March 1975, to 938 in December 2008. Passenger ridership reached a high of 1,256 inbound passengers in December 2006 and a low of 184 inbound passengers in March 1976. Additionally, the most recent commuter rail ridership count indicated steady growth in the Saturday numbers, with 444 passengers boarding in Lowell and 154 passengers boarding at the North Billerica Station.

Commuter Rail Expansion to Nashua, Manchester, and Concord, NH

The New Hampshire Rail Transit Authority is proposing new passenger rail service from Lowell to Nashua, Manchester and Concord, NH, passing through Chelmsford on its way. The so-called Capital Rail line plan calls for stations in the communities of Manchester (at the Manchester-

Boston Regional Airport), Nashua, NH and Chelmsford. The Chelmsford Board of Selectmen voted to pursue the development of a new station in the North Chelmsford area, if the New Hampshire-initiated project moves forward. The Massachusetts Bay Transportation Authority (MBTA) and Central Transportation Planning Staff (CTPS) completed a feasibility study in 2002, which 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 estimated construction costs for the station ranged from $3.7 million for a 400-vehicle lot and $4.9 million for a 725-vehicle lot.

Passengers using the North Chelmsford commuter rail station are anticipated to be primarily from the towns of Chelmsford, Tyngsborough and Westford. The ridership estimates from North Chelmsford rail station in 2030 is estimated to be between 920 and 1,080.

Bus Service

The LRTA operates eighteen fixed bus routes in five communities within its service area (Lowell, Billerica, Chelmsford Dracut and Westford), as well as in five communities beyond the service area (Andover, Bedford, Burlington, Littleton and Wilmington). All of the LRTA bus routes originate at the Gallagher Intermodal Center in Lowell, providing a direct link to the MBTA commuter rail station. Bus service is available Monday through Friday from approximately 6:00 A.M. to 8:00 P.M., and on Saturdays from 7:30 A.M. to 6:00 P.M. There is no bus service available on Sundays and most holidays.

The full price fare for a ride on a fixed route bus is $1.00 in-town and $1.50 between two or more communities. For those over the age of 60, and for individuals with a handicap, the fare is 50 cents and 75 cents respectively. Additionally, a transfer fare of 25 cents is charged for in-town connections at the Gallagher Intermodal Transportation Center, while 50 cents is charged for transfers between communities. Table 4.29 below outlines the characteristics of the seven bus routes that operate within the boundaries of Chelmsford, including the number of runs, and average daily ridership. These routes are also shown on Map 13.

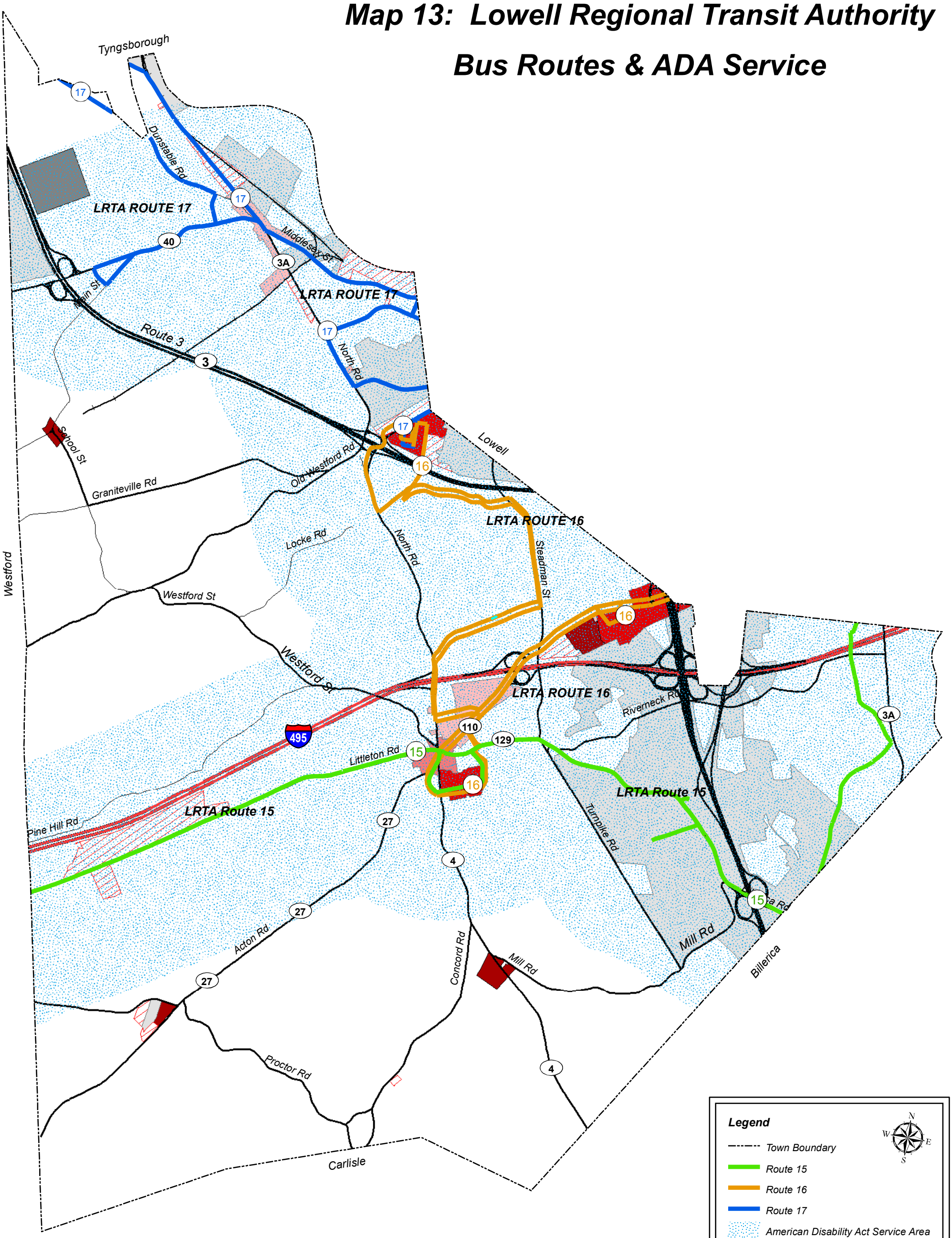
TABLE 4.29
LRTA FIXED ROUTE BUS SERVICE WITHIN CHELMSFORD

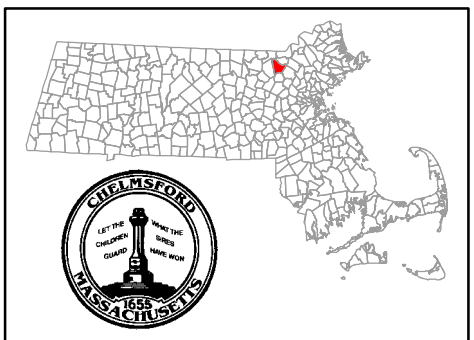
Route Number	Route Name	Daily Trip		Average Daily Ridership	
		Weekday	Saturdays	Weekday	Saturdays
5	Westford Street	27	11	670	195
13	Billerica	13	7	230	65
14	Burlington – Lahey Clinic	13	6	310	150
15	Chelmsford – Westford	10	0	95	N/A
16	Chelmsford Center	14	8	240	90
17	North Chelmsford	15	6	270	65
3-4 Combo	S. Lowell – Shaw/Stevens	0	5	N/A	40

Source: Lowell Regional Transit Authority, National Transit Database reporting

Map 13: Lowell Regional Transit Authority

Bus Routes & ADA Service





The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation. Data provided by MassDOT, the Town of Chelmsford and The Northern Middlesex Council of Governments.

Produced by:
The Northern Middlesex
Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021
NMCOG.org

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Chelmsford Bus Route Descriptions

The #5, Westford Street Bus enters Chelmsford from Drum Hill Road, and turns onto Technology Drive, serving Lowell General Hospital Out Patient Center, and then returns to Drum Hill Road southbound, terminating at the Wal-Mart Plaza.

The #13 Billerica Bus enters Chelmsford from Lowell along Route 3A (Gorham Street), and continues on Route 3A into Billerica. The route stops at the North Billerica Train Station, returns to 3A, and terminates at Chestnut Avenue in Burlington, where a connection is available with MBTA Buses #350 and #352.

The #14 Burlington Mall / Lahey Clinic Bus route enters Chelmsford via Edson and Carlisle Streets, turns onto Brick Kiln Road, passes the UPS facility, proceeding into Billerica. The route continues through Billerica Center, to Concord Road and down the Middlesex Turnpike to the Burlington Mall, terminating at the Lahey Clinic. The #14 bus connects with MBTA buses #350, 351 and 170, as well as the Burlington Bee and the Lexington Lexpress buses.

The #15 Chelmsford / Westford Bus enters Chelmsford via Edson and Carlisle Streets, turns onto Brick Kiln Road, passes the UPS facility, and turns west onto Route 129 . The bus continues along Billerica Road (Rte. 129) turning into Alpha Road to access the businesses in that area, returns to Billerica Rd., stopping at Harvard Pilgrim, and continues into Chelmsford Center. The route follows Rte 110 west of the Center, entering Westford, looping around Technology Park Drive and back out onto Rte 110 westbound, and ending at the IBM facility in Littleton.

The #16 Chelmsford Center Bus enters Chelmsford from Lowell along Chelmsford Street (Rte. 110), continuing onto Wilson Street, and then Summer Street, passing through the Center, and turning onto Fletcher Street, and then North Road. The bus turns onto Dalton Road, left onto Steadman Street, then Smith Street, to Parkhurst Road, and to North Road. It proceeds through Drum Hill Square and terminates at the Wal-Mart Plaza. The return leg of the route differs, as the bus departs the Wal-Mart Plaza onto Parkhurst Road, turning onto Smith Street, and then returns to the outbound route.

The #17 North Chelmsford Bus enters Chelmsford at Wood Street, stops at the Wal-Mart Plaza, depart the plaza by following Westford Street to Technology Drive, past the Lowell General Hospital Out Patient Center, turning onto North Road, then turning onto Princeton Blvd. The bus then proceeds to Brouilette Street, turns onto Middlesex Street, passes through Vinal Square and veers left onto Groton Rd. (Rte 40), passing the Chelmsford Senior Center. The bus then turns left on Lynn Ave. and terminates on Main Street at the Triangle Store. Departing the Triangle Store on the inbound route, the bus turns onto Sheila Ave., turns into the elderly housing complex behind the Senior Center, and proceeds

along Marinel Ave. onto Dunstable Road. Turning onto Mission Street, the route turns onto Wood St,, then turns south onto Tyngsborough Road (Rte 3A), rejoining the outbound route at Vinal Square.

The #3-4 South Lowell – Shaw / Stevens bus route is a Saturday loop route that leaves the North Billerica Station on the inbound leg, turning onto Lowell Street, and then onto Boston Road (Rte. 3A) in Billerica. The bus enters Chelmsford along Rte. 3A, turning onto Carlisle Road and entering Lowell on Edson Street, then onto Swan Street and Industrial Ave., and proceeds back to Gallagher Intermodal Transportation Center via the weekday #4 bus route.

Paratransit

The LRTA operates paratransit service within the region in three distinct programs, all under the title "Road Runner". The greatest numbers of passengers are carried under the Road Runner senior service (60 plus). The second service operated under the Road Runner program is the Americans with Disabilities Act (ADA) complementary service, and the third is the Council on Aging service, which is operated by each community's COA, with funds provided by the LRTA. Additionally, the Road Runner program offers transportation to the Burlington Lahey Clinic and Boston area hospitals every Wednesday. The fare for Road Runner services is $1.00 each way in-town, and $1.50 each way between communities. The fare for the Wednesday hospital bus is $12.50 round trip to the Lahey Clinic, and $25.00 round trip for the Boston hospitals.

In Chelmsford, the Road Runner senior service consists of one wheelchair lift-equipped minibus operating within the Town, and between Chelmsford and Lowell. The service is provided from 8:00 A.M. to 4:00 P.M., Monday through Friday, and requires a two-day (48-hour) advanced booking. In fiscal year 2009, 2,580 passenger trips were handled by LRTA's Chelmsford Road Runner.

The Road Runner ADA service consists of two or more (depending upon the daily demand) wheelchair lift-equipped minibuses, operating throughout the LRTA fixed route ADA service area, Monday through Friday, from 6:00 A.M to 6:00 P.M. (7:30 A.M. to 6:00 P.M. on Saturdays). Trips can be scheduled one-day in advance by calling the Road Runner office in Lowell. These trips are reserved for disabled passengers who are not able to access a fixed route bus. In general, the ADA complementary service area is defined as a three-quarter mile radius surrounding existing fixed routes. The ADA service area is smaller on Saturdays, as several bus routes do not operate. In fiscal year 2009, 3,459 ADA passenger trips were generated by Chelmsford residents.

The Road Runner Council on Aging service consists of one wheelchair lift-equipped minibus which operates Monday through Friday, from 8:00 A.M to 4:00 P.M. The LRTA owns the minibus, leases it to the Town, and provides funds for vehicle operation. Residents schedule trips by calling the Chelmsford Senior Center at least one day in advance. Senior Center staff

schedule, dispatch and drive the minibus. The Road Runner COA van reported 5,634 passenger trips in fiscal year 2009.

FREIGHT RAILROADS

There are two active freight rail lines which pass through the Town of Chelmsford. The Stony Brook line, which is owned by Pan Am, runs westward through the Town and on to Devens. This line has approximately six trains daily, each carrying between 60 and 75 rail cars. The New Hampshire Main Line, which is owned by the MBTA, branches off from the Stony Brook Line in North Chelmsford, and runs north to Concord, New Hampshire. Pan Am has trackage rights along this line, which carries approximately four freight trains traveling in both directions daily. Actual figures regarding the commodities and tonnage carried are not available, as the rail companies consider the data to be proprietary.

COMMUNITY INPUT

Through a robust public involvement process, a number of issues and opportunities regarding Chelmsford's transportation system were identified. The most frequent concern cited by Town residents was traffic congestion, specifically near the Town Center, the Drum Hill area, the access points to I-495 and Route 3, and in the vicinity of the schools. Lack of speed limit enforcement and the need for traffic calming were also identified as concerns. A need for more sidewalks, specifically near schools and libraries, more bicycle accommodations, including bike lanes on local roads, and the need for additional parking for the Bruce Freeman Rail Trail were cited as priority issues during the public process.

ISSUES AND OPPORTUNITIES

The Chelmsford Bicycle and Pedestrian Advisory Committee provided extensive comments concerning the need to integrate bicycle and pedestrian considerations into all aspects of transportation planning and management. These recommendations were supported by the Master Plan Committee and have been further incorporated into the recommendations section that follows.

The most notable deficiency in terms of bicycle and pedestrian facilities is the lack of a connected system throughout town. Future planning initiatives should focus on closing the gaps in the bicycle and pedestrian network, with particular attention for connecting the Town's parks, historic sites and conservation land. Toward this end, the Town should develop a comprehensive Bicycle and Pedestrian Plan with a focus on connectivity, including establishing linkages to the LRTA system and to any future MBTA commuter rail service in North Chelmsford. The Bicycle and Pedestrian Plan should also emphasize safety and accommodate users of all abilities. The Plan should include an implementation plan that outlines the steps and strategies for moving forward, and identifies potential funding sources. The Bicycle and Pedestrian Plan should be updated every five years to reflect changing conditions, needs and priorities.

Chelmsford's roadways currently have no dedicated bicycle routes or lanes. These types of facilities are particularly needed around commercial centers, office parks and schools. MassDOT requires that bicycle and pedestrian accommodations be considered in state funded roadway improvements, wherever feasible. The Town should consider adopting the same policy for roadways that are being reconstructed using local funding.

The town currently finances transportation improvements through developer contributions in the form of 53G funds, whereby a fee of $100 per new parking space is levied. The Master Plan Committee believes that this fee should be increased and that, as part of any development or redevelopment project, developers should be responsible for installing or repairing sidewalks along the project's frontage or in the immediate vicinity of the project.

Bicycle and pedestrian safety cannot be facilitated simply by improving bicycle and pedestrian facilities. The establishment of programs geared to bicyclist, pedestrian, and motorist safety education is essential. Giving special attention to the needs of children is especially important, since walking and bicycling are their only independent modes of transportation and they lack the experience of an adult. This education effort should be conducted cooperatively by the School Department and public safety officials. The Town should also continue to participate in the state's Safe Routes to School program.

While parking has been identified as a significant issue within the Town Center and Vinal Square, additional study is needed to determine the magnitude of the problem. A study of the town's parking requirements, as specified in the zoning bylaw, as well as an examination of parking demand, utilization and turnover in both locations, is essential in order to assess and quantify parking needs. NMCOG will evaluate the parking issues within Vinal Square as part of the traffic study that is now underway, and can also provide similar assistance for the Town with regard to the Center area, as a future task within the region's Unified Planning Work Program.

The lack of parking for users of the Bruce Freeman Rail Trail was repeatedly cited during the public involvement process. Additional parking will be provided at Lewis Farm following completion of the permitting process. Furthermore, designated rail trail parking is planned as part of the Stop and Shop construction project. The Town is also studying the possibility of creating fifteen to twenty additional parking spaces within the rail trail right-of-way near Ginger Ale Plaza. Furthermore, the Master Plan Committee suggests that the Katrina Road property be considered as an area for providing additional parking for rail trail users, and that a possible agreement for off-season use of the Little League parking area be investigated. In addition, the possibility of improving the Town-owned dirt lot located adjacent to the Wilson Street senior housing should be explored. Earlier studies have shown that this area could accommodate up to forty-five vehicles.

The Master Plan Committee is supportive of the extension of commuter rail service from Lowell to Nashua/Manchester, Hampshire. The Town should continue to monitor the progress of the

Lowell to Nashua/Manchester commuter rail extension project, and position the community to take advantage of transit-oriented development opportunities should the extension project go forward. While the LRTA currently provides fixed route transit service to many areas of the town, the Master Plan Committee would like to see this service expanded in the future. Additional access into Westford via the Route 110 route would be beneficial, as would more frequent service along Chelmsford's major roadways such as Route 129, Route 110, Route 4 and Route 27. Expanded service that links the High School to Route 129, Route 110 and Riverneck Road would provide access to after-school jobs for students. More service is also needed between the Senior Center and elderly housing, and between the town's larger neighborhoods and its business and retail centers. The LRTA should create a transit hub within Chelmsford (possibly in the Town Center or North Chelmsford) with shelter and seating. In addition, LRTA should provide clearly marked bus stops with shelters, posted route maps and schedules should be located along all bus routes. The hours of service should be extended later into the evening to accommodate medical services, retail workers and other non-discretionary trips. The Committee supports the ongoing door-to-door service for citizens with special needs.

During the public involvement process, residents identified a need to address traffic management and traffic calming within the residential neighborhoods. Traffic calming measures that are used to slow and manage traffic within a neighborhood include diverters, speed humps, raised crosswalks, roundabouts and signage. A traffic calming program should include objective criteria for evaluating neighborhood traffic problems, such as traffic volumes, pedestrian and bicycle accident rates, and vehicle speeds, especially in areas where children and seniors are concentrated. The use of traffic calming devices should be carefully considered and traffic calming proposals should be reviewed by the Fire and Police Departments, to ensure that any proposed changes will not significantly increase emergency response times or hinder effective evacuation of an area in the event of an emergency.

A Transportation Advisory Committee should be established to provide input on transportation related issues, and to outline a clear process for addressing citizen concerns. This committee should have representation from Planning, the Police Department, Fire Department, Engineering, DPW, BPAC, and the town's ADA compliance official.

As discussed previously in this chapter of the Master Plan, the I-495 Corridor Study conducted by MassDOT resulted in a number of recommendations, including the addition of left-turn lanes and traffic signals on Chelmsford Street at the Exit 34 ramps. There appears to be general agreement that these improvements are beneficial and should go forward. The corridor study also recommended that signals be installed at the intersection of the Exit 33 ramp with North Road. Opinion on the future of Exit 33 is divided. Many feel that this exit should be closed, while others oppose this idea, due to concern that the closing of Exit 33 would result in overburdening traffic operations at Exit 34. Additional study is needed to assess the impact of an Exit 33 closure on overall traffic operations at Exit 34 and to evaluate impacts to the Town Center.

Accident analysis performed by NMCOG has identified three high crash intersections: Route 110/Route 4/ Route 129 (the Center); Route 4 and Route 129; and Route 110 and Stedman Street. Each of these locations should be studied further to pinpoint the causes of the crashes and to identify mitigating strategies. NMCOG also examined bicycle and pedestrian crashes over a three-year period and found that, of the 18 bicycle/pedestrian related crashes, seven occurred along Chelmsford Street. The opening of the Bruce Freeman Rail Trail, which parallels Chelmsford Street, offers a much safer alternative for bicyclists and pedestrians. The crash statistics for this roadway should be monitored for the next few years to verify that bicycle and pedestrian related crashes decline due to the rail trail.

Some existing traffic signs located throughout Town do not comply with current standards and requirements of the Manual of Uniform Traffic Control Devices (MUTCD). The Town should develop a plan to replace and upgrade traffic signage over time, in order to comply with current state and federal standards. A sign inventory program that documents the location, type and condition of each sign would be helpful in this regard.

NMCOG has studied fifteen key intersections identified by the Master Plan Committee and made recommendations for improvements to address traffic safety concerns at each location. Table 4.30 below outlines the deficiencies identified at each location and summarizes improvement recommendations for mitigating any operational or safety issues that were found.

TABLE 4.30
SUMMARY OF ANALYSIS AND RECOMMENDATIONS FOR KEY INTERSECTIONS

Intersection	Issues/Deficiencies	Recommendations
Route 27 (Acton Road) at Byam Road	◆ Sight distance/turning radius are inadequate	◆ Given the very low traffic volumes, no change is recommended at this time.
Mill Road at Turnpike Road	◆ Sight distance deficiencies ◆ Pavement markings and signage are lacking or faded missing	◆ Improve signage and upgrade/ maintain pavement markings ◆ Increase the number of mowings per year to keep shrubs and grass from obstructing drivers' views of oncoming traffic.
Westford Street at Pine Hill Road	◆ Insufficient turning radius ◆ Excessive width/lack of channelization	◆ Update pavement markings ◆ Improve signage ◆ Stripe left-turn lane for westbound Westford Street ◆ Over the long term, correct turning radius deficiency

TABLE 4.30
SUMMARY OF ANALYSIS AND RECOMMENDATIONS FOR KEY INTERSECTIONS

Intersection	Issues/Deficiencies	Recommendations
Route 3A (Gorham Street) at Brick Kiln/Carlisle Roads	◆ Faded and missing pavement markings ◆ Deteriorated pavement condition ◆ Lack of signage on Carlisle Road; lack of warning signs ◆ Sidewalk is not ADA compliant and is in poor condition ◆ Higher than average crash rate	◆ Upgrade/install signage and pavement markings ◆ Improve and restore sidewalk to address ADA compliance ◆ Resurface roadway ◆ Implement three-way stop control, as currently planned by the Town ◆ Following completion of improvements, re-evaluate crash rate to determine if existing safety measures are needed
Brick Kiln Road at Moore Street	◆ Utility pole is located in sight distance triangle ◆ Turning radius from Moore Street to Brick Kiln Road is inadequate ◆ Lack of pavement markings on the Moore Street approach	◆ Relocate the utility pole away from the sight triangle ◆ Install pavement markings on Moore Street
Byam Road at Locust Avenue	◆ Grade issues and geometric challenges impact sight distances for vehicles turning from Locust Avenue ◆ Split legs of Locust Avenue are too narrow to accommodate vehicles traveling in opposite directions ◆ Pavement markings and signage are lacking	◆ Short-term: install pavement markings and stop sign ◆ Long-term: design and construct geometric improvements to correct sight distance issues
Route 27 (Acton Road) at Barton Hill Road/Park Road	◆ Sight distance deficiencies on Park Road looking south ◆ No stop line on Park Road approach ◆ Higher than average crash	◆ Periodically trim brush along south side of ◆ Route 27 ◆ Install stop line on Park Road approach ◆ Install “Intersection Ahead” warning signs
Parkerville Road at Garrison Road	◆ Lack of pavement markings ◆ Lack of stop sign on Garrison Road approach	◆ Upgrade pavement markings ◆ Install stop sign on Garrison Road approach
Maple Road at Parkerville Road	◆ Landscaping at intersection partially obstructs sight distances ◆ Numerous conflicting turning movements ◆ Lack of sidewalks along Maple Road and Parkerville Road	◆ Conduct a detailed study to determine if a roundabout is feasible at this location ◆ Update signage ◆ Modify landscaping to improve intersection sight distances
Middlesex Street at Quigley Avenue	◆ Pavement markings are faded ◆ Poor placement of “No left turn” sign	◆ Relocate “No left turn” sign on westbound Middlesex Street approach ◆ Repaint pavement markings
Route 3A (Princeton Street) at Richardson Road	◆ Overgrown brush on west side of intersection obstruct signage ◆ Unacceptable delays and insufficient gaps during the morning peak period	◆ Trim overgrown brush ◆ Design and install traffic signals

TABLE 4.30
SUMMARY OF ANALYSIS AND RECOMMENDATIONS FOR KEY INTERSECTIONS

Intersection	Issues/Deficiencies	Recommendations
Davis Road at Locke Road	◆ Inadequate sight distance from the Davis Road eastbound approach ◆ Insufficient turning radius for vehicles turning left from Locke Road to Davis Road	◆ Install "Intersection Ahead" warning sign
Old Westford Road at Davis Road	◆ Sight distance deficiencies for Davis Road motorists looking south ◆ Significantly higher than average crash rate	◆ Install four-way stop control ◆ Install "Intersection Ahead" warning signs in advance of the intersection
Route 129 (Billerica Road) at Riverneck Road	◆ Failing level of service during both the A.M. and P.M. peak travel periods	◆ Design and install a fully-actuated traffic signal
Route 4 (Boston Road) at Concord Road/Parker Road	◆ Marginal sight distance looking northbound along Route 4 ◆ Signage lacking along Route 4 southbound and on Parker Road ◆ Lack of intersection channelization	◆ Design and construction geometric improvements that include channelization, striping and signage ◆ Install a fully-actuated traffic signal

RECOMMENDATIONS

Bicycle and Pedestrian:

- Establish an ongoing bicycle and pedestrian safety program as a joint effort between the School Department and the Police Department, in conjunction with the Department of Public Works.
- Develop a Bicycle and Pedestrian Plan.
- Provide wider shoulders on town roads, where possible, to better accommodate bicycles.
- Perform more frequent street sweeping to remove sand and other materials from the shoulders and sidewalks throughout town.
- Provide erosion control along roadways where flooding conditions can deposit debris, creating a hazard for cyclists and pedestrians.
- Incorporate audible signals at signalized intersections, and ensure that all new traffic signals are pedestrian/bicycle actuated.
- Erect bike route and "share the road" signs, where appropriate.
- Monitor bicycle/pedestrian crash rates for Chelmsford Street/Route 110.
- Continue to participate in the Safe Routes to School Program.
- Enhance snow removal on priority sidewalks and enforce the town's snow removal bylaw.
- Increase the number of bike racks throughout town.

- Create additional municipal parking, including designated parking for the Bruce Freeman Rail Trail.
- Require bike racks and sidewalks for new commercial and industrial development projects, where appropriate.
- The following provisions should be considered as part of the regulatory review process, or through incorporation into newly created design guidelines for development and redevelopment projects:
    - Require developers to provide sidewalks and streetscape amenities (lighting, bicycle parking, benches, etc.) through the project permitting and approval process;
    - Encourage traffic calming (physical street features that control vehicle speeds);
    - Provide bicycle and pedestrian accommodations on new or reconstructed local roads;
    - Require bike lanes and shared use paths, where feasible, practical and safe;
    - Provide for access management by limiting curb cuts (consolidating driveways);
    - Require strong landscaping plans that enhance the pedestrian experience;
    - While maintaining consistency with the parking requirements under the town's zoning bylaw, limit the size of individual parking areas, breaking large lots into smaller, more pedestrian-friendly landscaped areas with sidewalks and walkways; and
    - Require adequate internal bicycle and pedestrian site circulation and connectivity to adjacent sites.

Roadway Maintenance, Motorist Safety and Parking:

- Improve maintenance of line painting, striping and pavement markings, where the town is responsible.
- Strongly promote traffic calming measures, in select areas, using objective criteria.
- Provide additional resources for increased enforcement of motor vehicle and pedestrian safety laws.
- Address traffic congestion issues, as needed.
- Develop a pavement management and asset management program that takes into account all modes of transportation to ensure that street maintenance and repair occur in a timely manner, thereby reducing the need to perform more costly reconstruction.
- Inventory traffic signs and upgrade signage to comply with the requirements of the Manual of Uniform Traffic Control Devices (MUTCD).
- Implement the transportation recommendations outlined in the Drum Hill Master Plan Update and also described in the transportation section of this Master Plan.

- Work through NMCOG and MassDOT to address safety issues at high crash locations, to implement the recommendations for Exit 34 outlined in the I-495 Corridor Study, and to study the potential impacts of closing Exit 33 on I-495.
- Implement the recommendations for the fifteen special study/ key intersections which are contained in Table 4.30 on page 54 of this document.
- Work with NMCOG to conduct a parking utilization and demand study in the Town Center and Vinal Square.
- Update the parking requirements within the town's zoning bylaw to be consistent with current industry standards.
- Increase the developer contribution requirements for new parking space additions under Section 53G.

Public Transportation:

- Continue to monitor the progress of the Lowell to Nashua/Manchester commuter rail extension project, work toward creating a commuter rail station, and position the community to take advantage of transit-oriented development opportunities should the extension project go forward.
- The town should work with the LRTA on the following transit service initiatives:
    - Increase transit access into Westford via the Route 110 route;
    - Provide more frequent transit service along the town's major roadways including Route 110, Route 4, Route 129 and Route 27;
    - Expand transit service between the High School and Route 110, Route 129 and Riverneck Road to provide improved access to after-school jobs for students;
    - Provide additional transit access between the Senior Center and elderly housing;
    - Provide increased transit service between the town's larger neighborhoods and its major retail and business areas;
    - Create a transit hub within Chelmsford with shelter and seating;
    - Establish clearly marked bus stops with shelters, posted route maps and schedules along all bus routes; and
    - Extend hours of operation later into the evening.

Other:

- Establish a Transportation Advisory Committee to provide input on transportation- related issues, and to outline a clear process for addressing citizen concerns

VI. HOUSING

INTRODUCTION

Housing reflects the characteristics of a community more than any other element of the Master Plan. The Town of Chelmsford has enjoyed a rich history of housing opportunities dating back to the late 17th Century and most of the historic structures in the community are former residences. During the post World War II era, housing development expanded to the suburbs as federal investments in the highway infrastructure and housing industry increased. Chelmsford was one of the fastest growing communities in Massachusetts during the 1960s, similar to what was being experienced in Billerica and Tewksbury. The community's growth has become more manageable during the 1990s and 2000s, however, new issues related to the affordability and availability of housing in the Greater Lowell region and the Town of Chelmsford have faced elected officials in the community. The increased number of Chapter 40B housing developments has made the town's housing stock more diverse in terms of number of units and affordability. The Town's future will depend upon the maintenance of the character of its residential neighborhoods, while also addressing the changing housing needs of its residents.

Goal Statement: ***Promote the development and maintenance of diverse and affordable housing opportunities for Chelmsford residents consistent with the community's character for all income levels, lifestyles and age groups.***

- ***Proactively work with the Chelmsford Housing Authority and the Community Preservation Committee to preserve existing housing and develop new housing opportunities to address the diverse housing needs of the community.***
- ***Target the identified Potential Housing Sites for development as housing units for all income levels, lifestyles and age groups.***
- ***Utilize the Village and Mill Reuse Overlay District as a means to encourage the redevelopment of existing sites into mixed-use, higher value properties.***
- ***Access federal and state housing incentives to expand the availability of housing in the community to address local housing needs.***
- ***Establish a Redevelopment District from Hunt Road to Chamberlain Road along Route 110 to promote mixed-use redevelopment projects.***
- ***Update the Town's Affordable Housing Production Plan to be submitted to the Massachusetts Department of Housing and Community Development.***

This housing section builds upon the work completed in the *1996 Master Plan* and the *2005 Affordable Housing Plan*. The conditions in the housing market and economy at the national, state and local have changed considerably since both documents were completed and, accordingly, there needs to be a reassessment of where the Town needs to go in order to address the availability of housing, as well its affordability for Chelmsford residents. Due to the built-out nature of the community, the opportunities for new housing developments are limited, however, there are potential redevelopment opportunities. The Greater Lowell region is experiencing its highest unemployment and foreclosure rates in decades, as well as budget challenges at the state and local levels. Yet, according to the Executive Director of the Chelmsford Housing Authority, there are greater federal and state

resources for affordable housing. Any housing strategy for the next ten years needs to take these limitations and opportunities into consideration, while also setting a visionary goal for the community in addressing its housing needs.

The Housing section has been divided into eight components: Chelmsford Neighborhoods, Existing Conditions, Housing Development and Sales Trends, Housing Needs, Affordable Housing Initiatives, Public Input, Issues and Opportunities, and Recommendations. The first section describes the fabric of neighborhoods in Chelmsford from a historical development perspective, and as a means to understand the residential development patterns of the community. The Existing Conditions section includes information on the Housing Inventory, Housing Age and Development Type, the Size and Condition of Housing Units, Occupancy, Tenure and Vacancy Rates, Housing Turnover and Residential Property Tax Affordability. The Housing Development and Sales Trends section focuses upon New Residential Development, Number of Sales, Median Selling Price, Zoning, Comprehensive Permits and Infrastructure Limitations Impacting Housing. The Housing Needs section provides a Demographic Profile, Housing Affordability and Foreclosures component. The section on Affordable Housing Initiatives largely summarizes the recommendations of the Chelmsford 2005 Affordable Housing Plan, the work of the Chelmsford Housing Authority in developing and managing affordable housing units in the community and the support of the Community Preservation Committee in moving many of these projects. The Public Input section includes the input from the Public Forum Session on June 3, 2009, while the Issues and Opportunities section provides the transition from the data pieces to the Recommendations, which are outlined in the final section.

CHELMSFORD NEIGHBORHOODS

Established in 1655, Chelmsford has a number of distinct neighborhoods. In addition to the Town Center (also known as Central Square or Center Village), smaller areas include South Chelmsford, West Chelmsford, East Chelmsford, North Chelmsford and the Westlands. The Town has evolved in phases, as can be seen by the style and construction of its architecture, and the design and layout of its transportation infrastructure. In general, the northerly portions of the town tend to be more urban, while the south is somewhat rural in character. Like most towns in northern Massachusetts, Chelmsford has grown and changed due to regional transportation improvements, the



Victorian-style single-family home located at 35 Newfield Street in North Chelmsford. (*Source: Chelmsford Historical Commission)*

suburbanization of employment centers, and the relatively high housing costs in the Greater Boston area.

Chelmsford Center is the oldest area of the Town, where the first meetinghouse was constructed, providing a location for religious gatherings and town meetings. The community's oldest roadways converge in the Town Center. Today, the Center contains a well-preserved array of historic period buildings in an authentic village setting. It remains the civic center of the Town and contains many small retail and professional businesses that serve the community.

During the 1800s, other settlements within the community grew around the mill complexes in North and West Chelmsford that were centered on Stony Brook. These two historic neighborhoods have fairly compact development patterns and provide more housing choices than many other areas of town. Much of the worker housing and industrial buildings within North Chelmsford remain and continue to be well-utilized. Row houses and cottages of simple late Federal/Green Revival style architecture surround the Vinal Square area. North Chelmsford has historically been Chelmsford's working class neighborhood, and contains some of its own municipal buildings such as the North Town Hall and the McKay Library, as well as a broad array of small retail and service-oriented businesses. This neighborhood continues to be one of the most densely developed portions of the Town, with relatively compact housing development surrounding Vinal Square.

West Chelmsford has evolved around the mills that located along Stony Brook. A scythe factory and worsted yarn mill were once located here and provided jobs for residents of the village. Homes of late Greek Revival and Italianate design can still be found at the southern edge of the neighborhood.

East Chelmsford was largely settled as a result of the economic influence brought by the development of commerce in the City of Lowell. Those associated with the business activities within the City and desiring a less urban lifestyle chose to settle in the East Chelmsford neighborhood. Similarly, the Westlands neighborhood was largely established by those commuting to jobs within the City.



Converted summer cottage into a year round housing unit located at 1 Lake Street on Hearts Pond. (*Source: Chelmsford Historical Commission)*

South Chelmsford was established as a quiet agrarian hamlet and contained a school, church and store. D.P. Byam once manufactured sleds and sleighs in this neighborhood, and Daniel Gage harvested ice from

Hearts Pond. High style suburban houses can be found south of the Center along Acton Road, High Street, Bartlett Street and Boston Road. Much of the landscape within South Chelmsford has retained its agricultural and rural character. The area along Heart Pond was once transformed into a typical neighborhood of summer cottages located on small lots. Today, most of these homes have been winterized and are occupied year-round.

EXISTING CONDITIONS

This section examines existing conditions of the local housing stock and includes an analysis of total housing unit growth and an examination of residential property development by size, condition, and assessed value. Occupancy, housing tenure and turnover, and affordability are also explored.

Housing Inventory

This section examines changes in the local housing stock over time, including changes in the total number of units, historical development patterns, the size and condition of the local housing stock, and housing tenure/turnover trends. According to the 2006-2008 *American Community Survey*, there were 13,545 housing units in Chelmsford in 2008. Approximately 75.4% of these units (10,218) were single-family homes; 3.7% (502) were located in two-family homes, 2.5% (341) in three or four-unit homes, 5.9% (795) in homes with five to nineteen units, and 10.7% (1,448) in buildings with twenty or more units. Mobile homes comprised the remaining 1.8%.

Table 5.1 below reveals that the total number of housing units in Chelmsford has grown steadily over the past two decades. In 1990, there were 11,812 units of housing (78.9% single-family homes), while ten years later, the total number of units had risen by 10.3% to 13,025 total units (78.4% single-family homes). Between 2000 and 2008, 520 additional units (a 4% increase) were added to the Town's housing stock, bringing the total number of units to 13,545. This growth marked a 14.7% increase in the total number of housing units between 1990 and 2008.

TABLE 5.1
NUMBERS AND TYPES OF UNITS, 1989-2008

Housing Type	Year			Percent Change 1989-2008
	1989	1999	2009	
Total housing units	11,812	13,025	13,545	14.7
1-unit, detached	8,398	9,074	9,279	10.5
1-unit, attached	926	1,144	939	1.4
2 units	421	425	502	19.2
3 or 4 units	241	285	341	41.5
5 to 9 units	207	249	184	-11.1
10 to 19 units	648	529	611	-5.7
20 or more units	647	1,053	1,448	123.8
Mobile home	239	266	241	.8

Source: U.S. Census Bureau SF-2 Reports, American Community Survey, 2006-2008

One significant trend during this time has been the increase in multifamily housing. Between 1990 and 2008, the total number of 20+ unit structures increased by 123.8%-- from 647 to 1,448 units.



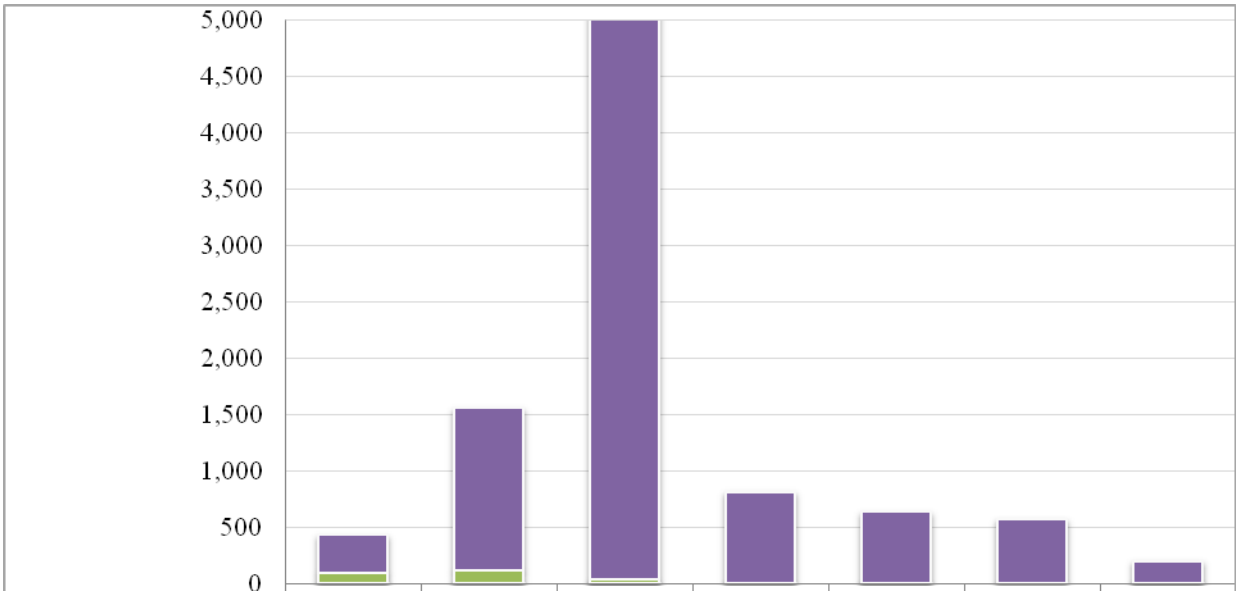
Twenty-four unit apartment building constructed in 1989 and located at 132 Tyngsboro Road. *(Source: Pictometry International, 2008)*

Another notable change is the increase in the number of two-, three-, and four-family homes between 1990 and 2008. During this period, the number of two-family homes grew by 81 units for an increase of 19.2%. Three- and four- unit homes increased by 41.5%, from 241 units in 1990 to 341 in 2008. These changes are consistent with some of the housing goals articulated in the 1996 *Chelmsford Master Plan* and 2005 *Affordable Housing Plan*, which called for a diversification of the town's housing stock and the provision of moderate density, multifamily housing as a strategy to provide additional affordable housing opportunities to Chelmsford residents and families.

Housing Age and Development Type

Appraisal Vision provides assessment services to the Town of Chelmsford, including the establishment of the assessor's database. Based upon this database, Figure 5.1 on the following page breaks down residential properties by the type of housing structure (determined by land use code) and the period that they were built. It reveals that 432 residential properties were developed prior to 1900, but that this development increased more than threefold (1,561 properties) during the first half of the 20th century. These housing development trends are also represented on Map 14 – Age of Housing Stock on page 197.

Figure 5.1: Year Structure was built for all Developed Residential Properties



	1656-1899	1900-1949	1950-1969	1970-1979	1980-1989	1990-1999	2000-2008
Single Family	332	1,441	5,038	808	631	574	196
Two-Family	72	103	26	7	4	1	1
Three-Family	12	8	2	0	0	0	0
Apartment Building	16	9	4	2	2	0	3

Source: Appraisal Vision Chelmsford Assessor's Database, FY 2008

As illustrated on the previous page, the most significant housing growth occurred in the twenty-year period between 1950 and 1969, when 5,070 residential properties were developed. Over the next four decades, dwellings continued to be built in significant numbers, although it should be noted that the total number of homes built decreased substantially since 1970. During the 1970s, 817 properties were developed, while in the 1980s and 1990s, 637 and 575 new properties were developed respectively. Between 2000 and 2008, another 200 residential properties were developed.

Overwhelmingly, the homes that have been built in Chelmsford have been single-family dwellings. In the early periods of growth, single-family homes accounted for a smaller percentage of the total homes being built. However, this is because far fewer homes were being built as a whole. During the peak of housing construction in the 1950s and 1960s, single-family home construction accounted for more than 99% of all homes being built—a trend that continued through the 1970s, 1980s, and 1990s. From 2000 to 2008, the number of single-family homes represented only 98% of all the new housing structures. Prior to this period, the pre-1950 period saw the greatest percentage of multi-family housing development in Chelmsford.

By 1950, 82% of the present total two-family housing stock, 91% of the three-family housing, and 69% of the total apartment building stock (4 or more units) had been constructed. Since 1950, thirty-nine (39) new two-family homes, two (2) three-family homes, and eleven (11) apartment buildings have been built, compared to the 7,247 single-family houses constructed during the same time period. Additionally, sixty-six (66) parcels have been developed into condominiums.

Table 5.2 below further examines residential properties by assessing the number of parcels dedicated to each residential land use. These numbers are higher than those listed in the previous tables and figures because, in some instances, multiple parcels are combined into one address/property.

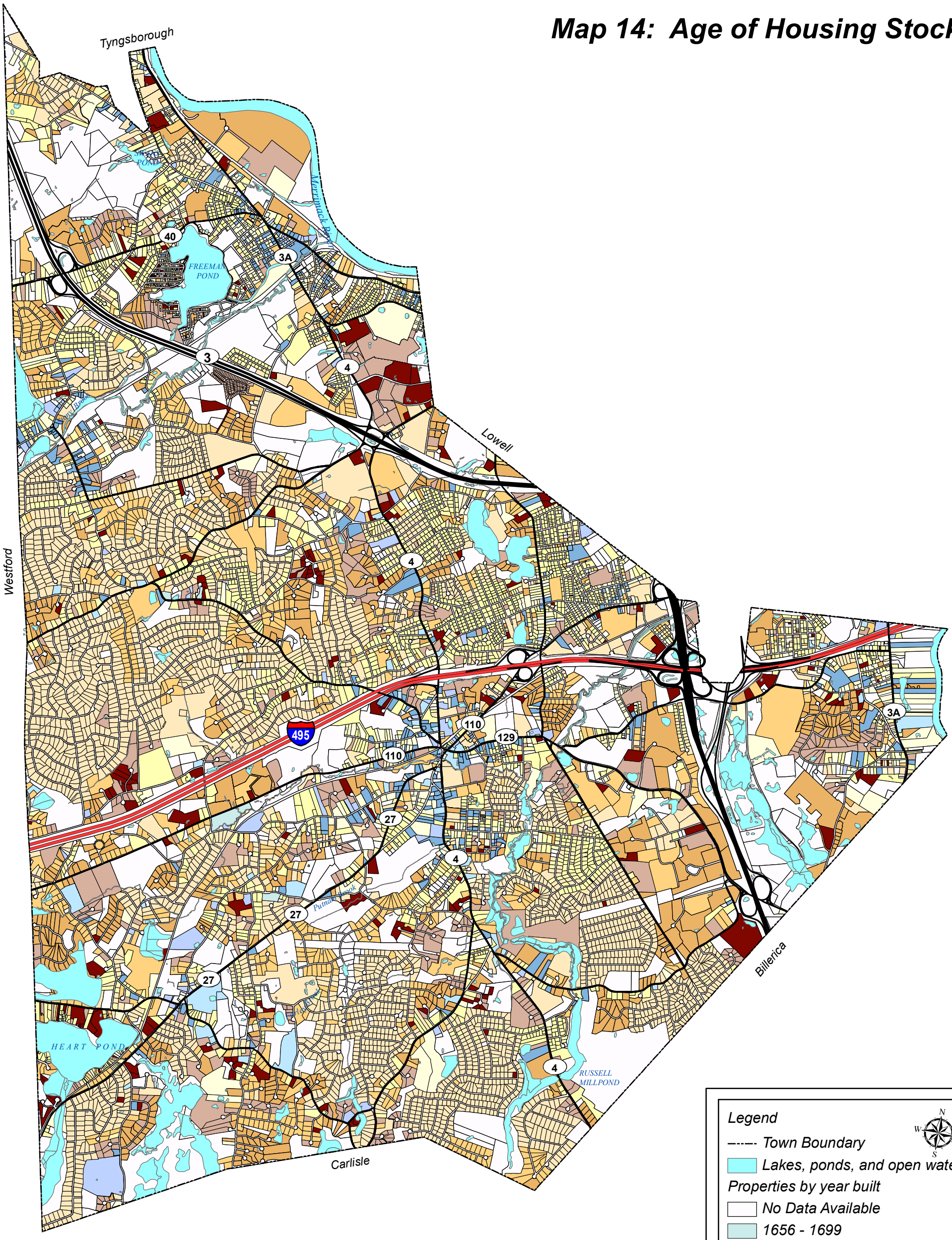
TABLE 5.2
RESIDENTIAL PROPERTIES BY LAND USE

Land Use	Number of Parcels	Percent of Total Parcels	Total Acreage	Average Acreage
Total Residential Parcels	9,361	100%	7,864	2.3
Single-Family	9,019	96%	7,193	.8
Two-Family	215	2.3%	126	.6
Three-Family	22	.23%	39	1.8
Condominiums	66	.7%	401	6.1
4-8 Unit Buildings	26	.27%	10	.4
8 or more Unit Buildings	10	.1%	54	5.4
Manufactured Homes	1	.01%	38	38
Rooming and Boarding Houses	2	.02%	2	1

Source: Appraisal Vision, Chelmsford Assessor's Database as of December 31, 2008.

According to the FY 2008 assessor's database, 96% of the 9,361 parcels with a residential land use were dedicated to single-family housing. Two-family housing comprised an additional 2.3%, while each of the remaining residential land uses comprised less than 1% of the total number of residential properties. In terms of acreage and average lot sizes, single-family properties amounted to 7,193 acres, or 96% of the 7,864 acres of land used for residential uses. There are 2,587 condo units spread across the sixty-six (66) parcels.

Map 14: Age of Housing Stock



Legend

- Town Boundary
- Lakes, ponds, and open water

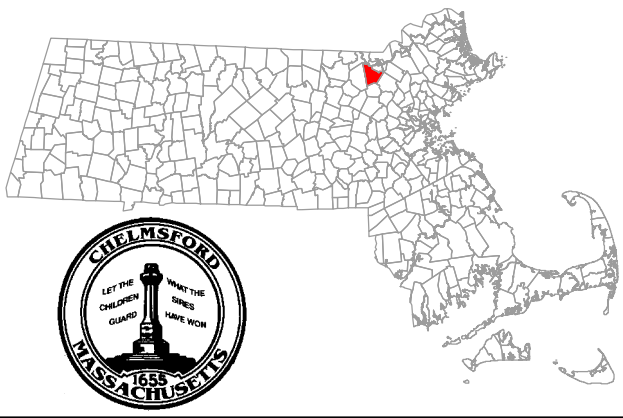
Properties by year built

- No Data Available
- 1656 - 1699
- 1700 - 1799
- 1800 - 1849
- 1850 - 1899
- 1900 - 1929
- 1930 - 1959
- 1960 - 1969
- 1970 - 1979
- 1980 - 1989
- 1990 - 1999
- 2000 - 2008
- Rail lines

N W E S

0 0.25 0.5 0.75 1

Miles



Data provided by MassGIS, MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Produced by:
The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

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Size and Condition of Housing Units

Although the vast majority of housing units in Chelmsford are traditional single-family homes, there are a number of multi-family homes, apartment buildings, and condominiums, as well. This section examines several characteristics of the local housing stock, including land and living areas, bedroom and bathroom characteristics, and appraised property values.

Single-Family Housing Units

Historic homes, particularly those built before 1800, have assessed building and total values that are closer to the assessed values of homes built after 1970. These similarly appraised values are reflective of the average lot sizes and average living areas of the homes built during these periods. For example, single-family homes built before 1900 have an average lot size of 1.03 acres, an average living space of 2,079 square feet, and an average total appraised value of $362,211. Similarly, single-family homes built in the four decades since 1970 have average lot sizes equal to or greater than one acre, and average living spaces ranging from 1,837 square feet to 2,758 square feet. The average total values for single-family homes for each of these four decades were $393,085, $444,020, $451,402, and $554,723 respectively. The largest single-family homes were built between 2000 and 2008 with an average living space of 2,758 square feet, including 3.4 bedrooms and 2.1 bathrooms, and an average total assessed value of $554,723 in FY 2008.



Traditional single-family home built in 1877 and located at 142 School Street in western Chelmsford. *(Source: Chelmsford Historical Commission)*

Conversely, single-family homes built between 1900 and 1949, and 1950 and 1969, are significantly smaller, with average lot sizes of .66 and .68 acres and average living spaces of 1,562 square feet and 1,837 square feet respectively. Correspondingly, their average appraised values are lower, with homes between 1900 and 1949 valued at $306,708 and homes built between 1950 and 1969 valued at $341,928. These appraisals are detailed in Table 5.3 below.

TABLE 5.3
CHARACTERISTICS OF SINGLE-FAMILY HOMES BY AGE OF HOUSING UNIT

Period	Properties	Lot Area (Acres)*	Land Value*	Building Value*	Total Value*
1656- 1899	332	1.03	$191,578	$170,633	$362,211
1900-1949	1,441	.66	$178,823	$127,885	$306,708

TABLE 5.3
CHARACTERISTICS OF SINGLE-FAMILY HOMES BY AGE OF HOUSING UNIT

Period	Properties	Lot Area (Acres)*	Land Value*	Building Value*	Total Value*
1950-1969	5,038	.68	$195,935	$145,993	$341,928
1970-1979	808	1	$204,433	$188,650	$393,085
1980-1989	631	1.2	$209,594	$234,426	$444,020
1990-1999	574	1.06	$195.385	$256,017	$451,402
2000-2008	196	1.13	$203,524	$351,119	$554,723
Period	**Properties**	**Living Area (sq ft)***	**Number of Bedrooms***	**Number of Bathrooms***	**Number of Stories***
1656- 1899	332	2,079	3.5	1.6	1.8
1900- 1949	1,441	1,559	3.0	1.3	1.6
1950-1969	5,038	1,562	3.3	1.5	1.3
1970-1979	808	1,837	3.5	1.7	1.5
1980-1989	631	2,222	3.6	2.0	1.8
1990-1999	574	2,268	3.6	2.0	1.9
2000-2008	196	2,758	3.4	2.1	2.0

Source: Appraisal Vision, Chelmsford Assessor's Database as of December 31, 2008.
*Denotes an average of all single-family properties.

Two-Family Housing Units

Tables 5.4 and 5.5 on the following page summarize the characteristics of two-family homes in Town. According to the FY 2008 assessor's database, there are 214 two-family structures dating back to the turn of the 18th century. Presumably, a portion of these houses began as single-family homes and were converted into multi-family dwellings at a later date.



Historic two-family home located at 46-48 Littleton Road. *(Source: Chelmsford Historical Commission)*

The tables on the following page show that two-family housing development peaked between 1900 and 1949, when one hundred three (103) properties were developed. However, the major activity occurred between 1900 and 1929 and then dropped significantly during the Great Depression and World War II. Between 1950 and 1969, twenty-six (26) properties were developed. Since 1970, only thirteen (13) properties have been developed for two-family housing units, representing less than one percent of single-family development since 1970 (2,209 properties). Table 5.4 on the following page provides information on the properties, lot areas and land, building and total values.

TABLE 5.4
CHARACTERISTICS OF TWO-FAMILY HOMES BY AGE OF HOUSING UNIT

Period	Properties	Lot Area*	Land Value*	Building Value*	Total Value*
1700- 1899	72	.67	$181,397	$175,387	$356,785
1900- 1949	103	.54	$170,966	$159,014	$326,627
1950-1969	26	.56	$185,088	$186,300	$371,388
1970-1979	7	.56	$187,657	$178,057	$365,714
1980-1989	4	.4	$176,750	$188,125	$364,875
1990-1999	1	.86	$200,700	$305,700	$506,400
2000-2008	1	.65	$183,300	$272,800	$456,100

Source: Appraisal Vision, Chelmsford Assessor's Database as of December 31, 2008.
*Denotes an average of all two-family properties

Table 5.5 below examines some of the trends in living area and numbers of bedrooms and bathrooms for two-family homes.

TABLE 5.5
CHARACTERISTICS OF TWO-FAMILY HOMES BY AGE OF HOUSING UNIT

Period	Properties	Living Area (sq ft)*	Square Feet/Unit*	Number of Bedrooms*	Number of Bathrooms
1700- 1899	72	2,454	1,227	4.5	2.2
1900- 1949	103	2,252	1,126	4.3	2.1
1950-1969	26	2,225	1,112.5	4.8	2
1970-1979	7	1,945	972.5	4.9	2.6
1980-1989	4	2,305	1,152.5	3.8	2.8
1990-1999	1	3,222	1,611	5	4
2000-2008	1	2,961	1,480.5	5	3

Source: Appraisal Vision, Chelmsford Assessor's Database as of December 31, 2008.
*Denotes an average of all two-family properties

Overall, the average lot size for two-family homes has not changed dramatically, ranging between .4 and .71 acres. During the period between 1990 and 2000, the average lot size rose from .4 acre to .86 acre, and decreased to an average of .65 acres following the turn of the century. Similarly, the average living area and the average number of bedrooms and bathrooms have remained consistent over time, with average living area ranging between 1,945 square feet (1970-1979) and 3,222 square feet (1990-1999), and the average number of bedrooms ranging between 3.8 and 5.

Three-Family Housing Units

According to Appraisal Vision's database, there are only sixteen (16) three-family homes in Chelmsford. Twelve of the houses were built during the 20th century. Four additional properties were developed between 1900 and 1969, but there has not been a three-family property developed since 1970. These trends are reflected in Table 5.6 on the following page.

TABLE 5.6
CHARACTERISTICS OF THREE-FAMILY HOMES BY AGE OF HOUSING UNIT

Period	Properties	Lot Area (Acres)*	Land Value*	Building Value*	Total Value*
1656- 1899	12	2.3	$214,140	$224,850	$438,990
1900-1969	4	1.2	$198,144	$154,522	$352,667
Period	**Properties**	**Living Area (sq ft)***	**Square Feet/Unit***	**Number of Bedrooms***	**Number of Bathrooms**
1656- 1899	12	3,215	1,072	5.4	3.1
1900-1969	4	2,410	803	4.6	3.1

Source: Appraisal Vision, Chelmsford Assessor's Database as of December 31, 2008.
*Denotes an average of all three-family properties.

Two of the three-family properties in Chelmsford are significant in size - one being 11.2 acres and the other 9.9 acres. The town was not as built out during the time period when these homes were constructed, so these larger projects could be accommodated. Three-bedroom homes built prior to 1900 have an average unit size of 1,071 square feet, while homes built during the 20th century have an average unit size of 803 square feet. Also, structures built during these time periods have an average of 4.6 and 5.7 bedrooms, and 3.1 bathrooms.

Apartment Buildings

Appraisal Vision's parcel database for Chelmsford includes twenty-one properties developed as apartment buildings with four or more units. Table 5.7 below reveals that the period between 1900 and 1949 saw the greatest amount of apartment development, when ten (10) properties were developed. Since 1950, four or fewer apartment buildings have been constructed per decade.

TABLE 5.7
CHARACTERISTICS OF APARTMENT BUILDINGS BY AGE OF HOUSING UNIT

Period	Parcels	Number of Units*	Land Value*	Building Value*	Total Value*	Living Area (sq ft)*	Square Feet/Unit
1700-1899	4	3	.41	$264,186	$240,429	$504,614	4,407
1900-1949	6	4.7	.28	$253,789	$278,822	$532,611	4,463
1950-1969	4	14	2.4	$1,243,000	$1,748,575	$2,991,575	31,004
1970-1979	2	22	4.4	$755,200	$857,900	$1,613,100	16,825
1980-1989	2	13	11.2	$2,828,500	$5,270,250	$8,078,750	15,807
1990-1999	0	0	0	0	0	0	0
2000-2008	3	29	5	$2,632,633	$10,041,667	$13,043,300	28,361

Source: Appraisal Vision, Chelmsford Assessor's Database as of December 31, 2008.
*Denotes an average of all apartment buildings.

Many of the older structures have been converted into apartments over time, whereas the properties developed after 1950 remained larger, apartment-complex style housing. This trend is reflected in the size and value statistics for apartment properties listed in Table 5.7. Apartment

buildings constructed prior to 1900 have an average lot size of .41 acre. The average total living area for apartment buildings constructed prior to 1900 and between 1900 and 1949 was 4,407 square feet and 4,463 square feet respectively.



Four-unit apartment building built in 1880 and located at 144 Gorham Street. (*Source: Pictometry International, 2008)*

After 1950, apartment building size increased significantly. The average lot size since 1950 ranged from 2.4 to 11.2 acres, while the average number of units increased from thirteen (13) to twenty-nine (29) per property. Additionally, the average gross building size increased by more than seven times between the periods of 1900-1949 and 1950-1969, and has continued to grow since then. Despite the increase in average gross building and living space, however, the average square feet per unit remained more or less consistent, ranging from 646 square feet to 2,215 square feet. Overtime, the scale of apartment buildings has increased, while architectural design elements have become less important, as seen in many of the newer apartment buildings today.

Occupancy, Tenure, and Vacancy Rates

This section analyzes trends in housing occupancy, ownership and rental tenure, vacancy rates, and housing turnover. Where appropriate, Chelmsford's statistics are compared to other communities in the NMCOG region.

Chelmsford has historically had an owner-occupied housing stock. In 1990, the U.S. Census Bureau reported that there were 11,453 occupied housing units in Chelmsford, as shown in Table 5.8 on the following page. Approximately 82% (10,743 units) were owner-occupied, while nearly 18% (2,069 units) were renter-occupied. An additional 362 units (3.2%) were vacant. Nearly twenty years later in 2008, 2,092 new housing units had been added to the local housing stock, according to the 2006-2008 *American Community Survey*. The owner to renter ratio had changed little, however, with approximately 82.1% (11,117 units) of housing units occupied by homeowners and 15.1% (2,049 units) occupied by renters. Additionally, the vacancy rate, which had dropped from 3.2% (362 units) in 1990 to 1.7% (213 units) in 2000, increased again by 2008, representing 3% of the total housing stock (an increase of 379 vacant units).

TABLE 5.8
HOUSING TENURE AND VACANCY IN CHELMSFORD, 1990-2008

Tenure Status	1990		2000		2008	
	Number of Units	Percent of Total	Number of Units	Percent of Total	Number of Units	Percent of Total
Owner Occupied	9,416	82.2%	10,743	83.9%	11,117	82.1%
Renter Occupied	2,037	17.8%	2,069	16.1%	2,049	15.1%
Vacant	362	3.2%	213	1.7%	379	3.0%
Total Occupied Housing Units	11,453	100%	12,812	100%	13,545	100%

Source: US Census Bureau SF 1 1990 and 2000; American Community Survey, 2006-2008

In assessing how Chelmsford compares with the other communities in the Greater Lowell region, one must look at 2007 data, since Pepperell, Dunstable and Tyngsborough were not included in the 2006-2008 American Community Survey. When compared to these communities, Chelmsford had the third-highest total number of housing units in 2007, trailing the Town of Billerica (13,678 units) and the City of Lowell (39,911 units). Moreover, Chelmsford had 12,935 occupied housing units with a vacancy rate of 3.6%. Compared to other communities in the region, Chelmsford had the fourth highest housing vacancy rate in 2007. Only the City of Lowell (7.4%) and the towns of Pepperell (6.5%) and Billerica (4.1%) had higher vacancy rates. Chelmsford's vacancy rate was lower than the region as a whole (4.9%), and vacancies occurred exclusively within the rental market. These figures are illustrated in Table 5.9 below.

Table 5.9 below reveals that among occupied housing units, Chelmsford had the sixth highest owner- occupancy rate (83.1% of occupied units) and the third highest renter-occupancy rate (16.9% of occupied units) in 2007. The towns of Billerica (87.4% owner-occupied), Dunstable (93.7%), Tewksbury (90%), and Westford (93.9%) had higher owner-occupancy levels than Chelmsford.

TABLE 5.9
HOUSING TENURE AND VACANCY RATES IN NMCOG COMMUNITIES, 2007

Community	Total	Total Occupied	Owner Occupied		Renter Occupied		Vacant Units	
	Housing Units	Housing Units	Number	Percent	Number	Percent	Number	Percent
Billerica	13,678	13,114	11,467	87.4%	1,647	12.6%	564	4.1%
Chelmsford	13,424	12,935	10,747	83.1%	2,188	16.9%	489	3.6%
Dracut	10,899	10,528	8,688	82.5%	1,840	17.5%	371	3.4%
Dunstable*	1,182	1,150	1,077	93.7%	73	6.3%	32	2.9%
Lowell	39,911	36,943	17,813	48.2%	19,130	51.8%	2,968	7.4%
Pepperell*	4,319	4,037	3,245	80.4%	792	19.6%	282	6.5%
Tewksbury	10,631	10,346	9,316	90%	1,030	10%	285	2.7%
Tyngsborough*	3,975	3,871	3,295	85.1%	576	14.9%	104	2.6%
Westford	7,512	7,446	6,991	93.9%	455	6.1%	66	0.9%
NMCOG Region	105,458	100,370	72,639	72.4%	27,731	27.6%	5,161	4.9%

Source: American Community Survey, 2005-2007; Claritas, Inc for Dunstable, Pepperell and Tyngsborough.*

Table 5.10 below examines housing tenure by the number of units in a structure in 2000 and 2008. According to this data, the number of homeowners and renters living in single-family detached units increased between 2000 and 2008 by 1.2% and 2.2% respectively. However, the number of owners and renters living in attached single-family homes decreased during the same time period by 11.3% and 55.2% respectively.

While the number of homeowners living in two-unit structures (79.4%) and three- or four-unit structures (70.2%) increased significantly between 2000 and 2008, the number of renters in each of these housing types decreased by 26.2% for two-unit structures and 62% for 3- or 4-unit structures. For those structures with 5-9 units, the number of homeowners declined by 25.8% and the number of renters decreased by 10.6% between 2000 and 2008.

Due partially to the increase in the construction of condominiums and larger apartment communities, the number of owner and renter households living in structures with 10 or more units increased in every housing type category. These changes are summarized in Table 5.10.

TABLE 5.10
HOUSING TENURE BY NUMBER OF UNITS IN STRUCTURE: 2000 AND 2008

	Owner Occupied			Renter Occupied		
	2000	2008	Percent Change	2000	2008	Percent Change
Total Units	10,744	11,117	3.4%	2,068	2,049	-0.92%
1, detached	8,692	8,792	1.2%	271	277	2.2%
1, attached	1,000	887	-11.3%	116	52	-55.2%
2	131	235	79.4%	271	200	-26.2%
3 or 4	114	194	70.2%	171	65	-62%
5 to 9	89	66	-25.8%	132	118	-10.6%
10 to 19	179	246	37.4%	335	365	9%
20 to 49	272	391	43.8%	359	382	6.4%
50 or more	33	65	97%	381	590	54.9%
Mobile home	234	241	3%	32	0	-100%
Boat, RV, van, etc.	0	0	0%	0	0	0%

Source: U.S. 2000 Census and American Community Survey, 2006-2008

Housing Turnover

In assessing the housing turnover in a community, it is important to compare the year that householders moved into their home. Table 5.11 below compares the year that Chelmsford householders moved into their current home with similar data for neighboring communities in the Greater Lowell region. Although this data does not identify households that have moved within the Town (and therefore have been residents longer than they have owned their current home), it is useful for understanding how long households have been established in Chelmsford.

According to the *American Community Survey*, Chelmsford has a diverse mix of both long time and newer residents. Approximately 10% of households (1,321) moved to their house prior to 1970, while 9.6% moved between 1970 and 1979. Additionally, 15.4% of residents moved to their current household between 1980 and 1989 and 22.8% moved between 1990 and 1999. In other words, 7,606 Chelmsford householders—58% of total households in 2008-- moved to their current home more than nine years ago, indicating that Chelmsford is a stable and mature community. The remaining 5,560 households (42%) have moved into their homes since 2000. Approximately 54.4% of these newer households (3,029) moved into their current home in the first half of the decade, while the remaining 45.5% (2,531 households) moved since 2005.

Compared to other communities in the region, Chelmsford had the fourth highest proportion of households who had moved to their home prior to 1970 (10%), followed by Lowell (7%) and Westford (6.2%). As with many other suburban communities in the region, a significant number of households moved to Chelmsford in the 1990s and 2000s. These statistics point to a diverse mix of households living in Chelmsford, including older, long-time residents, middle-aged households and families, and families who have recently settled in Town. Understanding demographic trends such as these is important in understanding the types and size of housing that will be needed when developing specific housing goals.

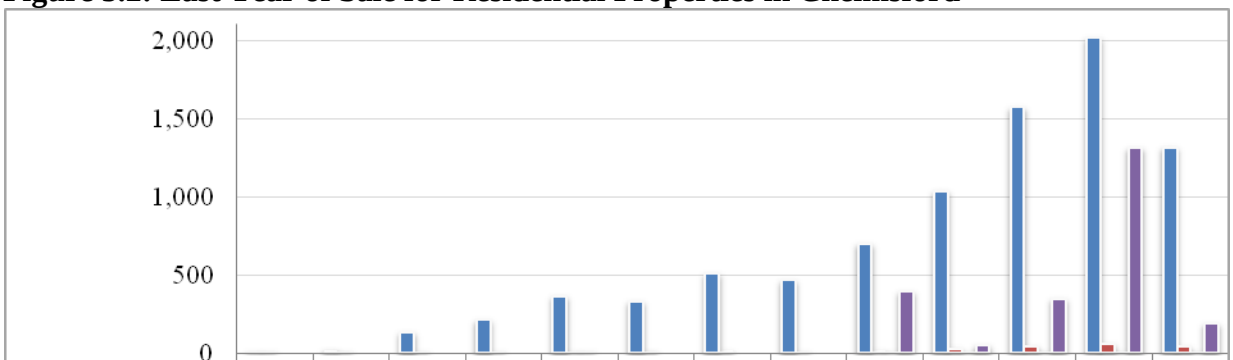
TABLE 5.11
YEAR HOUSEHOLD MOVED INTO CURRENT HOME BY COMMUNITY

	Billerica		Chelmsford		Dracut		Lowell		Tewksbury		Westford	
	#	%	#	%	#	%	#	%	#	%	#	%
Occupied housing units	13,308	100	13,116	100	10,615	100	36,463	100	10,448	100	7,368	100
2005 or later	2,144	16.1	2,531	19.2	1,957	18.4	11,996	32.9	1,448	14.2	1,129	15.3
2000 to 2004	2,601	19.5	3,029	23.0	2,480	23.4	9,524	26.1	2,317	22.2	1,782	24.2
1990 to 1999	3,318	24.9	2,997	22.8	2,637	24.8	7,239	19.9	3,027	29.0	2,240	30.4
1980 to 1989	1,938	14.6	2,023	15.4	1,477	13.9	3,194	8.8	1,553	14.9	1,090	14.8
1970 to 1979	1,841	13.8	1,265	9.6	758	7.1	1,952	5.4	811	7.8	672	9.1
1969 or earlier	1,466	11.0	1,321	10.0	1,306	12.3	2,558	7.0	1,252	12.0	455	6.2

Source: American Community Survey, 2006-2008

Figure 5.2 on the following page uses Appraisal Vision's assessor database to determine the most recent year of sale for residential properties by housing type. The information is consistent with the American Community Survey's data related to the period in which residents moved into their homes. A total of 944 homes had a sales date preceding 1970, while 864 were sold in the 1970s, 1,579 in the 1980s, 3,087 in the 1990s, and 4,948 since 2000.

Figure 5.2: Last Year of Sale for Residential Properties in Chelmsford



	Earlier than 1940	1940-1949	1950-1959	1960-1964	1965-1969	1970-1974	1975-1979	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005 or Later
Single-Family	4	20	134	213	365	331	509	466	700	1,038	1,572	2,018	1,317
Two-Family	1	3	3	2	1	11	13	5	13	29	43	60	41
Three-Family	0	0	0	0	1	0	0	0	5	2	5	6	3
Condominiums	0	0	0	0	0	0	0	0	395	50	348	1,314	189

Source: Appraisal Vision Chelmsford Assessor's Database as of December 31, 2008.

Historically, single-family homes dominated the local sales market, but two- and three-family homes and condominium sales picked up momentum in the second half of the 1980s. While single-family home sales made up 99% of sales (466 out of 471 total sales) between 1980 and 1984, single-family home sales only comprised 59.4% of all sales (2,108 out of 3,398 sales) twenty years later. Condominium sales made up the second largest share of the sales market during this period, with 1,314 units, or 38.7% of total sales. Two- and three-family homes made up an additional 1.8% and .2% of total sales respectively.

Residential Property Tax Affordability

Table 5.12 on the following page shows how affordable Chelmsford's residential tax rates are relative to other communities in the region for 2007. Affordability is determined in two ways: by calculating per capita taxes levied as a percent of per capita income and by calculating the average single-family tax bill as a percent of median household income.

Chelmsford's estimated total population in 2007 was 32,443 residents (the third highest in the region), and its per capita income was $39,149 (the second highest in the region). That year, the Town collected a total of $55,417,891 in residential property taxes, or $1,708 per capita. Per capita taxes as a percent of per capita income equaled 4.4%-- the third highest rate in the region behind Westford (4.9%) and Dunstable (5.3%). The remaining six communities had residential levies of between 2.9% and 3.8% of per capita income. In other words, in terms of per capita

expenses, Chelmsford fell within the bottom third tier of tax affordability, with six of nine communities considered to have more affordable residential property taxes in 2007.

TABLE 5.12
INDICATORS OF RESIDENTIAL PROPERTY TAX AFFORDABILITY

Community	Total Population	Total Residential Taxes Levied	Per Capita Income in 2007	Per Capita Taxes Levied/ Per Capita Income	Average Annual Tax Bill	Median Household Income in 2007	Average Single-Family Tax Bill/ Median Household Income
Billerica	39,738	$47,469,716	$31,018	3.6%	$3,788	$83,531	4.5%
Chelmsford	32,443	$55,417,891	$39,149	4.4%	$4,966	$87,252	6.0%
Dracut	28,735	$28,680,525	$30,958	3.2%	$3,092	$72,348	4.3%
Dunstable	2,829	$5,665,516	$37,943	5.3%	$5,058	$100,161	5.0%
Lowell	105,167	$65,390,730	$21,780	2.9%	$2,858	$47,337	6.0%
Pepperell	11,142	$12,216,475	$34,422	3.2%	$3,412	$80,490	4.2%
Tewksbury	28,851	$35,082,931	$32,293	3.8%	$3,742	$85,115	4.4%
Tyngsborough	11,081	$12,099,744	$34,681	3.1%	$4,275	$85,785	5.0%
Westford	20,754	$44,341,929	$43,304	4.9%	$6,161	$113,160	5.4%

Source: American Community Survey, 2005-2007; Claritas, Inc.; Massachusetts Department of Revenue's Division of Local Services.

In terms of calculating affordability of the average single-family tax bill as a percent of median household income, Chelmsford and the City of Lowell had the highest percentage in the region. In both communities, the average single-family tax bill accounted for 6% of median household income. The seven remaining communities in the region had average single-family tax bills between 4.2% and 5.4% of their respective median household incomes.

HOUSING DEVELOPMENT AND SALES TRENDS

This section examines trends in new housing development in Chelmsford as well as trends in sales for the existing housing stock. In the first section, residential development in Chelmsford over the past decade is compared to residential development in other communities across the Greater Lowell region. In the second section, an examination of the total number of sales and median selling prices for homes over the past twenty years is offered. This is followed by a discussion of current residential zoning requirements in Chelmsford. In the fourth and fifth sections, respectively, comprehensive permits and infrastructure limitations are discussed.

New Residential Development

Table 5.13 on the following page shows the trends in new residential development in Chelmsford between 2000 and 2008 by measuring the number of residential building permits by housing

type, that have been issued during the nine -year time period. According to this data, which was provided by MassBenchmarks, there were 431 residential building permits, encompassing 773 housing units and totaling $99,902,204, issued between 2000 and 2008. Single-family homes accounted for approximately 96.3% of all permits issued (415), 71.4% of fees rendered ($71,320,169), and 53.7% of the total number of units permitted. Buildings with five or more units made up the second largest percentage of total permits issued, accounting for 1.6% of permits and 44.9% of units. Two- and three-family housing development over the past decade has been minimal, with only two building permits issued for each housing type.

TABLE 5.13
RESIDENTIAL BUILDING PERMITS ISSUED BY HOUSING TYPE (2000 – 2008)

Year	Single-Family Units	Single-Family Valuation	Two- Family Buildings	Two- Family Units	Two-Family Valuation
2008	12	$2,510,000	-	-	-
2007	23	$4,307,000	-	-	-
2006	65	$10,789,959	1	2	$302,400
2005	64	$10,683,000	-	-	-
2004	109	$17,207,060	1	2	$200,000
2003	57	$10,608,000	-	-	-
2002	26	$5,740,000	-	-	-
2001	30	$4,989,650	-	-	-
2000	29	$4,485,500	-	-	-
Year	**3 + 4 Family Buildings**	**3 + 4 Family Units**	**3 + 4 Family Valuation**	**5 + Family Buildings**	**5 + Family Units**
2008	-	-	-	-	-
2007	-	-	-	-	-
2006	2	7	$1,058,400	4	108
2005	-	-	-	-	-
2004	-	-	-	1	24
2003	-	-	-	2	31
2002	-	-	-	3	144
2001	-	-	-	1	24
2000	-	-	-	1	16

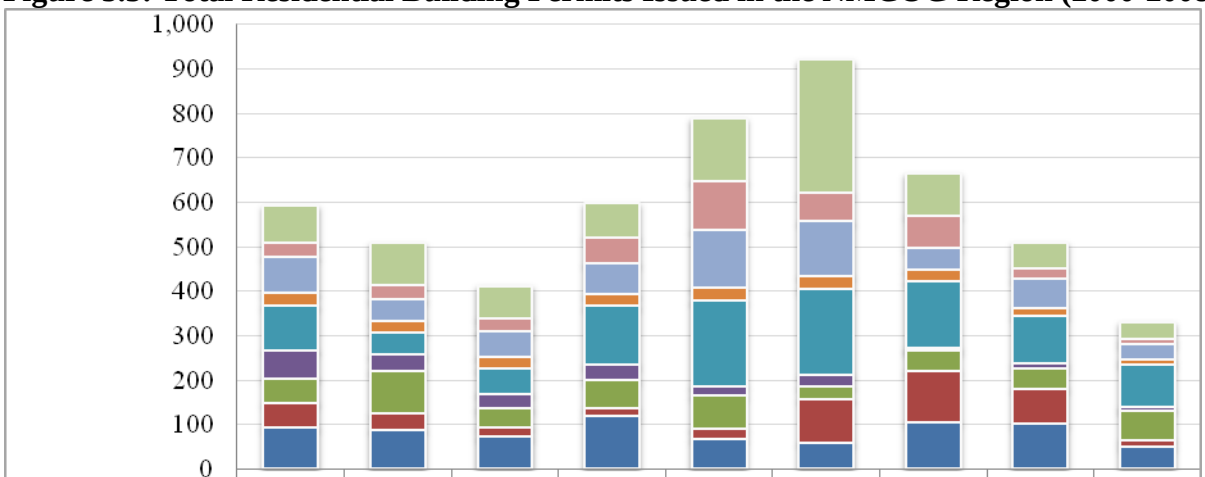
Source: MassBenchmarks as of December 31, 2008.

As shown in Table 5.13, there was a great deal of housing activity in 2006 with sixty-five (65) single-family permits, one (1) two-family permit, two (2) three- or four-family permits and four (4) 5 + family permits issued. This new residential development, valued at $23,150,759, accounted for 16.7% (72) of all residential permits issued and approximately 23.4% (181) of the total number of units permitted between 2000 and 2008.

Since 2006, however, new residential development has steadily declined. In 2007, only twenty-three single-family home permits were issued; while in 2008, only twelve single-family permits were issued. In other words, the total number of permits issued declined by 68% between 2006 and 2007, and an additional 48% between 2007 and 2008. This trend corresponds to the overall decline in the housing and construction markets over the past three years.

Figure 5.3 compares the total number of residential building permits issued in Chelmsford between 2000 and 2008 to the total number of permits issued in neighboring communities for the same period.

Figure 5.3: Total Residential Building Permits Issued in the NMCOG Region (2000-2008)



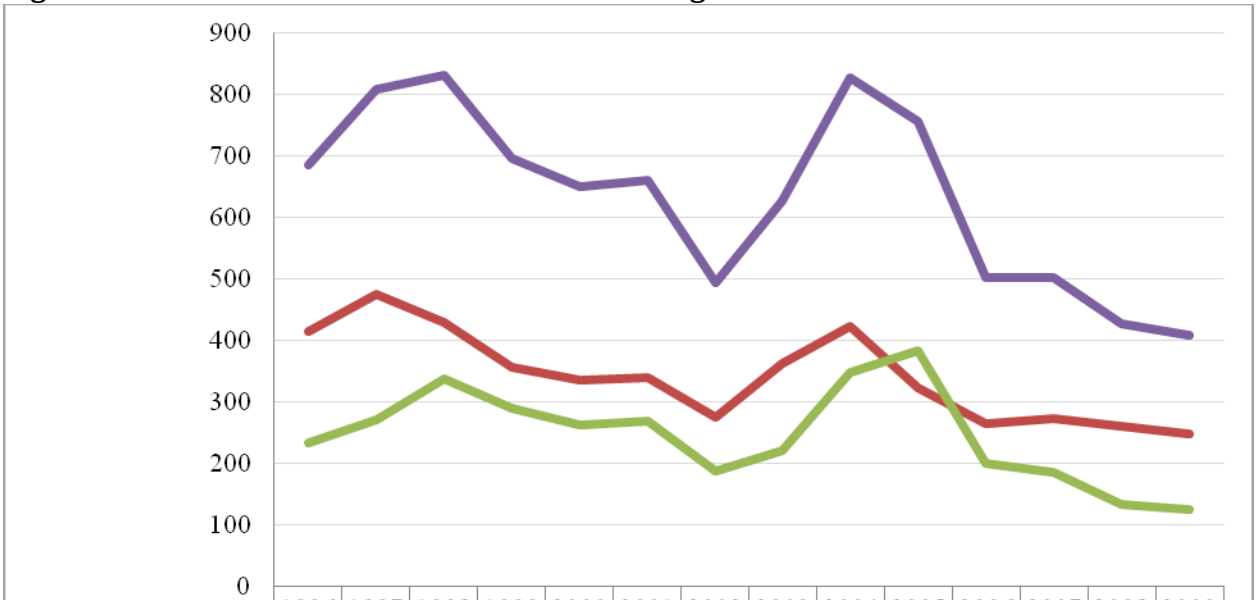
	2000	2001	2002	2003	2004	2005	2006	2007	2008
Billerica	86	96	73	77	141	300	95	58	39
Chelmsford	30	31	29	59	111	64	72	23	12
Dracut	82	49	57	70	131	123	51	66	33
Dunstable	29	25	27	26	29	30	24	18	12
Lowell	100	50	56	133	192	193	151	106	95
Pepperell	63	37	33	34	21	25	7	14	9
Tewksbury	55	97	43	64	74	29	45	44	65
Tyngsborough	56	35	22	17	22	97	116	80	16
Westford	93	89	72	119	69	60	105	101	50

Source: MassBenchmarks as of December 31, 2008.

Number of Sales

Figure 5.4 on the following page compares the total number of single-family homes, condominiums, and all residential sales made in Chelmsford between January 1996 and December 2009.

Figure 5.4: Home Sales in Chelmsford: 1996 through 2009



	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Single-Family	415	476	429	357	335	340	275	362	424	324	265	274	261	247
Condo	234	271	337	290	263	269	187	221	348	383	201	186	133	125
All	686	810	831	697	650	662	494	628	827	757	503	502	427	408

Source: The Warren Group as of December 31, 2009.

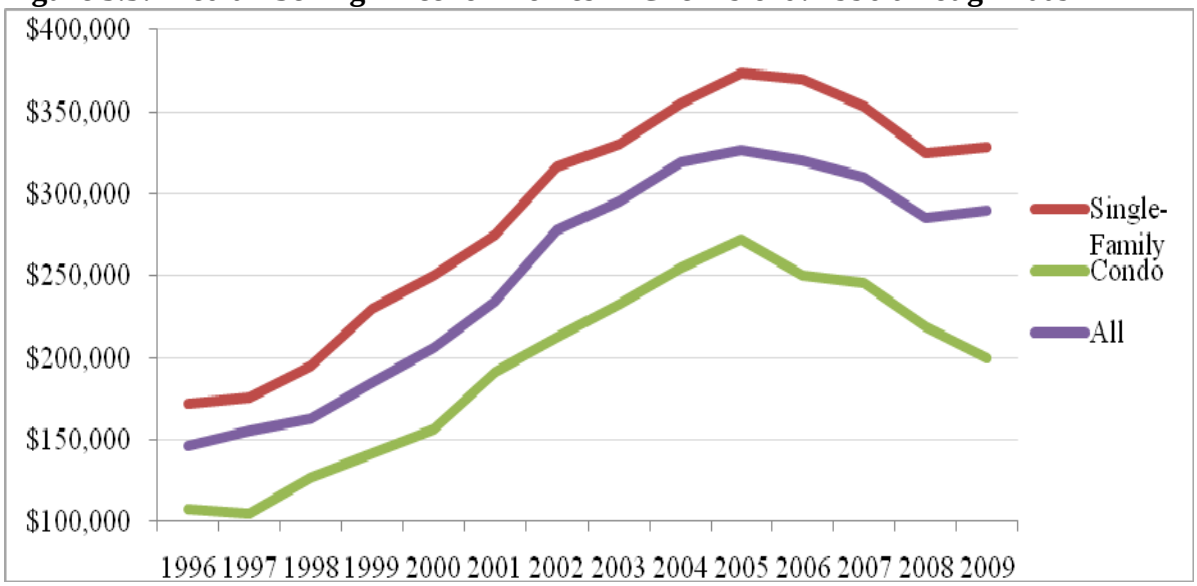
Between 1996 and 1998, the total number of home sales increased. However, the total number of single-family and condo sales dropped the following year, and continued to decline annually until 2002. By 2002, single-family sales had decreased from their 1998 levels by 40.9%, while condo sales decreased by 19.8% for the same period, thus resulting in a decline in "all" sales by 59.5%. Over the next two years, home sales began to recover from the economic downturn in the early 2000s, and by 2004 sales had returned to pre-2000 levels. During the second half of this decade, however, single-family home and condo sales decreased significantly. Home sales in Chelmsford have been declining since 2005, and in 2009, the total number of single-family home (247) and condo sales (125) reached a fourteen year record low.

Although residential sales in 2009 were the lowest since 1996, the total number of sales was actually higher than initially expected. Due to the recovering housing industry and the utilization of federal financial incentives, such as the Federal First Time Homebuyers Tax Credit, home sales in Chelmsford began to increase in the second half of 2009. If you compare the sales figures between July 2008 and July 2009, there was an overall decline in the sale of single-family homes (7.8%), condo sales (36.8%) and total sales (18.3%). However, by the end of the year, the year-to-date comparisons between 2008 and 2009 showed a smaller decrease of 5.4% for single-family houses, 6% for condos and 4.4% for "all" sales, reflecting an expansion of the housing market between August 1st and December 31st.

Median Selling Price

Figure 5.5 below illustrates the changes in the median selling price for single-family homes, condos, and "all sales" in Chelmsford since 1996. According to the Warren Group, the median selling price for each of these categories rose steadily between 1996 and 2005, even though there was a decline in the number of sales between 1998 and 2002. When the selling price for homes in Chelmsford peaked in 2005, single-family homes had a median selling price of $373,700, the median selling price for condos was $ 272,000 and "all sales" had a median selling price of $327,000. Compared to the median selling prices in 1996, the cost of a single-family home in 2005 was 117% higher, condos were 124% more expensive and "all sales" were 153% higher.

Figure 5.5: Median Selling Price for Homes in Chelmsford: 1996 through 2009



Source: The Warren Group as of December 31, 2009.

Between 2005 and 2008, prices declined in all three (3) categories. However, during 2009, the median selling price for single-family homes increased by 1.2% from $ 325,000 to $ 329,000, while the median selling price for condos declined by 8.5% from $ 218,500 to $ 200,000. During the past year, the median selling price for "all sales" increased by 1.8% from $ 285,000 to $ 290,000.

Zoning

Approximately 73% of the Town is zoned for residential use, with 65% of the Town zoned specifically for single-family residences. Chelmsford has four residential zones, all of which allow single-family housing. Two-family homes are allowed only in the Residential C (RC) and Residential Multi-Family (RM) districts. Multifamily units are allowed in the RM district and the Center Village (CV) district only by Planning Board special permit. Additional information is included in the Land Use and Zoning section.

Comprehensive Permits

The Massachusetts Comprehensive Permit Law (Chapter 40B of the Massachusetts General Laws), enacted in 1969, was designed to "increase the supply and improve the regional distribution of low- or moderate-income housing by allowing a limited override of local requirements and regulations which are inconsistent with local and regional affordable housing needs". The Commonwealth has established a 10% affordable housing goal (10% of total year round housing units) for every community. These housing units must have public subsidies and have at least a fifteen-year affordability restriction for rental units and thirty-year affordability restriction for ownership units. Currently, the Massachusetts Department of Housing and Community Development (DHCD), which oversees this program, utilizes data from the 2000 U.S. Census. DHCD will be updating the affordable housing goals for each community once the 2010 U.S. Census is released.

Affordable housing units have been developed to serve low- and moderate-income individuals and families that meet affordability thresholds calculated annually by the U.S. Department of Housing and Urban Development (HUD). These thresholds, which are based on a combination of household income and the total number of individuals living in a given household, are calculated primarily on a regional basis. In the case of Chelmsford, affordability thresholds are based on household incomes in the Lowell Metropolitan Fair Market Rent (FMR) Area. Table 5.14 below summarizes the current adjusted household income limits used to determine eligibility for affordable housing in the Greater Lowell region, which were effective as of April 2009.

TABLE 5.14
ADJUSTED INCOME LIMITS BY HOUSEHOLD SIZE, LOWELL METRO FMR AREA, 2009

Number of People in Household	30% Limits	50% Limits	60% Limits	80% Limits
One	$18,550	$30,950	$37,140	$44,800
Two	$21,200	$35,350	$42,420	$51,200
Three	$23,850	$39,800	$47,760	$57,600
Four	$26,500	$44,200	$53,040	$64,000
Five	$28,600	$47,750	$57,300	$69,100
Six	$30,750	$51,250	$61,500	$74,250
Seven	$32,850	$54,800	$65,760	$79,350
Eight	$35,000	$58,350	$70,020	$84,500

Source: U.S. Department of Housing and Urban Development, March 2009.

According to the Chelmsford Housing Authority, notwithstanding the public perception that Chelmsford is a fairly wealthy community, there are very low-income (0-30% of median income), low-income (31-50% of median income) and moderate income (51-80%) families and individuals who qualify for affordable housing. As outlined in the June 2005 Affordable Housing Plan, 949 households or 7.4% of all households in 2000 qualified as very low-income. Similarly, 931 households or 7.3% of all households met the income qualifications for low-

income and an additional 1,522 households or 12% of all households were moderate income households. In other words, 26.7% of all households (3,402) living in Chelmsford in 2000 qualified for affordable housing based on their total household income. Although the income thresholds outlined on the previous page in Table 5.13 are higher than those established in 2000, it can be assumed that more than a quarter of the households in Chelmsford today would qualify for affordable housing based on HUD's income limits for 2009.

In terms of the actual number of subsidized housing units in the Town of Chelmsford and the Greater Lowell region, Table 5.15 below shows the changes in the total number of affordable housing units for Chelmsford and the region from April 2002 to September 2009. These figures are part of the Subsidized Housing Inventory (SHI) that DHCD maintains in order to determine how well each community has done in meeting its 10% affordable housing goal. The locations of these subsidized housing units are represented on Map 15 on the following page.

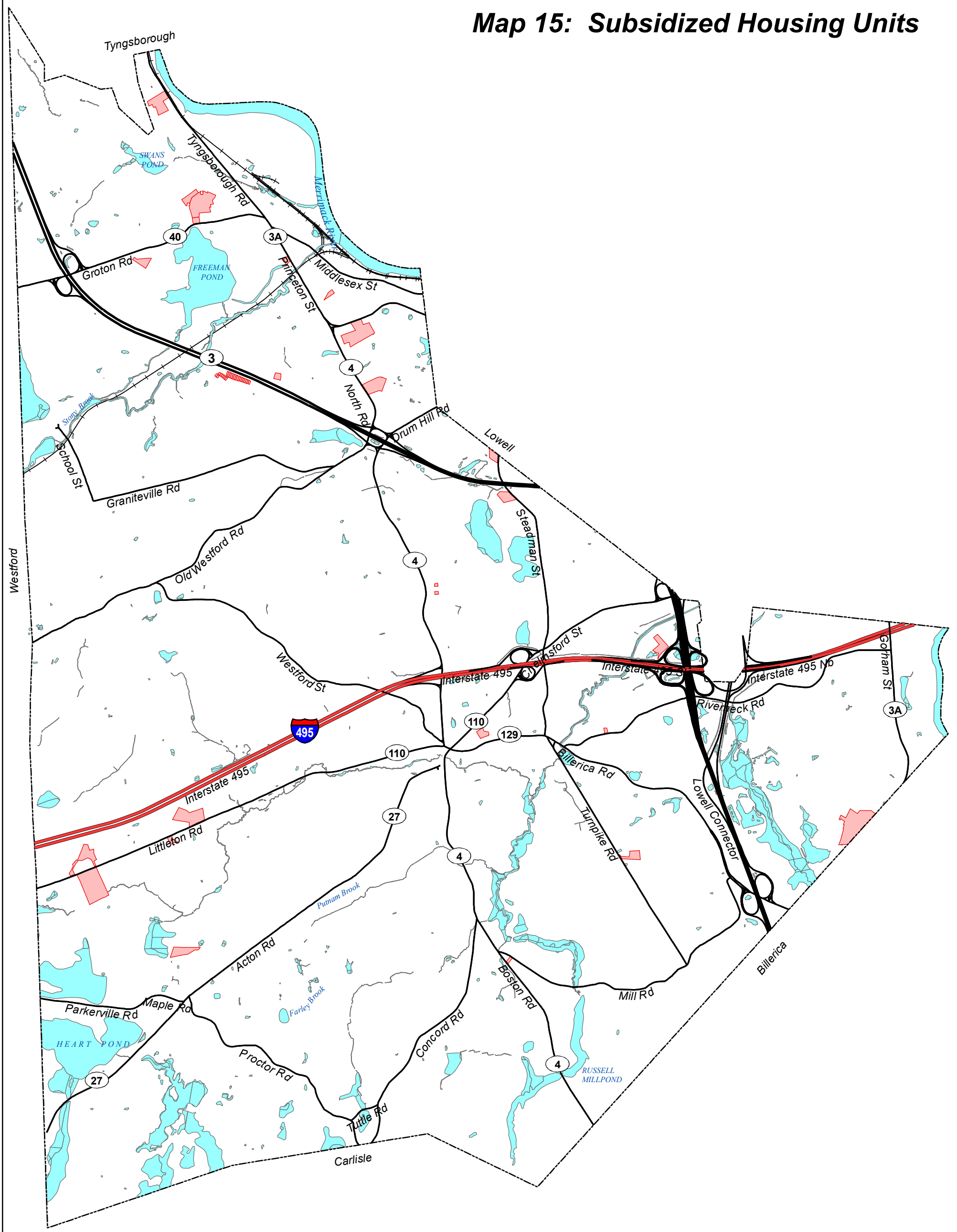
TABLE 5.15
SUBSIDIZED HOUSING UNITS IN CHELMSFORD AND NMCOG REGION: 2002-2009

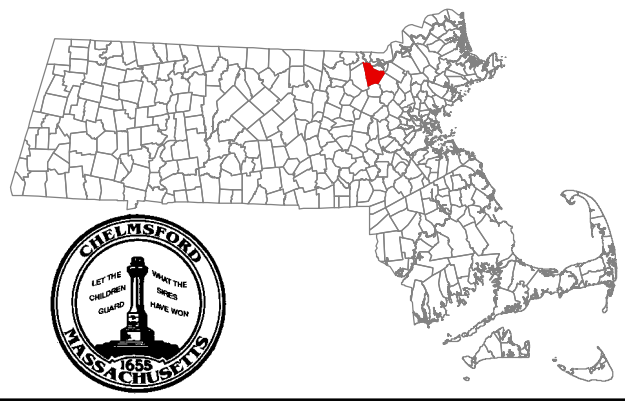
	Year Round Housing Units	10% Housing Goal	Total Subsidized Housing Inventory (SHI) Units		Percent SHI Units	
			April 2002	September 2009	April 2002	September 2009
Billerica	13,055	1,306	216	1,186	1.7	9.1
Chelmsford	12,981	1,298	481	919	3.7	7.1
Dracut	10,597	1,060	279	588	2.6	5.5
Dunstable	933	93	0	0	0	0
Lowell	39,381	3,938	5,312	5,212	13.5	13.2
Pepperell	3,905	391	117	122	3.0	3.1
Tewksbury	10,125	1,013	410	519	4.1	5.1
Tyngsborough	3,784	378	116	194	3.1	5.1
Westford	6,877	688	132	636	1.9	9.2
NMCOG Region	101,638	10,164	7,063	9,376	6.9	9.2

Source: Massachusetts Department of Housing and Community Development as of September 29, 2009.

Between 2002 and 2009, the number of subsidized housing units in Chelmsford nearly doubled, from 481 units in 2002 to 919 units in 2009. Based upon the increase in the number of subsidized units, Chelmsford attainted an affordable housing level of 7.1% by September 2009. Subsidized housing units across the region grew by 32.7% between April 2002 and September 2009, with

Map 15: Subsidized Housing Units





Data provided by MassGIS, MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Produced by:
The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

05/13/2009 *JCM*

Legend

- *Town Boundary*
- *Rail lines*
- *Subsidized Housing Units*
- *Lakes, ponds, and open water*

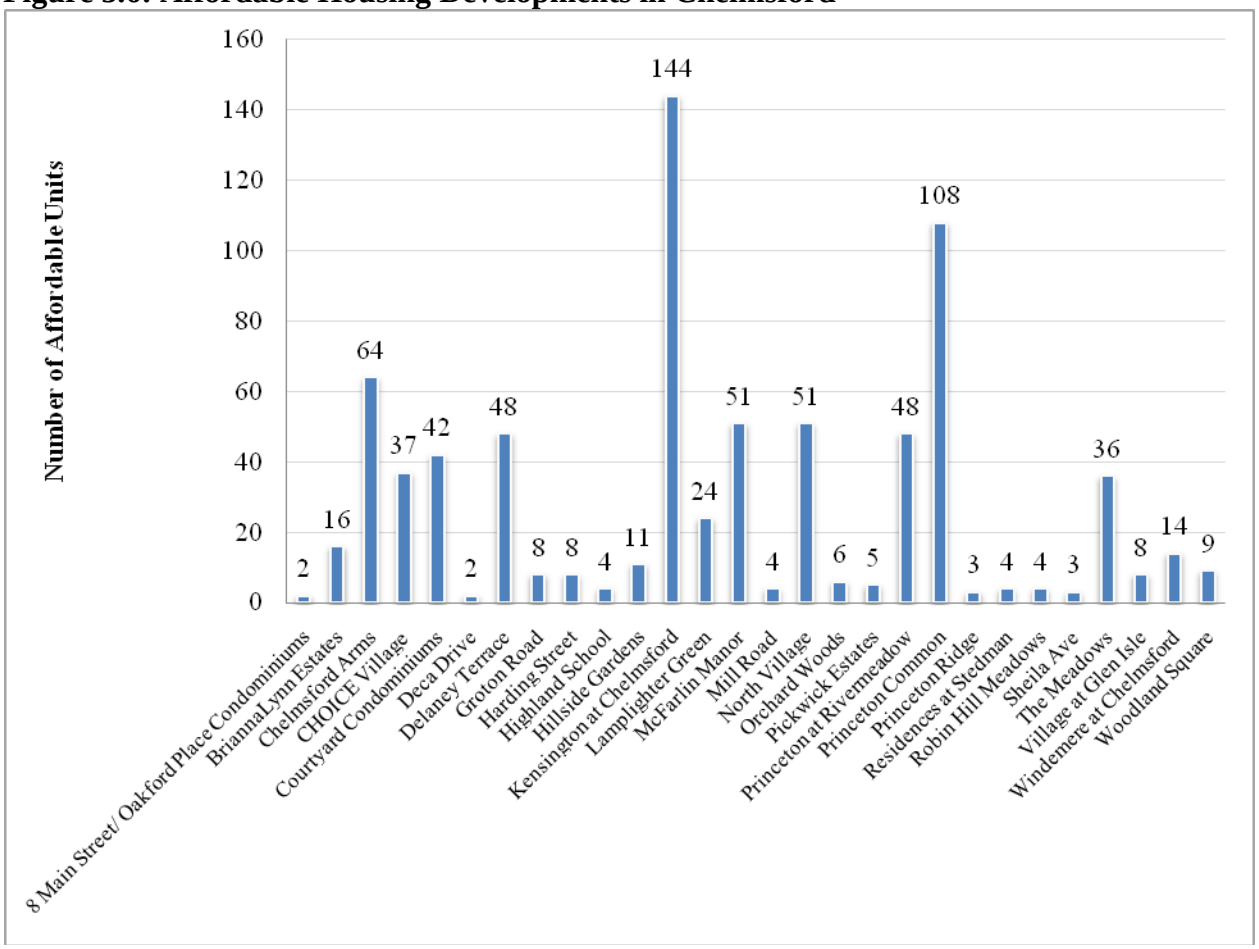
N W E S

0 0.25 0.5 0.75 1 *Miles*

increases in every community except Lowell (100 unit decrease) and Dunstable (no affordable units). With these changes in the subsidized housing inventory, the region increased its affordable housing level from 6.9% in 2002 to 9.2% in 2009. Chelmsford is within 379 units of attaining its 10% goal, based upon the 2000 U.S. Census, but it will need to increase this number based upon the revised year round housing unit number in the 2010 U.S. Census.

Figure 5.6 below identifies the twenty-eight (28) affordable housing developments in Chelmsford with the number of affordable housing units in each development. This list includes single-family and townhouse ownership units and rental units developed by private developers, as well as units constructed and managed by the Chelmsford Housing Authority and the Massachusetts Department of Mental Health.

Figure 5.6: Affordable Housing Developments in Chelmsford



Source: Massachusetts Department of Housing and Community Development; Chelmsford Housing Authority

Table 5.16 below provides a summary of the Chapter 40B proposals that were submitted and approved in Chelmsford between 2002 and 2008. Fourteen (14) projects were approved during this timeframe, which created an additional 635 units of housing, including 448 affordable housing units. Rental units (388) comprised 61.1% of the total housing units approved. Three projects were restricted to individuals over the age of 55, while various family developments were included in these fourteen projects as well.



A single-family housing development located on Deca Drive added two additional units to the Town's subsidized housing stock. *(Source: Pictometry International, 2008)*

TABLE 5.16
CHAPTER 40B DEVELOPMENT PROJECTS IN CHELMSFORD, 2002-2008

Project Name	Subsidizing Program	Date Letter Issued	Building Type	Total Units	Affordable Units	Rental Units	Ownership Units
Village at Glen Isle	LIP	6/10/2003	Townhouses	32	8	-	32
Amelia Way	LIP	No info	Single-Family	8	2	-	8
CHOICE Center	HSF	11/28/2007	Age Restricted Apartments	37	37	37	-
Hillside Gardens*	LIP	2/8/2008	Townhouses	44	11	-	44
Kensington at Chelmsford	80/20	3/28/2002	Family/ Apartments	144	144	144	-
North Village	HUD 202	2005	Age restricted apartments	51	51	51	-
Princeton at Rivermeadow	ERA (80/20)	7/16/2002	Family Rental	48	48	48	-
Princeton Commons	ERA (80/20)	1/9/2004	Family/ Apartments	108	108	108	-
Princeton Ridge	LIP	9/12/2005	Family Townhouses	9	3	-	9
Robin Hill Meadows	LIP	No info	Single-Family	16	4	-	16
Residence at Stedman	LIP	3/12/2003	Townhouses	16	4	-	16
Orchard Woods	Housing Starts	No info	Family/ Condominiums	30	6	-	30
Windemere at Chelmsford	NEF	7/6/2005	55 and Over/ Condominiums	56	14	-	56
Woodland Square	LIP	No info	No info	36	8	-	36
TOTALS				**635**	**448**	**388**	**247**

Source: Chelmsford Housing Authority, 2009, Chelmsford Community Development Department, 2010.
Note: Hillside Gardens is not currently listed in DHCD's SHI list.

Infrastructure Limitations Impacting Housing

Although the Town has well developed sewer, water, and road networks, there are some infrastructure barriers to the development of additional housing. For instance, the 66.4 acre Oak Hill site purchased by the Town has access issues, which would need to be addressed in order to be developed for housing and/or open space uses. There are limitations related to the sewer capacity in the Town that would have to be addressed as well. According to the North Chelmsford Water District, there are no current constraints related to water capacity in their service area. Another site with infrastructure limitations (primarily related to road access and potential environmental contamination) is the 30.8-acre former Glenview gravel pit located at 152 Steadman Street.

HOUSING NEEDS

This section outlines the affordable housing needs in Chelmsford by summarizing the changes in the socioeconomic characteristics of Chelmsford households between 2000 and 2008, while also examining changes in per capita income, median household income, median family income, and poverty levels from 2000 to 2008. Additional information related to the 2009 Federal Poverty Guidelines and the characteristics of the disabled population living in Chelmsford as of 2007 are also provided.

Within this section there is a discussion of housing affordability and the housing cost burden for homeowners and renters in Chelmsford. The section concludes with an overview of the foreclosure situation that has negatively impacted the nation, state and Town of Chelmsford, and which remains an obstacle to full economic recovery. The future of the private housing market, as well as the publicly subsidized housing market, will depend upon the strategies adopted through this Master Plan.

Demographic Profile

This section presents the socioeconomic characteristics of Chelmsford's residents. It includes a discussion of changes in the number of households and families, household types, age, income, and disability status. Table 5.17 on the following page examines changes in the total number of households, families, and different household types between 2000 and 2008.

TABLE 5.17
HOUSEHOLD TYPES IN CHELMSFORD, 2000-2008

Household Type	2000		2008		Percent Change 2000 to 2008
	Number	Percent	Number	Percent	
Total households	12,812	100.0	13,166	100.0	2.8
Family households (families)	9,307	72.6	8,891	67.5	-4.5
✣ With own children under 18 years	4,403	34.4	4,192	31.8	-4.8
Married-couple family	7,815	61.0	7,393	56.2	-5.4
✣ With own children under 18 years	3,711	29.0	3,527	26.8	-5.0
Female householder, no husband present	1,148	9.0	1,090	8.3	-5.1
✣ With own children under 18 years	563	4.4	471	3.6	-16.3
Male householder, no wife present, family	344	2.7	408	3.1	18.6
✣ With own children under 18 years	125	1.0	194	1.5	55.2
Nonfamily households	3,505	27.4	4,275	32.5	22.0
Householder living alone	2,963	23.1	3,891	29.6	31.3
✣ Householder 65 years and over	1,233	9.6	1,469	11.2	19.1
Households with individuals under 18 years	4,647	36.3	4,383	33.3	-5.7
Households with individuals 65 years and over	3,171	24.8	3,494	26.5	10.2
Average household size	2.61	NA	2.45	NA	-6.1
Average family size	3.11	NA	3.07	NA	-1.3

Source: US Census Bureau 2000; American Community Survey 2006-2008

The data from the US Census for 2000 and the 2006-2008 American Community Survey reveals that the total number of households in Town increased by 354 households or 2.8% between 2000 and 2008. However, the composition of these households changed considerably during this period. Family households decreased from 72.6% of total households in 2000 to 67.5% of total households in 2008, while nonfamily households increased from 27.4% of total households in 2000 to 32.5% of total households in 2008. Nonfamily households actually accounted for the growth in households between 2000 and 2008, with a gain of more than 770 households. The number of households with individuals under 18 years of age decreased by 5.7% between 2000 and 2008; while the number of households with individuals 65 years and over actually increased by 10.2% during the same period. Single-person households increased from 2,963 households in 2000 to 3,891 households in 2008 or by nearly a third. The average household size decreased from 2.61 persons in 2000 to 2.45 persons in 2008, while the average family size decreased from 3.11 persons in 2000 to 3.07 persons in 2008.

Table 5.18 on the following page illustrates changes in per capita, median household income, and median family income from 1990 to 2008. The per capita income increased by 39.7% between 1990 and 2000, and by nearly as much (38.7%) between 2000 and 2008. Median household income increased by 30.1% between 1990 and 2000, and by 25.8% to $ 88,293 in

2008. Median family income increased by 33.1% to $ 110,066 between 2000 and 2008, after increasing by 39.3% between 1990 and 2000.

TABLE 5.18
INCOME INDICATORS: 1990 THROUGH 2008

	1990	2000	Percent Change 1990-2000	2008	Percent Change 2000-2008
Per Capita Income	$21,814	$30,465	39.7	$42,258	38.7
Median Household Income	$53,971	$70,207	30.1	$88,293	25.8
Median Family Income	$59,368	$82,676	39.3	$110,066	33.1

Source: US Census for 1990 and 2000; American Community Survey, 2006-2008.

While the percentage of families living in poverty stayed the same between 2000 and 2008, the percentage of impoverished families with children increased from 2.7% to 3% among families with children under 18 years old, and from 1.8% to 4.7% among families with children under 5 years old. The percentage of female-headed households living in poverty also increased from 10% in 2000 to 12.8% in 2008. The number of individuals living in poverty increased from 2.8% to 3.1% between 2000 and 2008, including a slight increase in individuals over the age of 65, as outlined below in Table 5.19.

TABLE 5.19
PERCENTAGE OF FAMILIES AND INDIVIDUALS IN POVERTY: 2000 AND 2008

	2000	2008
Percent of Families in Poverty	2.0%	2.0%
With Children <18	2.7%	3.0%
With Children <5	1.8%	4.7%
In female-headed households with children	10.0%	12.8%
Percent of Individuals in Poverty	2.8%	3.1%
65 Years or Older	5.3%	5.4%

Source: U.S. Census for 2000; American Community Survey, 2006-2008.

Note: The Federal Poverty Level Guidelines for 2009 are outlined below in Table 5.20. These poverty guidelines are updated annually by the U.S. Department of Housing and Urban Development and are based upon the number of persons within a family.

TABLE 5.20
FEDERAL POVERTY LEVEL GUIDELINES FOR 2009

Persons in Family	Poverty Guideline
1	$10,830
2	$14,570
3	$18,310
4	$22,050
5	$25,790

TABLE 5.20
FEDERAL POVERTY LEVEL GUIDELINES FOR 2009

Persons in Family	Poverty Guideline
6	$29,530
7	$33,270
8	$37,010

Source: U.S. Department of Housing and Urban Development as of January 2009.

Table 5.21 below summarizes the characteristics of the disabled community living in Chelmsford. In 2007, there were 2,889 residents with at least one physical, mental, or sensory disability. Youth (under the age of 21) comprised approximately 11.1% of the disabled community, while adults and seniors comprised 45.4% and 43.9% respectively. Approximately half of disabled residents are living with two or more disabilities. Physical disabilities are the most common (62.5%), followed by mental disabilities (36.7%) and sensory disabilities (28.8%). Furthermore, 29.1% of disabled adults are unable to work due to their condition, and 32.5% have difficultly leaving their home without assistance.

TABLE 5.21
CHARACTERISTICS OF THE DISABLED POPULATION LIVING IN CHELMSFORD IN 2007

Disability Status	Number	Percent of Total Disabled Population
Total Number	2,889	100.0%
Ages 5-15	229	7.9%
Ages 16-20	92	3.2%
Ages 21-64	1,311	45.4%
Ages 65+	1,267	43.9%
One Physical Disability	1,806	62.5%
One Mental Disability	1,059	36.7%
One Sensory Disability	831	28.8%
One Employment Disability	841	29.1%
One Go Outside Home Disability	940	32.5%
Two or more disabilities	1,448	50.1%

Source: American Community Survey 2005-2007

Housing Affordability

As previously discussed, the selling price for homes has increased substantially since 1996. As of July 2009, the median selling price for a market rate single-family home was $329,900 and the median selling price for a condo was $195,000. At these prices, a buyer looking to purchase a

single-family home in Chelmsford would have a monthly mortgage payment of $1,825.81, while a condo purchaser would have a monthly payment of $1079.21.[29]

Even though personal and family incomes in Town have substantially increased since 1990, many residents still find the cost of market-rate housing in Chelmsford prohibitive. Based on the 2007 median household income in Chelmsford ($87,252), the average household in Chelmsford could afford to take out a mortgage worth $281,876, which is $48,024 less than the current median selling price of a single-family home[30]. Moreover, the Chelmsford Housing Authority estimates that as many as one in four households qualify for affordable housing based on HUD's 50% AMI standard. Clearly, market-rate housing for these households—with the exception of some condominiums-- remains out of reach.

Housing Burden

Table 5.22 below examines selected monthly owner costs, by mortgage status, for homeowners in Chelmsford as of 2007. According to this data, 7,683 homeowners (71.5%) have an existing mortgage. Approximately 2% of households with a mortgage pay less than $ 700 per month on housing-related expenses, while 44.8% percent of households without a mortgage pay less than $700 per month. An additional 329 homeowners with a mortgage pay between $ 700 and $ 999 per month in housing related expenses, while 38.1% of all homeowners with a mortgage pay between $ 1,000 and $ 1,999 on housing-related expenses. Nearly 57% of all households with a mortgage paid more than $ 2,000 per month in housing-related expenses in 2007.

TABLE 5.22
SELECTED MONTHLY OWNER COSTS BY MORTGAGE STATUS IN 2007

Housing Units with a Mortgage		Housing Units without a Mortgage	
Total Number of Households	7,683	Total Number of Households	3,064
Less than $200	0	Less than $100	0
$200 to $299	0	$100 to $149	0
$300 to $399	0	$150 to $199	0
$400 to $499	61	$200 to $249	63
$500 to $599	50	$250 to $299	0
$600 to $699	54	$300 to $349	0
$700 to $799	54	$350 to $399	88
$800 to $899	0	$400 to $499	253
$900 to $999	175	$500 to $599	443
$1,000 to $1,249	473	$600 to $699	528
$1,250 to $1,499	689	$700 or more	1,689
$1,500 to $1,999	1,766		
$2,000 to $2,499	1,952		
$2,500 to $2,999	1,418		
$3,000 or more	991		

Source: American Community Survey, 2005-2007

[29] Monthly payments are based on standard, 30-year fixed rate mortgage with a 5.27% interest rate.
[30] This calculation assumes that the homebuyer could afford a $10,000 down payment and qualifies for a 20-year fixed rate mortgage with a 5.27% interest rate. While the calculation takes into consideration the residential property rate in Chelmsford for FY 2009 ($14.07/ $1,000), it does not factor in additional monthly expenses, such as car payments, child support, or other debt and obligations.

Table 5.22 above reflects total monthly housing-related costs in 2007. Table 5.23 below shows total monthly costs, by mortgage status, as a percent of total household income for 2008. In general, housing is considered 'affordable' if its associated costs do not exceed 30% of the household income. According to the data provided on the next page, 30.6% of households with a mortgage and 54.9% of households without a mortgage pay less than 20% of their income on housing-related costs. Homeowners paying between 20% and 29.9% of their household income on housing-related expenses were represented by 2,683 housing units with a mortgage and 628 housing units without a mortgage. Therefore, 63.9% of homeowners with a mortgage and 75% of homeowners without a mortgage live in housing that is considered affordable, relative to their annual household income. However, that leaves approximately 46% of homeowners with a mortgage and 25% of homeowners without a mortgage paying more than they should for their housing. Although housing costs are affordable for a majority of homeowners in Chelmsford, approximately 35% of owners with a mortgage are paying more than 30% of their income on housing costs, and 22.9% of owners without a mortgage are paying more than 30%.

TABLE 5.23
SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN 2008

	Housing Units with a Mortgage:		Housing Units without a Mortgage:	
	Number	Percent	Number	Percent
Total Number of Households	8,055	100.0%	3,062	100.0%
Less than 10%	438	5.4%	801	26.2%
10% to 14.9%	780	9.7%	579	18.9%
15% to 19.9 %	1,250	15.5%	300	9.8%
20% to 24.9%	1,485	18.4%	358	11.7%
25% to 29.9%	1,198	14.9%	270	8.8%
30% to 34.9%	916	11.4%	218	7.1%
35% to 39.9%	669	8.3%	57	1.9%
40% to 49.9%	418	5.2%	82	2.7%
50% or more	828	10.3%	344	11.2%
Not computed	93	0.9%	53	1.7%

Source: American Community Survey, 2006-2008

Households paying between 30% and 49.9% of their incomes account for 24.9% of households with a mortgage, and 11.7% of households without one. Additionally, 10.3% of households with a mortgage and 11.2% without a mortgage are considered "severely burdened" by housing, paying more than 50% of their income on housing-related costs.

Housing burdens within the rental community in Chelmsford are also important to highlight. In 1999, the median gross rent in Chelmsford was $777, as reported by the U.S. Census Bureau. By 2007, the median gross rent had increased to $1,154—an increase of $377, or 48.5%. Table 5.24

below shows the monthly housing costs for renters in Chelmsford in 2007. Approximately 12.8% of renters paid less than $500 per month on rent, while 11.6% paid between $500 and $699, and 26.7% paid between $700 and $999. In terms of rental costs that exceeded the median gross rent, 32.1% of renting households paid between $1,155 and $1,999 on monthly rent, while 4% spent more than $2,000 per month. Considering that average weekly wages in town have largely remained stagnant over the past several years (this point is discussed in the Economic Development chapter of the *Master Plan Update*), it follows that housing costs are increasing at a rate that far surpasses increases in income, especially for renters. Moreover, more than two-thirds (66.8%) of renters paid additional money for utilities, such as heat and electricity in 2008. These expenses, which have been increasing annually over the past several years, increase the housing-related costs for renters living in town.

TABLE 5.24
MEDIAN GROSS RENT IN 2007

Cost Bracket	Number of Households	Cost Bracket	Number of Households
With cash rent:	2,026	$550 to $599	0
Less than $100	0	$600 to $649	67
$100 to $149	0	$650 to $699	51
$150 to $199	0	$700 to $749	54
$200 to $249	53	$750 to $799	14
$250 to $299	39	$800 to $899	378
$300 to $349	98	$900 to $999	95
$350 to $399	52	$1,000 to $1,249	280
$400 to $449	0	$1,250 to $1,499	380
$450 to $499	17	$1,500 to $1,999	249
$500 to $549	117	$2,000 or more	82

Source: American Community Survey, 2005-2007

Table 5.25 on the following page breaks down the cost of rent as a percentage of household income in 2008. According to this data, 505 renting households (24.6%) spent less than 20% of their income on rent. Another 534 households, or 28% of renters, spent between 20% and 29.9% of their income on rent. In other words, 1,079 renting households (52.7%) in 2008 lived in rental housing that was considered affordable relative to their household income.

In 2008, 893 renting households (43.6%) in Chelmsford spent more than 30% of their income on rent. 480 households, or 23.4% of all renting households, spent between 30% and 49.9%, while 413 households (20.2%) spent more than 50% of their income on rent. When these percentages are compared to monthly housing costs as a percentage of income for homeowners, it becomes clear that the housing burden for renters is more onerous than for homeowners. The percentage of renters paying more than 50% of their income in 2008 (20.2%) was nearly twice that of homeowners with a mortgage (10.3%) spending more than 50% of their income on housing-related costs.

TABLE 5.25
RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN 2008

Percentage of Household Income Going to Rent	Number	Percent
Total Renting Households	2,049	100.0%
Less than 10 %	24	1.2%
10%to 14.9%	162	7.9%
15% to 19.9%	319	15.6%
20% to 24.9%	299	14.6%
25% to 29.9%	275	13.4%
30% to 34.9%	351	17.1%
35% to 39.9%	54	2.6%
40% to 49.9%	75	3.7%
50% percent or more	413	20.2%
Not computed	77	3.8%

Source: American Community Survey, 2006-2008

The high cost and limited supply of rental housing in Chelmsford are two of the most serious issues facing renters, according to representatives of the Chelmsford Housing Authority (CHA). In particular, the CHA has identified the need for more affordable units that can accommodate larger families (3+ bedroom units), in addition to younger families and households, and seniors (smaller units). When asked what the most important elements of a Chapter 40B development proposal are, the CHA representative stated that the provision of rental units in the range of 200-300 new rental units is paramount. These rental units should range in size from one- to three-bedrooms and are needed for households and families earning incomes at 50% to 60% AMI in order to meet the current demand for housing in Chelmsford.



The Delaney Terrace development located at 8 Sheila Avenue added 48 rental units to the Town's Subsidized Housing Inventory. The development is located adjacent to the Chelmsford Senior Center (pictured in the bottom right of the photograph). *(Source: Pictometry International, 2008)*

Foreclosures

Due to the bursting of the housing bubble on the national scale, there has been a surge in the number of foreclosures at the state, regional and local levels. During the past three years, the number of foreclosure records in the Greater Lowell region has increased from 319 in 2007 to 1,055 in 2009 for an overall increase of 230.7%. Similarly, foreclosure records in Chelmsford have increased from 29 in 2007 to 86 in 2009 for a slightly lower increase of 196.6%. Table 5.26 below is based on data provided by the Warren Group and shows the total number of foreclosure notices (including petitions to foreclose and foreclosure auctions) in the region between January 1, 2007 and December 31, 2009.

TABLE 5.26
TOTAL NUMBER OF FORECLOSURE RECORDS IN THE NMCOG REGION: 2007-2009

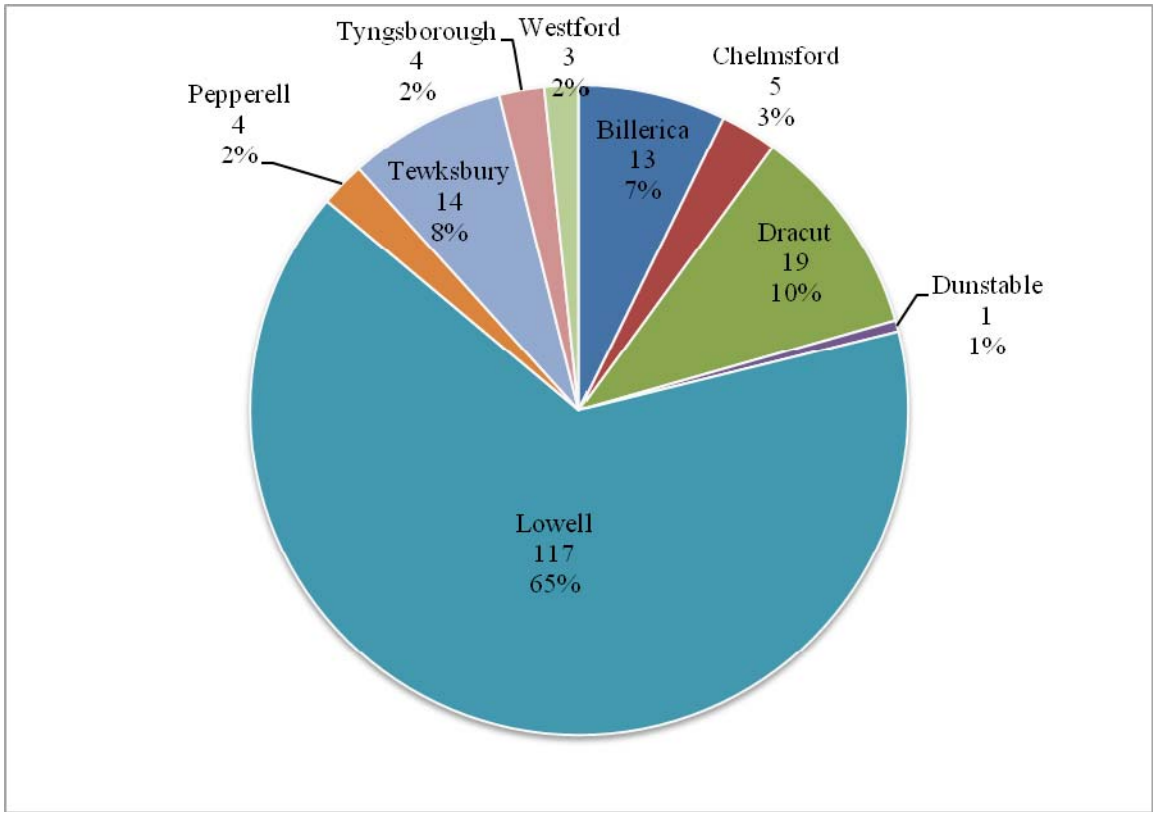
Community	2007		2008		Percent Change	2009		Percent Change
	Number	Percent of Total	Number	Percent of Total	2007-2008	Number	Percent of Total	2008-2009
Billerica	49	15.4	61	14.4	24.5	132	12.5	116.4
Chelmsford	29	9.1	34	8.0	17.2	86	8.2	152.9
Dracut	40	12.5	50	11.8	25	119	11.3	138.0
Dunstable	1	0.3	6	1.4	500	7	.66	16.7
Lowell	124	38.9	188	44.2	51.6	515	48.8	173.9
Pepperell	12	3.8	15	3.5	25	34	3.2	126.7
Tewksbury	43	13.5	42	9.9	-2.3	86	8.2	104.8
Tyngsborough	10	3.1	14	3.3	40	43	4.1	207.1
Westford	11	3.4	15	3.5	36.4	33	3.1	120.0
NMCOG Total	319	100.0	425	100.0	33.2	1,055	100.0	148.2

Source: The Warren Group as of December 31, 2009.
Note: Total numbers include foreclosure petitions, foreclosure auctions, list pendings, and sheriff sales.

The Town of Chelmsford accounted for 9.1% of all foreclosure records in the region in 2007, and this overall percentage was reduced to 8% in 2008, and slightly increased to 8.2% in 2009. Between 2008 and 2009 there was a 152.9% increase in the number of foreclosure records in Chelmsford, which lagged behind the percentage increases in Tyngsborough (207.1%) and the City of Lowell (173.9%) only. While it is important to note that not every foreclosure petition filed ends in a housing foreclosure, the figures in Table 5.26 do point to the economic distress with respect to housing costs for Chelmsford and its neighboring communities since the burst of the housing bubble in 2007.

Another trend analyzed is the number of bank-owned/REO properties in Town and across the region. Figure 5.7 below illustrates the total number of properties, by community, that were handed over to banks between January 1, 2007 and December 31, 2009. This graph reveals that nearly two-thirds of all bank owned/REO properties were in the City of Lowell. Dracut (10%) had the second highest percentage of bank-owned/REO properties, followed by Tewksbury (8%), Billerica (7%), Chelmsford (3%), Tyngsborough (2%), Pepperell (2%), Westford (2%), and Dunstable (1%).

Figure 5.7: Bank-Owned/REO Properties in the NMCOG Region: 2007 through 2009



Source: The Warren Group as of December 31, 2009

AFFORDABLE HOUSING EFFORTS IN CHELMSFORD

During the Public Forum on Land Use/Zoning, Economic Development and Housing, CHA representatives stated that the waiting list for affordable housing had increased four-fold since the publication of the 1996 Master Plan. As of June 2009, there were 1,400 families, 146 elders, 77 disabled individuals, and 43 veterans from Chelmsford on the CHA waiting list for affordable units. The average time on the waiting list before housing could be secured was 362 days. Furthermore, a review of current market-rate rental housing listings found that zero units listed were affordable for households earning 50% AMI, of which one in four households are eligible (Chelmsford Housing Authority 2009).

Based upon this data, there is an obvious need for additional affordable housing units in Chelmsford. Several initiatives in the community have been undertaken since the publication of the *Chelmsford Master Plan* in 1996. These initiatives include the *Affordable Housing Plan* completed in 2005, the numerous activities of the Chelmsford Housing Authority and the project funding provided through the Community Preservation Act (CPA) by the Chelmsford Community Preservation Committee (CPC). Outlined below are summaries of the various activities undertaken since 1996 related to the development of more affordable housing units in the community.

Town of Chelmsford June 2005 Affordable Housing Plan

In 2005, the Town published its *Affordable Housing Plan* with assistance from Daylor Consulting Group. The *Affordable Housing Plan* was principally developed to meeting the Planed Production Regulations established by the Massachusetts Department of Housing and Community Development (DHCD). The needs analysis portion of the plan, which was based on 1990 and 2000 US Census data and information provided by the Chelmsford Housing Authority CHA), concluded that the demand for affordable housing in Chelmsford, and particularly rental housing, exceeded the current supply available in Town.

The plan concluded that there were a total of 428 renter households eligible for affordable housing based on HUD's income guidelines. Approximately 57% of these households were paying more than 30% of their income for housing. The groups most significantly impacted were elderly households, families, and special needs populations. Additionally, there were fifty-six (56) renter households that did not qualify for affordable housing based on their income, but were paying more than 30% of their income on rent.

In addition the need for more rental units, the Plan concluded that affordable ownership opportunities were also a priority. This included options for households that qualified for affordable housing based on HUD's income restrictions, as well as for those moderate-income households that earned above 80% AMI but not enough to afford the price of market rate housing. The Plan estimated that more than 8,600 households in Chelmsford did not qualify for affordable housing, and 11% of those households had housing costs that exceeded 30%.

The *Affordable Housing Plan* offered several recommendations to help boost the local affordable housing supply and better meet the needs of residents and households overburdened by housing costs. These strategies were divided into three areas: (1) "strategies designed to preserve the Town's existing supply of affordable housing", (2) "regulatory policies that will increase the supply of affordable housing" and (3) 'production strategies what will add new units to the Town's housing inventory". The actions outlined for each strategy were as follows:

- Encourage **preservation strategies**, such as retaining expiring use properties and focusing on the adaptive reuse of structures that had become abandoned, underutilized, or functionally obsolete.

- Implement **regulatory strategies**, such as developing an affordable housing trust fund, revising the zoning bylaw and land use strategies, redeveloping existing properties (commercial to mixed-use and mill properties), and considering a Chapter 40R Overlay District for transit-oriented development. The revision of the zoning bylaw would address the following areas:
  - Allowing for moderate density multifamily housing;
  - Adopting mandatory inclusionary zoning;
  - Expanding Center Village zoning and promoting mixed use development in commercial areas;
  - Creating Village Overlay Districts;
  - Encouraging the development of senior housing through a Senior Village Overlay District;
  - Creating options for special needs housing; and
  - Modifying regulations to permit the development of nonconforming lots.

- Develop **production strategies**, such as taking advantage of tax title property, utilizing project-based Section 8 vouchers and encouraging appropriate Comprehensive Permit (Chapter 40B) developments.

The Chelmsford Housing Authority

The Chelmsford Housing Authority (CHA) has worked for decades toward providing an adequate supply of affordable housing. In addition to developing units, and managing and operating the local public housing program, the CHA assists the Town in reviewing the affordable component of new housing development proposals. The CHA also manages the housing lottery system, oversees the re-sale of affordable units in Chelmsford, and administers the Section 8 Housing Choice Program. The CHA is an extraordinary partner for the Town in meeting the affordable housing goals outlined in the *Affordable Housing Plan*.

At the time of the publication of the *Affordable Housing Plan*, the CHA held 433 vouchers. Twenty percent of these vouchers were project-based, which meant that the voucher remained with the housing unit for fifteen (15) years and did not move to a different unit with the resident. The remaining vouchers were tenant-based, which meant the voucher could move with the resident to a new unit. In June 2009, the CHA was awarded an additional 88 tenant-based vouchers through a competitive process managed by HUD. In late 2009, the CHA won another 35 vouchers for veterans currently receiving support through the Veterans Affairs office in Bedford. Even though these additional vouchers represent a major accomplishment for the

CHA, there are concerns that the vouchers will not be fully utilized in the community due to the limited availability of rental units. Currently, the CHA has 583 vouchers available with a limited rental market to work within.

In addition to bricks and mortar projects, the CHA runs a number of education and training programs for residents in need of support services. These services include employment training opportunities, support programs for the elderly, and the Family Self-Sufficiency Program, which includes childcare, credit counseling, stress management, and homeownership counseling.

Community Preservation Committee

The Community Preservation Committee (CPC) consists of nine members and implements the Community Preservation Act (CPA) for the Town of Chelmsford. Funding for through the CPA is created through a surcharge on the local property tax, which is also matched by state funds, and these funds provide assistance for Open Space Preservation, Historic Preservation and Affordable Housing projects. A minimum of 10% of the funds must be allocated to each area, while the remaining funds may be allocated based upon the recommendations made by the CPC. Approximately $ 1.4 million was available in Community Preservation funds in FY2009. The CPC recommends projects to be funded to Town Meeting, which appropriates the funds. Affordable Housing funds are used to create additional affordable housing units through new construction, rehabilitation or buying down existing housing units to make them affordable.

The CPC has established the following goals for the allocation of Community Preservation funds for Affordable Housing:

- *Meet local housing needs along the full range of low and moderate incomes, while promoting diversity and the stability of individuals and families living in Chelmsford.*
- *Ensure that new affordable housing is harmonious with the existing community.*
- *Meet the 10% State standard for affordable housing.*
- *Leverage other public and private resources to the greatest extent possible.*

Long-term affordable housing projects for the CPC include the limited access apartment affordability program and public – private projects. As of FY2009, Town Meeting had approved $ 687,000 in Community Preservation funds for affordable housing projects that leveraged an additional $ 14.6 million in federal, state and private funding sources. Among those projects funded were the Courtyard Condominiums, Orchard Woods, North Village, the CHOICE Center and the CHA affordable unit buy down program. The Community Preservation funds represent the principal local funding source for the development of affordable housing units. According to the Fiscal Year 2010 Plan for the CPC, there was $ 214,740 in unallocated community housing account balances as of February 2, 2009, as well as an additional $ 118,000 in FY 2010 reservations and appropriations for community housing.

PUBLIC INPUT

The Master Plan Committee and NMCOG worked together to focus upon a draft Vision Statement and individual goal statements for each technical area. Based upon the input provided through the SWOT sessions held with the public and the Master Plan Committee itself, a draft Vision Statement and individual goal statements were established prior to the hosting of the Public Forum sessions. These Public Forums began with the Land Use/Economic Development/Housing Public Forum held at the Chelmsford Senior Center on June 3, 2009, where the public was invited to offer their opinions on the respective topics. At the outset of the Public Forum, the draft Vision statement and goal statements for Land Use/Zoning, Economic Development and Housing were presented and the participants were asked for feedback throughout the process. As a result of the input from the Master Plan Committee and the public, the draft Housing goal statement was established as follows:

Promote the development and maintenance of diverse and affordable housing opportunities consistent with the community's character for all income levels, lifestyles and age groups.

The major challenge in the housing area was how to address the need for more diverse affordable housing opportunities while maintaining the character of the Town and its neighborhoods. The participants at the Public Forum then offered their recommendations for the Housing portion of the Master Plan as follows:

- Need to create additional affordable housing and address income distribution
- 1,400 families, 146 elders, 77 disabled individuals and 43 veterans are on the waiting list for affordable housing in Chelmsford.
- Chelmsford Housing Authority recently received a permit to build 37 additional units for mixed-income residents near the Senior Center.
- Need more rental units and 3-bedroom units.
- Need to serve those at 50% of median (1 out of 4 people in Chelmsford are in this income group).
- Accessory units can be counted toward 10% target, but must have a fair way to assign them to those on the waiting list.
- Row housing in Vinal Square could be redeveloped into affordable housing.
- There are 7,300 people on the CHA waiting list with 1,400 from Chelmsford.
- All new residential development should be accomplished through redevelopment in Vinal Square and buy downs.
- Beyond a certain number, residential development is not cost-effective, it becomes a cost burden.
- Residential development should focus on redevelopment.
- North Chelmsford – buy downs, apartments above businesses, not new construction.
- Zero listings are affordable to people making 50% of the average median income.

- Waiting list for affordable housing has grown four-fold since the 1996 Master Plan.
- All planning will be in vain if people can't afford to live there.
- Review 2005 Affordable Housing Plan and presentation by the Chelmsford Housing Authority.
- Preserving character = NIMBYism, exclusionary zoning = income discrimination.
- Need more rental housing: Chelmsford was just awarded 88 rental vouchers, but there are limited housing units to place the people that receive the vouchers?
- Need rental units with more bedrooms, hard to find 3 bedroom + rental units.
- 1 in 4 residents in Chelmsford are at the 50% AMI mark, the town needs to focus on these people.
- The Town first promoted commercial growth, then residential growth, now 40B.
- Most multi-family development has occurred on commercial/industrial land.
- Town must balance demand for housing with the demand for commercial and industrial growth.
- It's harder to go back and amend zoning tensions than to plan carefully and avoid conflicts in the future.
- 40 acres in North Chelmsford along Route 3 and Ledge Road should be developed for residential use.
- Wanted clarification of the purpose of the Master Plan committee? Should the policies be reflective of the desires of citizens? Then, no new construction.
- Home values: Higher density actually makes housing less affordable for everyone.
- Foreclosure: No options for these folks, single parents with children and divorced families who would like to remain in town.
- Support Housing Authority goals to promote affordable housing in town.
- Demographic changes – Accessory uses in bylaws to encourage the utilization of extra space and support families.
- In some places, accessory apartments can count but must figure out a way to manage a fair waiting list.
- Bylaw review committee needs to be involved.

ISSUES AND OPPORTUNITES

The Town of Chelmsford should provide affordable housing for its residents who wish to remain in Chelmsford. Affordable housing means housing that is priced consistent with the economic capabilities of individuals and their families and is not intended to encompass only housing that could be developed under Chapter 40B. A diversity of affordable housing at all price ranges provides a vibrant and dynamic community and best meets the needs of its inhabitants.

The Town of Chelmsford enjoys one of the best relationships with its Housing Authority that any community can have. With the Chelmsford Housing Authority as an active partner, the Town

can successfully develop, maintain and manage a level and diversity of housing units that addresses the housing needs of its residents. The Town is in the process of updating its *2005 Affordable Housing Plan* and will build upon this section of the Master Plan to begin its work. While the focus of the Affordable Housing Plan is to generate strategies that address the affordable housing production issues established under Chapter 40B, the purpose of this Housing section of the Master Plan is to highlight the housing needs of the community and to make recommendations on how the Town can address all housing issues facing the community during the next ten years.

In addressing Chapter 40B, which established a goal that 10% of housing in Chelmsford be affordable to families and individuals at 80% or less of the median household income, the Town, in partnership with the Chelmsford Housing Authority ("CHA"), should adopt a proactive approach to increase the level and diversity of Affordable Housing in the community, consistent with the resources of the Town and consistent with the needs of its residents. A proactive approach ensures that Affordable Housing will be designed and located in areas that will not adversely affect the character and nature of the traditional neighborhoods in the Town. By working with the CHA, the Town can ensure that the proposed housing addresses the needs of seniors, young families and special needs populations, in a manner that is consistent with the neighborhood characteristics. This partnership will be critical to avoiding the development of any "unfriendly" Chapter 40B projects.

The Town should explore opportunities to purchase available property and to continue its longstanding relationship with the Community Preservation Committee (CPC). With the $ 214,740 in unallocated community housing balances as of February 2, 2009 and the availability of a minimum of $ 118,000 in FY'2010 funds for community housing, the Town, CHA and CPC can move ahead to address housing supply needs. The Town should target the potential housing opportunities identified by the Master Plan Committee in Table 5.27 below, and further identified on the Potential Housing Sites map (Map 16), to meet local housing needs.

TABLE 5.27
CHELMSFORD POTENTIAL HOUSING SITES

Address	Parcel ID	Acreage	Total Assessed Value	Zoning	Current Status	Future Use
16-20 Boston Road	84-334-17	8.45	$8,861,800	CA	Stop and Shop Plaza	Mixed-Use
11 Cushing Place	84-336-5	5.00	$1,020,600	CD	Center along BFRT behind Village Grill	Housing
233 Littleton Road	91-378-15	0.92	$339,900	CB	Vacant Land	RM Overlay
235 Littleton Road	91-378-11	6.06	$715,100	CB	Apartments	
241 Littleton Road	100-378-8	0.92	$340,000	CB	Vacant Land	

TABLE 5.27
CHELMSFORD POTENTIAL HOUSING SITES

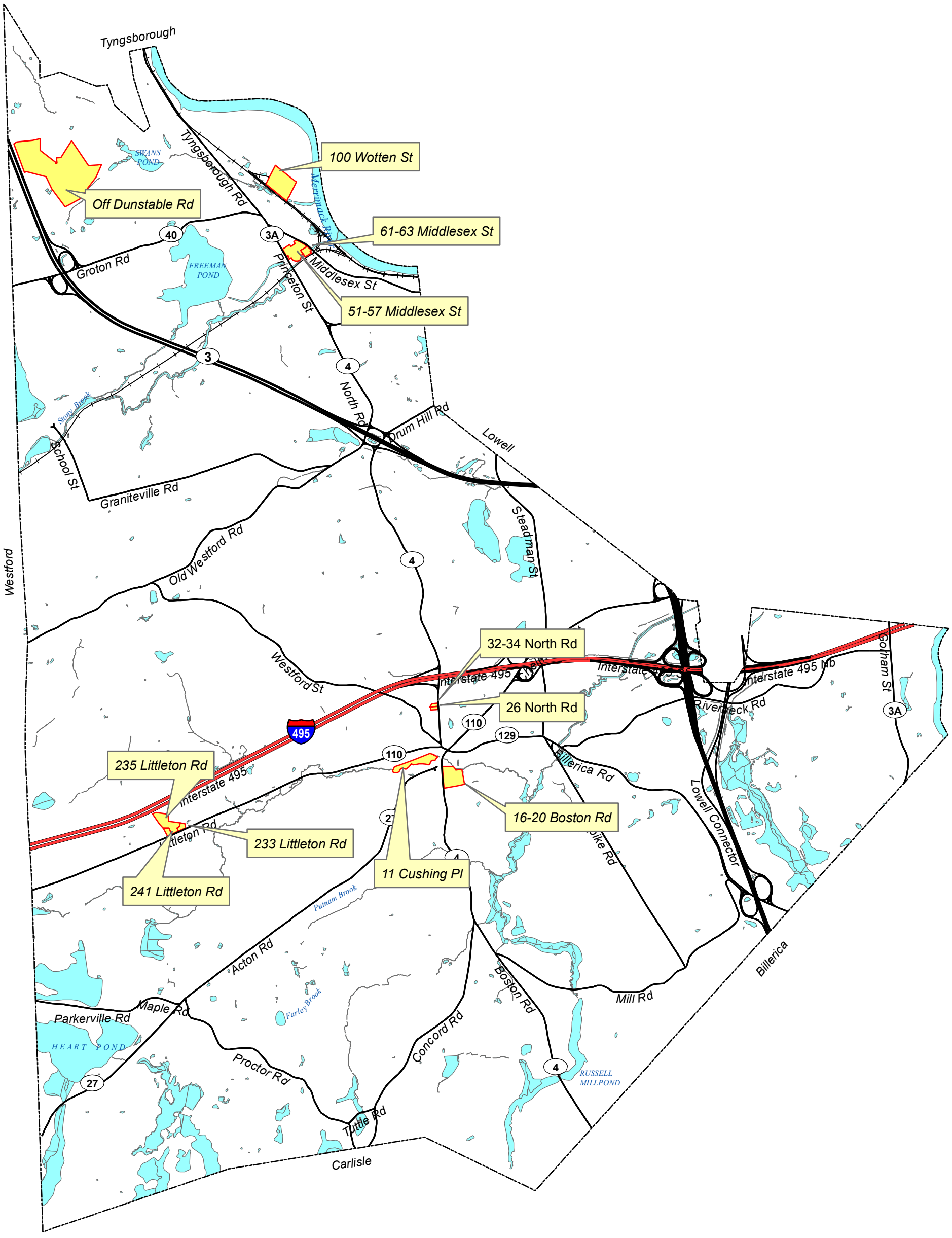
Address	Parcel ID	Acreage	Total Assessed Value	Zoning	Current Status	Future Use
51-57 Middlesex Street	13-36-1	6.10	$3,242,700	IA	Manufacturing Building	
61-63 Middlesex Street	13-36-3	1.45	$138,700	IA	Industrial Warehouse-Heavy Industry	
Off Dunstable Road	11-4-1	66.37	$57,700	IS	Vacant Land	Housing/Open Space
100 Wotten Street	9-6-3	12.53	$1,069,500	IA	Manufacturing Building	RM Overlay
26 North Road	73-315-3	0.99	$202,000	RB	Vacant Land	
32 North Road	73-315-1	0.37	$668,200	RB	Apartment Building (8+)/Vacant Land	

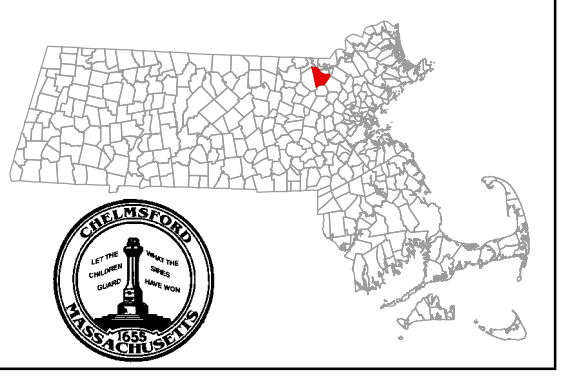
These properties have been identified as potential housing sites that can be developed either as a combination of housing and open space, such as in the case of the Oak Hill properties, mixed-use developments (housing and commercial) or as part of a Mill Reuse Overlay District that will bring increased value to the property, while maintaining its historical significance in the development of more affordable rental units. The focus upon these groups can be attained through the three strategies – preservation, regulatory and production – outlined in the current Plan. However, the updated Affordable Housing Production Plan needs to be completed by July 9, 2010, at which time the current *Affordable Housing Plan* expires. The updated document will need to address the new requirements established by the Department of Housing and Community Development (DHCD).

To address issues related to the condition and age of structures, federal and state grant opportunities in the area of housing should be explored further. The utilization of the Community Development Block Grant (CDBG) program, for instance, to address the renovation of older homes for low and moderate-income residents through a rehab program, would improve the condition of the housing stock in the community. The CHA has aggressively pursued federal, state and non-profit funds and utilized Community Preservation funds as financial leverage. According to the FY 2010 Annual Report by the Community Preservation Committee (CPC), Town Meeting approved $ 687,000 in Community Preservation funds for affordable housing projects, which leveraged an additional $ 14.6 million in federal, state and private funding sources. The Community Development Department should actively pursue other federal and state funds and continue to work in concert with the CHA. Furthermore, the Town should explore the development of an Affordable Housing Trust to supplement the current resources made available through Community Preservation funds.

The UMass West Campus has deteriorated to the point where it has negatively impacted the newer residential neighborhood developments. The Town, working in conjunction with UMass

Map 16: Potential Housing Sites





Data provided by the Executive Office of Energy & Environmental Affairs through MassGIS, MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Produced by:
The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

08/25/2010 JCM

Legend

- *Town Boundary*
- *Potential housing sites*
- *Rail lines*
- *Lakes, ponds, and open water*

N W E S

Miles
0 0.25 0.5 0.75 1

Lowell, should develop a Master Plan for the UMass West Campus that takes into consideration mixed-use options for the property, including housing. Consideration should be given to the use of design guidelines for this property, as well, to ensure that whatever is developed is consistent with the neighborhood characteristics.

The future of housing in Chelmsford does not appear to be directly impacted by the infrastructure systems, such as sewer or water, but more by the level of available capacity. With the expiration of the agreement with the Regional Sewer facility in Lowell, the Town will need to negotiate for additional capacity in order to accommodate new housing developments or redevelopment projects. These negotiations are likely to require the Town to help the City of Lowell address some of their environmental issues related to their facility. Without addressing this issue, the Town will be unable to meet its specific housing needs in the future.

The establishment of a Redevelopment District along Route 110 will promote mixed-use development that will provide additional housing opportunities. The specific area for this Redevelopment District is further described in the Economic Development section of this Master Plan.

RECOMMENDATIONS

- Build upon the partnership with the Chelmsford Housing Authority to create housing through a proactive approach that maintains and increases the supply and diversity of housing in the community.

- Explore opportunities for the Town to continue to purchase available property and/or utilize funds from the Community Preservation Act (CPA) to address the community's housing needs. Identify available town-owned properties for potential housing development to meet local needs.

- Target the identified Potential Housing sites for development and complete a Master Plan for the Oak Hill site that includes housing and open space uses.

- Establish Village Overlay Districts for the Town Center and Vinal Square and a Mill Reuse Overlay District for the mill properties in North Chelmsford to encourage mixed-use development consistent with the neighborhood. (see geographic definition for Vinal Square)

- Provide zoning incentives, such as through Inclusionary Zoning, to encourage the development of housing in those areas identified through the Master Plan.

- Develop design guidelines for housing development projects to ensure that the projects are consistent with the neighborhood characteristics.

- Preserve affordable housing through the retention of expiring affordable use properties where financially feasible.

- Prioritize mixed-use redevelopment projects that support the business community and the town's housing goals, and that are consistent with current neighborhood standards

- Increase the availability of rental units in the community to address the growing needs of the elderly, young families and special needs populations.

- Utilize federal and state housing incentives, such as the Community Development Block Grant (CDBG), Chapter 40R and Chapter 40S programs, to expand the availability of housing in the community to meet local needs, Participate in housing rehab programs to support the renovation of older residences.

- Explore the development of an Affordable Housing Trust to supplement the current resources made available through CPA funds.

- Increase the affordability requirement in the RM zoning district from 10% to 25% and create new RM overlay districts as specified in the Land Use and Zoning section of this Master Plan.

- Develop a Master Plan for the UMass West Campus that would consider various options, including housing in a manner consistent with the current neighborhood characteristics.

- Address infrastructure capacity issues, such as water and sewer, that would limit housing opportunities in the future.

- Establish a Redevelopment District from Hunt Road to Chamberlain Road along Route 110 to promote mixed-use development that provides additional housing opportunities.

- Update the Town's Affordable Housing Production Plan to be consistent with the new regulations from the Massachusetts Department of Housing and Community Development (DHCD).

VII. OPEN SPACE AND RECREATION

INTRODUCTION

Open space is essential to the quality of life within the community and should be viewed as the Town's "green infrastructure" that supports and links the built and natural environments. It consists of a network of waterways, wetlands, woodland and forests, parks and conservation lands, and working farms. It provides ecological, social, economic and health benefits which can be described as follows: [31]

Goal Statement: ***Manage, preserve and protect the open space and recreation resources and invest in the expansion of these areas in order to enhance the quality of life.***

- ***Encourage the utilization and enjoyment of open space and recreational resources by town residents.***
- ***Improve the management and maintenance of the town's open space and recreation assets.***
- ***Provide connections between the town's open spaces and recreation areas, and provide a link to regional resources and facilities, where appropriate.***
- ***Provide a broad range of recreational opportunities for residents of all age groups and abilities.***

- **Ecological benefits**: Open space provides natural water filtration, drinking water protection, flood and erosion control, wildlife habitat and migration stopovers, and biodiversity conservation. Biodiversity encompasses all life and includes genetics, species, ecosystems and ecological processes.

- **Social benefits:** Open space contributes to community and individual quality of life by providing opportunities for recreational, civic, social and education interactions. It can contribute to community identity and sense of place by connecting residents to their natural and cultural heritage and by linking neighborhoods to the larger community.

- **Economic benefits:** Open space is often important for attracting and maintaining businesses in a community and a region. Proximity to open space often increases land values, and recreation and leisure activities can make significant economic contributions. Natural processes such as water filtration are much less expensive for communities than engineered alternatives such as water treatment plants.

- **Health benefits:** Access to parks, greenways and trails creates recreational opportunities and encourages a physically active lifestyle. Open space helps to ensure clean and safe community water supplies and food production resources. It also mitigates air, water and noise pollution.

[31] American Planning Association, "Seven Principles of Green Infrastructure", December 2002.

Chelmsford's green infrastructure must be managed and enhanced to support natural systems, protect groundwater, minimize flooding, improve economic viability, build community, and increase the well-being of residents. This section of the Master Plan provides an updated summary of the inventory of the Town's lands of conservation and recreation interests, and articulates the needs of the community, based on input received during the public input and plan development processes.

EXISTING CONDITIONS

Approximately 991.16 acres of the 2,620.42 acres classified as open space in Chelmsford are considered permanently protected. For purposes of the Master Plan, open space is defined as land that, for the most part, is free of structures. Permanently protected lands include state lands and municipal properties subject to Article 97, a conservation restriction or other deed restriction, as well as private properties subject to a conservation restriction or deed restriction. Unprotected lands of conservation and recreation interest include those that are held for open space, historic or recreation purposes, but that are not permanently protected. Parcels that are under a Chapter 61, 61A or 61B agreement are considered to have limited protection.

Very little vacant land remains in Town, as shown in the Land Use section of this Master Plan. In 2008, the Town had 4,950 acres of undeveloped land[32], of which 680 acres were considered to be developable.[33] As part of the Master Plan process, NMCOG staff updated the Town's inventory of lands of conservation and recreation interest, through an analysis of the Assessor's database, with input and review by Town staff and the Master Plan Committee. The inventory was categorized and compiled in matrix form using the Open Space and Recreation Plan Requirements outlined by the Division of Conservation Services (DCS). A copy of the updated NMCOG inventory is contained in Appendix D. The open space and recreation parcels are also shown on Map 17. A more detailed description and inventory of the individual properties can be found in the Town's Open Space and Recreation Plan prepared by the Town's Community Development Department. The Community Development Department's inventory was compiled using a different methodology than the one utilized by NMCOG.

The NMCOG open space and recreation parcels are broken out below according to ownership classification, i.e. publicly-owned and privately owned parcels. The information is broken out further in subsequent sections of this chapter, according to the level of protection from development that is afforded each property in the inventory by public, private and nonprofit owners.

[32] McConnell Land Use Data, University of Massachusetts
[33] 2008 Chelmsford Buildout Analysis Update, Northern Middlesex Council of Governments

Table 6.1 below summarizes NMCOG's Open Space and Recreation Land Inventory by ownership and classification (regardless of level of protection). The data shows that the Town's open space inventory now contains 2,620.42 acres, compared to 2,209.97 acres in 2003.

TABLE 6.1
2009 OPEN SPACE LAND ACREAGE BY OWNERSHIP/CLASSIFICATION

Ownership/Category	Acreage
Commonwealth of Massachusetts	73.75
Town of Chelmsford	1,439.34
Chelmsford Land Conservation Trust	74.28
Conservation Restrictions	71.03
Water Supply Districts	391.24
Cemeteries (Public)	56.38
City of Lowell	14.20
Chapter 61	112.23
Chapter 61A	256.97
Chapter 61B	28.93
Institutional and Other Private	102.07
Total	**2,620.42**

Source: Northern Middlesex Council of Governments

Permanently Protected Open Space

Permanently protected open space includes lands dedicated to conservation and wildlife habitat by state agencies, non-profit organizations, and the Town, as well privately-owned land under a conservation restriction (CR).

Chelmsford has nearly one thousand acres of permanently protected open space owned by the State, the Town, the Chelmsford Land Conservation Trust and the Water Supply Districts, or subject to a Conservation Restriction. Protected open space provides a number of important benefits to the community including water supply protection, preservation of natural resources and habitats, recreational opportunities, and retention of community character. Table 6.2 below summarizes the statistics regarding level of protection and ownership of the permanently protected parcels.

TABLE 6.2
PERMANENTLY PROTECTED LANDS

Ownership/Protection	Number of Parcels	Total Acreage
Commonwealth of Massachusetts	4	64.97
Town of Chelmsford	100	778.11
Chelmsford Land Conservation Trust	13	74.28
Conservation Restrictions (Public and Private)	10	71.03
Water Supply Districts	2	2.77
Total	**129**	**991.16**

Source: Northern Middlesex Council of Governments

State Lands: The State owns a total of seven parcels in Chelmsford, of which four (4) are permanently protected, comprising 64.97 acres. The two largest parcels are on Billerica Road (27.64 acres) and off Zeus Drive (20.60 acres). The State also owns the Bruce Freeman Rail Trail right-of-way, which runs through the Town, from the Lowell/Chelmsford line near Cross Point, to the Chelmsford/Westford line near Heart Pond.



Cranberry Bog Reservation in the winter months.

Town Lands: The Town owns 778.11 acres of permanently protected land. The five largest protected areas are the Cranberry Bog Reservation (180 acres), Russell Mill Town Forest on Mill Road (132 acres), the Lime Quarry Reservation on Littleton Road (60 acres), the George B.B. Wright Reservation (90.1 acres), and the Thanksgiving Forest (45.6 acres). It should be noted that only twenty (20) of the Town-owned, permanently protected parcels contain more than ten (10) acres.

Water Supply Lands: There are a total of 391.24 acres of water supply lands owned by the three Water Supply Districts within the Town, however, only two (2) parcels containing 2.77 acres are classified as permanently protected.

Conservation Restrictions (CR): A Conservation Restriction is a voluntary and legally binding document through which a land owner agrees to limit the use of his or her property for the purpose of protecting the conservation value of the land. The land owner receives an immediate tax deduction, and the grantee, usually a non-profit or municipal entity, receives assurance that the land will not be developed. There is one (1) Town-owned permanently protected parcel totaling 5.06 acres, and are nine (9) privately-owned permanently protected parcels totaling 65.97 acres, subject to a CR.

Land Trust Parcels: There are thirteen (13) parcels totaling 74.28 acres owned by the Chelmsford Land Conservation Trust. The largest land area held by the Trust is the Warren Wildlife Sanctuary (24 acres) on Boston Road.

Unprotected/Limited Protection Lands

Unprotected and limited protection lands include public lands currently held as open space, historic parcels, or recreation land that does not have legal permanent protection, as well as private parcels with limited or no restrictions on development. Limited protection open space includes land covered by revocable restrictions against development or a change in use. A farm that is under a Chapter 61A agreement is an example of temporarily protected open space. Similarly, school athletic fields, or other open space on school grounds, could be converted to another use and is included within this category. The following provides a summary of properties that fall under this classification:

Schools: There are 230.46 acres of school property in Chelmsford that are not permanently protected, including school athletic fields and playgrounds.

Town Parks: The Town owns 86.06 acres of park and playground land. The Community Education Office schedules use of outside school fields and Town athletic fields. The Town Common and North Common are also included in this category, but are currently under the control of the Board of Selectmen. While many residents may think of the Commons as cultural resources, they also provide important open space within the Town Center and Vinal Square, serving as a public gathering place for festivals, concerts, and other local events. While the Commons do not appear to be permanently protected from a legal perspective, public sentiment would most likely prohibit their conversion to another use.

Water Supply Lands: Five (5) parcels, totaling 34.10 acres, owned by the East Chelmsford Water Supply District, twelve (12) parcels totaling 87.94 acres owned by the North Chelmsford Water District, and fifty-eight (56) parcels totaling 266.43 acres owned by the Chelmsford Water District, are classified as having limited or no protection. Land under the ownership of the water districts is protected from development while the associated water supply is in use. It is important to note, however, that development of facilities related to water treatment, distribution and maintenance are allowed on these parcels and should a drinking water source be decommissioned, the land could be sold and developed.

Cemeteries: Chelmsford contains 56.38 acres of public cemetery lands, which are unlikely to be developed in the future. This includes one (1) cemetery parcel containing 0.43 acres, which is owned by the City of Lowell.

Other: There are eight (8) parcels in this category comprised of 20.38 acres of capped landfill at Swain Road.

Publicly-owned Unprotected/Limited Protection Lands

Unprotected/limited protection public lands include lands that are held as open space or used as recreation land, but do not have permanent protection. As shown in Table 6.3 below, there are two hundred seventy seven (277) parcels of unprotected/limited protection publicly-owned lands within the community, comprising a total of 1,129.06 acres. This includes eleven (11) cemetery parcels totaling 56.38 acres.

TABLE 6.3
UNPROTECTED/LIMITED PROTECTION PUBLIC LANDS

Ownership	Number of Parcels	Total Acreage
Commonwealth of Massachusetts	3	8.78
Town of Chelmsford (Including cemeteries)	199	717.18
City of Lowell	*2*	14.63
Water Supply Districts	73	388.47
Total	**277**	**1,129.06**

Source: Northern Middlesex Council of Governments

School properties comprise a portion of this land. Other properties include Southwell Field (26 acres), Swain Road Landfill, Roberts Field (20.6 acres), and the Chelmsford Country Club (35 acres).

There are three (3) water supply districts in Chelmsford which own seventy-three (73) parcels of land totaling 388.47 acres. In addition to the cemeteries that are publicly owned, there are six (6) privately owned cemetery parcels totaling 102.07 acres.

Private Unprotected/Limited Protection Lands

As show in Table 6.4 below, there are forty five (45) parcels of privately-owned land with limited or no protection. Collectively, these parcels comprise 500.20 acres.

TABLE 6.4
UNPROTECTED/LIMITED PROTECTION PRIVATE LANDS

Category	Number of Parcels	Total Acreage
Chapter 61	12	112.23
Chapter 61A	24	256.97
Chapter 61B	3	28.93
Cemeteries	6	102.07
Total	**45**	**500.20**

Source: Northern Middlesex Council of Governments

Under Chapters 61, 61A and 61B of the Massachusetts General Laws (M.G.L.), a land owner who has ten (10) contiguous acres being actively used as forest (Chapter 61), or five (5) contiguous acres in active agriculture (Chapter 61A), or five (5) contiguous acres of open space/ recreational land (Chapter 61B), is entitled to certain local tax abatements. These abatements are given in exchange for the property owner retaining the land in its current use as agriculture, forest, recreation or open space.

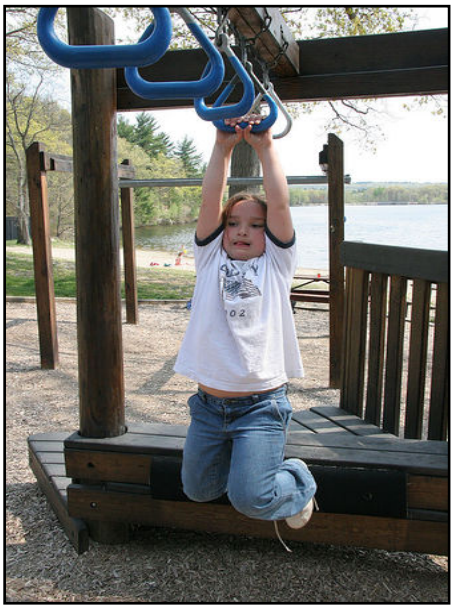
Chelmsford currently has 398.13 acres of private land enrolled in the Chapter 61, 61A and 61B tax abatement programs. Over half of this land (65%) consists of twenty four (24) agricultural parcels in the Chapter 61A program. Should the current land owners decide to sell or develop property covered under these programs, the Town of Chelmsford will have an opportunity to exercise its right-of-first-refusal, or may alternatively elect to assign this right to a non-profit conservation organization or the Commonwealth of Massachusetts. A land owner who has his property classified under Chapter 61, 61A or 61B, must notify the Chief Elected Official (Board of Selectmen Chairman), the Board of Assessors, the Planning Board, the Conservation Commission and the State Forester, when all or a portion of the land is being sold or converted to a disqualifying use.

It should be noted, that parcel 81-321-1 is classified and taxed by the town as being in both Chapter 61 and Chapter 61A categories. The acreage listed corresponds to the acreage in those categories, and the parcel is listed twice on the attached inventory (See Appendix D).

Recreation Programs

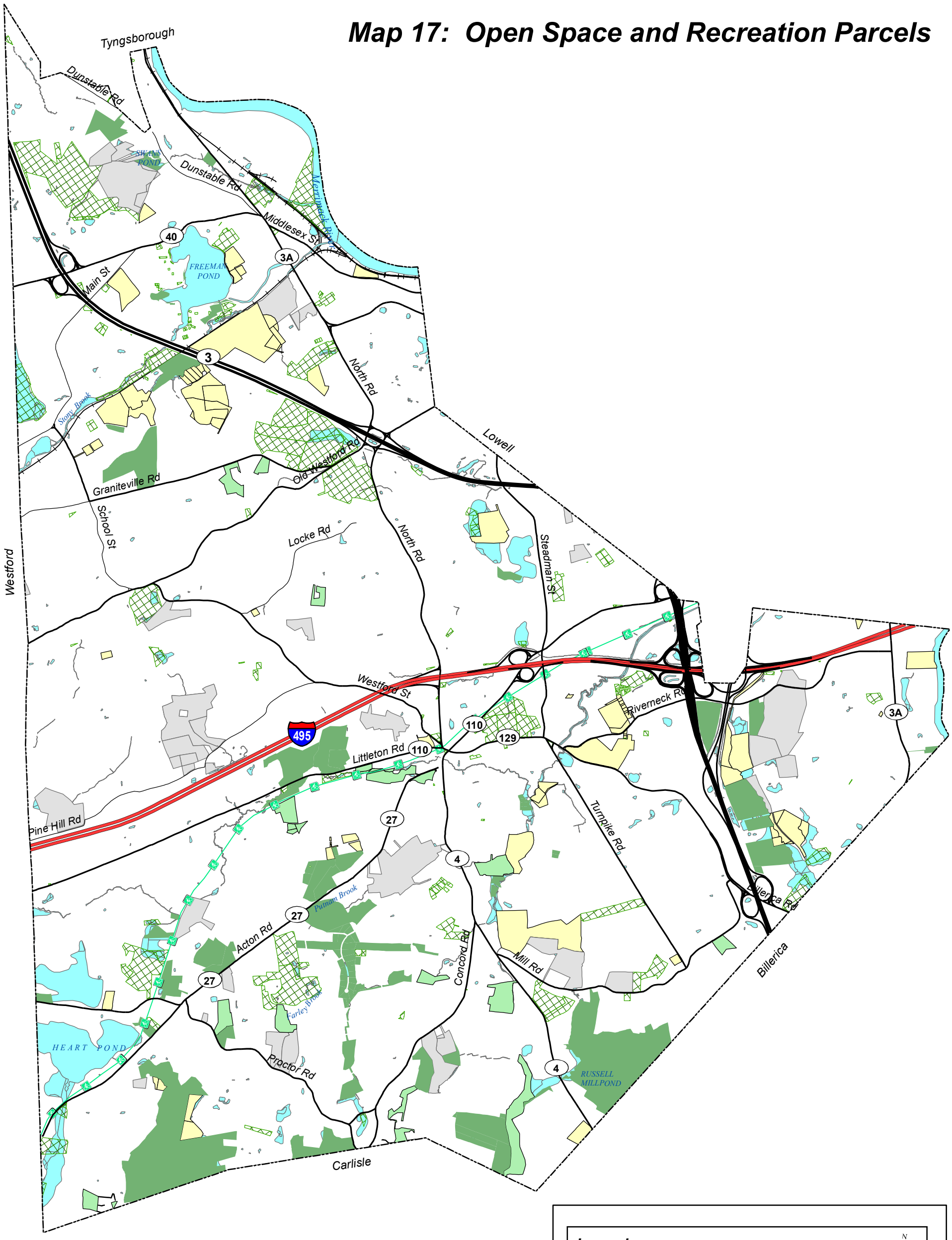
Chelmsford is an active, sports-oriented community, and the Town provides facilities and programs for its residents, including playing fields, courts and playgrounds for organized activities and leisure pursuits. In spite of recent budgetary challenges, the Town still manages to provide an array of programs for residents of all ages by partnering with private youth sports organizations, using volunteers wisely, and working collaboratively with non-profits, such as the Friends of the Library and the Friends of the Senior Center.

Public recreation facilities are detailed in Table 6.5 on page 246. All recreation facilities and programs are scheduled by the Community Education Office located at the Westlands School at 170 Dalton Road.



Varney Park in North Chelmsford

Map 17: Open Space and Recreation Parcels



Legend

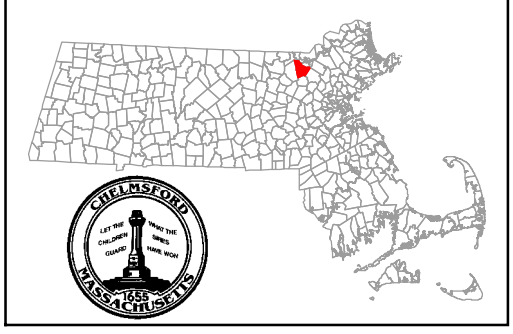
- Town Boundary
- Bruce Freeman Rail Trail
- Private Lands (Conservation Restriction, Land Trust)
- Public Lands (Town & State)

Limited or Unprotected Open Space

- Public Lands (Town)
- Private Lands (Chapter 61A, 61B, Cemeteries)
- Other Public Lands (Water Department, Cemeteries)
- Lakes, ponds, and open water
- Rail lines

N W E S

0 0.25 0.5 0.75 1 Miles



Data provided by MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation and is only reflective of information available on 10/13/2009.

Produced by:
The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

10/13/2009

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TABLE 6.5
PUBLIC RECREATION FACILITIES (EXCLUDING SCHOOLS)

Name	Location	Facilities
Old Town Hall	North Road	Various rooms, auditorium
Chelmsford Country Club	Park Road	Golf course, function hall
Chelmsford Forum	Brick Kiln Road, N. Billerica	Skating rink
Town Common	North Road & Westford Road	Open area
Highland Field	Highland Road	Soccer field
Little League Fields	Chelmsford Street	Baseball fields (4)
McFarlin Field	Chelmsford Street	Softball field
Murphy Field	Raymond and Mill Road	Soccer Fields (2)
Robert's Field	Old Westford Road	Baseball Fields (2), soccer field, playground, skating pond
Southwell Field complex	Wotton Street	Softball fields (3), Walking trail, playground, boat ramp, beach
Varney Playground	Adams & Sherman Streets	Baseball field, basketball court, tennis courts (2), beach, playground
Strawberry Hill Field	Jordan Road	Baseball field, playground

Source: Northern Middlesex Council of Governments

The nine (9) public schools all have athletic facilities, fields and/or playgrounds. Table 6.6 details the specific recreational resources that are available at each school.

TABLE 6.6
SCHOOL-BASED RECREATIONAL RESOURCES

Name	Location	Facilities
Byam School	Maple Road	Playground, open area
Center School	Billerica Road	Playground
Chelmsford High School	Richardson Road	Football stadium, track, tennis courts (6), basketball courts (3) outdoor hockey courts (3)
	Graniteville Road	Baseball Fields (2), softball fields (2), football field, field hockey fields (2), soccer fields (2)
East School	Carlisle Street	Softball field, basketball court, playground
Harrington School	Richardson Road	Soccer fields (2), playground
McCarthy Middle School	North Road	Football field, baseball field, softball field, soccer fields (2), basketball courts (2) Track, skateboard park, playground
Parker Middle School	Graniteville Road	Baseball field, softball field, playground, open area
South Row School	Boston Road	Softball field, soccer fields (4), tennis courts (5), basketball courts (2), playground

Source: Northern Middlesex Council of Governments

A complete detailed listing of the facilities and fields can be found on the Town's website at www.townofchelmsford.us/recreation-facilities-fields.com . Additional information regarding these facilities can also be found in the Facilities and Services section of this document.

The Town owns a public indoor skating rink, the Chelmsford Forum, which is operated by FMC Ice Sports. The facility is located on Route 129 at the Chelmsford/Billerica line, seats 3,500 patrons and offers a full service professional shop and ice skating instruction. The rink can be rented for private functions.

Chelmsford also owns two Town beaches at Freeman Lake and Heart Pond. From June to Labor Day, the beach at Freeman Lake is open and staffed. During the public input sessions, it was suggested that the beach at Freeman Lake/Varney Park be open to Town residents only, in order to avoid the security issues that occurred there in the past. It was also suggested that a ramp be constructed from the parking lot area to the playground.

The recently opened Bruce Freeman Rail Trail traverses the Town for more than six miles. The entire Phase I section of the trail extends from the Lowell line to the intersection of Routes 27 and 225 in Westford. The section of the Phase I project located in Chelmsford is 5.2 miles long, while an addition 1.6 miles are located in Westford. The trail is widely used by hikers, bicyclists, inline skaters and runners. Future phases of the trail outside of Chelmsford are in the planning and design stages, and when these phases are complete the trail will eventually extend all the way to Framingham. The Rail Trail is also a key link in completing the larger Bay Circuit trail which loops around the Boston metropolitan area, extending from Newburyport to Duxbury.

The Town has several other marked trails, mostly located in Conservation land, across fields and along waterways. These trails offer a variety of passive recreation opportunities including hiking, jogging, bird watching, mountain biking, horseback riding, and cross-country skiing. Maps of these trails can be found on the Chelmsford Open Space Stewardship Program website at www.thechelmsfordian.com/thechelmsfordian.

The Chelmsford Council on Aging, located at the Town's Senior Center at 75 Groton Road, offers recreational programs designed for senior residents. Educational programs in computers, dancing, exercise, band, chorus and woodworking are among the items offered, along with quilting, bingo and card games. The Council also sponsors day and bus trips, adult day care, and walking groups. More complete information can be found at www.townofchelmsford.us/Aging-Human-Services.com.

There are several privately-owned recreational facilities that serve the needs of town residents. These include the Chelmsford Swim and Tennis Club, the South Chelmsford Rod and Gun Club, and the Lowell Sportsman's Club.

LOCAL CAPACITY

Chelmsford has several organizations working to preserve open space and natural resources within the community. The various Town departments, water districts and conservation organizations work together to ensure that these resources are protected for future generations:

- The Chelmsford Conservation Commission administers the Massachusetts Wetland Protection Act and the local wetlands bylaw. The Commission also acquires, holds and maintains property on behalf of the Town in order to protect land and water resources. The Commission has one staff person who administers the permitting process and oversees day-to-day activities.

- The Planning Board is responsible for implementing the Town's Zoning Bylaw and working with developers to ensure that important conservation land and natural resources are protected during the development process. The Community Development Director oversees the administrative functions for the Planning Board.

- The Town's three water districts manage the Town's water supply, storage, and distribution system. They also provide public education regarding water conservation and environmentally- sensitive lawn care techniques.

- The Chelmsford Land Conservation Trust is a non-profit organization, founded in 1961, which focuses on land preservation in Chelmsford. The Trust works with local landowners in an effort to determine appropriate ways to preserve the Town's remaining undeveloped properties and open areas. Currently, the Trust owns eighty (80) acres of conservation lands.

- The Chelmsford Open Space Stewardship is a group of volunteers working on behalf of the Chelmsford Conservation Commission and other open space organizations. The Open Space Stewards maintain and improve the trail systems and facilities within these open spaces. Their activities range from picking up trash and keeping the trails free of fallen trees, to replacing worn out bridges, kiosks and other facilities. While the Conservation Commission protects and manages open space property, the Stewards maintain and improve the trail systems within these properties, and provide a daily presence that serves to deter vandals. To date, the Stewards have rehabilitated and improved trails on more than 1,000 acres.

While the Town's Department of Public Works Parks Division consists of one full-time employee who maintains the Center and North Town Commons, as well as the Town's traffic islands, the Town devotes very few of its budgetary resources to maintaining its conservation lands (a figure of 25 cents per acre was cited by the Chelmsford Open Space Stewardship during

the public input process), and relies heavily on volunteers. This is offset with the use of Community Preservation Funds for capital improvements.

During the Visioning Session for the development of the Master Plan, residents cited the Conservation Commission's ability to partner with local groups as one of the Town's strengths. It was noted that there are a multitude of entities who volunteer to maintain these facilities such as the Chelmsford Business Association, the Garden Clubs, the Lowell Sportsman's Club, the Police Department and the Fire Department.

OPEN SPACE AND RECREATION PLANNING EFFORTS

Chelmsford's 2003 Open Space and Recreation Plan established the following goals:

- Protect water resources;
- Expand access to and awareness of designated conservation areas;
- Improve existing conservation and recreation areas; and
- Create additional opportunities for passive recreation.

These goals depend upon a coherent strategy for open space acquisition, land management and stewardship, along with dedicated funding. Absent both the requisite policy framework and adequate staff capacity, the Town has implemented some of the 2003 action items. However, in some cases, recommendations have not been worked on since the plan was initially completed. For example, the 2003 action plan called for improving accessibility to the Town's open areas for persons with disabilities. Little progress on this issue has been made since 2003. The Town is in the process of preparing an updated Open Space and Recreation Plan.

As expressed during the public input process for the Master Plan, Chelmsford residents have long valued the Town's open space and recreation resources and have consistently demonstrated their commitment through actions such as the approval of local funding for open space acquisition and the adoption of the Community Preservation Act (CPA). In April 2001, Chelmsford voters passed a ballot question that allowed for a ½% surcharge on residential property tax bills, with an exemption for the first $100,000 in value. In April 2007, voters passed a ballot question that increased the surcharge to 1.5 %, with an exemption for low-income families and moderate-income seniors.

As discussed in the Cultural and Natural Resources section, the Community Preservation Act (CPA) provides a source of funding for Open Space Preservation, Historic Preservation and Affordable Housing through a surcharge on the property tax. The money is kept in a separate CPA account by the Town. Each category (Open Space, Historic Preservation and Affordable Housing) must receive a minimum of 10% of the CPA funds available each year. The remaining 70% may be allocated for any one of the three categories, as Town Meeting sees fit.

The CPA is administered by the nine-member Community Preservation Committee (CPC). The CPC holds an annual public hearing to receive comments on the proposed Community Preservation Plan. The CPC then finalizes the plan for allocating the funds, and presents its plan to Town Meeting for approval. Town Meeting then votes on the proposed recommendations.

The Open Space goals outlined in the FY 2010 Community Preservation Plan for FY 2010 include the following:

- Preserve open spaces that have value as water, wetland and wildlife habitat;
- Pursue the acquisition of parcels that will enhance linkages to existing open space;
- Preserve agricultural lands protected under Chapter 61A which represent Chelmsford's farming heritage and which add to the local food supply for humans and livestock;
- Meet current and future Town recreational needs for recreation areas; and
- Improve access to trail linkages to conservation and recreation land.

The CPC has established specific eligibility and selection criteria for Open Space projects seeking CPA funding.[34] Eligible projects include those that:

- Permanently protect important wildlife habitat, including areas that:
  - are of local or regional significance for biodiversity;
  - contain a variety of habitats, with a diversity of geologic features and types of vegetation;
  - contain a habitat type that is in danger of vanishing from Chelmsford; or
  - preserve habitat for rare species of plants or animals.
- Preserve Chelmsford's agricultural areas;
- Provide opportunities for passive recreation and environmental education;
- Protect or enhance wildlife corridors, promote connectivity of habitat or prevent fragmentation of habitats;
- Provide connections with existing trails and/or potential trail linkages;
- Preserve scenic views and/or lands bordering a scenic road;
- Protect drinking water quality and quantity;
- Provide flood control/storage capacity;
- Preserve important surface water bodies, including wetlands, vernal pools or riparian zones; and
- Preserve any primary or secondary priority parcel in the Open Space Plan.

The eligibility and selection criteria for CPA funded recreation projects are as follows:

- Enhance the quality and/or variety of passive and active recreational opportunities for all age groups (or more than one age group) and abilities;

[34] Chelmsford Community Preservation Committee Selection Criteria

- Supports multiple recreation uses;
- Creates new recreational opportunities;
- Serves a significant number of residents;
- Preserves or restores and/or expands existing recreational facilities (excluding maintenance);
- Addresses the needs targeted in the Open Space and Recreation Plan;
- Promotes links connecting parks and open space where possible;
- Public access to recreational resource by a variety of means;
- Consideration for parking requirements;
- Plan for maintenance of recreational resource;
- Include all normal safety considerations, including building and safety codes; and
- Availability of other sources of co-funding.

The CPC has funded the following Open Space projects from FY 2002 through FY 2010. [35]

- Red Wing Farm acquisition - $4,466
- Lime Quarry Parking Lot - $25,000
- Red Wing Farm Parking Lot - $25,000
- Cranberry Bog – Dam and Parking - $60,000
- Lewis (Sunny Meadow) Farm Acquisition - $1,500,000
- Open Space Capital Improvements - $25,000
- Pond Street Beach acquisition - $230,000

In addition, the CPC has created an annual "open space capital improvement" account to be utilized for improvements and replacements to trails, bridges, and other accessory structures.

[35] FY 2010 Chelmsford Community Preservation Plan

AGRICULTURE

In 2008, the Town acquired Sunny Meadow Farm (also called Walter Lewis Farm) using Community Preservation Act money. The 22.5 acre farm located between Robin Hill Road and Acton Road was sold to the Town for open space purposes and is subject to a Conservation Restriction, which will be held by the Chelmsford Land Conservation Trust. This agricultural property is managed by the Board of Selectmen as the site of Chelmsford's Walter F. Lewis Community Garden, a handicap accessible garden and tree propagation nursery, with remaining areas being leased to a private farmer for composting and plant propagation. A new parking area, irrigation system, and other improvements are planned to help support continued agricultural use of the open space.

The Town also acquired an additional 50-foot wide parcel of land that runs parallel to the transmission corridor between the Bruce Freeman Rail Trail (BFRT) and Robin Hill Road. A bicycle and pedestrian path is planned within the parcel to link Sunny Meadow Farm to the BFRT.

Approximately 254 acres of private land is classified as Chapter 61A agricultural land according to the Chelmsford Assessors records. Properties enrolled in Chapter 61A are taxed based on the current use of the property (i.e., the productive potential of the land for growing agricultural products), instead of the fair market or development value. As discussed in the Land Use and Zoning section of this document, the Town should review its zoning bylaw and development regulations with an eye toward better accommodating the needs of agricultural enterprises. Such revisions would serve to promote the preservation of farmland, allow agricultural enterprises to remain viable, and enhance the agricultural economy in Chelmsford.

COMMUNITY NEEDS

Professional planners have used a number of standards over the past several decades to evaluate the amount of park and recreation land appropriate for a given community. These standards were meant to serve as a guide and were interpreted according to the particular situation to which they were being applied. Over time, the figure of 10 acres per 1,000 population became the commonly accepted standard developed by the National Recreation and Park Association (NRPA), but this standard was determined to be inappropriate. [36] Currently, the NRPA recommends a range of between 6.25 and 10.5 acres of total open space per every 1,000 residents, and further refines these recommendations according to different types of open space, particularly active and passive open space.

[36] 1996 Park, Recreation, Open Space and Greenway Guidelines, National Recreation and Park Association.

NRPA standards only include municipally-owned, publicly accessible recreation and active parkland. Institutional, passive or privately-owned open space is not factored into the NRPA methodology. The standards are also organized according to the type of park, as shown in Table 6.7. (Note: there are no regional parks in Chelmsford, excluding Great Brook State Park which is principally located in Carlisle.) The NRPA Level of Service Approach standards are only applicable to park and recreation services. Therefore, natural resources and passive recreation open space parcels are excluded from the NRPA calculations.[37]

TABLE 6.7
NRPA STANDARDS FOR PARKLAND BY TYPE

Park Type	Acres/1,000 Population	Minimum Size	Service Area Radius
Mini-Park	0.25-0.50	1 acre or less	< .25 mile/5 minute walk
Neighborhood Park	1.0-2.0	15 acres	.5 mile/12 minute walk
Community Park	5.0-8.0	25 acres	1-2 miles/5 minute drive
Regional Park	Variable	200+ acres	30 miles/1 hour drive

Source: Northern Middlesex Council of Governments

As shown in Table 6.8 below, based on the 2000 Census population, Chelmsford should have a minimum of 355 acres of parkland in order to meet the NRPA standards. In fact, the Town owns 1,448.05 acres of open space, well above the NRPA standards. However, approximately, 185 acres of the town's open space are classified as "active recreation", which falls below the NRPA standard of 247 acres by nearly sixty-two (62) acres.

TABLE 6.8
PARK LAND ACREAGE NEEDS ANALYSIS USING NRPA STANDARDS

Park Type	Required Acres	Percentage (Active or Passive)	Required Active/Passive Areas (Acres)
Mini Parks 5 acres/1000	16.93	100/0	16.93 active/0 passive
Neighborhood	67.72	100/0	67.72 active/0 passive
Community Park	270.88	60/40	162.53 active/108.35 passive
Total Parkland Need for Chelmsford	355.53	-----	247.68 active/108.35 passive
Chelmsford Actual Acreage	1,448.05	-----	185.00 active/1,246.07 passive

Source: Northern Middlesex Council of Governments

National standards should not be applied without critical evaluation in terms of the relevance to local conditions. While industry guidelines developed with input from various regions of the country are a useful starting point, the Town's 2010 Open Space and Recreation Plan will serve as an effective public process and needs assessment for formulating recommendations and policies. The following section outlines the issues and opportunities identified during the public involvement process for the development of the Master Plan.

[37] Ibid, p. 49.

ISSUES AND OPPORTUNITIES

While the Town has successfully preserved open space, there are still large tracts of land that remain unprotected. The current economic climate, fiscal challenges and eventual limitations on Community Preservation funds can make it difficult to purchase additional land parcels, however, alternative methods of land conservation could be pursued. Restrictions and easements can limit the future use of land by restricting or prohibiting development. However, the land continues to be owned and operated by a private owner. If the restriction on development is in perpetuity, it provides as much protection for land as outright acquisition. In addition, it can cost less than outright acquisition, offers more flexibility to meet the needs of the landowner, and allows the property to stay on the tax rolls. In addition, grant funding is available from various state programs, including the Agricultural Preservation Restriction program, which purchases easements from farmers to restrict future development.

In the future, the Town could work with an interested landowner to create a limited development project. In a limited development project, a conservation group (usually a nonprofit but sometimes a governmental body) purchases a piece of land they are interested in conserving. A portion of the site that is less important for conservation purposes is carved off and developed, and the proceeds from the development are used to repay the money borrowed for the land purchase or used to fund future conservation efforts.

Bylaws and development regulations should include stronger incentives for developers to contribute to open space goals, such as creating linkages between existing conservation parcels or adding to the Town's pedestrian and bicycle infrastructure. For example, the existing Planned Open Space Development zoning bylaw, section 195-92, could be revised to specifically target the remaining large developable tracts of land by providing incentives such as density bonuses in exchange for increased open space. Furthermore, there are many parcels of open space owned by the Town that are not permanently protected through a deed restriction or other legally binding mechanism. Such parcels include the golf course and many of the school properties. Future attention should be paid to protecting some of these areas, as well as agricultural lands, historic properties and resources, forested lands, riverfront areas, water resources, and wildlife habitat.

During the public input process, it was noted that the Town does not have a formal process by which all Town departments and local conservation organizations are notified when a property owner seeks to remove a property from Chapter 61 status. As required by law, notice is presently sent to the Board of Selectmen and Conservation Commission. The Town Manager also sends notification to the Community Preservation Committee. However, there is no formal process for notifying other parties that may be interested in the property should the Town choose not to exercise its right-of-first-refusal. The Town should periodically review its inventory of Chapter 61 parcels to determine appropriate measures for conserving these parcels should they

become available in the future.

While the Conservation Commission currently holds 800 acres of reservation property, there are no criteria utilized on a Town-wide basis to determine whether a specific property should be placed under the care and custody of the Conservation Commission or another Town entity. The Conservation Commission has also noted that there are hundreds of parcels, primarily consisting of tax title properties, located throughout Town for which there is no specific management entity identified. Therefore by default, the Board of Selectmen is the management entity.

The Town's 2003 Open Space and Recreation Plan identified a need for improving linkages between areas of open space. This need was confirmed through the input received during the Visioning Session for this Master Plan Update. Much of the Town's open space and recreation land is fragmented and isolated. Establishing linkages and connections between these parcels should be a priority for the Town. Acquisition and protection of parcels adjacent to existing conservation and recreation lands is critical. As the Town updates its Open Space and Recreation Plan, particular attention should be paid to identifying possible trail systems and linkages between parcels of open space, and on identifying missing links in the existing network of trails. Continued expansion of the Town's trail network, and efforts to make these trails more accessible to residents is important. The following steps should be initiated:

- Examine and map the existing trail and pedestrian circulation system;
- Identify the missing links and pursue opportunities for easements to provide linkages, where appropriate and practical;
- Distribute Town-wide trail maps to increase public knowledge and awareness, as well as use of the Town's trails and open spaces;
- As part of the development review process, seek permanent trail easements, parking, and linkages, where appropriate; and
- Coordinate trail planning and maintenance efforts with bordering communities to ensure regional connectivity.

A need for additional recreational opportunities for adults was expressed by residents during the public input process. In addition, members of the School Committee identified a need for additional soccer fields and track facilities, as well as another Skateboard Park. Accommodating conservation and recreation interests will be important in the future as maintaining a balance between protecting land for conservation purposes and developing additional recreation facilities continues to be a subject of debate in Town. Competing and increased demand for playing fields was identified as problematic during the public input sessions. Such demand does not allow sufficient time for rest and recovery of the turf or allow for rotation of the fields. Some field maintenance is performed by volunteer youth sports organizations. While this assistance is helpful and appreciated, it does not allow for a coordinated maintenance and management effort.

The establishment of an Open Space and Recreation Advisory Committee should be explored to assist the Town with management and maintenance of existing facilities and in identifying future open space and recreation needs. The Open Space and Recreation Advisory Committee would also assist the Town in establishing use regulations where they currently do not exist.

While Chelmsford residents support protecting open space, the Town recognizes that it needs to focus on appropriately managing the properties that it already owns. Sometimes communities view open space acquisition as an end objective that requires no further action or investment. However, the absence of a management plan leaves open space properties vulnerable to vandalism and abuse, vegetation overgrowth, and eventually, a loss of public access. The best way to protect open space is to assure that residents use it properly, and, to encourage public use the property must be maintained.

While the Conservation Commission has a single set of regulations, referred to as the Reservation Use Restrictions, which pertain to the use of all its lands, the town should consider developing site-specific management plans for key parcels that would include such issues as allowed uses and activities, trail and facilities maintenance, and habitat management. The School Department has a set of use regulations for its recreational facilities.

It was noted during the public process that there is no maintenance funding provided for properties under the care and custody of the Board of Selectmen. Residents also voiced concern over the level of maintenance for athletic fields and facilities. The expansion of the Open Space Stewardship program or establishment of a similar entity should be explored to provide supplemental support to the Town for maintenance of recreation facilities and miscellaneous properties under the custody of the Board of Selectmen.

The Chelmsford Open Space Stewardship (COSS) provides an invaluable service to the community through their diligent efforts to maintain certain open space and conservation properties. All of its funds are from private contributions. While the use of volunteers is extremely important and helpful, over the long-term the Town needs to develop a long-term management plan to ensure the continued viability and stability of the COSS program.

During the Master Plan Committee meetings, the Fire Department indicated that emergency response for incidents occurring on conservation land can be difficult, due to the lack of location and address information. The Department is actively working to erect signage at these locations that will assign an address to each site. The Fire Department also noted that access to some of these areas, such as Deep Brook Reservation and the Russell Mill Town Forest, is difficult for emergency vehicles and personnel. The presence of the Chelmsford Open Space Stewardship program volunteers in these areas has significantly reduced the incidence of illegal burning, according to Fire Department officials. In responding to these concerns, the public has indicated

that there is a need to improve parking and access at many of these properties, and that a methodology is needed for calculating the number of parking spaces that are needed at each location. Throughout the Master Planning process, residents and officials noted the need for additional parking to accommodate those using the Bruce Freeman Rail Trail.

In summary, the Master Planning process has shown that the Town needs to maintain and care for the land and facilities it already owns, gradually acquiring additional holdings to connect open space where possible, and use its regulatory powers to assure high-quality open space in development and redevelopment projects. A comprehensive open space system requires criteria for evaluating open space parcels, zoning and non-zoning bylaws that can help meet open space goals, and dedicated funding to acquire, improve and manage these lands.

RECOMMENDATIONS

- Identify and prioritize open space and potential recreation parcels to be targeted for future acquisition and protection.
- Construct a playground at the Pond Street Beach property, and lay out and define an adequate parking area at this facility.
- Pursue alternative methods of land conservation, through easements, participation in the Agricultural Preservation Program, and the use of limited development projects.
- Strengthen conservation and preservation incentives with the Town bylaws and regulations.
- Maintain a current inventory of Chapter 61, Chapter 61A and Chapter 61B parcels and create a formal notification process to be utilized when a property owner seeks to remove a property from Chapter 61 status. This process should include notifying non-profit entities should the Town choose not to exercise its right-of-first-refusal.
- Develop criteria to determine the appropriate control, protection and management entity for Town-owned parcels that are presently undesignated, as well as for future properties that the town may acquire.
- Identify possible future linkages between open parcels and identify missing links within the town's trail network. This can be accomplished through GIS mapping. Promote a trail network that provides connectivity between neighborhoods, schools, recreation facilities, and conservation land.
- Seek trail easements through the development review process, where appropriate.

- Promote a regional approach to open space and recreation planning through outreach and cooperation with bordering communities.

- Distribute Town-wide trail and conservation land maps to enhance awareness and increase the use of the town's trails and open spaces. Production of the maps could be sponsored by the business community or other community groups in exchange for advertising.

- Develop an overall management and maintenance plan for the Town's open space and recreation properties. Site-specific management plans for key parcels should be developed that address such issues as allowed uses and activities, trail and facilities maintenance, and habitat management.

- As indicated during the public involvement process, the Town will need to create additional active recreation areas. The establishment of an Open Space and Recreation Advisory Committee, as outlined in M.G.L. c. 45, Section 2, would assist in providing additional direction and guidance in the future.

- Improve access to open space and recreation facilities for those with disabilities.

- Create additional parking for the Bruce Freeman Rail Trail and for other open space and recreational areas, as appropriate.

- Seek additional resources, support and monetary assistance for the Chelmsford Open Space Stewardship.

- Develop a Master Plan for the UMass Lowell West Campus and Oak Hill parcels that has an open space component.

VIII. NATURAL, HISTORICAL AND CULTURAL RESOURCES

INTRODUCTION

Natural resources include land, surface water, streams, wetlands, aquifers, wildlife habitat, open space and riparian corridors, and other ecologically sensitive areas. Cultural resources include historic buildings and their settings, outbuildings such as sheds and barns, archaeological remnants and features, and archaeologically sensitive areas. Landscape features such as stone walls and foundations, burial grounds and cemeteries, trails and historic trees are also an important part of the town's history, contribute to its inventory of cultural resources and are key public assets. The value placed on the preservation of natural and historic resources can play a significant role in defining a community's unique sense of place.

Goal Statement: ***Maintain, protect and preserve the natural, cultural and historical resources that provide the town its unique identity and enhance the quality of life of its residents.***

- ***Minimize the environmental impact of future development and redevelopment projects to preserve natural resources and protect public health.***
- ***Identify, prioritize, protect, and maintain outstanding natural features and resources, endangered habitats, agricultural landscapes, and historic and archaeological resources.***
- ***Foster public appreciation and civic pride in the town's historic and natural resources.***
- ***Promote Chelmsford's cultural assets and resources.***
- ***Require the remediation of contaminated sites to protect the environment and to return vacant sites to productive use.***

NATURAL RESOURCES

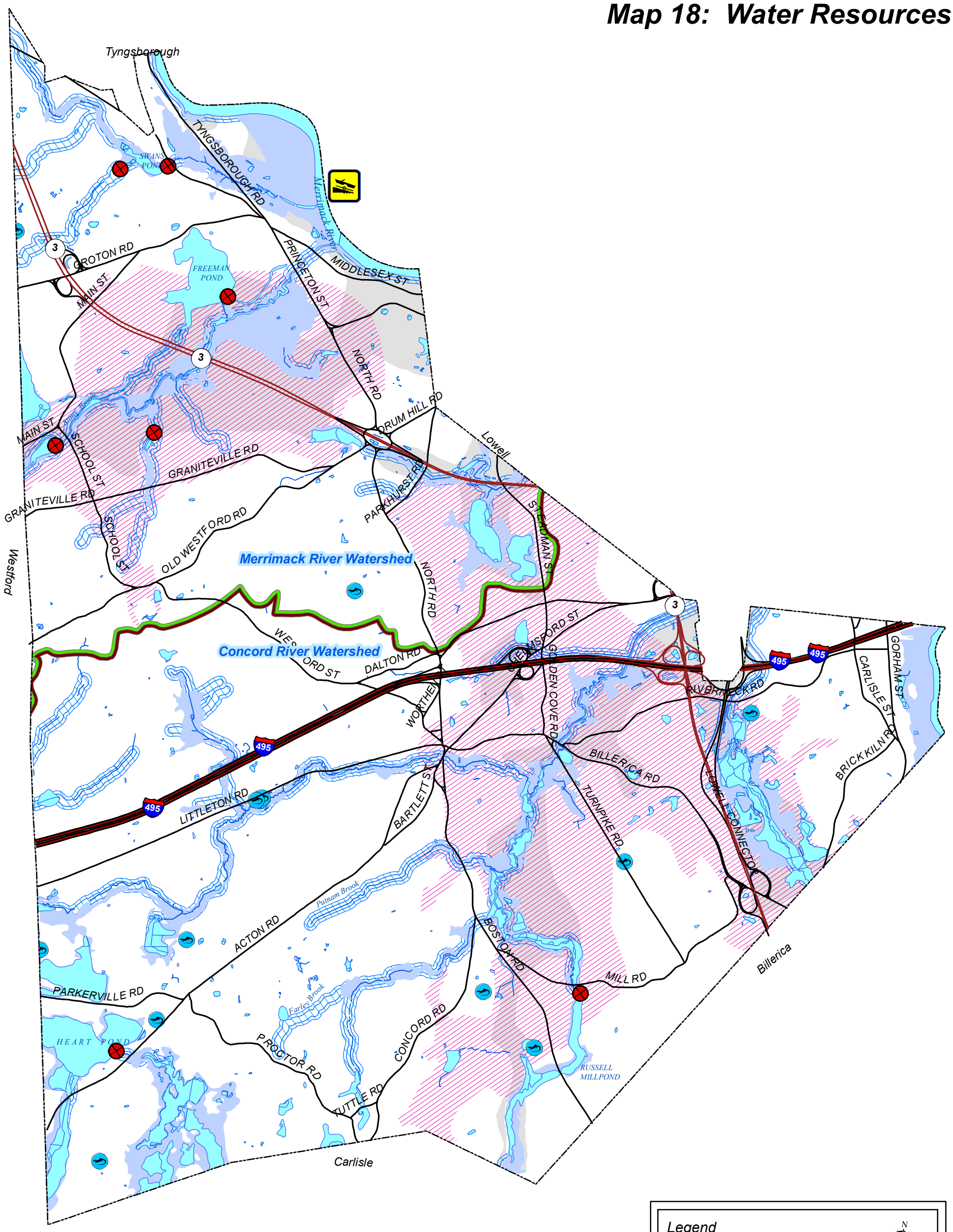
Water Resources

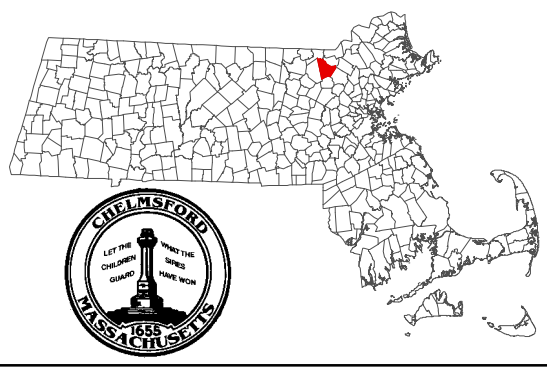
Chelmsford has an extensive hydrological system that includes groundwater, wetlands and surface water, as shown on Map 18. The town is located within the Merrimack River basin, and falls within two subwatersheds of the river basin: the Merrimack, and the Sudbury, Assabet and Concord (SuAsCo). Much of the land in Chelmsford eventually drains into the Concord River, which forms part of the town's eastern border. Surface water bodies account for 2.3% of the town's area (327 acres).[38]

The benefits of clean water cannot be overstated. Adequate supplies of clean water are vital to the survival and propagation of fish and other aquatic life, as well as to wildlife and humans. The cost to society of not maintaining or restoring water quality, in terms of public health, economics and other factors, is incalculable.

[38] 1996 Master Plan for the Town of Chelmsford.

Map 18: Water Resources





Data provided by MassDOT, MassGIS, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

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The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

11/06/2009

jcm

Legend

- Town Boundary
- Boat launches
- Certified Vernal Pools
- Concord River Watershed
- Merrimack River Watershed
- Dams
- Lakes, ponds and open water
- 100 - Year flood plain
- DEP Zone 2 (Welllhead protection)
- Rivers Protection Act
- Aquifers

N W E S

0 0.25 0.5 0.75 1 Miles

Rivers and Streams

The 180-mile Merrimack River flows through central and southern New Hampshire and northeastern Massachusetts and functions as a critical resource for people and wildlife. It is the second largest surface drinking water source in New England, serving more than 300,000 people in the Greater Lowell area.[39] The portion of the River that flows through Chelmsford is referred to as the "Lower Merrimack River". Federally-listed bald eagles overwinter here, and it is an important migratory route for waterfowl and songbirds.

The Merrimack River forms the Town's northeastern border with Lowell and Tyngsborough. Both the Merrimack River and the Concord River are classified as Class B waterways. Designated uses for Class B Waterways, as established by the Massachusetts Department of Environmental Protection (DEP), include recreational uses, fish and wildlife habitat, agricultural and industrial use, and navigation. While the Merrimack River meets Class B standards during normal weather conditions and periods of low flow, under wet weather conditions, the River is negatively impacted by combined sewer overflow (CSOs) from communities north of Chelmsford, such as Nashua and Manchester, New Hampshire. Chelmsford has been active in improving access to the Merrimack River. For example, improvements have been made at Southwell Field, which hosts the only public boat launch between Lowell and New Hampshire.

The Federal Water Pollution Control Act of 1972 and its amendments require that states classify water bodies according to the degree of threat or impairment for designated uses. In 2008, DEP produced the Massachusetts Year 2008 Integrated List of Waters, listing the condition of waters under Sections 303(d) and 305(d) of the Clean Water Act. The list identifies several water bodies in Chelmsford as impaired for one or more uses, requiring the establishment of a Total Maximum Daily Load (TMDL) to set the maximum allowable pollution from point, non-point and natural sources. Both the Merrimack River and the Concord River are listed on the 2008 Massachusetts list of impaired waters. [40] The Merrimack River is considered impaired based on the presence of metals and pathogens, while the Concord River impairment factors include metals, nutrients, pathogens and exotic species.

Eleven named streams run through town: Beaver Brook, Crooked Spring Brook, Scotty Hollow Brook, Farley Brook, Putnam Brook, Deep Brook, Stony Brook, Black Brook, Hales Brook, Cold Spring Brook and River Meadow Brook. The lands along the town's waterways provide some of the most pristine and natural vistas within the community. These streams provide residents with areas for fishing, hiking, and canoeing. In addition, they serve as wildlife corridors and habitat for many species. River Meadow Brook, Stony Brook, and Crooked Spring Brook are stocked with trout by the state each Spring. Black Brook is listed on the 2008 Massachusetts Integrated Waters List as being impaired due to siltation, unknown toxins,

[39] The Merrimack River Watershed Council, www.merrimack.org
[40] Department of Environmental Protection,"Massachusetts Year 2008 Integrated List of Waters".

pathogens and turbidity. Stony Brook is also considered by DEP to be impaired for nutrients, pH, organic enrichment (low dissolved oxygen) and pathogens. Deep Brook is considered impaired due to organic enrichment, low dissolved oxygen and siltation. River Meadow Brook is considered by DEP to be impaired as a result of pathogens.

Natural buffers around surface water bodies are effective barriers against pollutants that might otherwise enter the water from surface runoff or groundwater discharge. Vegetated buffers absorb nitrogen and phosphorous pollution, neutralize organic and hydrocarbon chemicals, and detain sediment, including the heavy metals that often adhere to sediment. The Massachusetts Rivers Protection Act is a powerful tool that restricts development within 200 feet of any perennial river or stream. If properly enforced by the Conservation Commission, the Act will ensure adequate buffering around Chelmsford's perennial streams.

Surface Water Bodies

The quality of surface waters is influenced by the natural ecology, hydrology and geomorphology of the land area they drain, and also by the land use patterns resulting from human activities within their respective basins or watersheds. Chelmsford has two large lakes/ponds: Freeman Lake (also known as Newfield Pond and formerly known as Crystal Lake) and Heart Pond (also known as Hart's Pond or Baptist Pond). At 92.5 acres and 76.8 acres in size respectively, both water bodies have developed shorelines with public access, and are extensively used for recreation. Heart Pond interconnects with the Cranberry Bog Reservation, and is considered by DEP to be impaired due to pathogens. Freeman Lake is also considered to be impaired by metals (mercury), organic enrichment (low dissolved oxygen), noxious aquatic plants and exotic species.

Other significant ponds in town include Swains Pond, Eagle Mill Pond and Russell Mill Pond. Russell Mill Pond was created when water was impounded by a dam initially constructed to serve an industrial facility, and is classified by DEP as impaired based on exotic species and flow alteration.

Surface water quality issues are being addressed through the town's comprehensive sewer project. For ponds and intermittent streams that are not protected by the Rivers Protection Act, Chelmsford should consider establishing and enhancing natural land buffers. This is particularly important for seasonal drainage channels that fill with water during major storm events when pollutant and sediment loads are high. The protection of land around intermittent streams could be explicitly identified as a performance standard for residential and non-residential development.

Wetlands

The importance of wetlands to public health and the natural environment is well-known and protected by state and federal law. The Massachusetts Wetlands Protection Act gives the

Commonwealth and the local Conservation Commission the authority to regulate activities affecting wetlands for the following specific purposes: protection of public and private water supply; protection of groundwater supply; flood control; prevention of storm damage and pollution; protection of land containing shellfish; protection of fisheries; and protection of wildlife habitat.

The Town of Chelmsford contains approximately 1,379 acres of wetlands and floodplain, accounting for almost 9.3% of the Town's total land area. As is typical of the region, more than half of the wetlands are non-forested, though extensive wooded wetlands remain in South Chelmsford. Chelmsford's wetlands vary in size from less than one acre to approximately 125 acres, and are generally associated with waterways and water bodies, including the Merrimack River, Heart Pond, Freeman Lake, Hales Brook, Stony Brook and Beaver Brook. The smaller tributaries that flow into these streams also contain wetland jurisdictional areas, as well as buffer zones that fall under the jurisdiction of the Chelmsford Conservation Commission.

The Town of Chelmsford enacted a local wetlands bylaw in 1996, and the bylaw was updated in 2009 by strengthening areas of jurisdiction and setbacks. The purpose of Chapter 187 is to "protect the wetlands, water resources, flood prone areas, and adjoining upland areas…by controlling activities deemed by the Conservation Commission likely to have a significant or cumulative effect on Resource Area values including but not limited to the following: public or private water supply, groundwater supply, flood control, erosion and sedimentation control, storm damage prevention, water quality, prevention and control of water pollution, fisheries, fresh water shellfisheries, wildlife habitat, rare species habitat, agriculture, aquaculture, recreation and aesthetic values deemed important to the community". The local wetlands bylaw includes a 50-foot no-build zone, a 30-foot no impervious surface restriction, and a 25-foot no-disturbance zone.

The 2003 Chelmsford Open Space and Recreation Plan recommended that the Town develop a process for transferring tax title lands containing wetlands to the Conservation Commission as a means of further protecting these resource areas. It also recommended that the town strengthen its local wetland bylaw to include adjacent upland resource areas. The Plan further recommended that the Town work with Billerica and Carlisle to extend Great Meadows as a wetland corridor along the Concord River.

Aquifer Recharge Areas

Groundwater recharge is part of the hydrologic cycle in which aquifers are recharged by precipitation, surface water infiltration, or hydrologic exchange with other aquifers. Since recharge of aquifers generally occurs through inflow from the surrounding drainage basin and nearby surface water bodies, the quality of surface water is critical to the quality of ground water, and therefore, to drinking water.

All of Chelmsford's drinking water originates from aquifers. Overall the Town is serviced by public water systems managed by three independent water districts: the Chelmsford Water District located at 20 Watershed Lane, the East Chelmsford Water District located at 75 Canal Street and the North Chelmsford Water District located at 74 Washington Street (See Map 19). The town's aquifers, both high and low yield, closely correspond to the Russell Mill Pond, River Meadow Brook, Stony Brook, Hales Brook and Black Brook watercourses.

The aquifers in Chelmsford are rather significant in size. The Town's water districts have indicated that the capacity exists to increase water production by 20% to accommodate future growth. However, significant future expansion beyond that level may have to come from the Merrimack River rather than groundwater.

The town has adopted an Aquifer Protection Overlay District to protect the town's drinking water supply and to limit adverse effects from inappropriate development and use of the land. Certain land uses within the overlay district are prohibited or allowed only by special permit.

Flood Hazard Areas

The Town has reported recurrent flooding problems along Tyngsborough Road (Route 3A) in North Chelmsford when the Merrimack River is at flood stage. The severity of this flooding has been significant enough to warrant closing of the roadway for days at a time. The flooding in this area affects the Williamsburg Condominiums, along with Butterfield and Sleeper Streets.

In addition, Stony Brook has a 100-year flood plain that extends back from its confluence with the Merrimack River and under Route 3. There is also significant flood plain throughout a large portion of River Meadow Brook's watershed, much of it extending upstream from where it crosses under Interstate 495. In 2002, the River Meadow Brook floodplain elevation was increased from 106 feet to 108 feet through the FEMA amendment process. There are seven dams located within Chelmsford, none of which are classified as high hazard, as shown in Table 7.1 below.

TABLE 7.1
HAZARD CLASSIFICATION OF CHELMSFORD DAMS[41]

Dam Name	Impoundment Name	Hazard Class	Downstream Population
Stony Brook Dam	Stony Brook	Significant	500
Crooked Spring Dam	Crooked Spring Pond	Significant	100
Lowell Sportsmans' Club Dam	Scotty Hollow Brook	Low	N/A
Swains Pond Dam	Swains Pond	Low	200
Heart Pond Dam	Heart Pond	Significant	50
Russell Mill Pond Dam	Russell Mill Pond	Significant	300
Newfield Pond Dam	Freeman Lake	Low	200

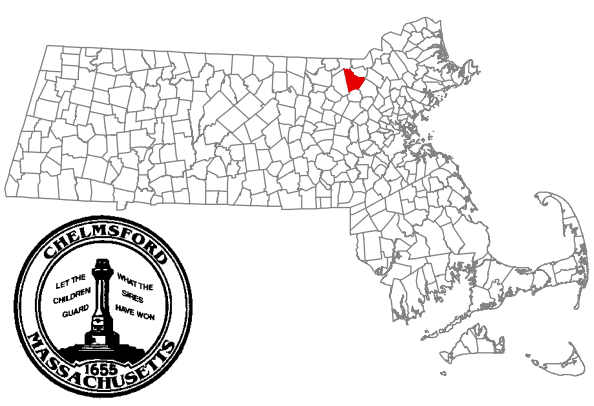
Source: Massachusetts Department of Conservation and Recreation

The Town adopted the Massachusetts Department of Conservation and Recreation (DCR) model flood plain bylaw in April 2004.

[41] Pre-Disaster Mitigation Plan for the Northern Middlesex Region, Northern Middlesex Council of Governments, July 2006

Map 19: Water Districts

Tyngsborough
Lowell
Westford
Billerica
Carlisle
TYNGSBOROUGH RD
SWANS POND
Merrimack River
PRINCETON ST
MIDDLESEX ST
GROTON RD
MAIN ST
FREEMAN POND
NORTH RD
DRUM HILL RD
PARKHURST RD
Stony Brook
SCHOOL ST
GRANITEVILLE RD
OLD WESTFORD RD
WESTFORD ST
DALTON RD
WORTHEN RD
CHELMSFORD ST
GOLDEN COVE
STEADMAN ST
RIVERNECK RD
CARLISLE ST
GORHAM ST
BILLERICA RD
LOWELL CONNECTOR
BRICK KILN RD
TURNPIKE RD
BARTLETT ST
LITTLETON RD
ACTON RD
Putnam Brook
BOSTON RD
MILL RD
PARKERVILLE RD
HEART POND
PROCTOR RD
CONCORD RD
Farley Brook
TUTTLE RD
RUSSELL MILLPOND
3
495



Data provided by MassGIS, MassDOT, The Northern Middlesex Council of Governments, the Town of Chelmsford and the Chelmsford Water District.
Please note that overlap of the service areas of the East Chelmsford Water District and the Chelmsford Water District is caused by the need to maintain higher water pressures than East Chelmsford can produce.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

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The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
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11/06/2009 *jcm*

Legend

- *Town Boundary*
- *Public Water Supplies*
- *Lakes, ponds and open water*

Chelmsford Public Water Providers

- *North Chelmsford Water District*
- *Chelmsford Water District*
- *East Chelmsford Water District*

N W E S

0 0.25 0.5 0.75 1 Miles

The overlay bylaw covers all special flood hazard areas designated on the National Flood Insurance Program, Flood Insurance Rate Map (FIRM). No new structures may be constructed and no existing buildings may be altered within the floodplain district, except by special permit from the Zoning Board of Appeals.

Geology and Landscape

Located within the Merrimack Valley, Chelmsford's terrain generally varies from 100 to 200 feet above sea level, with the highest point in town being Robbins Hill at 408 feet. On a clear day during the winter months when the trees have lost their leaves, one can see the City of Boston from this peak. This hill also represents an interesting geologic feature given its limestone composition and neutral soil, which supports a natural habitat unique to this area of the state. The town is divided into two drainage basins: the Merrimack and the Concord. The glaciers that covered much of New England originally formed the Town's landscape and it continues to be shaped by its rivers. The erosion and accumulation of organic materials on the land since the glaciers receded, has created a diversity of soil types. Large deposits of sand and gravel were left behind by glacial melt water. Nonetheless, the crust of the earth is still visible in bedrock outcroppings, quarries and road cuts. The surficial geology of the town can be depicted on the Map 20. Chelmsford is known for its granite, which is mined at the Fletcher Granite Company, located on the town's border with Westford. The quarry has been active since the early 1800s. Limestone deposits extend from Robbins Hill to the Limestone Quarry reservation off Route 110.

Chelmsford has a multitude of surface water bodies that contribute to its landscape character, which are discussed further in the Water Resources section of this document. Most of the streams are surrounded by wetlands and provide natural wildlife habitat and scenic vistas. The 310-acre Cranberry Bog Reservation, which was purchased by the Town in 1986, is one of the town's most unique features. Half of the site lies within the Town of Carlisle and includes 40 acres of active cranberry bog.

Soils

Soil is an important resource that impacts hydrology, supports plant life and is critical to agriculture. Soils are vulnerable to erosion, which can impact streams and water quality. Soils are classified according to their origin, formation and identifiable properties. Soils with similar properties comprise a soil association.

According to the most recent soil survey done by the Natural Resources Conservation Service in 1989, there are thirty-seven different mapped soil units found in Chelmsford. These can be classified into five main soil associations: Urban Land; Mucky; Paxton, Hollis, Woodbridge; Scituate Essex, and Windsor Hinckley, which are shown on Map 21. Soils that form in glacial outwash, such as the Hinckley and Windsor series, transmit groundwater more readily than soils

Map 20: Surficial Geology

Tyngsborough
Lowell
Westford
Billerica
Carlisle
40
3A
3
4
495
110
129
27

Legend

- Town Boundary

Hydrology
- Ponds and lakes
- Open Water
- Swamp land

Shallow Bedrock
- Outcrop & Shallow Bedrock

Postglacial Deposits
- Artificial Fill

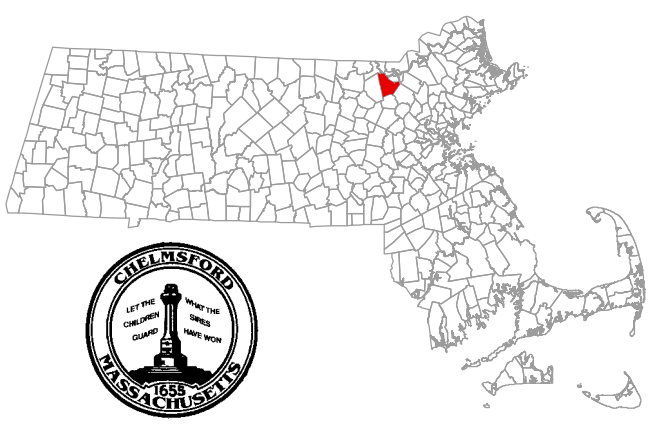
Postglacial Deposits
- Floodplain Alluvium
- Swamp Deposits

Glacial Stratified Deposits
- Coarse
- Glaciolacustrine Fine
- Glaciomarine Fine

Till Bedrock
- Thick Till
- End Moraine Deposits

Till Bedrock
- Bedrock Outcrop
- Thin Till

0 0.25 0.5 0.75 1
Miles



Data provided by the United States Geological Survey, MassGIS, MassDO, The Northern Middlesex Council of Governments and the Town of Chelmsford.

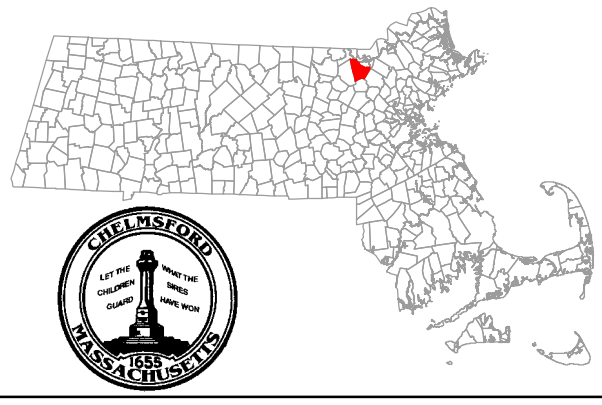
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Map 21: Soil Associations

Tyngsborough
Westford
Lowell
Billerica
Carlisle
TYNGSBOROUGH RD
MIDDLESEX ST
PRINCETON ST
GROTON RD
3
NORTH RD
DRUM HILL RD
MAIN ST
SCHOOL ST
GRANITEVILLE RD
OLD WESTFORD
STEADMAN ST
WESTFORD ST
CHELMSFORD
GOLDEN CIRCLE
NORTH RD
495
RIVERNECK RD
GORHAM ST
LITTLETON RD
TURNPIKE RD
BILLERICA RD
CONNECTOR
ACTON RD
CONCORD RD
MILL RD
PARKERVILLE RD
PROCTOR RD
TUTTLE RD
BOSTON RD



Soils data provided by the Natural Resources Conservation Service (NRCS) a division of the United States Department of Agriculture, MassDOT, and the Town of Chelmsford. Please refer to NRCS metadata regarding the accuracy and detail of soils data.

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Legend

N W E S

Town Boundary

Hydrology

Ponds, lakes and Open Water

Wetlands

Soil Associations

Urban Land

Mucky

Paxton, Hollis, Woodbridge

Scituate, Essex

Windsor, Hinckley

0 0.25 0.5 0.75 1 Miles

formed in glacial till (such as Paxton and Canton soils) or shallow-to-bedrock soils (such as Charlton-Hollis-Rock Outcrop Complex soils). Upland outwash soils are at a greater risk for drought than upland till soils and tend to be lower in nutrients. Deep, very poorly drained organic soils, such as Freetown Muck, support wetland communities, are high in nutrients, and store water due to their location in depressions and topographic low areas.

The largest soil association found in Chelmsford, in terms of extent, are the Urban Land soils that are made up of sand and silty loams over glacial till. These are moderately to well-drained soils that lend themselves to urban development.

The second largest soil group is the excessively well-drained loamy sands of the Hinckley, Windsor, Carver, Merrimack and Suncook soils. These soils are comprised of glacial outwash and tend to be loose, sandy material that is extremely permeable and does not lend itself to septic systems, or other uses with high probability of groundwater contamination. According to a 1995 study by Weston and Sampson, over 50 percent of Chelmsford's land area is not suitable for septic systems.

The third soil group consists of small areas of hydric soils found along and under water bodies. These soils are wet most of the year, high in organic matter, relatively flat and are found in areas with a high water table. These soils are not well suited to development and consist of muck of the Saco Variant, Swansea and Freetown subseries.

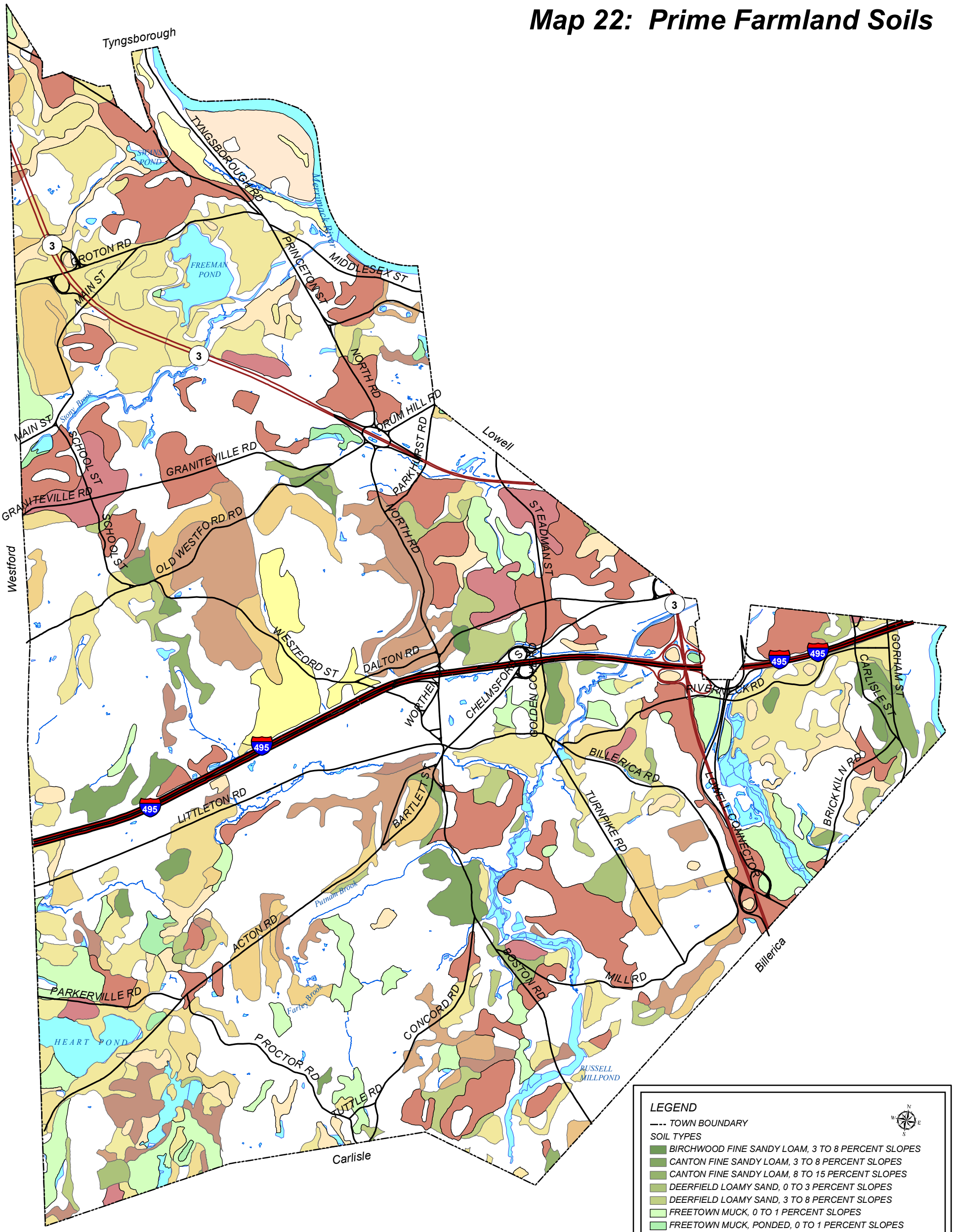
The fourth soil association consists of Scituate/Essex soils which have major limitations related to slow permeability in the dense till substratum and seasonal high water tables. Large surface and subsurface stones and boulders may interfere with excavation. Erosion hazards are likely during development, so measures should be taken to prevent erosion.

The last major soil group is the highly erodible soil found on slopes greater than 15 percent. Given that soil erosion is a significant problem throughout the region, these soils need to be given careful consideration before disturbance takes place. These soils include fine sandy loams of the Canton and Montauk series, and of the Charlton-Hollis-Rock-Outcrop Complex, Hollis Rock-Outcrop-Charlton Complex and the Rock Outcrop-Hollis Complex.

Farmland Soils

As shown on Map 22, a total of 1,930 acres, or 13% of the Town's land area consists of Prime Farmland Soils, which are especially well-suited for agriculture. These soils are considered to be valuable for the production of crops. Chelmsford was originally established as an agrarian community but most farms have been lost to development. As outlined in the Land Use section of this document, in 2008, 265 acres or 2.3% of the Town's land area consisted of lands under Chapter 61, 61A and 61B. Chelmsford's 2003 Open Space and Recreation Plan recommended that the Town preserve agricultural land for farming and wildlife habitat.

Map 22: Prime Farmland Soils



Data provided by the U.S. Department of Agriculture, Natural Resources Conservation Service. "The data provided is from a digital soil survey and generally is the most detailed level of soil geographic data developed by the National Cooperative Soil Survey." The data was first published January 3, 2007 and was made available through MassGIS. Additional data provided by MassDOT, the Town of Chelmsford, and The Northern Middlesex Council of Governments.

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11/06/2009 *jcm*

LEGEND

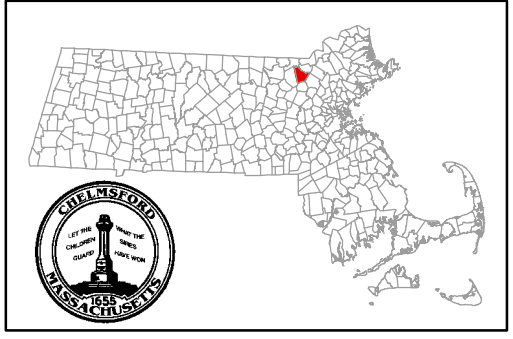
TOWN BOUNDARY

SOIL TYPES

- *BIRCHWOOD FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *CANTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *CANTON FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES*
- *DEERFIELD LOAMY SAND, 0 TO 3 PERCENT SLOPES*
- *DEERFIELD LOAMY SAND, 3 TO 8 PERCENT SLOPES*
- *FREETOWN MUCK, 0 TO 1 PERCENT SLOPES*
- *FREETOWN MUCK, PONDED, 0 TO 1 PERCENT SLOPES*
- *HINCKLEY LOAMY SAND, 0 TO 3 PERCENT SLOPES*
- *HINCKLEY LOAMY SAND, 3 TO 8 PERCENT SLOPES*
- *MERRIMAC FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES*
- *MERRIMAC FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *MERRIMAC FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES*
- *MONTAUK FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *MONTAUK FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES*
- *PAXTON FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *SCIO VERY FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES*
- *SCIO VERY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *SCITUATE FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *SCITUATE FINE SANDY LOAM, 8 TO 15 PERCENT SLOPES*
- *SUDBURY FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *SUNCOOK LOAMY SAND, 0 TO 3 PERCENT SLOPES*
- *SWANSEA MUCK, 0 TO 1 PERCENT SLOPES*
- *TISBURY SILT LOAM, 3 TO 8 PERCENT SLOPES*
- *WINDSOR LOAMY SAND, 0 TO 3 PERCENT SLOPES*
- *WINDSOR LOAMY SAND, 3 TO 8 PERCENT SLOPES*
- *WINOOSKI VERY FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES*
- *WOODBRIDGE FINE SANDY LOAM, 3 TO 8 PERCENT SLOPES*
- *LAKES, PONDS AND OPEN WATER*

N W E S

Miles
0 0.2 0.4 0.6 0.8



Vegetation



Bartlett Woodlot in winter (*Source: Chelmsford Land Conservation Trust)*

Chelmsford is located within the transitional zone of the New England forests. Sections of the town are comprised of northern and southern forest features, which include northern forest mixes such as hardwood, hemlock and white pine, and southern forest mixes such as oak, hickory and other hardwoods. Oak, hickory, birch, maple and Eastern white pine dominate the canopy, while sassafras, ferns, wildflowers, and assorted shrubs comprise the understory. The forested areas are largely located on post-agricultural land where farming ceased many years ago. The largest remaining expanse of forested land in Chelmsford is located in the southeast, in the area of Russell Mill Pond (132 acres). Other significant forested areas include the Thanksgiving Forest (45 acres) and the Concord Road Forest (12 acres).

The vegetation pattern in Chelmsford is typical of that found in a developed suburban landscape. With the exception of the above mentioned forested stands, the "urban forest" in Chelmsford is composed of small forest areas and individual trees in back yards, behind and between subdivision developments, along roadways, and in parking lots. The primary vegetation found within these developed areas consists mainly of domestic landscaping plants. As large areas of forest become less common, management of the remaining urban forest will become increasingly more important.

Vacant lots and fallow fields are populated by grasses that include foxtail, broom bear, red top, fescue, orchard, Kentucky blues, and timothy. Field species such as red clover, wild carrot, meadow sweet, yarrow, goldenrod, cinquefoil, sorrel, and ragweed are also found in these locations.[42] Most wetland areas are dominated by red maple. Fresh water meadows surrounding some of the town's streams have reeds, woodgrass, wild millet, spike rush and sedge, which are all important to wildlife that use freshwater and field habitat.

The diversity of plant communities within the town provides food and habitat for wildlife. Table 7.2 on the following page contains a partial list of plant species found within the Town:

[42] Chelmsford Open Space and Recreation Plan Update, 2003.

TABLE 7.2
PARTIAL LIST OF PLANT SPECIES FOUND WITHIN CHELMSFORD

Common Name: *Scientific Name*	Common Name: *Scientific Name*	Common Name: *Scientific Name*
Black Oak: *Quercus velutina*	Grey Birch: *Betula populfolia*	Silky dogwood: *Cornus amomum*
Scarlet Oak: *Quercus coccinea*	White Birch: *Betula papyrifera*	Shadbush: *Amelanchier arborea*
Red Oak: *Quercus rubra*	Black Birch: *Betula lenta*	White Ash: *Fraxinus americana*
Chestnut Oak: *Quercus prinus*	River Birch: *Betual nigra*	Green Ash: *Fraxinus pennsylvanica*
White Oak: *Quercus alba*	Black Cherry: *Prunus serotina*	Aspen: *Populus tremuloides*
Pin Oak: *Quercus palustris*	Black gum: *Nyssa sylvatica*	Big-toothed Aspen: *Populus grandidentata*
Scrub Oak: *Quercus ilicifolia*	Maple-leaved Viburnum: *Viburnum acerifolum*	American Hazlenut: *Corylus Americana*
Swamp White Oak: *Quercus bicolor*	White Pine: *Pinus strobus*	Chestnut: *Castanea dentate*
Red Maple: *Acer rubrum*	European buckthorn: *Rhamnus frangula*	Hemlock: *Tsuga canadensis*
Sugar Maple: *Acer saccharum*	Sassafras: *Sassafras albidum*	Beech: *Fagus grandifolia*
Silver Maple: *Acer saccharinum*	Flowering Dogwood: *Cornus florida*	Hickory: *Carya ovata, C. tomentosa, C. glabra, and C. ovalis*
Mountain laurel: *Kalmia latifolia*	Buttonbush: *Cephalanthus occidentalis*	Sweet pepper bush: *Clethra alnifolia*
Spicebush: *Lindera benzoin*	Swamp azalea: *Rhododendron viscosum*	Arrow wood: *Viburnum dentatum var. lucidum*
Swamp candles: *Lysimachia terrestris*	Black willow: *Salix nigra*	Cottonwood: *Populus deltoids*
Witch hazel: *Hamamelis virginiana*	Shagbark and other hickories: *Carya ovata, C. labra and C. ovalis*	Low-bush blueberries: *Vaccinium angustifolium*
Highbush blueberries: *Vaccinium corymbosum*	Speckled alder: *Alnus incana spp. rugosa*	Smooth alder: *Alnus serrulata*
Winterberry: *Ilex verticillata*	Nannyberry: *Viburnum lentago*	Huckleberry: *Gaylussacia baccata*
Elderberry: *Sambucus canadensis*	Partridgeberry: *Mitchella repens*	Bracken fern: *Pteridium acquilinum*
Cinnamon fern: *Osmunda cinnamomea*	Ostrich fern: *Matteuccia struthiopteris*	Christmas fern: *Polystichum acrostichoides*
Sensitive fern: *Onoclea sensibilis*	Royal fern: *Osmunda regalia*	Pink lady slipper: *Cypripedium acaule*
Club mosses: *Lycopodium spp*	False nettle: *Boehmeria cylindrical*	Canada mayflower: *Maianthemum canadense*
White wood aster: *Aster divaricatus*	Indian cucumber: *Medeola virginiana*	Water parsnip: *Sirum suave*
Wintergreen: *Gaultheria procumbens*	Wild sarsaparilla: *Aralia nudicaulis*	Poison Ivy: *Toxicodendron radicans*
Poison sumac: *Toxicodendron vernix*	Skunk cabbage: Symplocarpus foetidus	Marsh marigold: *Caltha palustris*
Meadowsweet: *Spiraea alba var. latifolia*	Male-berry: *Lyonia ligustrina*	Star flower: *Trientalis borealis*
Perfoliate bellwort: *Uvularia perfoliata*	False Solomon's Seal: *Maianthemum racemosum*	Early meadow rue: *Thalictrum dioicum*
False foxgloves: *Aureolaria flava, A. pedicularia, and A. virginica*	Little blue stem grass: *Schizachyrium scoparium*	Pennsylvania sedge: *Carex pensylvanica*
Awned sedge: *Carex crinita*	Bugleweeds: *Lycopus spp.*	Poverty grass: *Danthonia spicata*

According to the Massachusetts Natural Heritage and Endangered Species Program (NHESP), Chelmsford is known to have six (6) plant species classified as state endangered, threatened, or species of special concern.[43] Table 7.3 on the following page lists these species as well as their state designations. Most of these species have not been observed in Chelmsford for over a century.

[43] Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife, www.state.ma.us/dfw

TABLE 7.3
PLANT SPECIES CONSIDERED THREATENED, ENDANGERED OR OF SPECIAL CONCERN

Common Name	Scientific Name	Designation	Date Last Observed
Purple Needlegrass	*Aristida purpurascens*	Threatened	1907
New England Blazing Star	*Liatris scariosa var.novae-angliae*	Special Concern	1900
Rigid Flax	*Linum medium var. texanum*	Threatened	1902
Lion's Foot	*Nabalus serpentarius*	Endangered	1914
Adder's-tongue Fern	*Ophioglossum pusillum*	Threatened	1884
Wild Senna	*Senna hebecarpa*	Endangered	1902

Source: Massachusetts Natural Heritage and Endangered Species Program, 2009.

Invasive species are common in many areas of town. Invasive and exotic species such as multiflora rose, European buckthorn, and Oriental bittersweet are common in the hedgerows, roadsides, overgrown pastures and orchards. Purple loosestrife is also common in the wetlands of Chelmsford. These invasive species crowd out native species. The 2003 Open Space and Recreation Plan recommended that the Town initiate an invasive species identification and control program, working with the Invasive Plant Atlas of New England. Presently, there is no management plan in place for controlling invasive species that threaten native plant communities.

Fisheries and Wildlife



A flicker seen at the Warren Wildlife Refuge (*Source: Chelmsford Land Conservation Trust)*

Chelmsford's substantial woodlands, wetlands, and extensive pastures and open fields support a rich and diverse population of birds, mammals, amphibians, reptiles and other wildlife. In addition to common species, there have been recent sightings of rare or less well-known species such as moose and black bear. The town's open fields host large flocks of nesting bobolinks, which are declining statewide due to the loss of grassland habitat. In winter, snow buntings can occasionally be seen in these fields as well. Annual migrations of a wide variety of wood warblers travel through the town's forested areas each spring and fall. Bald eagles have been sighted along Chelmsford's stretch of the Merrimack River.

The increasing suburbanization of Chelmsford has fragmented natural areas that serve as wildlife habitat. Increasing amounts of "edge habitat" have been created where developed lands meet the

boundaries of woodlands and grassy pastures. Edge conditions provide habitat to a wide range of species as well.

Aquatic habitat supports a diverse fish population that includes bass, pike, perch, sunfish, and trout. Due to state and federal restoration efforts, substantial salmon and shad populations are returning to the Merrimack River. Similar efforts are underway to restore alewife to the Concord River. Numerous species of small fresh water fish, vertebrates, and invertebrates are also present in Town. The *Merrimack River Comprehensive Watershed Assessment Report*, prepared by the Massachusetts Executive Office of Environmental Affairs in 2001, identified a multitude of fish species within the Merrimack River Watershed, which are listed in Table 7.4 below.

TABLE 7.4
FISH SPECIES IN THE MERRIMACK RIVER WATERSHED

Common Name	Scientific Name	Common Name	Scientific Name
3-spine stickleback	*Gasterosteus aculeatus*	Falifish	*Semotilus corporalis*
4-spine stickleback	*Apeltes quardracus*	Gizzard shad	*Dorosoma cepedianum*
9-spine stickleback	*Pungitius pungitius*	Golden shiner	*Notemigonus crysoleucas*
Alewife	*Alosa pseudoharengus*	Goldfish	*Carassius auratus*
American shad	*Alosa sapidissima*	Largemouth bass	*Micropterus salmoides*
American smelt	*Osmerus mordax*	Longnose dace	*Rhinichthys cataractae*
Atlantic salmon	*Salmo salar*	Margined madtom	*Noturus insignis*
Atlantic silverside	*Menidia menidia*	Mummichog	*Fundulus heteroclitus*
Atlantic sturgeon	*Acipenser oxyryhnchus*	Northern pike	*Esox lucius*
Banded killfish	*Fundulus diaphanus*	Northern pipefish	*Syngnathus fuscus*
Banded sunfish	*Enneacanthus obesus*	Pumpkinseed	*Lepomis gibbosus*
Black crappie	*Pomoxis nigromaculatus*	Red breast sunfish	*Lepomis macrochirus*
Blacknose dace	*Rhinichthys atratulus*	Sand lance	*Ammodytes hexapterus*
Smallmouth bass	*Micropterus dolomieu*	Shortnose sturgeon	*Acipenser brevirostrum*
Blueback herring	*Alosa astivalis*	Spottail shiner	*Notropus hudsonius*
Bluegill	*Lepomis macrochirus*	Striped bass	*Morone saxatilis*
Bowfin	*Amia calva*	Swamp darter	*Etheostoma fusiforme*
Bridle shiner	*Notropis bifrenatus*	Tesseliated darter	*Etheostoma olmstedi*
Brown bullhead	*Ictalurus nebulosus*	White catfish	*Ictalurus catus*
Carp	*Cyprinus carpio*	White perch	*Morone americana*
Chain pickerel	*Esox niger*	White sucker	*Catostomus commersoni*
Channel catfish	*Ictalurus punctatus*	Yellow bullhead	*Ictalurus natalis*
Common shiner	*Luxilis cornutus*	Yellow perch	*Perca flavescens*
Eel	*Anguilla rostrata*	Sea lamprey	*Petromyzon marinus*

Source: Merrimack River Comprehensive Watershed Assessment Report, Massachusetts Executive Office of Environmental Affairs, 2001.

Wildlife typical of suburban and semi-rural areas can be found in Chelmsford, such as deer, coyotes, small rodents, foxes, rabbits, opossums, raccoons, fishers, chipmunks, and squirrels. Reptiles and amphibians, such as frogs, salamanders, snakes, and turtles, as well as water-dependent mammals including beavers and muskrats are common. A list of wildlife species found in Chelmsford is provided in Appendix E.



White tail deer at the Kroll-Calder-Larter Pasture (*Source: Chelmsford Land Conservation Trust)*

As of January 2009, twelve (12) vernal pools in Chelmsford had been certified by the Massachusetts NHESP. These pools, shown on Map 18, are critical habitat for amphibians and invertebrate animals that use them to breed. They typically hold water in the winter and spring due to rising groundwater and rainfall, remain wet through the spring and into the summer, and dry out completely by mid- to late summer.

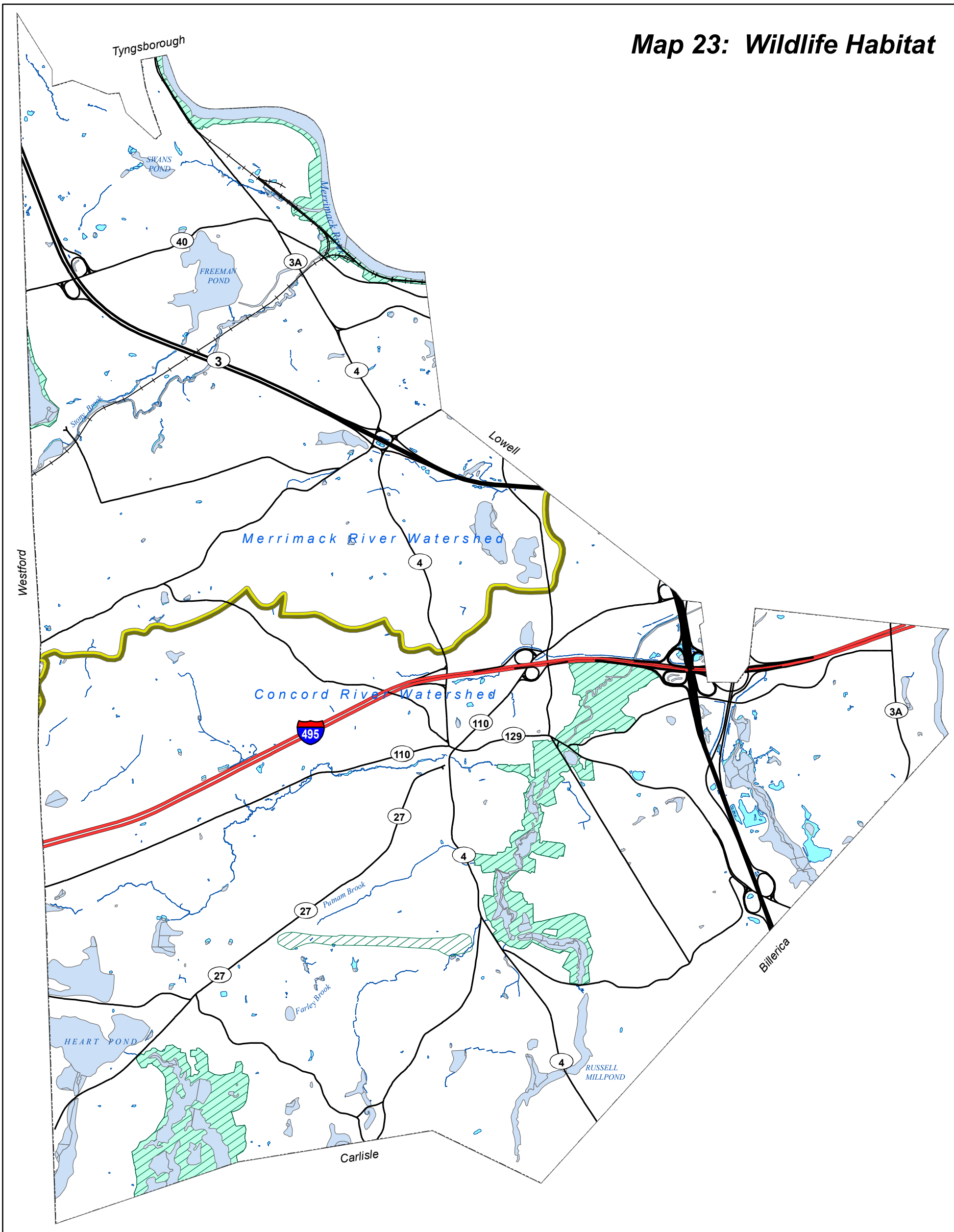
The NHESP reports that Chelmsford is home to nine species listed as threatened or of special concern. This list, shown in Table 7.5 below, consists of one amphibian, three reptiles, a mussel and four insects. In addition to the species listed, the Bald Eagle, which is endangered in Massachusetts, has been observed in Chelmsford along the Merrimack River. NHESP Program priority and estimated habitat areas are shown on Map 23.

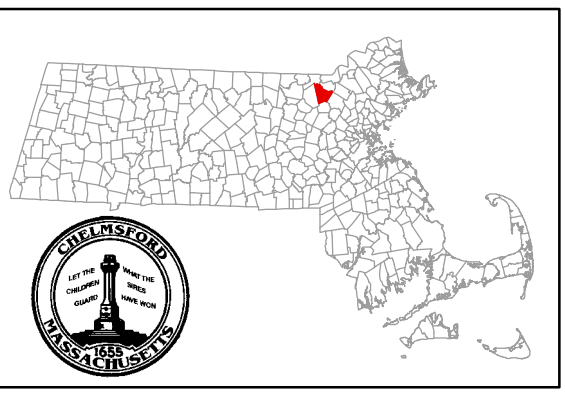
TABLE 7.5
SPECIES CLASSIFIED AS THREATENED (T) OR OF SPECIAL CONCERN (SC)

Common Name	Scientific Name	Type	Status	Date Last Observed
Blue-spotted Salamander	*Ambystoma laterale*	Amphibian	SC	1943
Cobra Clubtail	*Gomphus vastus*	Dragonfly/Damselfly	SC	2004
Arrow Clubtail	*Stylurus spiniceps*	Dragonfly/Damselfly	T	2004
Frosted Elfin	*Callophrys irus*	Butterfly/moth	SC	2006
Umber Shadowdragon	*Neurocordulia obsoleta*	Dragonfly/Damselfly	SC	2004
Eastern Box Turtle	*Terrapene carolina*	Reptile	SC	1993
Wood Turtle	*Glyptemys insculpta*	Reptile	SC	2007
Blanding's Turtle	*Emydoidea blandingii*	Reptile	T	2007
Triangle Floater	*Alasmidonta undulata*	Mussel	SC	2004

Source: Massachusetts Natural Heritage and Endangered Species Program, 2009

Map 23: Wildlife Habitat





Data provided by the United States Geological Survey, MassGIS, MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

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Legend

- *Town Boundary*
- *Rail Lines*
- *Concord River Watershed*
- *Merrimack River Watershed*
- *NHESP Priority Habitats of Rare Species*
- *NHESP Estimated Habitats of Rare Wildlife*
- *Lakes, rivers and open water*

N W E S

Miles
0 0.25 0.5 0.75 1

Although open space is fragmented throughout Chelmsford, there are areas where wildlife corridors connect habitat and open space. These wildlife corridors consist of long and narrow stretches of wildlife habitat that run between larger habitat areas, and tend to follow most of the perennial streams, as well as large, open water bodies such as Freeman Lake and Russell Mill Pond. Identified wildlife corridors in Chelmsford include the following[44]:

- Along Beaver Brook, west of Chelmsford Center, including the Limestone Quarry Reservation, Bartlett Woodlot and the Bruce Freeman Bike Path right-of-way;
- The greenway which includes the Wright Reservation and the Robbins Hill Reservation in South Chelmsford;
- Robbins Hill Reservation separated by Route 27, adjacent to the Wright Reservation
- National Grid high tension lines that run east-west across town;
- Land extending along the banks of the Merrimack River in North Chelmsford, including Southwell Park and the land along Deep Brook;
- Hales Brook/Middlesex Canal area of East Chelmsford, which extends into the Manning State Forest in Billerica;
- The corridor extending through Thanksgiving Forest, Russell Millpond Forest, and the Great Brook State Park into Carlisle;
- The cranberry bog properties in Chelmsford and Carlisle;
- Tenneco gas pipeline easement running east-west along the Chelmsford/Carlisle and Chelmsford/Billerica borders;
- The area along the Concord River in East Chelmsford, and
- Stony Brook and Crooked Springs Brook in North Chelmsford.

ENVIRONMENTAL ISSUES

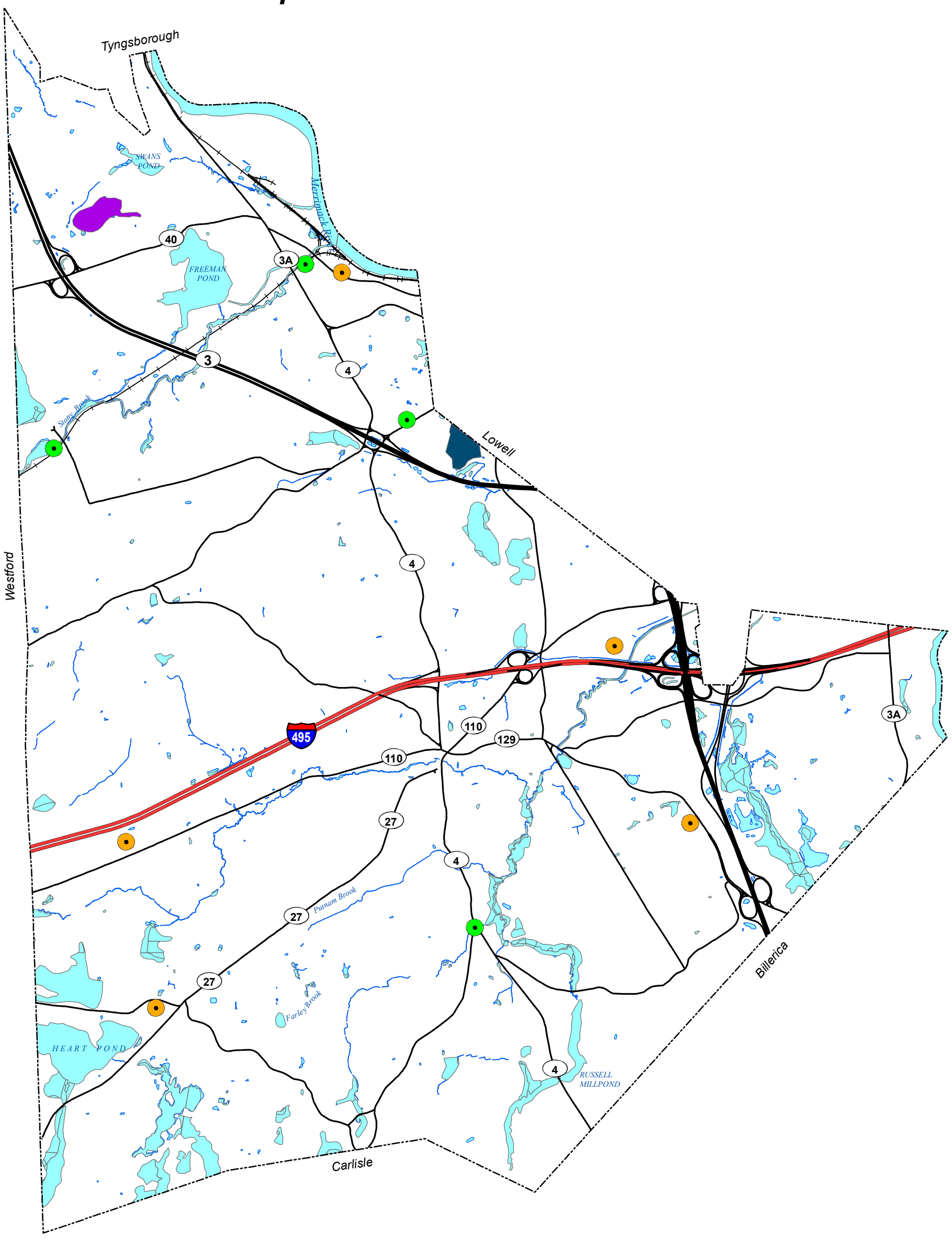
Contaminated Sites

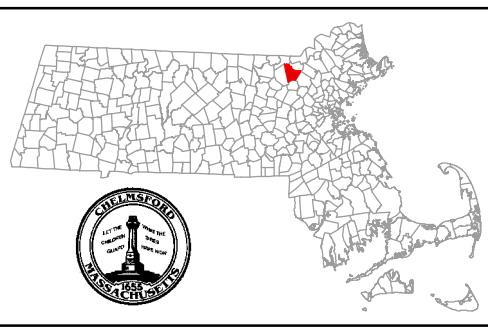
The Department of Environmental Protection (DEP) Bureau of Waste Site Cleanup maintains records of all spills, leaks and other releases of oil or hazardous materials.[45] According to DEP's database, Chelmsford has several identified hazardous waste sites, solid waste sites, and potential environmental threats, as shown on Map 24. These sites are in various stages of cleanup or remediation.

As of June 2009, there were 186 Chelmsford sites listed in the Bureau of Waste Cleanup, Department of Environmental Protection (DEP) "Reportable Release Lookup". Most of these sites are listed due to the presence of hazardous material or petroleum. Included are six Tier 1 and six Tier 2 sites, all of which are petroleum or hazardous material release sites. The other cleanup sites listed are predominantly oil release sites and have received a lower classification, signifying a lower level of hazard. Of the 186 listed sites, 125 submitted a Remedial Action

[44] 2003 Chelmsford Open Space and Recreation Plan
[45] Massachusetts Department of Environmental Protection, www.state.ma.us/dep/cleanup, select "my community".

Map 24: Areas of Environmental Hazards or Concern





Data provided by the Department of Environmental Protection, MassGIS, MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

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The Northern Middlesex Council of Governments
40 Church St., Suite 200
Lowell, MA 01852
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Legend

- Town Boundary
- Solid Waste Facility Site - Capped/not lined
- Inactive Solid Waste Facility (unlined&not capped)
- DEP - Bureau of Waste Prevention Sites
- Hazardous Material Sites with Activity & Use Limitations
- Train lines
- Lakes, ponds and open water

N W E S

0 0.25 0.5 0.75 1 Miles

Outcome (RAO) to DEP indicating that response actions were sufficient to achieve a level of "no significant risk" to the environment. The state's list of hazardous waste sites in Chelmsford is included in Appendix F.

In November 2008, the Town established a Priority Development Site (PDS) under Chapter 43D. The 3.1-acre PDS site is located at 25 Katrina Road which was formerly occupied by Silicon Transistor. The site has a history of contamination issues. In 1987, chlorinated volatile organic compounds (VOCs) were detected in soil and groundwater. In November 1988, DEP issued a "Notice of Responsibility" to Silicon Transistor for the release of hazardous materials. A groundwater plume containing trichloroethylene (TCE) and trichloroethane (TCA) was found to be migrating beyond the property line and eventually into the Riverneck Road municipal water supply well field. In 1992, a groundwater recovery system was installed on the 25 Katrina Road property to capture and control contamination. The system was operated consistently until 2002. Since that time, the system has been off line frequently due to the financial problems of the previous owner.

A Phase II Comprehensive Site Assessment Report and a Phase III Remedial Action Report were previously submitted to DEP. The Recommended Remedial Alternative for the site was never implemented. In October 2002, VOCs were detected in the indoor air of the building located on the site. An Immediate Response Action Plan was submitted to DEP by the property owner but the plan was never implemented. To date, this condition has not been adequately remediated. Levels of VOCs above the upper concentration limits still remain in the soils under the building, and the Riverneck Road Well #1 continues to be impacted by the levels of TCE within the groundwater plume.

The company closed due to financial difficulties, and the town acquired the property through a tax title taking in 2006. In January 2007, DEP encouraged the Town to complete preliminary and comprehensive response actions. During the first half of 2007, the Town evicted several businesses that remained on the property, and met with DEP to discuss the Town's proposal to dispose of the property through an RFP process. In April 2008, the town hired an LSP to prepare a Phase I Environmental Site Assessment Report and a Regulatory Status Review Report, in order to provide current information on the status of the contamination.

The Town is continuing to collect additional information on the contamination. Federal Stimulus funds ($146,473) have been awarded to perform a targeted assessment of the site, which will include a preliminary determination of the types and extent of contamination, a determination of the risks posed, and develop alternatives for cleanup.[46] In March 2009, the site was chosen by MassDevelopment as a Brownfield Priority Project site. This designation makes the site eligible for up to $2 million in low cost loans for remediation. The Town has also received an additional $100,000 from MassDevelopment to prepare a financial analysis and conceptual redevelopment

[46]http://www.recovery.gov/transparency/pages/ProjectSummary508.aspx?AwardId=22246&AwardType=CONTRACT

plan. The Town recently submitted an EPA Brownfields Cleanup Grant application in the amount of $200,000 to remediate the contamination associated with the site.

Landfills

The Town of Chelmsford formerly operated a landfill in North Chelmsford known as the Swain Road Dump. The landfill is no longer active and has been capped in accordance with DEP standards. Due to its distance from the Water District land, the former landfill has had little effect on the quality of public water supplies, and there have been no reports of soil contamination. Presently, the town contracts with a private hauler to dispose of residential solid waste, diminishing the threat of contamination. The town also has a successful curbside recycling program, further reducing the volume of solid waste generated. In FY 2008, Chelmsford had a recycling rate of 22.55%.[47]

In 1997, the Town of Chelmsford signed a host agreement with Mass Gravel Inc. (MGI) to allow excavate from the Central Artery project to be used in an interim and final grading plan at the former Glenview Sand and Gravel site. The agreement stated that the material used would comply with DEP policies for soil reuse at unlined landfills. Sampling of the soil was to be conducted to ensure that contamination levels did not exceed DEP standards. MGI agreed to operate the site and to perform post-closure of the site, including the permanent installation of storm water controls, in accordance with DEP requirements. MGI operated the site for a period of time, but encountered financial difficulties. Closure and post-closure of the landfill has not occurred as required by DEP.

Non-point Source Pollution

Non-point source pollution, from widespread sources which impact the environment through stormwater runoff entering surface water bodies and groundwater, continues to be an issue in most communities, including Chelmsford. Such sources of pollution include the following:

- Fertilizer, herbicides, and insecticides from lawns and farmland;
- Oil, grease and toxic chemicals from transportation sources, roadways, fueling stations, and parking lot runoff;
- Sediment from improperly managed construction sites or eroding stream banks; and
- Pathogens and nutrients from livestock, pet waste, and failing septic systems.

These sources of pollution are more difficult to control than point source pollution, and are best addressed through proper land management and agricultural practices, effective maintenance of motor vehicles, zoning and erosion control bylaws, and homeowner education. The Town is also working to address these issues through its Phase II Stormwater Management Plan.

[47] Town of Chelmsford FY 2008 Annual Report, p.57.

CULTURAL AND HISTORIC RESOURCES

Cultural resources are the places and institutions that contribute to a town's unique identity and sense of place. In Chelmsford, these consist of resources associated with the town's history, industry, agriculture and arts. The North Chelmsford industrial village, mill buildings, worker housing and canals document the town's manufacturing history. Barns, stone walls, and scenic pasture provide a hint of what was once a thriving agriculture community. Operating quarries and the remnants of early quarry operations are testimony to the role that granite and limestone played in defining Chelmsford's identity. The public input sessions conducted for this Master Plan reinforced the fact that the town's residents and policy makers value highly the town's historic assets.

The Town is very fortunate to have a number of historic preservation and cultural organizations that contribute to the quality of life of its residents. During the Visioning Sessions for the Master Plan, many residents outlined a community vision that included a very engaged and thriving arts community.

Historic Resources

The Chelmsford Historical Commission defines a historically significant property as one that is:

- Listed on the National Register of Historic Places;
- Within an area listed on the National Register of Historic Places;
- Listed with the Massachusetts Historical Commission (MHC);
- Associated with one or more historic persons or events;
- Associated with the broad architectural, political, economic or social history of the Town or Commonwealth; or
- Historically or architecturally significant (in terms of period, style, method of building construction or association with a famous architect or builder) either by itself or in context with a group of buildings.

The Town clearly values its historic past. During the Vision Session for the Master Plan, participants identified the town's respect for history and historic charm as being among its ten top strengths. Furthermore, during a later public session, it was suggested that active promotion of the town's historic resources would encourage tourism and benefit the local economy. It was also recommended that the town establish an information booth at the Old Town Hall or in the Toll House on the Town Common to promote the town's cultural and historic resources.

An Abbreviated History of Chelmsford

The Wamesit tribe originally occupied the land now known as Chelmsford. In 1652, a group of former residents of Concord and Woburn settled in the area. The Town was granted its general charter in May 1655, and named Chelmsford after the town in Essex, England, from which many

of the original settlers emigrated. These early settlers were primarily farmers, but millers and other tradesmen soon settled in the community as well. At least two mills were constructed in the 17th century: Samuel Adam's saw/grist mill on Russell Mill Pond and Thomas Hinchman's saw mill located on Stony Brook.

When the settlers arrived, they found a community that was nearly entirely forested, except for areas along the waterways, and areas that were burned by Native Americans. Most of the settlers set up homesteads near what is now the Town Center, as the Massachusetts General Court had mandated in 1635 that dwellings could not be located more than one-half mile from the meeting house. Eventually, the settlers dispersed throughout town. Native trails were used as roadways, with the formation of the town center occurring during the mid-17th century. Improvements were then made to these radial routes along what are now Billerica Road, Steadman Street, North Road, Westford Road, Pine Hill Road, High Street, and Boston Road. Sixty-seven people were listed on the 1672 tax list.[48]

During the 18th century, the Town Center remained the focus of the town's growth, extending to the north along North Road, east along Billerica Road, and west along Westford Road. Agriculture and lumbering remained the primary occupations for most residents. The town's first school was constructed in 1713, but little population growth occurred during the 18th century due to the Revolutionary War. The population of the town was 1,341 persons in 1776, according to the U.S. Census.

The railroad came to town in 1838. The growth of the community was relatively slow until the advent of the Industrial Revolution. The Merrimack River provided water power for the mills, and entrepreneurs began to take advantage of the natural granite and limestone deposits, setting up quarrying operations to support the area's industrial growth. During this period, much of the town's growth occurred in North Chelmsford and was fueled by the mills. By 1880, fifty-percent of the town's population was employed in manufacturing.

As the industrial growth accelerated in the early 1900s, so did the town's population. Lowell's streetcar routes were extended to Chelmsford Center along Chelmsford Street and to North Chelmsford along Middlesex Street. New settlement occurred mainly on side streets in North Chelmsford, and in the eastern section of town. By the 1920s, the trolley routes were abandoned and improvements were made to the town's roadway network to better accommodate the automobile. Due to the Depression, there was no significant industrial development during this time period. New settlement was primarily suburban and concentrated in the eastern portion of town, near Lowell.

[48] Massachusetts Historical Commission, Reconnaissance Survey Town Report for Chelmsford, MA, 1980.



Old trolley line in North Chelmsford (*Source: The Royal Shawcross Collection)*

As discussed in the Land Use section of this document, the development of the regional highway system, specifically U.S. Route 3 and I-495, was the catalyst for a period of rapid growth and development, particularly during the 1960s and 1970s. The development of housing made available to veterans returning from World War II, the Korean Conflict and the Vietnam War was also a factor in the expansion of suburban communities. This growth transformed the town into a vibrant suburban community with significant residential, commercial and industrial development. Today, the community is nearly built out, as discussed in the Land Use section of this document.

Historic Architecture

Chelmsford has an impressive inventory of historic buildings, spanning three centuries, beginning with the settlement of the community in 17th century, through its industrial development during the 19th century, to its most recent suburbanization in the 20th century. These historic structures include residences, industrial buildings, religious and institutional structures, barns, and other outbuildings. Most of the town's historic buildings are privately-owned, but there are also some owned by public and non-profit entities. For the most part, the historic buildings owned by the Town are in the Town Center or Vinal Square.

The town's architecture includes many of the styles that were popular in the 18th, 19th and 20th centuries. The prevalent architectural styles include the Federal style and Greek Revival styles popular in the early 18th century, the Second Empire and Italianate styles fashionable in the mid-19th century, the Queen Anne and Shingle styles popular during the 19th century, and the Colonial Revival style of the early 20th century. Many of these buildings are well-preserved and maintained, and contribute to the town's visual character and sense of place.



The Spalding-Fiske House in Central Square.

Many of the town's oldest homes have retained the Federal and Greek Revival characteristics of early farm houses, with large barns and outbuildings. Residences designed in the architectural styles of the mid- and late-1800s can be seen in residential neighborhoods throughout town as well as in the multi-family worker housing in North Chelmsford. Worker housing was constructed by mill owners within walking distance of the mills, and included single- and multi-family structures. These homes were typically small and clustered together on small lots. Similar homes were often repeated on a single street, which can be seen on many side streets within North Chelmsford.

National Register of Historic Places Designations

The National Register of Historic Places is the official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources. Chelmsford has one National Register District and four individual properties listed on the National Register of Historic Places, as shown in Table 7.6 below.

TABLE 7.6
NATIONAL REGISTER OF HISTORIC PLACE LISTINGS

Historic Name	Type	Address/Location	Year Listed
Old Chelmsford Garrison House complex, includes the Hill Jock House	Building	105 Garrison Road	1973
Fiske House	Building	1 Billerica Road	1977
Chelmsford Center Historic District	District	Intersection of MA Routes, 4, 110 & 27	1980
Oliver Hutchins House	Building	79 Elm Street	1985
Hildreth-Robbins House	Building	19 Maple Road	2006

Massachusetts Cultural Resources Information System

There are more than 260 historically significant structures, places, or buildings listed in the Massachusetts Cultural Resources Information System (MACRIS) for Chelmsford. These

historic resources are organized under five categories: buildings, areas, structures, objects and burial grounds. Additional detailed information can be viewed on the Massachusetts Historical Commission website at www.sec.state.ma.us/mhc. A copy of the inventory is also provided in Appendix G of this document. Historic and cultural resources are shown on Map 25.

Historic Buildings

There are currently 203 individual buildings enumerated in the MACRIS listing. While these buildings are found throughout the Town, clusters can be found in certain areas such as Acton Road, Billerica Road, Chelmsford Street, High Street and Westford Street, and in North Chelmsford along Gay Street, Princeton Street and Cottage Row. The majority of the buildings are single-family houses (153), but civic/governmental buildings (11), manufacturing and commercial buildings (15), churches and related buildings (8), transportation- related buildings (4), and mixed-use/ multi-family/misc. buildings (9), are also found. Most of the buildings date from the 17th, 18th and 19th centuries, although some from the 20th century are also listed. The Chelmsford Central Congregational Church on Worthen Street and the Chelmsford Central Baptist Church Parsonage on Academy Street, both built in 1955, are the "newest" buildings listed. The oldest building listed is the Edward Spaulding House on Westford Street, built in 1690.

Historic Areas

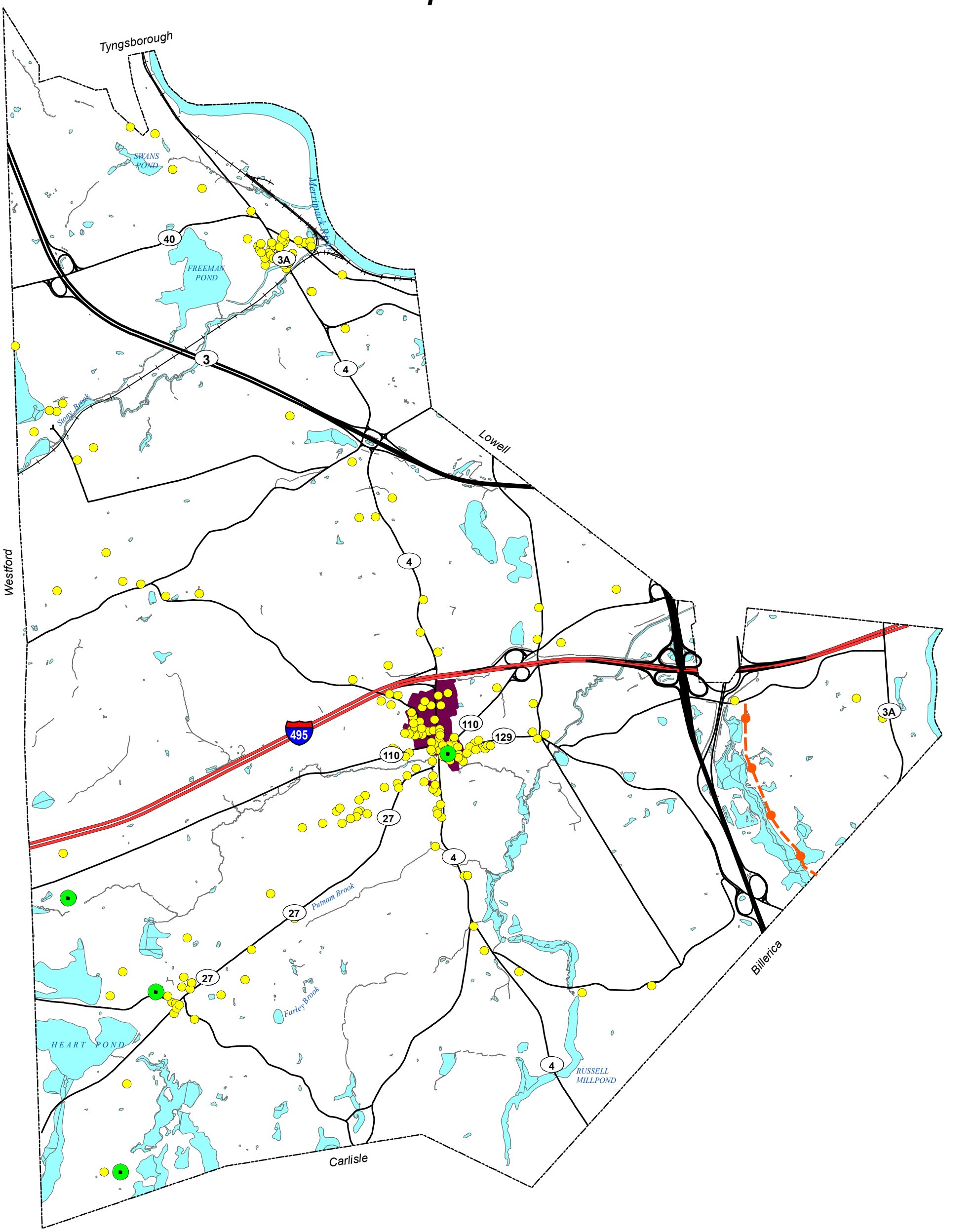
According to the Massachusetts Historical Commission (MHC), Chelmsford has three areas that are considered by the state to be historically significant. These areas are shown in Table 7.7 below. The Chelmsford Center Historic District, which was originally established in 1975, and then expanded in 1980, is listed twice within the Register, as reflected in the table. Each listing actually encompasses a separate geographic area within the town center.

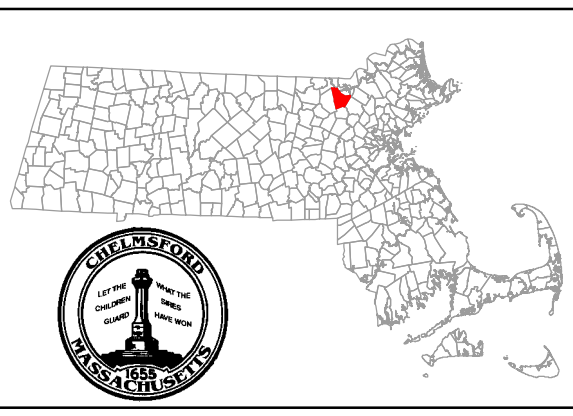
TABLE 7.7
HISTORIC AREAS

Area	Address/Location	Year Listed
Middlesex Canal	Riverneck Rd. – Brick Kiln Rd.	1972
Chelmsford Center Historic District	Intersection of MA Routes, 4, 110 & 27	1975
Chelmsford Center Historic District	Intersection of MA Routes, 4, 110 & 27	1980

The Middlesex Canal is a man-made waterway that was used in the early 19th century to transport materials from the Greater Lowell area to Boston. It was 27 miles long, thirty feet wide and three feet deep. Built chiefly for freight, the Canal was never profitable. With the advent of the railroad, the canal lost its economic viability and was sold in sections to abutters in 1852. The Middlesex Canal Commission recently submitted an application to have the extant portions of the entire Canal, from Lowell to Boston, included on the National Register of Historic Places.

Map 25: Historical and Cultural Resources





Data provided by the National Park Service, Massachusetts Historical Commission, MassGIS, MassDOT, The Northern Middlesex Council of Governments and the Town of Chelmsford.

The data depicted by this map is for planning purposes only. The data is not of sufficient detail to allow either boundary determination or regulatory interpretation.

Note: Excludes most historic bridges and monuments.

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The Northern Middlesex Council of Governments
40 Church St,, Suite 200
Lowell, MA 01852
978-454-8021~NMCOG.org

05/13/2009 *JCM*

Legend

- Town Boundary
- Rail lines
- Chelmsford Center Historic District
- Middlesex Canal Historic District
- National Register Properties
- State Register Properties

N W E S

0 0.25 0.5 0.75 1 Miles

According to the Historical Commission, the North Chelmsford and Vinal Square area of town contains more mill-related structures than any location in Massachusetts. During the public input sessions conducted for the Master Plan it was suggested that the significance of this area be recognized through the creation of an "honorific" historic district. Some participants felt that creating a formal historic district would impose unreasonable restrictions on the businesses that are located there. With over 250 significant mill-era buildings, the area is eligible for inclusion on the National Register of Historic Places. Town meeting recently approved a plan to create a Community Center at the Old North Town Hall which would include a mini-museum with historical exhibits. Construction funding to implement this plan was appropriated at the Spring 2010 town meeting.

The Historic Landscape Preservation Initiative, administered by the Department of Conservation and Recreation, strives to ". . . identify, document and plan for the preservation of landscapes that are vital to the history, character and quality of life in our communities." Because heritage landscapes contain both natural and cultural resources, they are subject to a wide variety of threats – but this means that they can also be protected through a multitude of ways. Through this program, DCR's Office of Cultural Resources assists communities in undertaking a reconnaissance survey to help develop an integrated, proactive planning approach for heritage landscape preservation. Chelmsford has indicated by its past actions that it values its historic resources. The preservation of landscapes initiative provides one additional tool that could assist the Town in continuing these efforts.

Historic Structures

There are thirty-two (32) structures within Chelmsford listed on the MACRIS. The majority of these are bridges that have been constructed along the railroad right-of-way, Route 3 and I-495.

Table 7.8 below contains a complete listing of these structures, the oldest of which are the Limestone Quarries and Kilns found along Beaver Brook that date back to 1740. Veterans' Memorial Park, constructed in 1990, is the newest listing under this category and was added due to its military significance.

TABLE 7.8
HISTORIC STRUCTURES

Structure Name	Address/Location	Year Built
Chelmsford Limestone Quarries and Kilns	Beaver Brook	1740
Middlesex Canal	Canal Street	1803
North Chelmsford Canal	Princeton Street	1823
Parkhurst's Pulpit	10 Robin Hill Road	1850
Fletcher Granite Co.	Groton Road	1880
NY, NH&H RR Bridge-Framingham Branch #5.66	CSX Railroad ROW	1920
NY, NH&H RR Bridge-Framingham Branch #6.59	CSX Railroad ROW	1920
NY, NH&H RR Bridge-Framingham Branch #4.09	CSX Railroad ROW	1927

TABLE 7.8
HISTORIC STRUCTURES

Structure Name	Address/Location	Year Built
NY, NH&H RR Bridge-Framingham Branch #5.20	CSX Railroad ROW	1930
Stedman St. Bridge over Rt. 3	Stedman Street	1940
Rt. 3 Bridge over Parkhurst Rd.	Rt. 3	1941
Rt. 3 Bridge over Conrail	Rt. 3	1941
Rt. 3 Bridge over Rt. 110	Rt. 3	1941
Riverneck Rd. Bridge over Rt. 3	Riverneck Road	1954
Rt. 129 Bridge over Richardson Rd.	Rt. 3	1954
B&M Railroad Bridge-Stony Brook Branch #12.8	Princeton Street.	1955
Westbound Rt. 4 over Rt. 3	Rt. 4	1958
Eastbound Rt. 4 Bridge over Rt. 3	Rt. 4	1958
Rt. 3 Bridge over Stony Brook	Rt. 3	1959
Rt. 3 Bridge over Moore's Canal	Rt. 3	1959
Rt. 3 Bridge over Main St.	Rt. 3	1959
Rt. 3 Bridge over River Meadow Brook	Rt. 3	1959
Rt. 3 Bridge over B&M Railroad	Rt. 3	1959
Lowell Connector Bridge over Rt. 3	Meadowbrook Road	1960
I-495 Bridge over Rt. 3	I-495	1961
I-495 Access Road Bridge	I-495	1961
Rt. 3 Bridge over Rt. 40	Rt. 3	1961
Veterans' Memorial Park	North Road	1990

Historic Objects

There are twenty-eight (28) objects listed in the MACRIS within Chelmsford, as shown on Table 7.9 below. These objects are principally comprised of monuments, markers and memorials. The newest object listed in the inventory is the North Chelmsford Vietnam War Memorial erected in 2006.

The Revolutionary War Memorial is the oldest object listed and is located on Academy Street. The native granite memorial, designed by architect Greely S. Curtis of Boston, was dedicated on May 2, 1859 to the Revolutionary soldiers of Chelmsford. The memorial is twenty-seven feet tall, with a thirty-foot terrace, with a shaft four feet in diameter, and cost $1,627.38 to build. An ash tree once stood near the memorial, under which the "Chelmsford patriots" met to discuss important town issues as early as 1775. There was a hollow somewhere in this tree into which money was placed for the use of soldiers who were about to enlist in their country's service.

TABLE 7.9
HISTORIC OBJECTS

Structure Name	Address/Location	Year Built
Chelmsford Revolutionary Monument	Academy St.	1859
Chelmsford Concord Battle Monument	Central Sq.	1899
Chelmsford World War I Monument	Vinal Sq.	1922
Perham Park Armed Services Monument	Chelmsford St.	1925
Chelmsford First Town Meeting Marker	Crosby Ln.	1925

TABLE 7.9
HISTORIC OBJECTS

Structure Name	Address/Location	Year Built
Quessy, Cpl. George Ralph Monument	Main St.	1925
Chelmsford Town Pound Marker	Bridge St.	1926
East Chelmsford World War II Veteran's Monument	Carlisle St.	1943
Clarke School for the Deaf Marker	Academy St.	1952
Chelmsford War Memorial	North Rd.	1955
LeFebre, Lance Corporal Rudolph Jr. Monument	177 Boston Rd.	1967
Lucifer Match Factory Monument	192 Robin Hill Rd.	1975
Middlesex Canal Monument	127 Riverneck Rd.	1987
Harvey Family Monument	2 Harvey Rd.	1989
Blazonis, Peter V. Monument	Gorham St.	1991
Bagni, William L. Memorial Stone and Bridge	North Rd.	1991
Veterans' Memorial Park-Desert Storm Monument	North Rd.	1991
Veterans' Memorial Park-Soldiers' Wall -	North Rd.	1992
Veterans' Memorial Park-POW/MIA Monument	North Rd.	1992
Veterans' Memorial Park - Soldier & Boy Stone	North Rd.	1995
Merrimack Valley Vietnam Veterans Memorial Stone	North Rd.	1997
Veterans' Memorial Park-Contributor's Stone	North Rd.	1997
Veterans' Memorial Park-Kinney Milton Bench	North Rd.	1998
Clark, Allan and Herbert World War II Memorial	Main Rd.	2000
Chelmsford Police Officers' Monument	2 Old North Rd.	2003
September 11 Memorial Bench	200 Richardson Rd.	2003
Operations Enduring - Iraqi Freedom Monument	North Rd.	2005
North Chelmsford Vietnam War Memorial	Middlesex St.	2006

During the public input process, information was provided indicating that the Chelmsford Memorial Veterans' Park is underutilized. Events are held at the park during each of the patriotic holidays. The Park was designed to be a place of contemplation and was located in the area of the schools so that students could learn to appreciate the sacrifices made by those who have served their country. Plans are in place to add a stage to the Park so that additional events may be held there, potentially increasing the use of the Park.



Forefathers Burial Ground: Chelmsford's first cemetery, circa 1655.

The Historical Commission has been inventorying the town's monuments. It was suggested during the public process that flags flown in Iraq and Afghanistan be used at these memorials, and that a walking tour of all the monuments be developed.

Burial Grounds and Cemeteries

As shown in Table 7.10 below, there are six cemeteries in town, four of which are listed on the MACRIS: Heart Pond Cemetery, Riverside Cemetery, West Chelmsford Cemetery, and Forefathers' Burials Ground. All but the Pine Ridge Cemetery are owned by the Town and maintained by the Cemetery Department.

TABLE 7.10
BURIAL GROUNDS AND CEMETERIES

Name	Address	Established
Forefathers Burial Ground: Chelmsford's first cemetery was established circa 1655. The earliest surviving Gravestone is dated 1690.	Intersection of Westford St. and Littleton Rd., Chelmsford Center	1655
Heart Pond Cemetery	Intersection of Garrison Rd. and Parkerville Rd., South Chelmsford	1774
Riverside Cemetery	Middlesex St., North Chelmsford	1841
West Chelmsford Cemetery	Cemetery Lane, West Chelmsford	1852
Pine Ridge Cemetery	130 Billerica Rd., Chelmsford	1888
Fairview Cemetery	Intersection of Main St. and Twiss Rd., North Chelmsford	1928

Quarries

The granite business in the Chelmsford area dates back to the early settlers who came to town in the mid 1600s. In those early days, granite was hewn from the giant boulders left by the upheaval of the glacier moving over the terrain. The granite was used for hearthstones, thresholds, steps and, most notably, the miles and miles of stone walls surrounding what were once fields belonging to farmsteads. Water power was harnessed to run the grist and saw mills in the late 17th century. Granite was then in great demand to build the dams that held in the water and to make the grinding wheels that ground the grain.



Early quarrying operation in North Chelmsford (*Source: The Royal Shawcross Collection)*

By the early 1800s, the granite industry in Chelmsford was enhanced by the construction of canals to move goods from this area into Boston. Many buildings in Boston used the impressive Chelmsford Grey granite. Charles Bulfinch, a noted architect of this time, chose Chelmsford granite to build University Hall at Harvard University. Chelmsford Granite, purportedly from a site close to where the present day Fletcher Quarry is situated, was also used

to build Quincy Market. The columns for Quincy Market were hauled to a landing in Chelmsford by 22 yokes of oxen. They were then loaded onto a barge and sent in to Boston. The oxen and ultimately the canal were replaced when the railroad reached town. The granite business was well established in Chelmsford by the 1880s.

Similar to the granite quarrying industry, limestone quarries and kilns date back as far as 1736. Most quarries were located along Beaver Brook and on Robbins Hill, and operated until 1830. These quarries were a major source of lime used in plaster for homes in Chelmsford and Lowell.

Endangered Historic Resources

The Chelmsford Historical Commission has identified the following historic resources as in danger of being lost:

- Middlesex Training School, Princeton Street is an excellent example of colonial revival school buildings in danger of demolition due to redevelopment.
- Odd Fellow's Hall, Chelmsford Center, is owned by a west coast company, and is experiencing demolition by neglect.
- Poor Farm Barn, 110 Billerica Road, is aesthetically unattractive but still structurally sound. The owner has expressed an interesting in converting the barn into artist studios.
- Sugden Press, School Street, is currently vacant.
- Railroad Station, School Street, is currently vacant.
- Vinal Square- without protection any building could be demolished. This area has the largest collection of mill era buildings in Massachusetts.
- The Bowling Alley in Vinal Square is one of the oldest duck pin bowling allies in the country.
- Cottage Row and Gay Street Row Houses are fine examples of worker housing constructed to serve the mill workers in North Chelmsford.

PRESERVATION PLANNING IN CHELMSFORD

Chelmsford is fortunate to have a number of municipal and private non-profit organizations dedicated to preserving historic resources. Town Boards such as the Planning Board and Conservation Commission work collaboratively to ensure that the character of the community is protected. Three preservation organizations, the Chelmsford Historical Society, the Chelmsford Historical Commission and the Chelmsford Historic District Commission often collaborate on preservation initiatives although their missions vary. The Garrison House Association and the Chelmsford Library also play a role in promoting historic preservation.

The Chelmsford Historical Commission was established under Massachusetts General Law, Chapter 40, Section 8D, and is comprised of three to seven members, who are appointed by the

Town Manager, and approved by the Board of Selectmen. The Chelmsford Historical Commission's mission is to "identify and preserve the historical heritage and the resources of the Town of Chelmsford". To accomplish its mission, the Commission undertakes the following activities:

- "Compile and maintain an inventory of the town's historic assets.
- Encourage activities to educate and to broaden community awareness of Chelmsford's historical heritage.
- Work with public and private groups to promote preservation.
- Encourage and support the activities of the local historic district.
- Provide preservation information.
- Prepare and distribute preservation publications".

The Commission is also an information resource for businesses, homeowners and contractors who are rehabilitating their residences or businesses, and is also charged with administering and overseeing the town's Demolition Delay Bylaw.

The Historical Commission has been undertaking the Sign Project, which consists of inventorying structures and sites over 75 years old and placing a plaque on the structure or site identifying its age and original owner. The inventory work includes a site visit, an architectural survey, a footprint map, photos and a deed, tax, vital statistics, and media search. Completed inventory and survey data is placed on file with the Town and the State Archives.

Most recently, the Commission worked to place Red Wing Farm on the National Register and collaborated with the Middlesex Canal Commission to apply for inclusion of the entire Canal on the National Register. The Commission works closely with the Community Preservation Committee, and continues to work toward preservation of the North Town Hall. The Commission has also worked to stabilize the headstones in the Heart Pond and West Chelmsford Cemeteries.

The Chelmsford Center Historic District Commission was established under Massachusetts General Law, Chapter 40C, and is independent of the Chelmsford Historical Commission. It is comprised of not less than three and not more than seven members, who are appointed by the Town Manager, and approved by the Board of Selectmen. The Historic District Commission functions as a regulatory commission overseeing the Town Center Historic District. The purposes of the Historic District are:

- "To preserve and protect the distinctive characteristics of buildings and places significant in the history of the Commonwealth and its cities and towns.
- To improve and maintain the settings of those buildings and places.

- To encourage new designs compatible with existing buildings in the district".[49]

Review Standards are in place to guide rehabilitation and construction in the historic district in a fashion that preserves and protects the distinctive characteristics and features of the district's resources.

The Historic District Commission is a very active body. In FY 2008, the Commission received fifteen (15) applications, of which fourteen (14) were accepted. Nine (9) Certificates of Appropriateness and five (5) certificates of Non-Applicability were issued.[50]

The Chelmsford Historical Society, Inc. was organized in 1930, and is a private, non-profit organization dedicated to the preservation of the historical heritage of the town. The Society's mission is to collect, preserve, exhibit and interpret documents and artifacts reflecting the life of Chelmsford and its people, from the 17th century to the present. The Society is located at the Barrett-Byam Homestead, where tours are offered to educate the public on Chelmsford's rich history and culture. Visitors may also participate in a variety of educational programs and social activities.

Since 2007, the Chelmsford Historical Society has collaborated with the Chelmsford Library to digitize the historic photographs held in the library's archive. These photographs are part of the Royal Shawcross photograph collection. The collection includes over 150 photographs taken in the North Chelmsford, Massachusetts area around 1901. The subjects include residences and businesses of the area, including the fire ruins of a major mill.

The Chelmsford Public Library provides a rich and extensive collection of information related to the town's history. The Library website, www.chelmsfordlibrary.org , provides links to the Chelmsford Historical Society, the Chelmsford Historical Commission, the Garrison House and the Middlesex Canal Association. It also provides a link to the Chelmsford Town-wide History Project, a site that allows residents to help document and preserve the town's history. The Library also sponsors the "Keeping History Alive" program, bringing in speakers to address a number of topics related to history and historical events.

The "Old Chelmsford" Garrison House Association is a private non-profit formed to preserve the "Old Chelmsford" Garrison House located at 105 Garrison Road. In 1691, the Garrison House was one of nineteen British garrisons in Chelmsford. The Association raises funds for the preservation and maintenance of the buildings and grounds, and sponsors educational programs for children.

[49] Town of Chelmsford website, http://www.chelmsfordgov.com/CHCwebsite/Historic_District_Home.htm
[50] Town of Chelmsford FY 2008 Annual Report.

Demolition Delay Bylaw

In April 2005, Chelmsford Town Meeting adopted a demolition delay bylaw that allowed the Historical Commission to stay for six months the demolition of structures at least 75 years old that are determined to be historically significant. In 2008, the bylaw was updated, increasing the length of the demolition delay to twelve months.[51] The demolition delay provides time for an owner to explore and develop alternatives to demolition, such as seeking out a person or entity willing to purchase, preserve or restore the building or structure rather than demolish it. A demolition delay bylaw does not guarantee that historic buildings will be saved, as buildings may be demolished after the delay period has expired if the property owner fails to identify a feasible alternative to demolition.

Although the Demolition Delay Bylaw has been in place for nearly five years, the town has never had to invoke the 12-month delay. The existence of the bylaw has encouraged property owners to cooperate with the Historical Commission.

Community Preservation Act

The Community Preservation Act (CPA) provides a source of funding for Open Space Preservation, Historic Preservation and Affordable Housing through a surcharge on the property tax. The money is kept in a separate CPA account by the Town. Each category (Open Space, Historic Preservation and Affordable Housing) must receive a minimum of 10% of the CPA funds available each year. The remaining 70% may be allocated for any one of the three categories, as Town Meeting sees fit.

In April 2001, Chelmsford voters passed a ballot question that allowed for a ½% surcharge on residential property tax bills, with an exemption for the first $100,000 in value. In April 2007, voters passed a ballot question that increased the surcharge to 1.5 %, with an exemption for low-income families and moderate-income seniors. The State provides matching funds for the CPA program through a filing fee surcharge at the Registry of Deeds. The State match has been reduced in recent years, and may be as low as 35% for the next few years, as the housing market remains fairly flat and the number of deed filings is relatively low.

The Community Preservation funds are administered by the Community Preservation Committee (CPC), a nine-member committee. The CPC holds an annual public hearing to receive comments on the proposed Community Preservation Plan. The CPC then finalizes the plan for allocating the funds, and presents its plan to Town Meeting for approval. Town Meeting then votes on the proposed recommendations.

[51] Chelmsford Demolition Delay Bylaw, February 25, 2009.

Community Preservation funds can be used for the purchase and/or preservation of historic structures registered with the State, or that have been determined to be historically significant by the Chelmsford Historic Commission. The CPC has established specific eligibility and selection criteria for projects seeking Community Preservation funding which are outlined as follows[52]:

- Level of Historic significance.
- Is the building/property on or eligible for:
  - National Historic Register;
  - State Historic Register;
  - Local Survey of Historic Properties;
  - Chelmsford Historic District;
  - Chelmsford Historic Properties Survey; or
  - Qualification by the Historical Commission or Historic District Commission as historic resource?
- Age of building.
- Other recognition, including surveys, publications, awards.
- Integrity of resource
  - Location of the original site
  - Location in the original historic context
  - Retains elements of historic design or style
  - Retains original materials
  - Retains elements of historic workmanship
  - Retains feeling and association with the history of the town
- Protect, preserve, enhance, restore and/or rehabilitate town-owned properties, features or resources of historical significance.
- Protect, preserve, enhance, restore and/or rehabilitate historic, cultural, architectural or archeological resources of significance, especially those that are threatened, and in the case of proposals on private property, the proposal and/or proponent meets certain economic criteria as may be required by the CPC.
- Preserve the exterior structural integrity of endangered historic resources owned by non-profit organizations.
- Demonstrates a public benefit.
- Preserve endangered structures and features, such as barns, outbuildings and fences that are important to the Town's character.
- Preserve the settings for the historic buildings or cultural landscapes, such as farm land
- Preserve historic landscapes or enhance the public's ability to use and enjoy such landscapes.
- Are there potential archeological artifacts at the site?

[52] Community Preservation Committee, "Selection Criteria", as provided by Bob Morse, CPC Chairman

- Rehabilitation work complies with Standards for Rehabilitation stated in the US Secretary of the Interior's Standards for the Treatment of Historic Properties.
- Demonstrates the ability to provide permanent protection for maintaining the historic resource and in the case of proposals on private property, the proposal and/or proponent have demonstrated additional protective measures and have met additional criteria, as may be imposed by the CPC, to ensure the continued permanent protection of the historic resource.
- Administrative and financial management capabilities of the applicant in order to ensure that the project is carried out in a timely manner, and that the historic resource be maintained for continued public benefit.
- Public support from users, preservation professionals and community leaders.
- Level of additional financial or in-kind services, beyond the Community Preservation funds, committed to the project.

The following historic preservation projects have been put forth in the Community Preservation Committee's *Community Preservation Plans for FY 2004-2010.*

- Restoration of the Hill Jock House ($50,000)
- Middlesex Canal Survey ($10,000)
- Headstone Restoration at the Forefather's Burial Ground ($5,375)
- Varney Park Study (20,000)
- North Town Hall stabilization ($28,247)
- Restoration of historic elements of the Heart Pond, Riverside, and West Chelmsford Cemeteries ($32,487)
- Barrett/Byam House restoration ($50,000)

Among the additional long-term projects outlined in the FY 2010 Community Preservation Plan is the stabilization of the barn at 110 Billerica Road, the preparation of a Historic and Cultural Resources Preservation Plan, a Commercial Façade Improvement Program, a Residential Façade Improvement Program, funding for the continuation of the inventory of historic structures, and the restoration of the box tombs in the Forefather's Burial Ground.

CULTURAL ORGANIZATIONS

The presence of strong cultural organizations in the Town of Chelmsford helps establish and strengthen its identity and plays a key role in shaping and promoting the image and character of the community. It is easy to take our cultural richness for granted and forget that others may not be aware of the range of cultural opportunities that the community offers. Remaining a dynamic community with broad cultural offerings requires the active promotion of cultural assets, and requires commitment and collaboration. Knowledge is the first step towards active engagement.

The Chelmsford business community has long recognized the value of arts and culture through its support of local organizations and sponsorship of cultural events. In fact, many businesses locate in this area precisely because the cultural opportunities offered in Greater Lowell are an attraction to employees. As the local economy diversifies, it is important to continue to create partnerships among cultural organizations and businesses. Such cross promotion of Chelmsford as a culturally diverse place to work and live will benefit both the business and arts communities. This point was raised during the public input sessions conducted for the Master Plan.

The Chelmsford Cultural Council is funded through the Massachusetts Cultural Council and the Town. The Council awards grant funding to local artists and organizations that contribute to the town's cultural community. The grants awarded fund individual artists, educational projects, and collaborative proposals that bring together artists, organizations and local cultural groups. In 2008, the Council received $8,400 from the Massachusetts Cultural Council, and used $2,625 of its own resources to fund 16 grant applications which included the following:[53]

- Concert of New England Folk Music
- Christmas and Winter Concerts by the Chelmsford Community Band
- Hansel and Gretel: An Intergenerational Opera Production
- The Battle of Bunker Hill
- A Concert of Classical Songs for Children
- No Child Left Inside Program
- Dance/Concert at the Senior
- St. Patrick's Day Program by the Chelmsford Council on Aging
- Shakespeare: Lunatic, Lover, Poet – Chelmsford Senior Center
- Our Stories: Storytelling Workshop for Seniors
- Requiem Performance by the Westford Chorus
- Three Apples Storytelling Festival and Library Preview
- Carmina Burana
- Winter and Spring Concerts by the Acton Community Chorus
- Poland 2007 – A Public Television Production
- Senior Citizen Musical Program

The Council has also created the International Exchange Grant Program. The program offers 6th grade teachers the opportunity to receive a $1,000 grant to facilitate an international exchange of cultural knowledge between a 6th grade classroom in Chelmsford and another classroom located outside of the United States.

The Chelmsford Arts Society promotes the arts through education, networking and scholarships. The Society focuses on displaying artwork in local business establishments and sponsors field

[53] Town of Chelmsford FY 2008 Annual Report.

trips and other events throughout the year. Currently, the Arts Society is searching for a permanent home and gallery space.

Other cultural entities in town include the Illumination Opera, the Chelmsford Community Band and the Chelmsford Friends of Music. The Illumination Opera, www.illuminationopera.com is a new entity, and according to the Opera's webpage, "focuses on intergenerational projects to bring the opera experience to the community, involving performers of all ages". The Friends of Music organization, www.cfom.org, works with schools to assist with the music programs at all grade levels. The Community Band, www.chelmsfordband.org, presents concerts on Tuesday evenings during the summer months. The summer concert series is held on the Common.

There are a number of long-standing, annual events in Town which continue to be popular and contribute to the town's quality of life and sense of community. Among these are the Fourth of July celebration, the Memorial Day parade and the Arts Festival in the Town Hall. The Fourth of July celebration has been held every year for 42 years and is well attended. The event is family-oriented and includes carnival rides, game and food booths, fireworks and a parade. During the Fourth of July celebration, the Arts Society holds an art show at Town Hall. This display is the main annual event for the Arts Society and has been taking place for forty years. The Memorial Day Parade is held in both North Chelmsford and the Center, on alternating years.

There are two primary cultural focal points in Town: the Center Town Hall on North Road and the Adams Library on Boston Road. The Old Town Hall is considered by some to be a "cultural icon". On November 7th a Grand Opening Ceremony was held for the Center for the Arts established at the Old Town Hall. The Center for the Arts includes an art gallery and office space rented as studio space based on a lottery system. Meeting space is also available to town organizations. (A lack of meeting space was identified as a community need during the public input process.) The Center for the Arts will be used by the Chelmsford Arts Society, the Illumination Opera, the Community Jazz Band and others. During the public input sessions, participants suggested that the Town should examine the feasibility of establishing an Arts District, should a large space, such as a mill, become available.

The Chelmsford Library plays a significant role in the cultural and artistic offerings within the town, with over 900 programs being provided in FY 2008.[54] These programs included book discussion groups, conversation circles, movie nights, guest lecturers and authors, informational seminars, puppeteers, musical performances, arts receptions and children's programs. The Library has established partnerships with the Friends of the Library, volunteers, local agencies, the school system, non-profit organizations and businesses in order to offer its unique programming. During the public input sessions for the Master Plan, participants commented that the hours at the MacKay Library need to be increased to better serve young families.

[54] Town of Chelmsford FY 2008 Annual Report

ISSUES AND OPPORTUNITIES

Natural resources are closely linked with the Town's identity and sense of place, and preserving these resources is critical to the quality of life for the town's residents. Although fiscal conditions present one of the greatest challenges to future conservation efforts, the Master Plan Committee recommends that Community Preservation funds be used to purchase land or deed restrictions for properties containing natural resources such as aquifers, water resources and wildlife habitat.

While the Master Plan Committee finds that the Town's zoning bylaw and other development regulations are effective in protecting natural and cultural resources, the Town could still do more to encourage or require development practices that will further preserve and protect these resources. For example, the town's subdivision regulations presently prohibit the use of many low impact development (LID) measures for managing storm water. The Land Use and Zoning section of the Master Plan provides more detailed information on LID techniques (see page 56) and recommends that the Town modify its subdivision regulations to allow and encourage the use of Low Impact Development techniques, as a means of improving water quality while reducing maintenance costs.

Eleven streams within the Town of Chelmsford suffer from some form of impairment. The Master Plan Committee recommends that the town implement a program to minimize the application of road deicing chemicals and lawn fertilizers to the extent feasible. In addition, the Town should require the preparation of an Integrated Pest Management Program for sizable projects that come before the Planning Board and/or Conservation Commission. The Conservation Commission should work with DEP, surrounding communities, environmental organizations and neighborhood residents to develop a program to improve environmental conditions and water quality these waterway.

The Town should develop education and awareness programs to encourage the protection of natural resources. Such programs should include the Conservation Commission, the Water Districts, the Town Engineer, and the School Department, as well as private non-profit and volunteer organizations such as the Open Space Stewards and the Chelmsford Land Trust. The town should also tap into existing state and federal public education programs and materials provided by the Environmental Protection Agency (EPA), the Massachusetts Department of Public Health (DPH), and the Massachusetts Department of Environmental Protection (DEP).

In 2004, the Chelmsford Board of Selectmen adopted a policy requiring one-to one replacement for tree removal occurring on town-owned land. In addition, the Chelmsford Open Space Stewards have worked with Jones Farm to open a town nursery at Sunny Meadow Farm to cultivate trees for this purpose. The town needs to build upon these efforts by developing a forestry management plan for the community's remaining forested lands. Such a plan typically covers a ten-year period and outlines goals and objectives, provides a detailed property

description and resources inventory, and contains a list of management recommendations with an implementation schedule. The stewardship section of the plan addresses other issues such as wildlife and recreation. The Department of Conservation and Recreation (DCR) administers a competitive grant program to fund the development of such plans. In addition to this proactive program, the town should establish a policy to address tree protection, tree maintenance, and tree replacement for new development and redevelopment proposals undergoing site plan review.

The Town should develop and implement an invasive species management plan. Invasive and exotic species such as multiflora rose, oriental bittersweet, and purple loosestrife, are commonly found in many areas of town. The implementation of this management plan will involve the participation of the Conservation Commission, Highway Department and volunteers from non-profit organizations.

The citizens of Chelmsford recognize the importance of preserving the remnants of the Town's agricultural heritage, as evidenced by the formation of the Agricultural Commission in 2009. The majority of remaining farmlands in town are not permanently protected and the Town needs to work to preserve these enterprises through a variety of mechanisms. The Town should actively encourage property owners to consider measures to conserve their land in perpetuity. When land is proposed for development, the Town should work with property owner to explore other options, such as the Agricultural Preservation Restriction program, or the Town may want to consider purchasing the development rights or purchasing the property in fee, using Community Preservation Act (CPA) funds, as has been done in the past.

The public process for preparing this Master Plan has made it evident that the Town clearly values its historic resources. The Town should prepare a Historic and Cultural Resources Preservation Plan to inventory these resources and to outline a strategy to maintain, preserve, protect and promote these resources. The town needs to promote the town's rich cultural and historic fabric and charm in a way that builds awareness and support for its preservation, while at the same time promoting tourism and benefiting the local economy. In this regard, an information booth and/or board on the Town Common and or in the Old Town Hall should be established.

Town officials, boards and commissions need to work more closely with the Historic Commission to preserve historic features such as stonewalls, facades and historic foundations by incorporating the preservation of these assets into the Town's existing bylaws and regulations. The land use and zoning section of this Master Plan recommends the creation of design guidelines for select areas throughout town. These design guidelines should emphasize that preservation of these historic features is a priority for the community. In addition, the Town's subdivision regulations and zoning bylaw should provide guidance for the development community relative to this issue.

The Town should participate in the Historic Landscape Preservation Initiative administered by the Massachusetts Department of Conservation and Recreation. Under this program, DCR will assist the community in undertaking a reconnaissance survey to help develop an integrated and proactive planning approach for heritage landscape preservation.

The Master Plan Committee has found that the Town needs to improve its efforts to maintain town-owned historical buildings, as evidenced by the condition of the two historic town halls. A maintenance plan is needed for all of the Town's structures, including the historic properties. The Master Plan Committee believes that the preservation and maintenance of Chelmsford's historic public buildings should be a priority for the allocation of Community Preservation funds.

Resources should be made available to provide support to several boards and commissions, including the Historical District Commission, Historical Committee, Community Preservation Committee, and Agricultural Commission. This should include assistance in applying for grant money. The Town should also establish a program that provides low-interest loans to finance facade improvements for private properties located within a designated historic district or on a scenic roadway. These low interest loans would be provided in exchange for a preservation restriction on the property. In general, the Master Plan Committee believes that a covenant or preservation restriction in perpetuity should be required for all historic preservation projects receiving Community Preservation loans.

The Master Plan Committee finds that the Town needs to improve the level of protection and storage facilities for the town's historical documents and archives. Documents stored at Town Hall and at the Library are vulnerable to theft, vandalism, and damage from fire, insects, rodents and moisture. The Historical Society and the Library have begun to scan many of these documents, but the handling and storage of the original materials needs to be adequately addressed. The Town needs to institute procedures to train staff in accessioning, storing, and preserving historical record and documents. The Town should also consider constructing an Archives Center to stabilize and preserve Chelmsford's historic records.

The Town currently has several roadways that are designated as scenic roads, however, most local officials and residents are unfamiliar with the designation, and do not know whether there are procedures in place to administer or enforce the scenic roadway bylaw. Although Town Meeting has designated historic roads on three separate occasions, there is no mention of MGL statute, the designated roads, or a bylaw within the Town Code. The Town should review the bylaw and the administrative procedures to determine whether they are practical, consistent with the operating procedures of the Town, enforceable, and up-to-date. Local boards, committees and residents should be educated as to the significance of the designation, and should become familiar with the permitting procedures that are to be followed.

The North Chelmsford/Vinal Square area contains an impressive number of mill era structures, most of which are eligible for inclusion in the National Register of Historic Places. Clearly, this

area is appropriate for the creation of a national or local historic district. However, during the public involvement process, some residents expressed concern regarding the political challenges of creating a formal historic district, and instead, suggested that the area be designated an "honorific" historic district. The concept of establishing an historic district of some sort should be further explored through a series of meetings and conversations with neighborhood residents and businesses. The possibility of creating an historic district in South Chelmsford should also be explored. An educational process should be initiated so that citizens understand the significance, restrictions and impact of creating either a National Register district or a local historic district.

RECOMMENDATIONS

- The Town's subdivision regulations should be modified to allow and encourage the use of Low Impact Development (LID) techniques for managing storm water.

- The use of deicing chemicals and lawn fertilizers should be minimized, and the town should require an Integrated Pest Management (IPM) Program for sizable development proposals. In addition, an IPM program should be utilized for addressing turf maintenance issues at the golf course and at the town's playing fields by the appropriate board or department.

- A public education and awareness program that encourages the protection of natural resources should be established for town residents and the schools. The Town should emphasize the importance of educating its youth and the community regarding the significance of the Town's history. The Town should also tap into existing state and federal public education programs.

- A forestry management program should be developed for the community's remaining forested lands. In addition, the town should establish policies for tree protection, tree maintenance, and tree replacement for new development and redevelopment proposals undergoing site plan review. The public should be made aware of the Board of Selectmen's tree protection and replacement policy.

- The Town should develop and implement an invasive species management plan.

- The Town should work with property owners to preserve the town's remaining agricultural lands. The Town should also consider purchasing development rights for these agricultural properties or purchasing the properties in fee, where feasible and appropriate.

- A Historic and Cultural Resources Preservation Plan should be prepared to inventory resources, and outline a strategy to maintain, preserve, protect and promote the historic and cultural assets of the community.

- An information booth should be established on the Town Common and/or in the Old Town Hall to promote tourism and benefit the local cultural economy. In addition, the Town should encourage the State to reopen the Visitor's Center at the rest area on I-495 northbound in Chelmsford.

- Design guidelines established for areas throughout the community should emphasize the importance of historic preservation.

- The Town's subdivision regulations and zoning bylaw should be modified to provide the development community with guidance relative to the preservation of historic resources.

- The Town should participate in DCR's Historic Landscape Preservation Initiative, in order to develop an integrated and proactive approach to heritage landscape preservation.

- Efforts to routinely maintain and preserve Town-owned historic structures must be improved. A maintenance and preservation plan is needed for all Town-owned buildings, including its historic properties. The need for improved maintenance and preservation of these structures should be reflected in the funding priorities of the Community Preservation Committee.

- Resources should be made available to provide support to several boards and commissions, including the Historical District Commission, Historical Committee and Agricultural Commission. This should include assistance in applying for grant funds.

- The Town should establish a program that provides low-interest loans for façade improvements for private properties located in a designated historic district or along a scenic roadway. These low-interest loans should be provided in exchange for a preservation restriction or covenant in perpetuity.

- The Town should institute procedures and train staff in acquiring, storing, and preserving historical records and documents. The Town should also consider constructing an Archives Center to stabilize and preserve its historic records.

- The Town's Scenic Roads Bylaw and administrative procedures should be reviewed to determine whether they are practical, enforceable, up-to-date, and consistent with the practices and operating procedures of the town. Town staff, boards and commissions

should be educated in terms of the significance of the bylaw and the permitting procedures that are to be followed.

- The concept of establishing historic districts in North Chelmsford and in South Chelmsford should be further explored. An educational process should be initiated so that citizens understand the significance, restrictions and impact of creating a National Register district vs. a local historic district.
- Work with DEP, the surrounding communities, environmental organizations and neighborhood residents to develop a program to improve environmental conditions and water quality its waterways.

IX. FACILITIES AND SERVICES

INTRODUCTION

In Massachusetts, municipalities are responsible for administering and delivering nearly all services. Municipal facilities and services are structured to respond to a community's priorities and desires in terms of providing a satisfactory quality of life for its residents. Collectively, public buildings and facilities, land, infrastructure, equipment, personnel and financial resources make it possible for the town's employees, boards, committees, and commissions to provide services for residents and businesses, and to conduct the day-to-day business of the Town.

Goal Statement: ***Provide high quality, cost effective and accessible services and facilities to meet the changing needs of the town's residents and businesses.***

- ***Provide community services that meet the needs of all residents regardless of income, age, gender or ability. Such services include education, public safety, public health, town administration, library services, recreation and social services.***
- ***Maintain, enhance and improve the town's infrastructure and facilities in a manner consistent with best practices and using available technology.***
- ***Use a comprehensive approach to asset management by maintaining an inventory of municipal property, establishing priorities and long-range plans for addressing public facility projects and maintenance, and by periodically re-evaluating the town's building and land needs.***
- ***Coordinate the provision of community facilities and services in an efficient manner by planning and budgeting for large projects based on anticipated community need.***

The Facilities and Services Element of this Master Plan focuses mainly on the capacity of local government to finance and deliver services. Chelmsford has not grown significantly in recent years, and there is no indication that its growth rate will increase in the foreseeable future. Its capital facility needs have less to do with serving more people than with addressing deferred maintenance and renovating or replacing outgrown or obsolete buildings. Similarly, the town's operating challenges have little to do with population growth. Rather, the challenges involve paying for typical desired local services in a state with fluctuating aid policies, a cap on property taxes and no authority for cities and towns to collect impact fees.

Chelmsford's legislative body is a representative town meeting consisting of one hundred and sixty-two members elected to meet, deliberate, act and vote in the exercise of the corporate powers of the town. Eighteen members are elected from each of the town's nine voting precincts. The Board of Selectmen is the chief executive office in the Town. The Town Manager is the primary officer responsible for implementation of policy directives and guidelines adopted by the Board of Selectmen. The daily administration of the affairs of the Town is the exclusive responsibility of the Town Manager.

Chelmsford's local government is complex with a total operating budget of $101,023,021 in FY 2011.[55] The major sources of funding for the budget include $75,688,267 from the property tax levy, $15,183,952 in State Aid, and $6,903,750 in local receipts. The FY 2011 budget maintains a level service of government operations, compared to FY 2010, in that there are no additional positions funded.

Chelmsford offers three options for educating its student population: Chelmsford Public Schools (grades K-12), Nashoba Valley Technical High School (specialized vocational education for grades 9-12), and the Innovative Academy Charter School (grades 5-10), which is funded in the non-appropriated category of the town's budget. The total expenditure for all three systems in FY 2011 is projected at $48.62 million, which represents 48.62% of the total budget. The School budget in FY 2011 continues to be funded above the State Net School Spending Requirements, which is an indication of the community's strong commitment to education. In fact, during the public visioning sessions for the Master Plan, the quality of the school system was often cited as one of the community's greatest strengths.

Public Safety (Police, Fire, Inspections and Enforcement, Animal Control, and Emergency Management) is the second largest functional component of the Town's budget, representing approximately 9.6% of total expenditures in FY 2011. In addition to public safety operating expenses, the FY 2011 budget provides $130,000 for the replacement of four police cruisers.

To meet the ongoing capital expenditure needs of the Town, the FY 2011 budget includes a level-funded $2.5 million capital improvement program. Funds are being expended to update the foreign language lab at the high school, install additional interactive white boards in classrooms, update other computer technology, maintain school facilities, purchase department vehicles, support technology operations, and construct road, sidewalk, and drainage improvements.

Prudent use of debt financing is an important part of the Town's overall fiscal planning. The primary objective of any debt management approach is to borrow at the most favorable rate possible. Attainment of this objective requires clear policies in terms of the reasons and rationale for borrowing, calculating the appropriate term for repayment, and appropriately planning for the repayment of debt-financed projects at the most favorable rate possible.

A rapid repayment schedule ensures cost savings to the community and seeks to avoid burdening future generations with large debt loads. Debt is typically retired in five to ten years, depending on the expected useful life of the capital asset being financed. However, new and renovated building projects and the sewer project are planned to have a twenty year repayment term. All debt is issued as general obligation debt. This means that the full faith and credit of the Town is pledged to the bondholder. Debt issued on behalf of the Town's sewer construction project approved prior to 2003 is exempt from Proposition 2 ½, as is debt issued on behalf of the secondary school construction and renovation project. Sewer construction debt approved since

[55] FY 2011 Budget and Capital Improvement Plan, April 2010.

2003 is paid with sewer betterment revenue. Repayment of all other issued debt must be funded within the levy limit.

The Town's credit rating is AA- from Standard & Poor's with a Stable Outlook. Standard & Poor's rating reflects the Town's moderate overall debt burden, diverse tax base, and financial management practices. As with a personal credit rating, the Town's credit rating is a statement of its overall fiscal health as a government and as a community. The benefit of a strong credit rating is realized in lower interest costs on the Town's long-term debt issues.

A. INTRODUCTION TO TOWN FACILITIES

This subsection of the Facilities and Service chapter will present existing conditions for municipal buildings and recreational facilities, discuss management and operations, outline issues and opportunities and identify a series of recommendations to address the future facility needs of the community. The Facilities Section was prepared by the Chelmsford Community Development Department.

Municipal Buildings

The Town of Chelmsford maintains twenty-eight (28) buildings that the Town maintains. Below, the following information is provided for each building: general site and building characteristics, existing operations, deficiencies, costs estimates and schedules for capital planning expenditures.

Town Office Buildings

- **Chelmsford Town Office Building -** Originally constructed as a high school in 1916, the building was converted to Town Offices in 1981. Located on a 9- acre site at 50 Billerica Road, this structure is a 3 story brick/masonry building of 30,912 sq. ft. with a rubber seam roof that was replaced in FY 2003. The building supports the Town of Chelmsford's administration, financial operations, facilities management, highway engineering, building inspection departments, and is the primary facility for town boards and committee meetings.

  Recent upgrades to the building include windows (FY2003 in the amount of $80,000 and FY 2009 in the amount of $95,000), replacement of some entrance doors, rewiring for technology, and lighting retrofit. Water is supplied from the Center Water District, sanitary drainage via town sewer; electrical power is supplied by National Grid and the building is heated with natural gas.

  Building deficiencies that need to be addressed are renovation to the gym, including restrooms, stage, heating and windows, estimated at $166,400 and scheduled for 2012; parking lot lighting, estimated at $28,125 and scheduled for 2014; parking lot curbs and

walks, estimated at $140,000 and scheduled for 2016; and roof replacement, estimated at $227,040 and scheduled for 2018.

It should be noted that as a result of the recently approved DPW facility on Alpha Road, the Sewer Department, Engineering and Facilities and Maintenance will be relocated. (See page 7 for more discussion on this issue.)

- **Center Town Hall -** Located on a 33,105 sq. ft. site at 1A North Road, is a 1.5-story wooden frame clapboard building of 7,451 sq. ft. with an asphalt shingle roof. Built in 1879, it was renovated in 1937 and in1985. Its use today is as a Community Cultural & Arts Center. There is 8,000 sq. ft. of parking behind and to the east of the building containing 47-50 parking spaces. Upgrades to the building include an asphalt-shingled roof completed in FY 2004 at a cost of $43,000, and air conditioning installed in FY 2001 at a cost of $60,000. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and the building is heated by natural gas. The basement has a large area for meetings and programs, along with a kitchen. The Chelmsford Community Exchange, Inc. food pantry occupies a small space at the rear corner of the building. The first floor is utilized as rental space for artist galleries. The third floor is utilized for functions and performing arts. Center Town Hall is situated in the Chelmsford Historic District and is also a National Historic Site. There are preservation restrictions on the building that limit interior and exterior renovation activity. The building is ADA accessible via a lift.

  In April 2010, Town Meeting voted to allocate $2.56 million in Community Preservation funds to perform a full interior and exterior historic renovation. This renovation will consists of adding a new elevator for handicapped access, new toilet facilities to accommodate an assembly use, restoration of windows and auditorium, all new building systems and exterior repairs and repainting. It is important to note that although the project is a full interior and exterior renovation, there are a number of items, such as the roof and parking lots, which are not programmed for renovation. Therefore, capital funds may be needed, in addition to the CPC funds.

- **North Town Hall -** Located on a 9,160 sq. ft. site at 31 Princeton Street, is a 2-story 6,636 sq. ft. wood frame/vinyl sided building with an asphalt shingle roof. Originally constructed in 1853, this building has been vacant for nearly 20 years. Currently, the building is gutted down to the framing. There is no parking around the building. Water is supplied from the North Water District, sanitary drainage via town sewer and electrical power is supplied by National Grid. The heating system is disconnected.

  In April 2010, Town Meeting voted to allocate $2.85 million to perform a full interior and exterior historic renovation. This renovation will consists of structural repairs and upgrades, a new elevator for handicapped access, new toilet facilities to accommodate an

assembly use, restoration of wood siding and trim, windows and auditorium and new building systems.

As part of the North Town hall renovation project, 40 new parking spaces will be constructed across the street behind the North Fire Station. It is important to note that although the above project is a full interior and exterior renovation, there are a number of items, such as the roof and parking lots, which are not programmed for renovation. Therefore, capital funds may be needed in addition to the CPC funds.

Public Safety

- **Police Station -** Built in 2003 and located on a 4.3-acre site at 2 Old North Road, is a 2-story brick/masonry building of 20,906 Sq. ft. with an asphalt shingle roof and 78 parking spaces. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid. The building is heated by 2 Raypack model 502 gas- fired boilers. The Town's centralized fueling facility is located at this site. The building also contains a community meeting room that seats 70 persons. No major capital projects are needed.

- **Police Maintenance Garage -** Built in 2003 and located on a 4.3-site at 2A Old North Road, is a 1-story brick/masonry building of 4,850 sq. ft. with an asphalt shingle roof. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and the building is heated by gas. No major capital projects are needed.

- **Dog Pound -** Built in 1987 and located adjacent to the Police Station, is a single-story brick /masonry building of 1,320 sq. ft. with an asphalt roof. The facility has parking for two vehicles. The interior consists of a kennel area with 13 cages, office area, one- car garage and bathroom. Water is supplied by the Center Water District and the sewer is hooked into the town system.

  Upgrades to the building include a new hot water tank installed in 2002, a garage door opening in 2002, new boiler in 2005 and new garage door in 2006. No major capital projects are needed.

- **Center Fire Station -** The station was built in 1952 and is located on a 10,800 sq. ft. site at 7 North Road in the Historic District. This is a 2-story brick/masonry building of 7,164 sq. ft. with a rubber membrane roof. The facility has parking for 5 vehicles. Upgrades to the building include a new boiler and lighting retrofit in FY 2003.

  Building deficiencies include structural integrity, building code compliance, ADA compliance, outdated technology, lack of storage, inadequate medical cleaning/ decontamination area, lack of training facilities, poor living quarters, undersized

apparatus bays, no use of basement, and the current lot size is too small for expansion. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. This building is not ADA complaint.

- **North Fire Station -** Built in 1972 and located on a 40,946 sq. ft. site at 35 Princeton Boulevard, is a 1 story brick/masonry building of 3,740 Sq. ft. with rubber membrane roof. The facility has parking for 15 vehicles. Upgrades to the building include the roof in FY 2007, at a cost of $32,000, windows, boiler, air conditioning and lighting retrofit. Water is supplied from the North Water District, sanitary drainage via town sewer; electrical power is supplied by National Grid and the building is heated by natural gas. This station is not fully ADA accessible. No major capital projects are needed. As part of the North Town hall renovation project (see above), 40 new parking spaces will be constructed at this site.

- **South Fire Station -** Built in 1966 and located on an 8,392 sq. ft. site at 295 Acton Road, is a 1-story brick/masonry building of 2,640 sq. ft. with an asphalt shingle roof. The facility has parking for 6 vehicles. Upgrades to the building include windows, boiler and lighting retrofit. The only building deficiency is roof replacement which is scheduled for 2017 in the capital budget. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and the building is heated by natural gas. This station is not fully ADA accessible and is closed due to budget cuts.

- **East Fire Station -** Built in 1976 and located on a 2.5- acre site at 115 Riverneck Road, is a 1-story brick/masonry building of 4,226 sq. ft. with a rubber roof. The facility has parking for 8 vehicles. Upgrades to the building include windows, boiler, air conditioning and lighting retrofit. Building deficiencies include the roof, scheduled for replacement in 2014, and hose tower replacement, scheduled for 2012. Water is supplied from the East Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and the building is heated by natural gas. This station is not fully ADA accessible.

- **West Fire Station -** Built in 1970 and Located on a 21-acre site at 260 Old Westford Road, is a 1-story brick/masonry building of 2,796 sq. ft. with a rubber roof. The facility has parking for 5 vehicles. There is also a 1,344 sq. ft. maintenance garage used by Parks and Recreation located on the site with a 672 sq. ft. canopy used for storage. Updates to the building include the roof in FY 2007, at a cost of $22,000, and a boiler. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heat by gas. This station is not fully ADA accessible. New windows are needed and this work is estimated at $6,000. This item is not scheduled for capital planning.

Department of Public Works

- **Highway Garage -** Built in 1958 and located on a 12.5- acre site at 54 Richardson Road, is a 1-story concrete/cinder block building of 11,890 sq. ft. with a flat tar and gravel roof. Upgrades to the building include the ventilation system. Building deficiencies are structural, ADA, building codes, potential threat to groundwater due to inadequate storage facilities, lack of inside storage for vehicles and equipment impacting operations, and useful life of vehicles and equipment, poor/unsafe working conditions and potential law suit. Water is supplied from the North Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. This site is currently in litigation with North Water District.

  In April 2010, voters passed a debt exclusion and Town Meeting authorized spending up to $4.6 million to acquire four parcels, containing a total of 16.97 acres, and an existing 92,844 sq. ft. building, located at 9 Alpha Road and to fund the redevelopment of the land and building into a Department of Public Works facility. A proposed Phase 2 is to be brought to the table in 2015 for $6.0 million.

- **Highway Maintenance Garage -** Built in 1958 and located on a 12.5 acre site at 56 Richardson Road is a 1 story brick/masonry building of 3,300 sq. ft. with a metal roof. Water is supplied from the North Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. This site is currently in litigation with the North Water District. Recent upgrades include a ventilation project in FY 2009 in the amount of $35,000.

  Based upon the April 2010 vote, see above, the Highway Maintenance Garage is anticipated to be relocated to the new DPW facility.

- **Parks Division -** Located in a building at Roberts Field behind the West Fire Station.

- **Sewer Division** - Located at Kidder Rd. The current lease is for another three years at an annual cost of $72,000 per year.

  Based upon the April 2010 vote, see above, the Sewer Division is anticipated to be relocated to the new DPW facility.

Libraries

- **Adams Library -** Originally constructed in 1894, significant renovations and an addition were completed in 1998. Located on a 33,915 sq. ft. site at 25 Boston Road, is a 2 story 30,182 sq. ft. brick and masonry building with a slate and asphalt shingle roof. This property offers 74 parking spaces in front and on the side of the building. Additional on-site parking is necessary and is evident based upon patrons parking across the street in the CVS parking lot at busy times. The library additionally serves the community with two

meeting rooms; a large room that seats 75 and small room that seats 12. Those rooms are heavily booked during library hours. In 2009 with a grant from the State of Massachusetts, solar panels were installed on the roof to provide a portion of the electricity for the building. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

- **Dutton House -** Constructed in 1896 and located on a 19,139 sq. ft. lot at 10 Bartlett Street is a 2 story 2,354 sq. ft. wood frame/clapboard building with an asphalt shingle roof. This building is used to store books for the library. The building is in need of significant work on the inside. It also needs the front porch re-built for a cost of $22,800. Upgrades to the building are roof, painting, and floor shoring. Deficiencies are to replace windows, doors, repair clapboards, replace shutters and paint, replace front porch, repair walls, ceilings and paint interior and replace old steam boiler system with hot water. The above deficiencies would not cover ADA accessibility, ADA restrooms, some door opening would have to be widened and an elevator installed. This work would cost approximately $195,000.Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

- **McKay Library -** Constructed in 1900 and located on a 11,727 sq. ft. lot at 43 Newfield Street is a 2- story 4,244 sq. ft. wood frame building/clapboard building with an asphalt shingle roof. The facility has parking for 20 vehicles. Current hours of operation are Wednesday 1-8 and Friday 10-5:30. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Building deficiencies that need to be addressed are repair clapboards, replace shutters, paint and roof replacement.

Public Schools

- **Chelmsford High School -** Originally constructed in 1974, and partially updated in 2007, and located on a 52.49 acre lot at 190 Richardson Road is a 3 story 285,882 sq. ft. brick/masonry building serving children from grades 9 – 12. The school has a 1,000 seat Performing Arts Center with a full fly loft and an orchestra pit. Paved parking and drive area is 220,000 sq. ft. with 605 parking spaces. Other uses of the lot Shed Frame 1 - 2,400 sq. ft., and Shed Frame 2 - 384 sq. ft. maintenance buildings. Recent updates to the building are boilers, roof, fire alarm, domestic water supply, electrical upgrade for technology, sealing and painting of building exterior panels, library remodel, addition to enclose 2 outdoor stairways, security system, lockers, stadium seating and press box, fire pump rebuilt, painting of all stairways, lighting retrofit, occupancy sensors and generator. Significant upgrades include new science labs and the addition of the performing arts center in 2007.

Building deficiencies are "univent" handling replacement estimated at $865,613 and scheduled for 2012, parking lot, curbs, sidewalks estimated at $528,720 and scheduled for 2016, window replacement estimated at $1,663,334 and scheduled for 2014, kitchen/café upgrade estimated at $248,212 and scheduled for 2015, plumbing estimated at $713,837 and scheduled for 2013, doors and hardware estimated at $163,200 and scheduled for 2012, lecture hall upgrade (2) estimated at $95,962 and scheduled for 2014, casework and paint estimated at $565,000 and scheduled for 2013, furniture estimated at $133,560 and scheduled for 2019 , gymnasium, estimated at $167,210 and scheduled for 2013, ceiling replacement – café 1 & 2 estimated at $100,00 and scheduled for 2011, stadium field estimated at $137,251 and scheduled for 2015, renovate locker & team rooms (7) estimated at $80,600 and scheduled for 2017, renovate Career Center estimated at $175,000 and scheduled for 2015, renovate tennis courts estimated at $88,588 and scheduled for 2018 and parking lot light replacement estimated at $101,200 and scheduled for 2017. Water is supplied from the North Water District, sanitary drainage is via town sewer, electrical power provided by National Grid and heated by gas.

- **McCarthy Middle School -** Originally constructed in 1957 and located on a 41.86 acre site at 250 North Road is a 2 story 147,954 sq. ft. brick/masonry building serving children from grades 5 – 8 with an addition in 1962. The roof, installed in 2003, is flat with tar and gravel over 1/3 of the building and Sarnifil over the remaining 2/3, installed in 2005. Paved parking and drive area is 165,369 sq. ft. with 266 parking spaces. Recent upgrades to the building are roofing in 2007, white boards, lockers, Gymnasium upgrade and modular classrooms (4 rooms), lighting retrofit, occupancy sensors and generators.

  Building deficiencies are floor tile replacement estimated at $531,991 and scheduled for 2016, parking lot, curbs, sidewalks estimated at $400,982 and scheduled for 2012, plumbing estimated at $383,846 and scheduled for 2014, doors and hardware estimated at $137,251 and scheduled for 2015, kitchen/café/teachers room upgrade estimated at $100,000 and scheduled for 2011, auditorium refurbish estimated at $626,149 and scheduled for 2015, casework and paint estimated at $353,173 and scheduled for 2013, furniture estimated at $42,000 in 2017 and $62,057 in 2019, renovate locker rooms estimated at $35,000 and scheduled for 2018 , renovate lecture hall estimated at $95,000 and scheduled for 2020, replace curtain wall windows in the Big Gym estimated at $204,000 and scheduled for 2018, and parking lot replacement estimated at $64,400 and scheduled for 2017. Water is supplied from the North Water District, sanitary drainage is via town sewer, electrical power provided by National Grid, and heated by gas.

- **Parker Middle School -** Originally constructed in 1965 and located on a 15.25 acre site at 75 Graniteville Road is a 2 - story 100,400 sq. ft. brick/masonry building and a 5,000 sq. ft. brick/masonry library addition that serves children from grades 5 – 8. The roof, installed in 2007, is Sarnifil. Paved parking and drive area is 120,350 sq. ft. with 208

parking spaces. Recent upgrades to the building are modular classrooms (8 classrooms), roof (2007), white boards, gym bleachers, lighting retrofit and library addition and renovation in 2007.

Building deficiencies are floor tile replacement estimated at $145,000 and scheduled for 2011, parking lot, curbs, sidewalks estimated at $327,175 and scheduled for 2017, "univent" replacement and DDC Controls estimated at $575,700 and scheduled for 2014, plumbing estimated at $354,960 and scheduled for 2016, doors and hardware estimated at $110,323 and scheduled for 2012, gym upgrade estimated at $118,973 and scheduled for 2013, kitchen/café and stage upgrade estimated at $255,898 and scheduled for 2015, ceiling additions to classrooms estimated at $378,151 and scheduled for 2020, furniture estimated at $58,238 and scheduled for 2017, casework and paint estimated at $334,653 and scheduled for 2018, renovate locker rooms estimated at $30,000 and scheduled for 2012, and parking lot light replacement estimated at $31,000 and scheduled for 2019. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Chelmsford Tele-media is located in this school.

- **Byam Elementary School -** Originally constructed in 1970 and located on a 26- acre site at 25 Maple Road, is a 2-story 60,441 sq. ft. brick/masonry building serving children from grades 1 through 4. The roof is flat. Paved parking and drive area is 60,000 sq. ft. with 69 parking spaces. Recent updates to the building include fire alarm, boiler, windows, generator, roof top exhaust fans, whiteboards, parking lot and sidewalks, classroom furniture, floor tile, electrical upgrade for technology and lighting retrofit.

  Building deficiencies are gym upgrades, estimated at $83, 519 and scheduled for 2013, kitchen/Café upgrades, estimated at $172,977 and scheduled for 2014, DDC control system, estimated at $49,645 and scheduled for 2012, "univent" air handling replacement, estimated at $409,299 and scheduled for 2012, doors and hardware, estimated at $186,988 and scheduled for 2017, plumbing, estimated at $284,915 and scheduled for 2015, casework and paint, estimated at $215,540 and scheduled for 2016, parking lot light replacement estimated at $41,000 and scheduled for 2018 and roof replacement estimated at $557,600 and scheduled for 2020. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

- **Center Elementary School -** Originally constructed in 1960 and located on a 6 acre site at 84 Billerica Road, is a 1 story 55, 562 sq. ft. brick/masonry building serving children from grades 1- 4, this building was taken off-line in the 1980's and a full renovation was complete on back on line in 1999. The roof, installed in 1999, is asphalt shingle and rubber membrane. Paved parking and drive area is 20,000 sq. ft. with 66 parking spaces. Upgrades to building are DDC Controls, boilers and lighting retrofit. Water supplied

from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. No major capital projects are scheduled.

- **Harrington Elementary School -** The Charles D. Harrington Elementary School was originally constructed in 1968 and located on a 30 acre site at 120 Richardson Road is a 2 story 60,441 sq. ft. brick/masonry building serving children from grades 1- 4. The roof, installed in 2004 is Sarnifil. Paved parking and drive area is 75,454 sq. ft. with 50 parking spaces. Upgrades to the building are fire alarm, boiler, roof and roof top exhaust fans, windows, generator, white boards, floor tiles, classroom furniture, electrical upgrades for technology and lighting retrofit.

  Building deficiencies are gym upgrade estimated at $86,679 and scheduled for 2014, kitchen/café upgrades estimated at $206,795 and scheduled for 2018, DDC Control system estimated at $51,555 and scheduled for 2013, "univent" air handling replacement estimated at $442,227 and scheduled for 2013, parking lot, curbs, sidewalks estimated at $150,00 and scheduled for 2011, doors and hardware estimated at $187,418 and scheduled for 2017, plumbing estimated at $274,739 and scheduled for 2015, casework and paint estimated at $211,670 and scheduled for 2016, create new 120 space parking lot estimated at $236,250 and scheduled for 2012 and parking lot light replacement estimated at $28,000 and scheduled for 2019. Water is supplied from the North Water District, sanitary drainage is via town sewer, electrical power provided by National Grid and heated by gas.

- **South Row Elementary School -** Originally constructed in 1968 and located on a 13 acre site at 250 Boston Road is a 1 story 42,500 sq. ft. brick/masonry building serving children from grades 1- 4. The roof, installed in 2002, is flat covered with tar and gravel. Paved parking and drive area is 61,565 sq. ft. with 85 parking spaces. Upgrades to the building are fire alarm, roof, windows, boiler, generator, "univents", DDC Controls, white boards, floor tile, parking lot, curbs and sidewalks, classroom furniture, electrical upgrade for technology and lighting retrofit.

  Building deficiencies are gym upgrade estimated at $64,897 and scheduled for 2013, kitchen/café upgrades estimated at $206,820 and scheduled for 2017, doors and hardware estimated at $168,678 and scheduled for 2015, plumbing estimated at $255,441 and scheduled for 2014, casework and paint estimated at $195,850 and scheduled for 2016, repair and paint trim, sand blast and paint canopy estimated at $38,000 and scheduled for 2012 and parking lot light replacement estimated at $28,000 and scheduled for 2018. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid, and heated by gas.

- **Chelmsford Cultural Center (Westlands Elementary School) -** Originally constructed in 1968 and located on a 6 acre site at 170 Dalton Road, is a 2 story 37,100 sq. ft.

brick/masonry building. The roof, installed in 2003 is Sarnifil. Paved parking and drive area is 45,000 sq. ft. with 57 parking spaces. Upgrades to the building are fire alarm, boiler roof and roof top exhaust fans, windows, generator, white boards, classroom, furniture, floor tile, electrical upgrade for technology and lighting retrofit.

Building deficiencies are gym upgrade estimated at $70,937 and scheduled for 2012, kitchen/café upgrades estimated at $167,267 and scheduled for 2013, DDC Control upgrades estimated at $55,521 and scheduled for 2014, "univent" air handling replacement estimated at $476,244 and scheduled for 2014, parking lot, curbs, sidewalks estimated at $150,000 and scheduled for 2011, doors and hardware estimated at $186,988 and scheduled for 2017, plumbing estimated at $295,090 and scheduled for 2015, casework and paint estimated at $201,230 and scheduled for 2016 and parking lot light replacement estimated at $28,000 and scheduled for 2018. Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

- **Chelmsford School Administration Building -** Constructed in 1968 and located on a 1.74 acre site at 230 North Road is a 1 story 10,192 sq. ft. brick/masonry building. The roof is flat covered with EDPM membrane. Paved parking and drive area is 68,000 sq. ft. with 60 parking spaces. The building was renovated in 2007 and a modular addition was added as part of the $31 million School Project in 2009 Water supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas. Building deficiencies are replace roof estimated at $121,800 and scheduled for 2015.

- **Chelmsford Senior Center -** Constructed in 1989 and located on a 3 acre site at 75 Groton Road is a 2 story 20,399 sq. ft. wood frame/vinyl sided building with asphalt-shingled roof. Paved parking and drive area is 43,000 sq. ft. with 110 parking spaces. The building has 3 meeting rooms, meeting room 1 seats 45 and meeting rooms 2 & 3 seats 25 each. The facility also has a main dining area that seats 70 people. This center is fully ADA accessible. This facility also serves as an Emergency Shelter.

  Building deficiencies are to install emergency generator, estimated at $110,000 and scheduled for 2012, replace HVAC systems, estimated at $58,000 and scheduled for 2015 and replace roof, estimated at $101,750 and scheduled for 2017. Water is supplied from the North Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

Town Recreation Facilities and Fields

- **Chelmsford Country Club -** Constructed in 1963 and located on a 32 acre site at 66 Park Road is a 9 hole golf course including a 2 story 5,896 sq. ft. wood frame/clapboard clubhouse. The roof is gabled/hip with asphalt shingles. Paved parking and drive area is 20,000 sq. ft. with 65 parking spaces. The only building deficiency is to replace the HVAC systems, estimated at $25,000 and scheduled for 2014. The course, driving range and building facility is managed by Sterling Golf Management Inc., 212 Kenrick Street, Newton, MA 02458. Water is supplied from the Center Water District, sanitary drainage via town sewer, electrical power is supplied by National Grid and heated by gas.

- **Chelmsford Forum -** Constructed in 1964 and located on a 7 acre site in Billerica at 2 Brick Kiln Road, is a 38,946 sq. ft. steel frame/concrete block ice rink building. The roof is gable with a membrane covering updated in late 2009. Paved parking and drive area is 115,824 sq. ft. with 250 parking spaces. The only building deficiency is to repave the parking lot, improve drainage and add landscaped islands, estimated at $135,000 and scheduled in 2011. The facility is managed by FMC Inc. Sports, 100 Schoosett St., Blg 3, Pembroke, MA 02359. Water is supplied by Billerica, sanitary drainage is septic system, electrical is supplied from National Grid and heated by gas.

- **East Field -** Carlisle Street, with 1.56 acres exclusive for a softball field, a basketball court and Harmony Park playground and 27 parking spaces.

- **Highland Field -** Highland Road, with 1.5 acres exclusive for a soccer field, small play area and 25 parking spaces.

- **McFarlin Field -** Chelmsford Street, with 1.65 acres exclusive for a softball field and 50 parking spaces.

- **Murphy Field -** Mill Road to Raymond Road with 3.4 acres of conservation land for two soccer fields and 100 parking spaces.

- **Roberts Field -** Old Westford Road, with 6 acres of three fields of Youth League size, two used almost exclusively for Minors games and practices, and the other used almost exclusively for Tee Ball; soccer field, Friendship Park playground, skating pond, an open area and 95 parking spaces.

- **Southwell Field -** Wotton Street, located on 26 acres with frontage on the Merrimack River, it has three softball fields with lights, walking trail, playground, boat ramp, beach, playground and 150 parking space gravel parking lot. .

- **Strawberry Hills Field -** Jordan Road, located on 1.50 acres with one baseball field of Youth League size, playground and 50 parking spaces.

- **Varney Field & Playground (Ayotte Field) -** Adams/Sherman Street, located on 6.79 acres with frontage along Freeman Lake. Has a single Senior League size baseball field that is used by the Senior Leagues, basketball court, two tennis courts, playground, beach, snack shop and 30 parking spaces.

School Fields

- **Chelmsford High School -** Located at 200 Richardson Road, with 42 acres encompassing one football stadium, an outdoor track, six tennis courts, an outdoor field hockey court, two Senior League size baseball diamonds and two softball/youth size baseball fields, two soccer fields, three basketball courts, one street hockey court and walking and cross country trails. The football field has lights.

- **McCarthy Middle School -** Located at 230-250 North Road, with 12 acres encompassing a football field, baseball field, softball field, two soccer fields, six outdoor tennis courts, two outdoor basketball courts, outdoor track, skateboard park and playground.

- **Parker Middle School -** Located at 75 Graniteville Road, with 6 acres encompassing two baseball fields of Youth League size, a playground and open area.

- **Byam Elementary School -** Located at 25 Maple Road with 3.4 acres exclusively for a playground and open area.

- **Center Elementary School -** Located at 84 Billerica Road, with 1.75 acres exclusive for a basketball court, playground and open field.

- **Harrington Elementary School -** Located at 120 Richardson Road, with 3.6 acres encompassing 1 large and 1 small soccer field and a playground.

- **South Row Elementary School -** Located at 250 Boston Road, with 6.2 acres encompassing a softball field, four soccer fields, five outdoor tennis courts, two outdoor basketball courts, and a playground.

- **Chelmsford Cultural Center (Westlands Elementary School) -** Located at 170 Dalton Road, with 1.7 acres encompassing a softball field, a playground and the Cynthia Moores Memorial Park.

Management & Operations

Historical Background

Prior to 2006, the Department of Public Works Division of Public Buildings was responsible for maintenance of all Town buildings and the School Department was responsible for maintenance of school facilities.

The planning for and project management was also the responsibility of the separate entities. However, in 2006 the Department of Public Facilities was created. The former DPW Division of Public Buildings serves as a "custodian" for Town Offices and Old Town Hall. The school Department continues to provide "custodian" services for school facilities.

Public Facilities

Over the past decade the Department of Public Facilities has focused on building infrastructure. It has utilized approximately $11,577,360 of capital funds from the Capital Plan and taken advantage of rebates and programs offered through National Grid. These programs have allowed them to receive rebates of $685,174 and also saved $2,928,374 in operating cost for a total savings to date of $3,613,548.

The Department of Public Facilities is responsible for the consolidated and centralized management of all public facilities, including Town and School buildings and grounds in a uniform and high quality manner.

The Public Facilities Department provides electrical, plumbing, HVAC, carpentry and general maintenance to all Town and School buildings. There are presently 28 buildings consisting of five elementary schools, two middle schools, Chelmsford High School, the School Administration building, two Town Libraries, five Fire Stations, Police Station, two Town Halls and other support buildings. The department is also responsible for managing all major building related capital improvements.

The Public Facilities Department is responsible for maintaining all Town and School parks and athletic fields. Department personnel mow all sports fields and turf areas, trim shrubs, collect rubbish at parks and playgrounds, weed, edge, and mulch shrub beds, with the exemption of flower beds located on school property, which are maintained by the PTO's and areas immediately adjacent to school building foundations which are maintained by school custodians. The staff is also responsible for snow removal and the preparation and clean up for special events.

Facilities Asset Management

The facilities Department uses a Computerized Maintenance Management System from MicroMain. Computerized Maintenance Management Systems (CMMS) is a software package designed to assist with the management and maintenance of facilities, buildings, and assets such as equipment by collecting information, including workforce, tasks, time, and costs, in a central database, and using that data to improve daily and long-term maintenance operations.

In February 2009, a Capital Planning module was purchased. This software package assists with planning for long-term facility needs by cataloging deferred maintenance, anticipating needed work, determining priorities, estimating costs, and planning for the future. Facilities management software may be purchased in the future.

Energy Reduction

In May of 2009 the Town began using Energy Star Portfolio Manager to maintain and track energy use for its 23 buildings. Portfolio Manager is an interactive energy management tool that tracks and assesses energy and water consumption of buildings. Portfolio Manager assists with setting investment priorities, identifying under-performing buildings and verifying efficiency improvements.

Recreational Facilities

Prior to 2007 the Town had a Recreation Department and a Recreation Committee. The Recreation Committee was dissolved on September 6, 2007 by a vote of Town Meeting and the Recreation Department was consolidated into the Community Education Department within the School system.

Currently, the Community Education Department, located at the former Westlands Elementary School, is responsible for the scheduling of all Town and School recreational fields. The Public Facilities Department is responsible for the maintenance of all Town and School, recreational fields and playgrounds, including, mowing, weeding, mulching and rubbish collection.

There are a number of private sports leagues such as the Chelmsford Youth Baseball, Youth Soccer, Youth Lacrosse and Youth Softball that call specific town and / or school recreational facilities “home”. In most cases the Town maintains the fields with the exception of placing chalk lines on the fields.

In several cases, a league has exclusive scheduling and usage rights. The Chelmford Youth Baseball complex on Route 110 is owned by the Town of Chelmsford and leased to CYB. The lease hold improvements at the complex are owned and maintained by CYB and the fields are scheduled by and used exclusively by CYB.

The Chelmsford Youth Soccer Association also has exclusive scheduling and usage of eleven natural turf fields at five sites in Chelmsford.

Both of these Associations have invested significant resources into these recreational facilities such as the construction and reconstruction of the fields including leveling and drained, installation of wells and irrigation systems and comprehensive programs to seed, fertilize and mow the fields.

Committees

In 2007 the Town Manager established the Permanent Building Committee with the mission of assisting the Town Manager in the development of financial estimates, project design, and the supervision of construction of municipal building projects.

The Permanent Building Committee shall assist the Town Manager in the supervision over the design and construction of municipal building projects in the areas of selecting professional assistants, developing contract documents for feasibility studies, the preparation of design plans and specifications, and obtaining bids for the construction, remodeling, alteration, or renovation, including equipping and furnishing, of municipal buildings. The Committee shall also assist the Town Manager in the development of a long-term capital plan for municipal buildings, including the lease or sale of surplus municipal buildings.

In an effort to improve energy use and savings the Town formed an Energy Conservation Committee in May 2008. This committee works to assist the Town with identifying, designing and implementing programs and projects for energy conservation, energy efficiency, and renewable energy generation. These programs and projects include all forms of energy use: electricity, natural gas and heating oil, and transportation fuels.

Capital Planning Process

The CPP is governed by the Town Charter, Section 6-4. “Capital Improvement Program and Long Term Financial Plan”. It states “The town manager shall, in conjunction with the capital planning committee, submit a capital improvement program to the board of selectmen and finance committee at the date fixed by bylaw for the submission of the proposed operating budget unless some other time is provided by bylaw. Annually the board of selectmen, in conjunction with the town manager, shall prepare a five year financial forecast of town revenue, expenditures and the general financial condition of the town.”

The process of preparing the CIP has remained essentially the same over the years. Project requests are reviewed and prioritized by the Town Manager and the Capital Planning Committee. This review is performed within the context of an initial municipal bonding target of $2.5 million

per year as determined by the Town's five year Financial Plan. It should be noted that the $2.5 million dollar annual budget has not changed since the mid 1990's and that as the economy improves consider reviewing and maybe bringing this annual budget to a funding level more in line with the needs and inflation since that time.

Each year, Town Meeting reviews the proposed Capital Budget and adopts by voting to appropriate funds for capital spending. Only Projects within the current fiscal year are authorized. Projects in years 2 and beyond are presented as a guide for future planning and are subject to further review.

Recent Planning Efforts

Completed Facility Projects

Since the 1996 Master Plan, the Town has completed a number of significant municipal building projects including the addition to the Adams Library, a new police station, and a new performing arts center at the High School. In addition, in 2004 a $31 million school project was approved to address deficiencies at the Chelmsford High School, Parker Middle School, McCarthy Middle School, and the renovation of the former police station into the new School Department central administration building.

In September 30, 2009 final reimbursement of $16 million (51.68%) was received from the Massachusetts School Building Authority.

Adams Library

In 1996 a vote was approved to authorize the design, construction and equipping of a new library facility to be constructed as an addition to the Adams Library. Town officials would apply for State funding. In addition the Town voted to authorizing the borrowing of $281,000 for the library land acquisition.

The project was made possible in large part by an award of $1.8 million in a State library grant. The project was supported by the Town through a referendum vote in December 1996.

Bids and awards were completed in 1997. The Adams Book collection was moved to the gym at the Town Hall. Both the Children's and Carriage Houses were sold and removed to other private locations. Ground was broken in the spring of 1998 and the new facility opened its doors to the public on February 29, 2000.

A Solar PV system was recently installed at the Adams Library. The system size is 8.820 Kw DC that consist of 42 Kyocera panels. The estimated cost savings per year is $1,352. The system cost was $67,136 of which $37,926 was paid through a grant from Massachusetts Technology

Collaborative and $29, 237 was paid from the National Grid Clean Energy Choice thus not costing the Town any money for the project.

Police Station

In 1996 Town Meeting voted to allocate $100,000 for architectural services. In 1998 Town Meeting voted to allocate $4.8 million for the construction of the new Police Station. Construction began in 2001 and was completed in 2003.

Completed Energy projects

The Town's energy conservation efforts date back to 1997 with the Town working with National Grid/Keyspan on Energy Efficiency Projects. These past projects have produced a direct savings of over $3.6 million and initial rebates as savings to date, as shown in Table 7.1 below:

TABLE 7.1
ENERGY CONSERVATION PROJECTS

Project	Savings	Rebate
National Grid Lighting project	$196,962	$321,906
School Building project	$884,935	$149,829
Keyspan Energy Rebates	$1,297,525	$128,239
MassElectric Energy Rebates	$548,952	$85,200
Total	**$2,928,374**	**$685,174**

(See Appendix H for detailed itemization)

Chelmsford was selected for an energy audit that was conducted by Division of Energy Resources (DOER) in May 2008. The Town was awarded an Energy Efficiency Grant for $156,960 and is in the process of completing these projects by the June 30, 2010 deadline. The first expense is $93,694 for the installation of 95% full modulating condensing boilers at the Center School. This, this was completed in the spring of 2010. Some of the other energy projects to be done are demand control ventilation and variable frequency drives.

In May of 2009, the Town began using Energy Star Portfolio Manager to maintain and track energy use for its 23 buildings. With the assistance of an intern from the EPA historical energy use was captured and the information is updated on a bi-monthly basis. The Town has 5 buildings that have been awarded Energy Star Rating: Byam Elementary, Harrington Elementary, McCarthy Middle, Chelmsford High School, and the Town Offices.

The Town made a commitment to participate in the EPA Northeast Community Energy Challenge in May 2009. The Town also became a member of ICLEI Community in March of 2009.

In April 2010, the Town was awarded a $150,000 EECBG Sub-Grant from DOER to install a Solar PV System on the roof of the Chelmsford High School. The system is a 21 KwDC and will save approximately $4,715 annually and is estimated to be complete in 2011.

Chelmsford is in the process of spending monies received from a DOER grant of $156,960. The first expense is $93,694 for the installation of 95% full modulating condensing boilers at the Center School. Some of the other energy items are insulating water pipes, installing photo cell controls, occupancy sensors, VFD's and demand control ventilation.

The Town has completed Energy Use Baseline Inventories for the following:

- **Buildings -** The Town of Chelmsford conducted an energy use inventory using EPA Portfolio Manager in the summer of 2009. The town portfolio of 23 municipal facilities was benchmarked using calendar year 2008.
- **Street Lights -** An energy use inventory for street lights was provided by National Grid and entered onto an Excel spreadsheet.

A schedule of street lamp replacements was completed in 2005. Even though this work was done prior to our Energy Challenge Commitment, this project provided substantial energy savings at the time. Replacements were determined using the CALiPer Summary Report of DOE Solid-State Lighting that reports product testing results.

Fuel

The Town centralized fueling facility is located at the Police Station and managed by the Police Department. Reports for fuel consumption were entered onto an Excel spreadsheet.

Total energy use (buildings, street lights and fuel) for 2008 and 2009 shows the reduction in energy from 2008 to 2009 to be 6.13% or 5,768.34 MMBTU.

Utilities

The Town has procured contracts for electricity, natural gas and other fuels to ensure the Town is getting the lowest rates available. TransCanada Power Marketing Ltd. provides electricity. The contract is from June 30, 2009 thru June 30, 2014 at a rate of 10.845 cents/kWh.

Hess provides gasoline and the contract is from June 30, 2009 thru June 30, 2011 at a rate of 8.78/Dth.

Completed Recreational Facilities

The following improvements have been completed with the last 10 years.

- **Chelmsford Country Club -** Constructed a maintenance garage, installed an irrigation system, installed a pumping system, rebuilt eight sets of tees, rebuilt three fairways with drainage systems, remodeled the pro shop and restrooms and re-roofed clubhouse building.

- **East Field -** Installed a well and irrigation system, installed a new backstop and installed a new parking lot and landscaping.

- **Highland field -** Installed a playground and basketball area.

- **McFarland Field -** Installed a second "learning age" field.

- **Roberts Field** - Expanded the parking lot, installed new backstops, rebuilt infields, installed maintenance shed and built a new T-ball field.

- **Southwell Field -** Planted shade trees, built a playground area, infields dug out and new clay was installed and built new bleachers and new bulletin boards.

- **Strawberry Hill -** Installed a new backstop and fencing, rebuilt an infield and expanded parking area, repaired the storage locker, installed new aluminum benches.

- **Varney Playground -** Installed an irrigation system, rebuilt the infield, constructed a practice tennis wall, rebuilt the bathrooms, replaced roof and windows in the field house, rebuilt the basketball area, constructed the playground, connected the field house to town sewer system, built an ADA accessible play structure, resurface tennis courts handicapped ramp

- **McCarthy Middle School -** Constructed a new skateboard park.

- **Chelmsford High School :**
    - Field 1 - Installed drainage, rebuilt infield, installed 8' x8'8 x8 equipment shed, installed break away bases, installed portable bleachers
    - Field 2 – rebuilt infield, installed 8 x 8 equipment shed and installed break away bases

Feasibility Studies Performed by the Town

The Town recently has conducted several feasibility studies. In 2007 a Fire Services study was initiated. At the same time, the Town was considering options for the DPW yard. Consequently in February 2007 a DPW / Fire committee was established with the purpose of 1) Establish a

capital facilities plan for the fire and public works facilities; 2) Explore possible efficiencies in the construction of a combined Fire Department Headquarters and Department of Public Works facility; 3) Examine public safety and financial benefits that may be attained by a consolidation of the Town's five fire Stations; and 4) Research the possible establishment of a recycling center within DPW.

This study indicated that there was no Town parcels large enough to accommodate consolidated facilities (12-14 acres required) and that potential sites for the Fire Station were constrained by the recommendations of the 2007 Fire Services Study. The study also indicated that there were possible economies and efficiencies to be attained such as common Truck and equipment washing facilities and fueling depots, Mechanics Bays/Workshops, Shared Storage, Bulk Purchasing and Training facilities. The study recommended that a Feasibility Study be conducted.

The 2007 Spring Annual Town Meeting appropriated $17,000 for preliminary planning. In August 2007 the Fire Services Study was completed. This study examined the current location of fire stations and the fire station relocation plans of the Chelmsford Fire Department. This study considered the adequacy and location of the existing fire stations. The Fire Department's response capability was considered in relation to national response standards customarily applied to fire suppression, emergency medical, and special operations services. The size and the geography of the Town create a challenge in the development of a long-term fire station location strategy.

This study made the following actions. Recommended the Fire Department should continue to operate with five fire stations. The Fire Department should relocate Fire Department Headquarters (Station #1) to a location close to the current Headquarters. The relocation of the Fire Department Headquarters Station to the Drum Hill area is an alternative to consider, if a site cannot be found in the general area of the current Fire Department Headquarters Station. The Fire Department should relocate the Fire Department Headquarters and station (Station #1) to a larger site with two or more acres of land.

At the 2007 Fall Annual Town Meeting appropriated $85,000 to fund feasibility studies for Fire Department and DPW. In March 2008 design team was Selected and hired and in March 2009 the Fire Department / DPW Feasibility Study was completed.

A site selection analysis was conducted and each site was ranked based upon a pre-determined list of evaluation criteria. The results were as follows:

- Wilson Street 83 (out of 100)
- Site Behind Police Station 61
- Richardson Road 60
- Old Town Hall 60
- Existing Head Quarters 51
- Town Hall Gym 51

Based upon more detailed site analysis and preparation of conceptual site plans and floor plans the following options and costs estimates were considered:

TABLE 7.2
NORTH ROAD AND WILSON STREET OPTIONS

Option	Description	Now Costs	Projected Future Costs	Potential Total Project Cost
1	Repair North Road Floor (now) Construct New Headquarters at Wilson Street (future)	$590,000 $11,950,000	$ - $14,540,000	$15,130,000
2	Renovate North Road for Short Term Needs (now) Construct New Headquarters at Wilson Street (future)	$1,150,000 $11,950,000	$ - $14,540,000	$15,690,000
3	Renovate North Road for Short Term Needs (now) Purchase +/- 1 Acre Behind North Road (now) Construct Addition to North Road (future)	$1,150,000 $300,000 $8,530,000	$ - $ - $10,380,000	$11,830,000
4	Construct Partial Headquarters at Wilson Street (now) Construct Remaining Headquarters at Wilson Street (future)	$6,990,000 $5,080,000	$ - $6,180,000	$13,170,000
5	Construct Full Headquarters at Wilson Street (now)	$11,950,000	$ -	$11,950,000

Future costs are projected out 5 years at an escalation rate of 4% per year

In March 2009, the Permanent Building Committee recommended Option 5 to the Board of Selectmen.

In October 2009, voters defeated a debt exclusion to finance the cost of a $12 million fire station at the corner of Wilson and Chelmsford streets.

DPW Feasibility Study

As mentioned above, in 2007 the Town appointed a committee and conducted a planning / feasibility process to explore a consolidated Fire and DPW facility. This was determined not to be practical or feasible for a variety of factors.

This process identified building and site deficiencies such as ADA accessibility, lack of proper technology, lack proper ventilation, lack proper egress, building code compliance, fire and life safety, site deficiencies such as environmental compliance, EPA stormwater management and Zone II drinking water issues and operational deficiencies such as lack of indoor storage and washing for vehicles and equipment impacting operations and useful life of vehicles and equipment.

The major operational deficiency identified was that DPW operations and facilities are spread throughout Chelmsford at 4 different locations as follows:

- DPW Administration (Town Offices)
- Engineering (Town Offices)
- Highway (Richardson Road)
- Vehicle Maintenance (Richardson Road)
- Sewer (Kidder Road)
- Parks (Roberts Field)

- Public Facilities Administration (Town Offices)
- Recycling/Solid Waste (Town Offices)

A programming analysis identified 6 major areas of operation and their associated space needs:

• Administration	9,450 sq. ft.
• Employee Facilities	6,269 sq. ft.
• Workshops	7, 030 sq. ft.
• Vehicle Maintenance	9,814 sq. ft.
• Wash Bay	2,523 sq. ft.
• Vehicle/Equipment Storage	53,928 sq. ft.
	Total - 89,014 sq. ft.

The analysis also identified four areas for potential shared programming opportunities with other departments such as fueling, washing, cold storage and vehicle maintenance.

A site selection analysis was conducted and each site was ranked based upon a pre-determined list of evaluation criteria. The results were as follows:

Richardson Road	80 (out of 100)
Alpha Road	72
Roberts Field	67
Ledge road	54
Katrina Road	53

Based upon more detailed site analysis and preparation of conceptual site plans and floor plans the following options and costs estimates were considered:

TABLE 7.3
DPW FACILITY OPTIONS CONSIDERED

Option	Description	Now Costs	Projected Future Costs	Potential Total Project Cost
1	Construct New DPW at Richardson Road (now)	$31,280,000	$ -	$31,280,000
2	Construct Partial DPW at Richardson Road (now) Construct Remaining DPW at Richardson Road (future)	$15,310,000 $15,780,000	$ - $19,200,000	$34,510,000
3	Construct New DPW Facility at Roberts Field (now) (only if required due to legal action)	$29,410,000	$ -	$29,410,000
4	Purchase Building on Alpha Road (now) Purchase Adjacent Land on Alpha Road (now) Renovate Building/Construct Partial Yard Support Systems (now) Construct Remaining Yard Support Systems (future) **Opportunity to Save $20 Million**	$4,000,000 $400,000 $6,860,000 $1,315,000	$ - $ - $ - $1,600,000	$12,860,000

Future costs are projected out 5 years at an escalation rate of 4% per year

In March 2009 the Permanent Building Committee recommended Option 4.

In October 2009, voters defeated a debt exclusion to finance the cost of a $13 million DPW facility on Alpha Road. After the failed vote, town officials began working on a less expensive proposal. The result was a phased-in approach. In April 2010 voters passed a scaled down $5 million debt exclusion to implement the first phase of this project.

School Buildings

In addition to the recent school improvements outlined previously, over the last decade significant capital planning and project management has been completed. Dating back to 2000, the Building Needs Committee, consisting of town and school officials, developed a Master Plan for facility improvements for the schools. This process recommended funds for an architectural study for a preliminary design for building renovations and new construction at the three secondary schools. In 2001, the Secondary School Building Committee was established to work with the design team for purposes of conducting preliminary design for improvements at the High School, McCarthy and Parker that would develop a variety of options to move forward. Based upon this process in 2002, the School Department proposed a $110 million project. This was defeated by Town Election. In 2003, the School Department proposed an $86 million project. This was also defeated by Town Election. In 2004, the School Facilities Working Group (SFWG) was formed and a revised $31 million project was proposed and approved by Town Meeting (see Appendix I for details)

In 2004, the Building Committee was formed for purposes of project management. This project included major improvements to the infrastructure such as heating, ventilation, plumbing, electrical, etc. to all three secondary schools, as well as limited construction. The Parker and McCarthy Middle School libraries were expanded to include additional space for middle school students. Temporary classrooms were added to the Parker Middle School and a new auditorium was built at the High School along with a major renovation to the science wing. The final portion of this project was the relocation of the Central Administration to the former Police Station on North Road.

The funds were distributed as follows: Chelmsford High School $17 million, McCarthy Middle School $8.2 million, and the Parker Middle School $5.2 million. This project was completed in 2007.

In addition to the $31 million debt exemption a total of $10.8 million of capital improvements has been completed in the schools since 1999 – see Appendix J.

ISSUES AND OPPORTUNITIES RELATIVE TO FACILITIES

- **Town Offices -** Currently and moving forward it will be more pronounced, the building will have excess capacity. Initial plans contemplate using the top floor as dedicated meeting rooms and consolidating town offices into the 1st and lower levels.

- **Center and North Town Halls -** The recently approved historic preservation projects will commence. This project is anticipated to be a 2 year process with design taking place in 2010 and construction complete in 2011.

  The Town is currently using a revolving fund, from rental receipts, to pay for the operating costs of the town hall buildings. However, there is not sufficient revenue that can be raised to pay for significant capital reinvestment in these facilities.

  It should be noted that the parking deficiency at the North Town hall will be addressed with the construction of 40 new spaces at the existing North Fire Station, located directly across the street.

- **Archive Storage Facility -** A number of Town Departments, specifically the Town Clerk, have requested space suitable for archive storage. The existing vault space at the Center Town Hall will be evaluated to determine if it may be usable. The option of leasing off-site storage space will be investigated.

- **Fire Department -** As discussed in section 5.1, consensus on how to move forward with addressing the future needs remains. The short term major building deficiency for the Center Station is related to the structural issues with the apparatus floor. Thirteen large support columns have been installed. However, this is only a temporary fix.

  The Center Fire Station also has the following long term building deficiencies: building code, outdated technology, lack of storage, poor living quarters and undersized apparatus bays. In addition, site deficiencies include the size of the lot being too small to accommodate an expansion.

  Operational deficiencies are minimal or in many cases non-existent training spaces, decontamination support spaces, medical supply storage, hazardous material support space, administrative space, conference space, walk-in treatment, gear storage, living quarters and apparatus storage space.

- **DPW -** As discussed in Section 5.2, the April 2010, vote to authorized spending up to $4.6 million to acquire four parcels, containing a total of 16.97 acres, and an existing 92,844 sq. ft. building located at 9 Alpha Road and to fund the redevelopment of the land and building into a Department of Public Works facility. This project will provide the

Town with a long term solution and plan for many of the existing building deficiencies as outlined in Section 5.2.1

This project is anticipated to take three years. Year one is design; year two is construction and year three (2012) will be occupancy of the DPW Administration, Engineering Division, Highway Division, Parks Division, Public Facilities Administration and Recycling and Solid waste Administration.

In order to achieve full consolidation into the new DPW headquarters, it is anticipated that a Phase II and Phase III will be required. Phase II will move the Sewer Commission, currently renting space at Kidder Road, in 2012 using Sewer Enterprise funds and Phase III will move the Vehicle Maintenance Division between 2013-2017 using additional capital funding.

- **Libraries -** Current deficiencies are operational rather than building related. Specifically, there is a need for additional on-site parking and book storage space. Currently, the existing historic Dutton House is utilized for book storage, as the Adams Library does not have excess space to accommodate this need.

  Originally the Dutton House property was acquired as part of the renovation and expansion of the Adams Library with the intent that the Dutton House would be relocated from the site along with another house that was subsequently relocated to a subdivision known as Anne's Way. However, no interested party was identified for the Dutton House. Over this time period, the Dutton House has never served any municipal purpose and has only been utilized to store books for the Friends of the Library book sale. As discussed in section 2.1, the Dutton House requires $121,800 in capital investment to address building deficiencies. An additional $195,000 is estimated to address ADA accessibility deficiencies. Even if the above deficiencies were addressed, the interior layout of the Dutton House, as a two story single family home, is not conducive or effective for library or municipal operations.

  Based upon the above, the Library has expressed an interest in a new storage building. There does not appear to be a municipal use for the existing Dutton House. In addition, allocating over $300,000 in capital funding does not appear likely.

  As the Dutton House is dated 1896, it is subject to the Town's demolition delay bylaw. As such consideration should be given to exploring options for its preservation, specifically its relocation to another municipal or private site and the potential use of CPC funds to provide financial assistance.

- **Schools -** Although the $31 million school improvement project has been completed there remain significant Capital needs within the schools. Many of the project components defeated in the $110 million and $86 million proposals were not including in

the $31 million project and therefore still exist today. These include infrastructure improvements for essential upgrades and replacements in order to provide a healthy and safe environment for students and staff in all eight schools; enrollment and instructional space improvements for essential facility improvements required to maintain adequate class size for a basic educational program; high priority instructional space improvements that enhance educational programming; and , instructional / administrative facility improvements to support the schools and building enhancements and improvements designed to provide a better functioning school environment.

This includes full ADA compliance and accessibility, SBA standards related to classroom size and new science rooms as well as items not completed as part of the $31 million project. Since the $31 million project was funded with a debt exemption, this allowed the Town to spend six years of capital funds totaling $5.4 million on the Elementary schools. It appears as though the needs of the elementary schools will be able to be serviced through capital funding. However, the needs of the High School and the two Middle Schools will exceed the Town's ability to complete the needed improvements within the existing constraints of the capital budget.

Therefore, in order to address the full spectrum of needs in the school, it is anticipated that a school building project will be necessary around 2020. In the meantime, the Town will continue to utilize capital funds along with rebates and programs from National Grid to carry on the work on the facilities.

According to the Director of Facilities, all of the elementary schools have an inadequate number of parking spaces to serve the needs, particularly during special events such as parent / teacher conferences.

- **Recreational Facilities -** Existing recreational facilities appear to be serving the majority of community needs. However, according the Facilities Department there is a need for more general / multi-use fields, girls' softball fields and soccer fields.

  The recent consolidation of the former Recreation Department into the Community Education Department and Facilities Department has been viewed successfully from a management and operations perspective.

  Although the Parks Division staff has been reduced, general field maintenance and annual capital improvements have continued to provide viable recreational facilities.

  Moving forward, a comprehensive assessment and needs analysis of recreational facilities and the planning and implementation of future facilities will be needed. During the public input sessions there was a need for more fields expressed. There has been a request for more girls' softball fields.

- **Management and Operations -** The challenges that exist are not viewed as management related, but are attributable to insufficient funding (see page 334 for more discussion).

  The Permanent Building Committee continues to develop maps and an inventory of Town owned property. Buildable town owned parcels of property are in the process of being identified. CAD drawings of town owned buildings are being developed which include architectural floor plans and elevations of the buildings. The PBC has discussed working with Nashoba Valley Technical High School to provide this deliverable.

  In May 2010, as part of the Green Communities Act, the Town was designated a Green Community in which the Town committed to reducing energy use by 20% over a five year period. This will be accomplished via fuel efficient vehicle replacement, lighting, boiler and hot water pump replacements and solar projects.

  The following energy projects are planned, as shown in Table 7.4 below.

TABLE 7.4
PLANNED ENERGY EFFICIENCY PROJECTS

Project Name	Location	Description of Project	Project Status	Project Cost	Avoided Energy Volume	Avoided Energy Expenditures
Light Sensors	All Town and School Buildings	Install wall sensors and power packs	Shovel Ready	$80,000	$1,698,756	$40,065
Univents	Byam Elementary School	Univent, Air Handling Replacement and DDC Control System	Shovel Ready	$480,000	$202,049	$8,800
Univents	Chelmsford High School	Univent, Air Handling Replacement and DDC Control System	Shovel Ready	$950,000	$1,451,890	$63,810
Window Replacement	Chelmsford High School	Install energy efficient window system	Shovel Ready	$1,700,000	$1,310,800	$29,859
Univents	Harrington Elementary School	Univent, Air Handling Replacement and DDC Control System	Shovel Ready	$480,000	$209,804	$9,220
Univents	Parker Middle School	Univent, Air Handling Replacement and DDC Control System	Shovel Ready	$600,000	$492,127	$21,629
Gym and Restroom Renovation	Town Offices	Install new energy efficient windows, replace heater, renovate walls, stage and restrooms	Shovel Ready	$160,000	$3,429	$900
Univents	Cultural Center (Westlands School)	Univent, Air Handling Replacement and DDC Control System	Shovel Ready	$450,000	$203,428	$8,940
Solar Photovoltaic	All Schools and Senior Center	Install Solar PV System on Rooftops	Not on Capital	--	--	--

- **Capital Planning -** A review of the 10 year capital plan, from 2011-2020, indicates a total of $48.8 million of capital improvements of which $29 million is programmed for town related facilities and the remaining $20 million programmed for school related facilities (see Appendix K for more detail).

  It should be noted that of the $29 million for town facilities, $28 million is programmed f or major capital projects such as $12 million for the Center Fire station, $10.6 million for the new DPW facility and $5.4 million for the two town halls. This leaves approximately $1 million for general maintenance items such as building and utility systems.

  Of the $20 million programmed for school facilities, $6.4 million is programmed for the elementary schools as follows; $2 million for the Byam, $1.8 million for the Harrington, $1.6 million for the Cultural Center (Westlands School)and $1 million for the South Row.

  The Parker Middle School is programmed for $2.7 million, the McCarthy Middle School for $3.2 million. The High School is programmed for $5.8 million and the school administration building is programmed for $121,800.

  Although an annual appropriation is typically included in the general fund (operating) budget for capital expenditures, the single largest source of financing for capital projects is borrowing. As mentioned previously, an annual bonding target of $2.5 million has been maintained in recent years. However, based upon an annual bonding target of $2.5 million and a $48.7 million capital plan over the next ten years, this equates to an annual average of $4.8 million in capital improvement spending.

  It should be noted that the funding for the $5.4M for the two Town halls has been secured from the Community Preservation Fund. In addition, debt exclusions will be required for the fire station and for the next major school project.

  This clearly indicates that there is a funding constraint. This continued funding constraint often results in the Town having to defer maintenance resulting in increased costs in the long term. Consideration should be given to increasing the annual $2.5 million bonding target to reflect inflation or passage of debt exclusions that would keep the tax impact neutral as the Town pays down the excluded debt for the sewer and school projects and / or increasing the general maintenance operating budget to adequate fund preventative maintenance.

RECOMMENDATIONS FOR FACILITIES

- Ensure the continued and timely maintenance of all town and school facilities.
- Ensure the continued use of a dedicated fund for the purpose of future capital improvements to the Center and North Town Halls.
- Continue to seek options to reduce energy costs and usage such as LED Street Lights and parking lot lighting and Performance Contracting.
- Plan for a school building project in 2020.
- Identify and implement a long term solution for the Center Fire Station.
- Ensure that the new DPW facility is completed on time and on budget.
- Plan for Phase II and III of the new DPW facility.
- Plan for the re-use of the existing Richardson Road DPW facility.
- Plan for the relocation of the Dutton House.
- Expand the role of the existing permanent Building Committee or create an ad-hoc committee to assist with a comprehensive assessment and needs analysis of recreational facilities and the planning and implementation of future facilities.
- Continue to utilize the Permanent Building Committee to evaluate space needs for the town, building condition assessments and equipment life cycle analysis to determine long range financial planning of major equipment replacement and large building Capital Expenditures.
- Continue to maximize the asset management software to enable a comprehensive predictive maintenance program for the town and to assist with capital planning projections.
- Continually look to integrate modernized recreational fields and facilities to reduce potential injuries to school age children.
- Consider a full time grant writer for the town to maximize state and federal funding for the purposes of improving building needs, energy initiatives and infrastructure.
- Fully fund the Facilities and DPW departments in order to insure that the maintenance of building and grounds.
- Provide a facility for document storage.

- Continue to be proactive in the capital planning process. Continue with the capital planning process of allocating a minimum of $2.5 million per year for capital projects.
- Consider increasing the $2.5 million annual capital improvement budget to reflect a funding level more in line with the current needs and inflation.
- Identify options to increase annual funding for preventative maintenance.

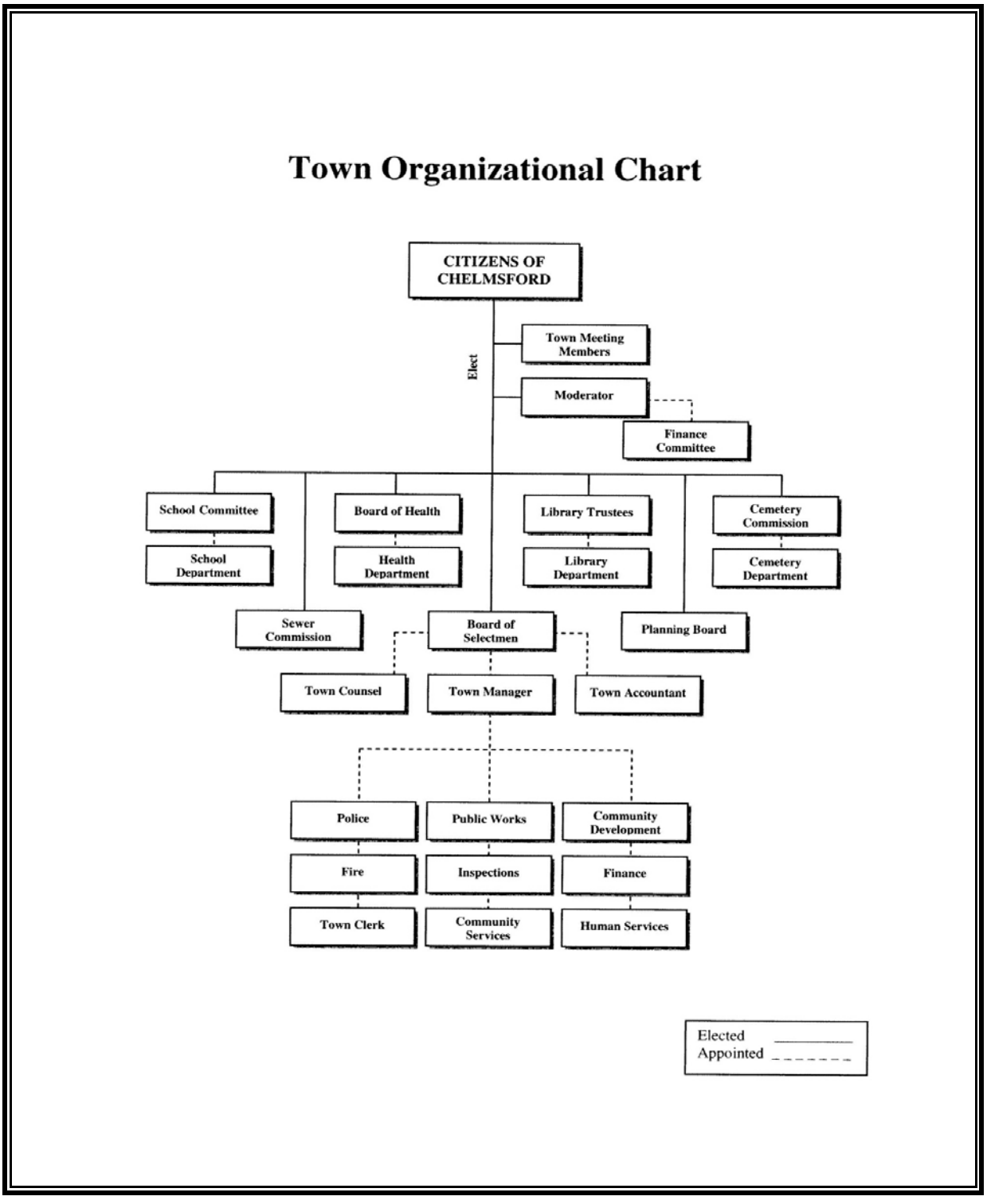
B. INTRODUCTION TO TOWN SERVICES

The provision of services to citizens is a basic mission of municipal government. Deciding which services to provide, at what level of service, and how to pay for those services, are fundamental policy questions decided by voters and local officials. When considering these issues, local officials must examine the most cost-effective means of delivering these services by answering the following questions:

- What services are currently being provided?
- What additional services are needed or desired by the community?
- What are the desired service levels and quality?
- Who should pay for the service?
- What types of service providers are available to the community?
- What is the most appropriate service delivery approach?

The purpose of the services section of the Master Plan is to inventory town services, identify the most important issues impacting the town's ability to effectively deliver these services, and to develop recommendations for addressing current and anticipated service needs. The Town of Chelmsford provides its residents with a wide variety of services, for example elementary and secondary education, police and fire protection, public works, engineering, public library services, waste management, and veterans' services. There programs are funded by property taxes, and state and federal aid and/or grants. Each service is provided through a town department, elected or appointed committee, board or commission. There are thirty appointed boards, committees and commissions in the Town and ten elected boards (not counting the Water District Commissions or the Town Moderator). Figure 7.1 on the following page shows the organizational structure of town government. The following section describes the various appointed and elected entities with the community, outlining the composition of each board, committee or commission, its role and responsibilities, and in some cases, providing information specific to issues that have directly impacted the delivery of services in the Town. Information regarding the various Town Departments and Offices that deliver and administer these Town services is also provided in the following section.

Figure 7.1: Town Organizational Chart



APPOINTED BOARDS, COMMISSIONS AND COMMITTEES

Affordable Housing Plan Committee

The Affordable Housing Plan Committee consists of nine members: one member each from the Board of Selectmen, Planning Board, Conservation Commission, Zoning Board of Appeals, and Housing Authority Board of Directors, and four citizen representatives. Currently, the Committee is working on an update to the town's 2005 Affordable Housing Plan, which must be recertified by the Massachusetts Department of Housing and Community Development. By having a certified plan, the Town is able to manage affordable housing projects submitted under Chapter 40B of the Massachusetts General Laws. Additional information on this issue can be found in the Housing Section of this Master Plan (see page #).

Requirements for Affordable Housing Production Plans have changed since 2005. The updated plan must outline a strategy for increasing the Town's number of affordable housing units by at least 0.50% of its total housing units for each calendar year covered by the Plan. Once the Plan has been submitted, the State must notify the Town of acceptance/rejection within 90 days.

Agricultural Commission

The Agricultural Commission consists of five members appointed by the Board of Selectmen and its role is as follows:

- Serve as facilitators for encouraging the pursuit of agriculture in Chelmsford;
- Promote agricultural-based economic opportunities in Town;
- Act as mediators, advocates, educators, and/or negotiators on farming issues;
- Work for the preservation of prime agricultural lands; and
- Pursue initiatives to create a sustainable agricultural community.

The duties and responsibilities of the Commission include the following:

- Advising the Town manager in matters related to the care and usage of town-owned agricultural properties;
- Advising the Board of Selectmen, Planning Board, Zoning Board of Appeals, Conservation Commission, Board of Health, and other local organizations on projects, activities, acquisitions and other transactions involving agricultural lands in Chelmsford; and
- Engaging in projects and activities to promote the business of farming, preserve agricultural traditions and promote farmland protection.

Arts and Technology Education Fund Committee

The Arts and Technology Education Fund Committee provides supplemental funding to support educational initiatives and projects that enhance the curriculum of the Chelmsford Public Schools. The Committee meets monthly and consists of nine members who are appointed for a three-year term. In 1996, Town Meeting approved an amendment to the Town's General Bylaws that outlines the application process, committee composition and the duties and responsibilities of the committee.

Bicycle and Pedestrian Advisory Committee (BPAC)

The Bicycle and Pedestrian Advisory Committee works to improve bicycling and pedestrian conditions throughout town, helps coordinate maintenance, and promotes enhancement of the community's bicycle and pedestrian facilities. BPAC meets monthly, and consists of nine members appointed for a term of three years.

The long-term goal of the Committee is to make Chelmsford a bicycle and pedestrian friendly community where users of motorized and non-motorized modes of transportation can safely share the roadways in town. The Committee has worked to promote the Safe Routes to School program, a state and federal initiative that focuses on healthy alternatives for children and parents traveling to school. The Committee has formulated recommendations for installing additional bike racks at various locations in town, created a website that provides information relative to bicycle and pedestrian issues, and provided input relative to the Town's Master Plan Update. BPAC also works with residents to address concerns relative to bicycle and pedestrian safety, and monitors issues related to the operations of the town's transportation network and facilities.

Board of Registrars

The Board of Registrars is in charge of administering the Town Census, voter registration, and elections. The Board consists of four members who are appointed by the Board of Selectmen for a three-year term, and meets as needed throughout the year, depending on the election cycles. Two members are chosen from the Democratic Party and two are chosen from the Republican Party. The Board also assists the Town Clerk in preparing the voter list and administering the recount process.

Capital Planning Committee

The Capital Planning Committee studies proposed capital outlays, declares rules and regulations, conducts investigations, and holds public hearings, as it deems necessary. The Committee studies capital outlays having a useful life of at least five years and, in partnership with the Town Manager, and develops an annual capital budget.

The Committee consists of seven members, including the Town Accountant, the Town Treasurer, one member designated by the School Committee, one member designated by the Finance Committee, one member designated by the Board of the Library Trustees, and two Chelmsford citizens appointed by the Board of Selectmen. Committee members are appointed for a one-year term.

Coalition Against Crime

The Coalition Against Crime consists of twelve members appointed by the Town Manager. The Committee's purpose is to represent the community in a partnership with the Police Department, identify public safety issues of concern to the community, and to assist the Police Department in achieving its community policing goals and objectives.

Commission on Disabilities

The Commission on Disabilities is empowered to coordinate and carry out programs that meet the needs of the town's disabled population. The Commission addresses all disability issues and provides information, referral, guidance, coordination and technical assistance to public agencies, citizens, organizations and institutions relative to eliminating prejudice and discrimination against persons with disabilities. The Commission consists of ten members who are appointed for a period of three years. The composition of the Commission includes individuals with disabilities, and an elected or appointed town official.

Community Action Program Committee

The Community Action Program Committee solicits and encourages residents to develop civic projects for the benefit and enjoyment of the town's residents, through the award of cash grants to individuals and organizations. Funding for the program is appropriated by Town Meeting. The seven- member committee is appointed annually and meets on an as-needed basis.

Community Preservation Committee

The Community Preservation Act (CPA) provides a source of funding for Open Space Preservation, Historic Preservation, and Affordable Housing. Funding is created through a surcharge on the local property tax. In April 2001, Chelmsford voters passed a ballot question that allowed for a ½% surcharge on residential property, with the first $100,000 in value exempted. In April 2007, voters passed another ballot question that increased the surcharge to 1.5%, with an exemption for low-income families and moderate and low-income seniors. The state matches the CPA funds leveraged through the property tax surcharge.

The CPA funds are administered by the Community Preservation Committee (CPC). The Committee is comprised of nine members, including two citizen appointees, an Historic Commission appointee, the Director of Community Development, a Housing Authority appointee, a Board of Selectmen appointee, a Planning Board appointee, a Conservation

Commission appointee, and the Department of Public Works Director. The CPC holds an annual public hearing to receive comments on a proposed plan for expending CPA funds. The Plan is then finalized and presented to Town Meeting for its approval.

Conservation Commission

The Commission is comprised of seven members appointed for a three-year term, who meet bi-monthly. The Conservation Commission is responsible for enforcing the state Wetlands Protection Act and the Town's wetland bylaw, ensuring that the town's wetlands, waterways and water bodies are protected to the extent allowed by law. During FY 2009, the Conservation Commission reviewed a total of 44 applications under the state and local wetlands regulations. Of these, twenty were for Requests for Determination of Applicability (RDA), twelve were Notices of Intent (NOI), one was an Abbreviated Notice of Resource Area Delineation (ANRAD), ten were Requests for Certificate of Compliance (COC) and one was a Request for an Amendment to Order of Conditions (RAOC).

The Conservation Commission also acquires and manages over 750 acres of conservation land located throughout Town. The Chelmsford Open Space Stewards are an independent group of volunteers working with the Conservation Commission. While the Conservation Commission manages and protects open space property in town, the Stewards maintain and improve the trail systems within the open spaces. The Stewards provide a daily presence and ongoing maintenance, to ensure that these properties can be enjoyed by all.

Council on Aging

The Chelmsford Council on Aging consists of eleven members appointed by the Town Manager for a three-year term. Members are appointed on a rotating basis and each member may serve a maximum of six continuous years. The Council on Aging is advisory and works with the Director of the Chelmsford Senior Center to develop policies, programs and services. The Council meets monthly.

Cultural Council

The Cultural Council provides public grant funding to individuals and organizations in the community for the arts, humanities and interpretive sciences. The Council also solicits input from the community in order to identify and assess local cultural needs. The Council is committed to funding a cross section of local artists, education projects, and collaborative proposals that bring together artists, organizations, and local cultural groups in a way that benefits the overall community.

In FY 2009, the Cultural Council received $9,300 from the Massachusetts Cultural Council which was matched with $700 in town funds to support thirteen grants. In addition, the Council organized and hosted the 13th Annual Chelmsford Photo Contest at the Chelmsford Senior

Center. The Cultural Council consists of nine members appointed by the Town Manager for two-year terms, and meets on a monthly basis.

Economic Development Commission

The Economic Development Commission is comprised of seven resident volunteers with an interest and expertise in business, marketing and economic development. The Commission also includes the Town Manager and Community Development Director. Ad hoc members who provide input and assistance to the Commission include Senator Susan Fargo, Representative Tom Golden, Representative James Arciero, and Representative Cory Atkins.

The Economic Development Commission's work includes the following:

- Understanding the needs of prospective businesses interested in locating in Chelmsford or relocating within the Town;
- Working with town departments and committees on issues related to zoning, permitting and development;
- Working with civic and non-profit organizations within the Community;
- Administering the Chelmsford Business Survey;
- Conducting roundtable meetings with commercial realtors, brokers and businesses;
- Collaborating with local and regional business organizations; and
- Participating in industry associations.

Energy Conservation Committee

The Energy Conservation Committee works to identify, design and implement programs and projects related to energy conservation, energy efficiency and renewable energy. These programs and projects may be directed at all forms of energy use and generation, including electricity, natural gas and heating oil, alternative energy sources, and transportation fuels and alternatives. The Energy Conservation Committee is comprised of nine members appointed by the Town Manager for three-year terms, and meets monthly. The membership of the Committee includes the Public Facilities Director, a representative of the Chelmsford Public Schools, a representative of the Town Staff familiar with Police, Fire, DPW, and other department operations, and four Chelmsford residents or business owners.

In 2009, the Energy Conservation Commission was able to secure grant monies to install 8.4 KW solar panels on the roof of the Library. The Commission also helped the Director of Public Facilities explore various energy efficiency improvement technologies, such as wired and wireless building HVAC and light sensors, phase conditioning systems, and LED street lighting. In addition, three of Chelmsford's public schools received Energy Star designation, which is awarded to buildings that are 75% more efficient than comparably sized structures.

Finance Committee

The Finance Committee reviews the budgets of individual departments relative to the needs of the Town and available revenue and resources, and then prepares final budget recommendations for Town Meeting action. Each Finance Committee member acts as a liaison to various town departments and boards. Committee liaisons meet individually with department heads to review department budget requests. Meetings are then scheduled with the full Committee to discuss and analyze departmental budgets and warrant articles. The Town Manager also presents his proposed budget and capital improvement plan, along with his budget message and supporting documents, to the Finance Committee. The Finance Committee meets with petitioners, proponents and other interested parties with respect to other articles that are on the Town Meeting Warrant. Following consideration of each article, the Committee votes to recommend or not recommend approval of the article. The budget that is ultimately acted on by Town Meeting is the budget prepared by the Town Manager, with the accompanying recommendations of the Finance Committee.

The Finance Committee Chairman and Vice Chairman are members of the Town's "Leadership Team", which also includes the Town Manager, School Superintendent, and representatives of the Board of Selectmen and School Committee. The Finance Committee consists of seven members appointed by the Town Moderator for three-year terms and meets weekly from September through May.

Greener Chelmsford Initiative (GCI)

A Director of the Greener Chelmsford Initiative (GCI) is appointed by the Board of Selectmen. The Director is charged with working with volunteers to carry out the mission of the Initiative. The purpose of the GCI is to engage Chelmsford businesses in a voluntary effort to recycle, reuse and reduce its waste stream in a way that:

- Benefits the environment;
- Brings attention to the modest steps that can be taken to improve recycling and reduce waste;
- Demonstrates to observers that collaboration between business and government in pursuit of a common goal is worthwhile and productive; and
- Fosters a sense of community by enlisting the participation of businesses, residents and local government in a voluntary, town-wide initiative.

GCI evaluates businesses that wish to receive a GCI "Seal of Approval" for making a commitment to undertake green measures, awards the "Seal of Approval" to qualified businesses, and maintains an inventory of businesses that have received such a designation. GCI also conducts a public education and outreach campaign targeting the public schools and town youth.

Historical Commission

The Historical Commission works to advance the preservation, promotion, and development of the historical assets of the Town. It conducts research to identify places of historical value and actively promotes alternatives to demolishing or destroying historical structures or sites. The Historical Commission consists of seven members appointed by the Town Manager for three-year terms, and meets monthly. The Commission was formed under Chapter 40, Section 8D of the Massachusetts General Laws.

The mission statement of the Historical Commission is as follows: "The Chelmsford Historical Commission shall identify and preserve the historical heritage and the resources of the Town of Chelmsford. To accomplish its mission, the Commission shall provide, but not be limited to the following:

- Compile and maintain an inventory of the town's historic assets;
- Encourage in activities to educate and to broaden community awareness of Chelmsford's historical heritage;
- Work with public and private groups to promote preservation;
- Encourage and support the activities of the local historic district;
- Provide preservation information; and
- Prepare and distribute preservation publications."

Historic District Commission

The Historic District Commission works to preserve and protect the buildings and historic features within the Chelmsford Center Historic District, and has regulatory authority. The objective of the Historic District Commission is to provide an expeditious application and review process relative to the physical modification of structures within the district. The purpose of the Chelmsford Center Historic District is:

- To preserve and protect the distinctive characteristics of buildings and places significant in the history of the Commonwealth and its cities and towns;
- To improve and maintain the settings of those building and places; and
- To encourage new designs that are compatible with existing buildings in the district.

The Historic District Commission consists of not less than three or more than seven volunteer members appointed by the Town Manager for a three-year term. The Historic District Commission was established under Chapter 40C of the Massachusetts General Laws, and is independent of the Chelmsford Historical Commission.

Housing Advisory Committee

The Housing Advisory Committee is a permanent five-member Committee comprised of the following:

- One member of the Board of Selectmen appointed annually by the Board of Selectmen;
- One member of the Planning Board appointed annually by the Planning Board;
- One member of the Housing Authority appointed annually by the Housing Authority; and
- Two residents appointed by the Board of Selectmen, with at least one of the appointees having some background in real estate and/or residential construction.

Appointments are made each April following the annual election. The mission of the Housing Advisory Committee is as follows:

- To conduct pre-application meetings, as requested by potential applicants, to ensure housing proposals are consistent with the housing goals stated in the town's adopted Master Plan and Affordable Housing Plan;
- To provide advisory opinions, as requested by Town boards during the permitting process, to ensure the proposals are consistent with the housing goals outlined in the town's Master Plan and Affordable Housing Plan;
- To work with the Community Development Department, Housing Authority, and applicants to implement the actionable components of the Affordable Housing Plan, in order to meet the desired levels of affordable housing units established in Chelmsford; and
- To perform research, as requested, on new initiatives pertaining to housing.

Local Emergency Planning Committee (LEPC)

The Local Emergency Planning Committee is appointed by the Town Manager and includes the following eight members: the Town Manager, a member of the Board of Health, the Chief of Police, the Chief of the Fire Department, a lieutenant and a deputy from the Police Department, a member from the Public Works Department, and a member from the Emergency Management Agency. The LEPC is responsible for devising a written response plan for addressing hazardous material incidents that occur within the community. This Plan must be revised annually and an exercise must be conducted to test its efficiency and effectiveness. In addition, the Committee must maintain a system to collect, store and respond to public requests and concerns regarding emergency preparedness.

Master Plan Committee

The Master Plan Committee is comprised of nine members appointed by the Planning Board, who are charged with developing the town's 2010 Master Plan Update as outlined under Chapter 41, Section 81D of the Massachusetts General Laws. The Committee meets twice a month and works with town boards, commissions and committees, as well as with other interested stakeholders, to ensure that all input is heard and considered.

Military Community Covenant Task Force

The Chelmsford Military Community Covenant was established by the Board of Selectmen in 2009, in partnership with Hanscom Air Force Base, as a formal effort to support military families living in Chelmsford. The primary purpose of the program is draw upon a support network of volunteers, as well as contributors from the local business community. The Task Force is charged with carrying out the mission of the covenant by actively seeking and organizing volunteers and securing discounts on services and goods from local merchants. The Task Force is comprised of seven members and the town's Veterans Agent.

Permanent Building Committee

The Permanent Building Committee was formed in September 2008 and assists the Town Manager with the development of financial estimates, and with planning, project design and construction supervision for municipal building projects. The Committee also assists the Town Manager in the development of the long-term capital plan for municipal buildings, which includes the lease and sale of surplus municipal property.

The Permanent Building Committee consists of seven members appointed by the Town Manager, with the approval of the Board of Selectmen. The composition of the Committee includes the following:

- The Chelmsford Public Facilities Director;
- A Chelmsford resident who is an architect;
- A Chelmsford resident who is an engineer;
- A Chelmsford resident who is primarily engaged in the construction business;
- A Chelmsford resident who is an attorney; and
- Two other Chelmsford residents.

Aside from the Public Facilities Director, no other member of the Committee can be an officer, official, or paid employee of the Town, or a member of any board, except that a Town Meeting member may be a member of the Committee. Committee members are appointed for three-year terms and meet monthly.

The Town Manager, with the approval of the Board of Selectmen, may appoint temporary additional members who are members or representatives of a board or department for which a project is being planned or constructed. A temporary member is not allowed to vote and may only participate in those agenda items that are related to the particular project for which he or she has been appointed. In the case of a project that involves a school facility, the School Committee may appoint one of its members, or a designee, as a temporary additional member. The School Committee member/designee has the right to vote and participate fully in the activities of the Committee with respect to the school facility project.

Personnel Board

The Personnel Board works with the Town Manager in developing Personnel Rules and Regulations, and reviews the classifications and compensation system for the Town's employees, as well as personnel rules, regulations, laws and town practices. The Board meets monthly with the Town Manager and Director of Human Resources.

The Personnel Board consists of five members, four of whom are appointed by the Board of Selectmen for two years, two in odd-numbered years and the other two in even numbered years. Each term expires at the end of the appropriate fiscal year. The Board of Selectmen, through appointment, fills the unexpired term of any public member who resigns. The fifth member, known as the employee member, is elected by Town employees not covered by a collective bargaining agreement who are subject to the personnel rules and regulations and whose name appears on the Town payroll list for the Wednesday prior to the election or who otherwise is identified as an eligible voter. Each term of office is for two years and expires on July 1 of each odd numbered year. The election of the employee member is secret and is supervised by a board of three election officers appointed by the Town Manager. The election is held in June to be effective July 1st. Special elections are held to fill the unexpired term of an employee member who resigns before the term has expired. All elections are held between the hours of 10 a.m. and 3 p.m. on a weekday selected by the above mentioned board of three election officers. Each regular full time employee or part-time regular employee with a work schedule over twenty or more hours per week is granted one vote. All Non-Union employees who work less than twenty (20) hours are granted one-half (½) vote.

Recycling Committee

The Recycling Committee works to reduce solid waste disposal costs by decreasing the quantity of solid waste disposed and increasing the quantity of recyclables collected. The Committee strives to increase participation in the current recycling program, increase public awareness of recycling and related issues, and encourage the use of products with recycling contents. They also work to increase the materials that can be recycled, reduce the total amount of solid waste generated, improve household hazardous waste programs, and improve access to recycling for

residents of multi-family housing. The Recycling Committee consists of nine members appointed by the Town Manager for three-year terms and meets monthly.

Sign Advisory Committee

The Sign Advisory Committee comments on applications for sign permits, as well as on applications for other special permits. The Committee consists of seven members appointed for three-year terms and meets as needed.

Technology Network Task Force

The Technology Network Task Force consists of seven members appointed by the Town Manager, including three town residents, the Town's Finance Director, School Business Manager, MIS Coordinator and School Technology Director. The Task Force has been charged with reviewing the Town's information technology network and assessing strategies regarding the improvement of the IT network. This work includes addressing issue related to hardware, software, staffing and organization. The goals of the Task Force are as follows:

- Quantify the amount of funding and the level of personnel assigned to IT network functions throughout all town departments;
- Detail IT network service contracts and the procurement of such service contracts;
- Evaluate the Town's Five-Year IT Network Capital Expenditure Plan;
- Evaluate the security of the Town's IT network system, including off-site storage of data; and
- Determine the best, most cost-effective way to achieve full integration of the General Government and School Department IT network systems.

Currently, the Town's technology operations are coordinated and housed at the School Administrative Offices. Computer maintenance and licensing fees for General Government operation are borne by the Town's MIS budget, while School Department administrative and educational technology expenses are contained in the School Department's budget.

Town Celebration Committee/4th of July Committee

The Town Celebration Committee/4th of July Committee plans and carries out the annual three-day Fourth of July festivities. The Committee consists of five members appointed annually and meets monthly.

Zoning Board of Appeals (ZBA)

The Zoning Board of Appeals hears petitions and applications for variances, special permits, comprehensive permits and other appeals of the Zoning and Subdivision regulations, and sign and building bylaws. The ZBA is comprised of five members appointed for three-year terms and meets twice per month on average.

ELECTED OFFICIALS, BOARDS, COMMISSIONS AND COMMITTEES

According to the town's Charter, the offices elected by the voters include the Board of Selectmen, School Committee, Town Moderator, Planning Board, Board of Health, Cemetery Commission, Sewer Commission, Constable and Housing Authority. The Town Charter also states that " …other regional authorities, districts, or committees as may be established by law or inter-local agreement may also be filled by the voters". While not officially part of town government, the water districts serving the town also elect the members of their governing boards, therefore, they have been included within this section of the document. No person is allowed to simultaneously hold more than one elective town office.

Board of Health

The Board of Health works to protect the public health of the community, and has administrative, planning and policy responsibility for health functions of the Board of Health Office. The Board consists of three members elected for three-year terms. The Board meets monthly.

Board of Selectmen

The five-member Board of Selectmen is the Town's body of chief elected officials. Among the Board's powers and duties is the appointment of the Town Manager and many boards, committees and commissions. The Board of Selectmen appoints the Town Accountant, Board of Registrars, and Town Counsel. The Board of Selectmen is also responsible for issuing certain licenses, enforcing some sections of the Town's bylaws, and regulating public ways. The Board is elected for three-year terms and meets twice a month.

According to the town charter, the Board of Selectmen is charged with preparing reports of town business and distributing such reports to all town meeting members. They are also responsible for issuing policy directives and guidelines that are to be implemented by the officers and employees appointed by the Board or under its authority.

Annually, the Board of Selectmen, in conjunction with the Town Manager, prepares a five-year financial forecast of town revenue, expenditures, and the general financial condition of the Town. This five-year plan is submitted to the Finance Committee and made available to the public.

Cemetery Commission

The Cemetery Commission plans, operates and maintains the Town's six cemeteries. According to the Town Charter, the Cemetery Commission has the sole care, superintendence and management of all public burial grounds in Town.

The Commission is comprised of three members who are elected for three-year terms, and meets every other month. During FY 2009, there were 142 total interments, including 111 full burials and 31 cremation interments. In addition, there were 64 cemetery lots sold throughout town.

Chelmsford Center Water District Commission

The Chelmsford Center Water District Commission oversees the provision of drinking water within the Center Water District in accordance with the District's established bylaws. The Commission consists of three members who are elected by the water takers for a three-year term. Additional information regarding the town's water districts may be found in the Economic Development section of this Master Plan (see page #).

Constable

One Constable is elected for a term of three years. However, the Town Charter allows for the appointment of additional constables by the elected constable, subject to the approval of the Board of Selectmen. The Constable may serve civil writs and processes as are authorized by law, including all warrants and other processes of the Town.

East Water District Commission

The East Water District Commission oversees the provision of drinking water within the East Water District in accordance with the District's established bylaws. The Commission consists of three members who are elected by the water takers for a three-year term. Additional information regarding the town's water districts may be found in the Economic Development section of this Master Plan (see page #).

Housing Authority

The Chelmsford Housing Authority is charged with providing an adequate supply of housing for low and moderate income families and individuals. The Authority is dedicated to meeting the needs of the elderly, disabled and families in need of affordable housing. Supportive services tailored to the needs of each group are considered to be of the utmost importance.

Four Housing Authority members are elected for five-year terms, and a fifth member is appointed by the Governor of the Commonwealth. The Chelmsford Housing Authority is a retained revenue state agency, which receives very limited subsidies from the State to support the state-aided housing units in day-to-day operations and to meet modernization needs.

In FY 2009, the Chelmsford Housing Authority was awarded 88 new Section 8 vouchers for non-elderly disabled person and another 35 vouchers for veterans currently receiving service through the Bedford VA facility. The Section 8 Program assists over 556 families/elderly/disabled persons in the area with rental assistance to live in a private apartment.

The Housing Authority also provides a Family Self-Sufficiency Program to help families improve their education and skills in order to move toward home ownership.

The Authority manages senior housing facilities at McFarlin Manor at 10 Wilson Street, Chelmsford Arms at 1 Smith Street, Delaney Terrace at 8 Sheila Avenue and North Village at 20 Sheila Avenue. The Housing Authority offers case management, adult day care, beauty parlors, clustered home care services, meals programs and 24/7 staffing at some locations. The Housing Authority serves as the Management Agent to the Town for monitoring the Affordable Homeownership and Affordable Rental Units located in Chelmsford.

Library Trustees

The Board of Library Trustees is comprised of seven members elected for terms of three years. The Library Trustees select library materials, and have custody and management of these materials. All money and property that the Town may receive for library purposes, by gift or bequest, is administered by the Board.

North Water District Commission

The North Water District Commission oversees the provision of drinking water within the North Water District in accordance with the District's established bylaws. The Commission consists of three members who are elected by the water takers for a three-year term. Additional information regarding the town's water districts may be found in the Economic Development section of this Master Plan (see page #).

Planning Board

The Planning Board is charged with ensuring the orderly development of the Town in a manner that is beneficial to the town, consistent with town's Master Plan and that complies with state and local rules and regulations. The Planning Board enforces the Town's Zoning Bylaw and reviews all subdivision plans, site plans and the creation of lots on existing ways. The Board consists of seven members elected for three-year terms and one alternate member elected for two years. The Planning Board meets twice per month.

School Committee

The School Committee oversees the general operations of the public schools in Town and appoints the Superintendent and other officers and employees of the schools. The School Committee is also charged with developing rules, regulations and policies for the public school system. The Committee is comprised of five members who are elected for three-year terms which begin in April. The School Committee generally meets every two weeks.

Sewer Commission

The Sewer Commission is comprised of five members elected for three-year terms. The Commission supervises, manages and controls the construction of sewer lines within Town.

Town Meeting Representatives

The legislative body of the Town is a Representative Town Meeting comprised of 162 representatives elected from the town's nine voting precincts. The representatives participate in the Spring Annual Town Meeting and the Fall Annual Town Meeting, in accordance with the town's charter. All sessions of town meeting are presided over by an elected Town Moderator. Any resident of the town who is not an elected town meeting member may attend sessions of the town meeting, but may not vote.

According to the Town Charter, it is the duty of town meeting members to keep abreast of town business and review materials forwarded by the Board of Selectmen and the Town Manager. It is expected that town meeting members will attend selected meeting of multiple bodies, attend hearings held by the Finance Committee and actively prepare for each session of Town Meeting. The representative town meeting may, by vote or by law, establish committees for review of warrant articles, and may consider and study of any subject of concern to the town meeting. The representative town meeting members in any precinct may organize, meet and confer on town business, subject to the state's Open Meeting Law.

Town Moderator

The Town Moderator is elected for a term of three years, and presides over and regulates the proceedings at all Town Meetings, thereby deciding all questions of order, and making public declarations of all votes. No one may address Town Meeting without permission of the Moderator. The Moderator also appoints the Finance Committee.

TOWN DEPARTMENTS

Community Development Department

The Community Development Department provides administrative services and technical staff support to the Planning Board, Conservation Commission and Zoning Board of Appeals. In addition, the Department manages the Town's economic development program, grant administration and improvements to conservation lands. The Department also provides technical and administrative services to the Master Plan Committee.

Department of Public Works

One of the most important aspects of a community is its infrastructure, such as roads, sewers, and drainage systems, as well as its facilities such as parks, cemeteries, and public buildings.

These assets of the town need to be maintained in order to protect the town's investment and to operate the facilities properly. The Department of Public Works consists of five divisions with separate areas of responsibility: the Engineering Division, Highway Division, Sewer Division, Public Buildings Division, and Parks Division. The Office of Recycling and Solid Waste, and the Cemetery Commission also fall under the Department of Public Works. The Department of Public Works will operate with 38.2 full-time equivalent positions during FY 2011. One additional sewer employee will be required with three new pumping stations being added to the system through the Sewer Enterprise Fund. Excluding the Sewer Division, this represents a decrease of four DPW staff since 2002. The reduction in staff has resulted in delays in the sidewalk construction plan, as well as an inability to fully address drainage, maintenance, and construction needs.

Engineering Division

The Engineering Division provides technical support to the Planning Board, Conservation Commission, Town Manager, Board of Selectmen, Assessors Department, Town Clerk and Sewer Commission. Additionally, the engineers design several projects for construction by the Highway Division. The engineers provide site plan reviews and/or inspections on various projects that are subject to the land use regulatory review and environmental permitting processes. The Engineering Division also assists residents with various requests on an as-needed basis, by providing maps, professional expertise relative to drainage issues, and by performing tree inspections.

Highway Division

The Highway Division is responsible for the maintenance and improvement of all town-owned streets, culverts, catch basins and manholes, street signs, pavement markings, traffic signs and traffic signals. They are also responsible for mowing and the cutting of brush and overgrown vegetation, and for snow removal. The staff oversees all town snow removal personnel as well as the 40 trucks contracted for each winter storm.

Sewer Division

The Sewer Division maintains thirty-three (33) pump stations, handles all sewer betterments, sewer billings, and phone inquiries, and fields customer questions and concerns. The office staff also performs clerical work for the elected Sewer Commission. The sewer operations staff performs sewer connection inspections, maintenance, repairs, and upgrades of the sewer pumping stations and sewer lines. The staff also performs building grounds maintenance to the pump stations.

The Town established a Sewer Enterprise Fund in 2006 in accordance with Chapter 44, Section 53F1/2 of the Massachusetts General Laws. This created a separate accounting and financial reporting mechanism for the Town's sanitary sewer system and services. Sewer revenues and

expenditures are accounted for separately and are not commingled with the Town's general fund operating budget.

Public Buildings Division

The Public Buildings Division employs two part-time Building Attendants to assist with various building maintenance needs at the Old Town Hall and Town Hall. Cleaning of these buildings has been outsourced to a private company.

Parks Division

The Parks Division maintains all traffic islands and commons in town. The Division also prepares the Town Common for the annual Fourth of July celebration, and is responsible for cleanup following public events and festivities.

Office of Recycling and Solid Waste

The Office of Recycling and Solid Waste works to ensure that the town's trash and recycling services comply with state regulations, educates residents about the importance of recycling, promotes composting, reuse and donation options as waste reduction strategies, and monitors the town's waste and recycling volumes and costs. The office consists of one full-time and one part-time employee whose work is supported by the Recycling Committee.

In FY 2009, the town generated 12,695 tons of solid waste, with an average generation rate of one ton per household per year, as shown in Table 7.5 below. Approximately 3,777 tons of waste was recycled town-wide. This accounts for nearly 23% of the Town's waste stream. A fee-based collection system is used for the curb-side recycling of tires, appliances and electronics.

TABLE 7.5
SOLID WASTE AND RECYCLING RATES: FY 2005 through FY 2009

Fiscal Year	Solid Waste (ton)	Tipping Fee ($ per ton)	Annual Waste Disposal Cost	Curbside Recycling (tons)	Recycling Rate (%)
2005	16,061	59.78	$960,167	3,117	16.25
2006	15,358	67.50	$1,036,665	3,586	18.93
2007	14,170	69.50	$984,815	4,296	23.27
2008	13,369	71.00	$949,199	3,894	22.55
2009	12,695	73.00	$926,735	3,777	22.90

The Town spends nearly $927,000 per year to dispose of its solid waste. Recently, the Town worked collaboratively with thirteen other municipalities to secure a favorable contract for trash collection services beginning in FY 2011. The Town instituted a two 32-gallon barrel solid waste collection weekly limit effective in July 2010, in an effort to reduce disposal costs and promote recycling. Residents have the option of purchasing bags to dispose of solid waste above

the 64-gallon weekly basic service level. The town is also converting to a more convenient single-stream bi-weekly recycling collection system.

The Town typically holds two brush drop-off events each year at Community Tree Service. In addition, the Office of Recycling and Solid Waste sells compost bins below cost to Chelmsford residents to encourage the composting of kitchen scraps and yard waste, and encourages residents to contact Jones Farm in order to take advantage of its curb-side/drop-off program for leaves. Through a regional DEP Grant with Billerica and Tewksbury, Chelmsford now has an 8-hour per week recycling enforcement officer.

The Office of Recycling and Solid Waste also works with the Board of Health to publicize an annual Hazardous Waste Drop-Off Event. The Office operates the Town's Mercury Abatement Program to keep mercury out of the waste stream and to ensure that it is disposed of properly. This program is funded by Wheelabrator North Andover, the company which operates the facility where the Town's trash is ultimately incinerated.

Finance Department

The Finance Department is responsible for preparing financial information needed in reaching essential management decisions, formulating fiscal policy, planning all financial functions in an efficient manner, and building confidence in the Town's financial management by providing the public with the necessary information to assure accuracy and accountability.

The Finance Department has four divisions: Treasurer/Collector, Management Information Systems (MIS), Assessing and Accounting.

Assessors Office

The Board of Assessors is responsible for the full and fair market valuation of the town's 13,900 (approximate) real and personal property parcels. It has been the policy of the Assessors to review the valuations annually in order to maintain accurate and current assessments. A summary of this valuation analysis is reviewed by the state Department of Revenue and is critical to the certification of the tax rate. In addition, the Board is responsible for the administration of 30,000 excise bills as issued through the Registry of Motor Vehicles. The Assessors Office, like many town departments, has lost staff as a result of recent budget cuts.

Town Accountant/Accounting Division

Warrants for payments of town funds prepared by the Town Accountant are submitted to the Town Manager for approval. The Accounting Division is responsible for record keeping of all financial transactions of the Town, including the processing of all bills, warrants, receipts, payroll and ledgers, and the Division supplies all departments with financial reports and payroll information. The Accounting Division ensures the Town is in compliance with Generally Accepted Accounting Principles, Federal and State laws, and Town Meeting authorizations.

Tax Collector/Treasurer

The Town Treasurer is responsible for the management of all town funds. The Treasurer's Office acts as the receiver and disburser of all public funds, and is charged with sound investment, management, and safekeeping of these funds. In addition, the Department is responsible for the collection of tax titles, reconciliation of bank accounts, warrants, long- and short-term investments, long- and short-term borrowing, income tax reporting, and medical insurance records for retired employees.

The Tax Collector's Office is responsible for the collection of all assessed taxes in accordance with the Massachusetts General Laws, and issues and collects real estate taxes, personal property taxes, motor vehicle excise taxes, and utility bills, as well as Municipal Lien Certificates.

Fire Department

The mission of the Chelmsford Fire Department is to protect lives and property from the adverse effects of fires, sudden medical emergencies or exposure to dangerous conditions created by man or nature. To accomplish its mission, the Fire Department controls and extinguishes injurious or dangerous fires; provides emergency Basic Life Support; protects life and property from fire risks by inspecting buildings for fire hazards and enforcing laws related to fire prevention; carries on a fire prevention education program; investigates suspected cases of arson; and provides rescue services, salvage services, and hazardous material response. During FY 2009, the Fire Department responded to 5,203 calls. Medical emergencies accounted for over half of the call volume (2,814), while fire calls totaled 179.

While the Fire Department is the designated EMS first responder, the current contracted vendor for ambulance service is Trinity EMS, Inc. In addition, all police officers are first responder certified. Greater Lowell EMS (paramedics from Saints Medical Center) provides primary advance life support services within Chelmsford.

The continued economic recession has forced the closure of the South Fire Station (Engine 5). The decision to close this particular station was based on call volume, accessibility and continuity of services. Staffing levels remain at the minimum level of one Captain and eight firefighters per shift (compared to one Captain and fourteen firefighters in 1990). The fire chief has indicated that the cut backs have created an increased risk to residents and firefighters. Over the past year, response times have increased and manpower shortages have occurred at emergency scenes. The FY 2011 budget provides funding for 44 full-time firefighters. The Fire Department was awarded ARRA funding through the state that will fund three new firefighters through most of FY 2011. Overall, the Fire Department staffing level funded through the General Fund has been reduced from 63 in FY 2002 to 54 for FY 2011.

Health Department

The Health Department provides services relative to the inspection of restaurants, septic systems, swimming pools, day care centers, housing units, public schools, recreational camps, public beaches, tanning facilities, and all retail food establishments. In addition, the Department responds to beaver complaints and nuisance calls, conducts emergency inspections and undertakes a number of public health and preventive health care initiatives. The Chelmsford Board of Health office is the regional collection center for the handling of dead birds as part of the West Nile Virus Surveillance Program.

The Health Department employs a Public Health Nurse and provides health care services that include immunizations to comply with the Massachusetts Immunization Law, hypertension screening, lead paint screening, and cholesterol screening. Health education and awareness programs include campaigns for heart health, breast cancer awareness and screening, sun safety, stroke awareness, nutrition and exercise.

Human Services/Elder Services Department

The Human Services/Elder Services Department provides advocacy and support services which allow older adults to maintain their independence, prepare for life changes and improve their quality of life. These services strive to support frail elders in their homes by: providing case management to allow older adults to age in place; providing information and assistance to families making life changing decisions that impact elder family members; providing supportive services for disabled of all age groups; and providing preventive health care programming, advocacy and education. Table 7.6 provides an overview of the number of participants/clients served by the Department's various programs in FY 2009.

TABLE 7.6
HUMAN SERVICES/ELDER SERVICES DEPARTMENT PROGRAM PARTICIPANT/CLIENT STATISTICS: FY 2009

Adult Supportive Day Care	44 participants/2,850 client days
Congregate Lunch	22,759 meals
Home Delivered Meals	22,759 meals
Off-site Meals Delivered	5,529 meals
Health Benefits Counseling	103 serviced
Flu Clinic with Board of Health	1,642 serviced
Blood Pressure Screenings	436 screenings
Home Visits, assistance to elders	212 cases/1,477 trips
Respite Companion Care	82 clients/24,097 hours of service
Tax and Fuel Assistance	279 clients

Source: Town of Chelmsford Annual Report, FY 2009

Additional programs and services include monthly support groups for Alzheimer's patients, caregivers, those who are grieving, widows and those suffering from anxiety. Free medical equipment is also provided to frail elders, as are recreational trips for active older adults, and exercise programs such as Yoga, Tai Chi, chair exercise, strength training, line dancing and aquacise.

Like other departments in Town, the Human Services/Elder Services Department is finding the current economic climate to be challenging. State and Federal Title III funding has been reduced as overhead, food costs and transportation costs have increased.

Human Resources

The Human Resources Office manages employee health, dental and life insurance, workers' compensation and injured on duty claims. The Human Resource Office is also responsible for employee recruitment, selection, classification, records management and new employee orientation.

Inspections Department

The Inspections Department enforces state building codes and the local zoning regulations. Personnel within the Department include the Inspector of Buildings, a Plumbing and Gas Inspector, Wiring Inspector and a Departmental Assistant. Detailed information regarding building permits can be found in the Economic Development section of this Master Plan. In addition to building construction permits, 762 wiring permits and 1,170 plumbing and gas permits were issued in FY 2009.

Municipal Facilities Department

The Municipal Facilities Department was established by Town Meeting in October 2004 and was included in the amendments to the Town Charter that were approved by voters in 2009. The Department manages all buildings and grounds owned by the Town. The Department provides electrical, plumbing, HVAC, carpentry and general maintenance to all Town and School Department buildings including: five elementary schools, two middle schools, Chelmsford High School, the School Administration office, two libraries, five fire stations, the Police Station, Town Offices, Old Town Hall and other support buildings. The Municipal Facilities Department has also agreed to assume responsibility for maintaining streetlights as a cost savings measure

The Municipal Facilities Department maintains all town and school parks and athletic fields. Work activities include mowing, maintaining landscaping and plantings, snow removal, preparation and cleanup for special events, and small engine repair and replacement. The Department is performing these duties with two fewer staff than two years ago. This has impacted the Department's ability to maintain and improve all school and municipal buildings and grounds.

Police Department

The mission of the Chelmsford Police Department is to maintain the peace, protect life and property, and provide law enforcement and crime prevention services, in order to enhance the quality of life for all citizens. The Police Department plays a critical role in preventing and dealing with domestic violence and is often a victim's first contact in the criminal justice system. The Bureau of Investigative Services is comprised of many specialized units within the Department. Investigators interview people, gather documents and evaluate factual information regarding a crime. Investigators' actions include establishing whether a crime has been committed, identifying and arresting suspects, recovering stolen property, and assisting the State in the criminal prosecution of suspects. Within the Bureau of Investigative Services there is a Special Services unit responsible for drug identification, interdiction and investigation. The Department also provides services to residents in the areas of traffic safety, accident reconstruction, and child seat installation.

The Police Department emphasizes community policing strategies and initiatives, and officers are encouraged to work in partnership with the community to address and resolve issues of concern. The Department focuses on priority areas related to traffic, disturbance and nuisance issues, and drug and alcohol violations. Table 7.7 below provides an overview of Police Department statistics for FY 2009.

TABLE 7.7
POLICE DEPARTMENT STATISTICS FOR FY 2009

Offense	Number of Cases
Adult Arrests	398
Juvenile Arrests	13
Total Arrests	411
Calls Answered by Cruisers	32,205
Summons Served	295
Accidents Recorded	963
Fatal Accidents	0
Serious Injury Accidents	135
Citations Issued	2,088
Parking Violations Issued	269
Restraining Orders Served	78
Protective Custody	29
Alarm Calls	1,609
Medical Calls	2,579
Suspicious Activity Calls	1,517
Disturbance Calls	860
Domestic Call	396
O.U.I. Alcohol	39

Source: Town of Chelmsford Annual Report, FY 2009

The Town of Chelmsford has instituted a CodeRED Emergency Notification System. This system is an ultra high-speed telephone communication service for emergency notifications and

allows the Department to target the entire Town or a particular neighborhood or area. The system is capable of dialing 50,000 phone numbers per hour and delivering a message to an individual answering a call or to an answering machine.

The economic recession has been a challenge for the Police Department. At the beginning of FY 2009, the Department had fifty-one (51) sworn officers, but was forced to eliminate two full-time positions midway through the fiscal year due to budget cuts. In addition, a principal clerk position and part-time custodial position were also eliminated. This reduction in personnel has resulted in fewer patrol officers on certain shifts, and necessitated that the officers play more of a reactionary role instead of pursuing proactive policing strategies. The Police Department has strived to maintain current minimum staffing levels of four patrol officers per shift. Currently, the Department has 32 patrol officers. Fourteen (14) full-time equivalent positions have been eliminated since 2002. The Department is concerned that these cutbacks have increased response times and increased the safety risks to the public and police officers.

The Town of Chelmsford has an Auxiliary Police Unit which assists the regular force at motor vehicle accident scenes and other traffic control incidents. In FY 2009, the Auxiliary Police Unit donated 532 hours at various assigned duties and events.

The Animal Control Officer is organizationally located within the Police Department and responds to a variety of animal and wildlife calls throughout the community. During FY 2009, there were 836 calls for such services. In addition, the animal control officer organizes rabies and microchip clinics and other animal-related programs.

Public Library

The Library is a valued institution in Chelmsford that has very strong support from patrons and volunteers. In difficult financial times, library patronage generally increases and the Chelmsford Library has seen a significant increase in usage during the current recession and is the busiest library within the Merrimack Valley Consortium. Given the town's budgetary challenges, the library has found it difficult to reconcile the rise in use with budget and staffing reductions. Nonetheless the Library was able to offer over 800 programs during FY 2009. This was largely made possible by the 236 volunteers who have donated nearly 5,500 hours of time to assist with various programs and to provide services to the library.

The Library functions as the cultural heart of the community. During FY 2009, the library checked 603,178 books, DVDs and other items in and out, lent and borrowed 150,261 items through the Interlibrary Loan program, issued 1,450 new library cards, welcomed 213,422 visitors and answered 20,826 reference questions. The Chelmsford Public Library was awarded the Library Customer Success Award by EBSCO Publishing for library advocacy and sharing a Library Use Value Calculator with other libraries. The calculator is a tool which lets patrons calculate the value of their library use.

Like most public libraries, Chelmsford's is financially supported by the Town, trust funds overseen by the Board of Trustees, fundraising by the Friends of the Library, and a state library grant. In FY 2011, the budget for the Library was increased by 2.53% which is proportional to the increases for other departments, so it is expected that the Town will qualify for a waiver to maintain certification from the State Board of Library Commissioners. A waiver will temporarily maintain the Town's eligibility for State library aid of approximately $44,000 per year, and allows the town to participate in the Merrimack Valley regional consortium. The current funding level requires that the Library continue to expend its State grant monies on operating costs rather than enrichment programs.

School Department

The School Department has made major improvements in the school's technology capabilities as a result of collaboration between the school district and Town technology staff. These improvements include the completion of a fiber optic cabling project and a new data center that was created in the school district's Central Office. The increased network speed allows technology staff to remotely maintain computer equipment.

Financial challenges have restricted the number of new initiatives undertaken in recent years. In FY 2009, the School Department was forced to cut $591,000 during the school year which necessitated the elimination of forty (40) teaching, support and administrative positions, and the closure of the Westlands Elementary School (grades K-4). Since 2007, over fifty positions have been eliminated. As shown in Table 7.8 on the following page, student enrollment has declined by 219 students during that same time period.

The Federal government provided $1.8 million in American Recovery and Reinvestment Act (ARRA) funding, also known as Stimulus funding. However, due to state budget shortfalls, the school district's actual federal ARRA grant was reduced to $916, 871. This money was used to restore fourteen staff positions, and to replace out-of-date textbooks, fund staff training, and improve science equipment.

Federal and State laws require that the Town continually show improvement in student academic performance. The School Department administration and the School Committee remain very concerned regarding the District's ability to fund increased fixed costs, such as Step increases and Special Education tuition, programs, and transportation. Table 7.8 on the following page details the five-year budget history for the Chelmsford School Department.

TABLE 7.8
CHELMSFORD PUBLIC SCHOOLS FIVE-YEAR BUDGET, STAFFING AND ENROLLMENT HISTORY

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Change FY 2010-2011	Five-Year Change
School Budget	$42,078,931	$43,182,232	$44,426,232	$43,085,662	$45,085,682	$2,000,000	$3,006,731
State Aid	$7,440,307	$8,365,004	$9,432,005	$9,243,365	$9,828,091	$584,726	$2,997,564
% of Budget	18	19	21	21	22	2	4
Town Share	$34,683,624	$34,817,228	$34,994,227	$33,842,297	$35,257,571	$1,415,274	$9,167
% of Budget	82	81	79	79	78	-2	-4
Full Time Equivalent Positions	690.7	691.4	679.5	639.5	639.5	0	(51.2)
Student Enrollment	5,522	5,485	5,437	5,313	5,303	-10	-219

Source: Town of Chelmsford website, www.townofchelmsford.us

The Chelmsford School Department continues to struggle to maintain personnel and programs given the severe financial constraints brought about by the severity of the current economic recession which has negatively impacted revenues. As discussed above, over fifty positions have been eliminated and expenses have been reduced. Table 7.9 below shows the Chelmsford School Department's Five-Year budget forecast.

TABLE 7.9
CHELMSFORD PUBLIC SCHOOLS FIVE-YEAR BUDGET FORECAST

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
Budget Base	$43,482,725	$45,672,725	$47,882,725	$50,112,725	$52,312,725
Salaries (2%)	$640,000	$660,000	$680,000	$700,000	$720,000
Fixed Costs					
• Step and Degree	700,000	700,000	700,000	700,000	700,000
• Utilities	100,000	100,000	100,000	100,000	100,000
• Sped Tuitions	500,000	500,000	500,000	500,000	500,000
• Transportation	100,000	100,000	100,000	100,000	100,000
Programs	100,000	100,000	100,000	100,000	100,000
Technology	50,000	50,000	50,000	--	--
Fee Structure	--	--	--	--	--
Total	**45,672,725**	**47,882,725**	**50,112,725**	**52,312,735**	**54,532,725**
Yearly Increase	2,190,000	2,210,000	2,230,000	2,200,000	2,220,000
% Increase	5.04	4.84	4.66	4.39	4.24

Source: Donald Yeoman and Robert Cruickshank, "Understanding the FY 09-10 Budget for the Chelmsford Public Schools", April 2009.

Town Clerk

The Town Clerk is the official keeper of town records including vital records of births, deaths, and marriages of all town residents. Certified copies of birth, death and marriage certificates are issued through this office, along with business certificates, dog licenses, fishing, hunting and sporting licenses.

The Town Clerk must give notice of the Town Meeting to town meeting members and the public. All town meeting minutes are recorded and on file at the Town Clerk's office and all Town, state and federal elections are conducted and recorded by the Town Clerk. The Town Clerk is also responsible for administering the oath of office for all elected and appointed town officials, and keeping records of the election process and results. In according with the state's Open Meeting Law and Regulations, all town boards and committees must post their meetings at least 48 hours prior to the meeting with the Town Clerk's office. This information must be made available to the public 24 hours per day seven days per week, and can be found outside of the Town Hall. The Town Clerk also maintains a meeting list on the town's website for the convenience of residents

The annual Town Census and all voter registration and special registration sessions are conducted through the Town Clerk's office in conjunction with the Board of Registrars.

Town Manager

The Executive Office of the Town of Chelmsford is made up of the Board of Selectmen and the Town Manager. The powers and duties of the Board of Selectmen include appointing the Town Manager, who must be appointed by a 4/5 vote of the Board. The Town Manager is responsible for the effective operation of the town and directs the administration of the various town departments, boards and commissions. The Town Manager advises the Board of Selectmen and makes recommendations to address the needs of the town. The Town Manager prepares the town budget and, in conjunction with the Capital Planning Committee, submits a capital improvement program to the Board of Selectmen and Finance Committee.

Veterans' Services

The Veterans' Services Office provides short-term financial assistance to eligible veterans and their families, as mandated by Massachusetts General Law Chapter 115. The Chapter 115 program provides some medical coverage and assistance to needy veterans through a monthly grant. The amount of assistance is established based on budget standards established by the State's Department of Veterans' Services. The State reimburses the Town for 75% of the authorized benefits paid to Chelmsford residents. In FY 2009, Chelmsford paid out $83,520 to fifteen veterans and six eligible widows. The Town then received $62,640 in reimbursement funding from the State.

Federal Veterans Administration (VA) benefits have a more substantial impact on the community's veterans, from the perspective of total dollars flowing into the community. However, the number of veterans eligible for VA benefits is a small percentage of the veterans residing in Town. The Chelmsford Veterans' Services office assists veterans with the VA claims process. Periodically, the VA provides a snapshot of the total amount of VA benefits granted within a community. In the case of Chelmsford, the most recent data released was for 2008 and showed that $3,961,228 was disbursed to 364 veterans and 58 widows living in Town.

The Veteran's Services Office processes applications for State Veterans' Bonuses and Annuities, the latest being the "Welcome Home Bonus". The office also coordinates the Chelmsford Veterans Day Observance.

ISSUES AND OPPORTUNITIES RELATIVE TO SERVICES

The recent economic recession has taken its toll on the community as cuts in local aid and declining tax revenues have necessitated some reductions in the services provided by the Town. The American Recovery and Reinvestment Act (ARRA), also known as the Economic Stimulus Bill, has provided limited additional federal funding which has offset some of the local aid cuts made by the Massachusetts legislature. In addition, the State has provided municipalities with the option of imposing a local option tax on meals and lodging which the town has adopted. This tax will generate approximately $400,000 in additional tax revenues annually, based on current estimates. While these additional revenues are helpful, further reductions in service may be needed in the future to address anticipated reductions in local aid and declining tax revenues.

During FY 2009, local receipts were impacted by a 33% decline in interest income, and a 4% decline in Motor Vehicle Excise revenues created by declines in new vehicle sales due to rising unemployment and tighter credit standards. In addition, assessed valuation (AV) declined 3.4% in FY 2009, due to softening of the real estate market. Fortunately, the Town's tax collection rate has remained strong at 98.7%.[56] During FY 2009, 46 full-time equivalent positions were eliminated town-wide, which accounted for a 5% reduction in town personnel.

Over the past year, personnel reductions have occurred within the Assessor's Office, Tax Collector's Office and the Town Clerk's Office. In addition, police and fire positions have been eliminated and overtime expenditures have been reduced, resulting in fewer police officers on patrol and the closure of one of the town's fire stations. In addition, Library positions, materials and hours of operation were impacted. The School Department eliminated three central administration positions, reduced expenditures for textbooks, supplies and technology, cutback custodial services, and eliminated fourteen other positions. Local revenues are forecast to remain sluggish during the upcoming fiscal year, limiting the funding available to support town operations and services.

[56] Town of Chelmsford, FY 2009 Annual Report.

Today, town departments are under considerable pressure to reduce costs, generate revenue and generally do more with less. In an era of shrinking budgets, many municipal officials across the country are reassessing the basic ways in which services are being delivered. Traditionally, most services have been delivered by municipalities using their own workforce. Many communities are now considering the use of alternative service delivery approaches to increase service efficiency, reduce costs and provide higher quality services for residents. Alternatives include contracting with other units of government, contracting with private firms or nonprofits, regionalization and increased reliance on volunteers.

Chelmsford already receives some services through inter-municipal agreements and partnerships. The town has regionalized its Sealer of Weights and Measures through the Northern Middlesex Council of Governments (NMCOG). In addition, Chelmsford is actively exploring the regionalization of other services through NMCOG, including 9-1-1 dispatch services, animal control services, and the procurement of DPW supplies and services, and property revaluation services. Chelmsford's wastewater is treated at the Lowell Regional Wastewater Utility and the town library is part of the Merrimack Valley Consortium. There are also mutual aid agreements in place for public safety agencies. In addition, the town has chosen to privatize some services, such as cleaning services and the school lunch program.

The Town should explore additional opportunities to regionalize services as a means of improving efficiency, reducing costs and delivering the highest quality of service possible. Legislation was recently enacted to allow for mutual aid agreements for Public Works service, similar to the mutual aid agreements now in place for public safety agencies. The Town should consider entering into a public works mutual aid compact as a means of providing improved service to residents in times of emergency.

Many of the town's fees have not been adjusted in several years. The town has an opportunity to review its fee schedule for certain town services, in the interest of achieving full cost recovery, to the extent feasible. The Master Plan Committee acknowledges that revising fees would be politically difficult in a depressed economy. However, over the long-term as the economy recovers, the Town should review its fee structure and revise the fees for certain services as warranted.

The Master Plan Committee recommends that the Town streamline its permitting process to improve efficiency and coordination across town departments. The town should prepare a Permitting Guide that would be posted on the town's website and made available to all residents and businesses needing such services. In addition, regular inter-departmental meetings and joint board meetings would be helpful in improving communication between the various permitting entities in town, and in facilitating a greater in-depth understanding of the issues related to each project and permit application. The town is currently investigating various technology improvements which will also be helpful in terms of tracking permits, etc.

During the Master Plan public input process, residents and officials expressed concern regarding the need for additional sewer capacity within the next ten years, once all sewer connections are made. This lack of available excess capacity is seen as an impediment to attracting future economic development initiatives, as has been discussed in greater detail in the economic development section of this Master Plan. To address this issue, the Town should explore any opportunities as they arise, including future opportunities to work with the City of Lowell and/or the Town of Billerica. The Town's Inter-municipal Agreement with the City of Lowell is up for renewal within the next few years, so this issue should be treated as a priority for the Town.

Unlike most towns, Chelmsford's water supply is controlled by three separate, independent water districts. Several comments were received during the public input process relative to the consolidation of these three districts or indicating that the water supply should be put under the control of the Town. The Master Plan Committee recommends that the issue be studied further. A feasibility analysis should be undertaken examining three options: leaving the existing arrangement in place, consolidating the three districts into one, and having the town assume control of the water supply and distribution system.

While cable television, telephone service and internet access are provided privately through Comcast and Verizon, comments have been received indicating that having additional telecommunication providers would create additional competition, thereby allowing for more competitive pricing and higher quality service for the town's residents and businesses. The Master Plan Committee recommends that this be explored as opportunities arise. As a goal, the Town should provide a minimum level of internet access for every resident through the libraries, schools, the Senior Center and Town government. Minimum level access would guarantee each resident visibility into the Town's operations and access to its leadership, and reasonable access to library-controlled educational and recreational materials. Access assistance should be need-based and focused on providing access to mobility-challenged and financially-challenged residents. The Town could explore the use of volunteers in cases where residents cannot leave their home. Wi-Fi should be encouraged and provided where practical.

Hours of operation for the Library have been reduced due to budgetary considerations. Several residents have indicated that the reduction in hours has been difficult for young families, particularly for those using the McKay Library. During these difficult times, other communities have restored library hours and services by soliciting donations and sponsorships from the business community and residents. This option could be explored in Chelmsford as well.

The Town of Chelmsford is fortunate to have many volunteers who are generous with their time. The Library has established a website (www.chelmsfordvolunteer.com) to provide information relative to volunteer work and volunteer opportunities town-wide. During the public input sessions, the Library Director suggested that the town designate a volunteer coordinator to recruit volunteers when needed, maximize the impact of current volunteers, and to coordinate volunteer schedules. The Master Plan Committee is sensitive to the fiscal constraints impacting town

government, but suggests that the Town consider recruiting 2-3 community-minded individuals to serve as a Volunteer Coordinating Committee.

The Town Clerk and others have indicated that the Town does not have an adequate climate-controlled storage facility for town records and artifacts which is properly sized to meet the town's current and future needs. Given that the Department of Public Works (including engineering, recycling, and facilities) will be relocating to Alpha Road, additional space for such a storage facility may become available within the Town Hall.

As the economy improves, the Town should consider restoring the public safety and school personnel lost through the budget cutting process. If possible, the South Fire Station should be reopened in order to improve response times and the safety of residents and firefighters. In addition, restoring the Economic Development Director position would be highly beneficial to the Town, as this person would be responsible for business outreach and coordination, thereby helping to recruit businesses to locate in town and concentrating on retaining those business that are already here.

The Chelmsford Department of Public Works operates with far less staff than most public works departments in communities of comparable size. The Department Director is also the Town Engineer, which is highly unusual, and the department does not have its own business manager. As the town's budgetary situation improves, consideration should be given to separating the DPW Director and Town Engineer positions. In addition, the hiring of a business manager should also be considered.

Chelmsford is the only town of its size in the region without an Assistant Town Manager. This position was eliminated in the past as a budget reduction measure. The town has chosen to de-centralize its government in these lean times, which means that there is less collaboration between departments and much of the decision-making takes place within individual departments rather than being centralized within a specific administrative office of Town Hall. Adding an Assistant Town Manager would provide additional capacity to coordinate these efforts on a town-wide basis. To the greatest extent possible the sharing of resources among town departments, including the School Department should be encouraged. For example, the centralized procurement program that includes the School Department, DPW and other town departments would benefit the town overall.

The recreational needs of the Town appear to be underserved. The Town has merged Recreation with Community Education and the newly created department seems to be more focused on education than on recreation. For a community of its size, the Town does not offer a recreation program with the variety and depth that one would expect. For example, there are no summer programs for youth. While paying for these programs is a challenge, additional initiatives are needed that specifically target the town's youngsters. These programs could be based out of the

Community Education facility and could be fee-based, with perhaps some subsidy through business sponsorship and through grant programs.

The Open Space and Recreation Committee is currently preparing an inventory of all town-owned property. It is recommended that the Town establish a committee comprised of a representative of the Conservation Commission, Affordable Housing Committee, Community Preservation Committee, Board of Selectmen, and Economic Development Commission to review this list and make recommendations to the Board of Selectmen and Town Meeting relative to appropriate use of these properties.

RECOMMENDATIONS FOR SERVICES

- The Town should explore future opportunities to obtain additional sewer capacity as they arise, including potential opportunities to work with the City of Lowell and/or the Town of Billerica.

- Undertake a study to determine the feasibility of consolidating and managing the water supply and distribution system within Chelmsford.

- When feasible, the Town Manager and Board of Selectmen should consider regionalizing additional services in partnership with other communities or NMCOG.

- Consolidate municipal and school functions to the extent feasible, as long as current service levels are not negatively impacted.

- Continue to improve inter-departmental communication and efficiency through technology enhancements and upgrades.

- Every two years, evaluate the adequacy of fees charged for municipal services, and where appropriate, base fees on a full cost recovery analysis. Develop a policy to guide fee waiver decisions.

- Periodically review the status, need and charge of all appointed committees, including those with ongoing responsibilities. Committees that have completed their charge should be abolished. Other committees may be reorganized or merged, if appropriate.

- Provide manuals and training, as needed, for standing boards, commissions, and committees to ensure that they have the knowledge and skills to carry out their responsibilities in compliance with federal, state and local laws and regulations.

- Periodically conduct all boards and joint boards meetings to improve coordination and cooperation, streamline the permitting process and to review the state of the town.

- Participate in mutual aid agreements for Public Works, as allowed by recently enacted legislation.

- Streamline the town's permitting processes, as further described in the Economic Development section of this Master Plan.

- Recruit 2-3 community-minded individuals to serve as a Volunteer Coordinating Committee to recruit volunteers when needed, maximize the impact of current volunteers, and to coordinate volunteer schedules.

- If the economy and town finances improve, the Town should examine which services can be provided or restored.

- Establish a committee to formulate recommendations for appropriate use of surplus town-owned land.

- Expand and improve recreation programs for town residents, especially for the town's youth. Pursue alternative funding sources and corporate sponsorship as a means of expanding the town's recreation program, and provide an emphasis on offerings for the town's youth. Programs should be structured to take advantage of new technology in order to prevent injuries to sports participants.

- Encourage additional telecommunication and utility providers to offer service to the town, in order to create price competition and improve the variety and quality of services available to residents and businesses.

- Explore the feasibility and cost of providing a guaranteed minimum level of internet access for all town residents.

- Provide a properly sized, climate-controlled storage facility for town records and artifacts.

X. IMPLEMENTATION PLAN

IMPLEMENTATION PROCESS

The final section of the Master Plan contains a multiple-page table outlining the specific recommendations contained in the Master Plan document, which is directed toward advancing the goals, policies and actions articulated throughout the document. For each specific recommendation, the primary responsibility for implementation is identified. Most often the primary responsibility will rest with the Board of Selectmen, Town Manager, Planning Board, Community Development Department, Community Preservation Committee, Conservation Commission or the Historical Commission. It is important to note, however, that many town departments, boards, committees and commissions will play a supportive role in the actual implementation and advancement of the various recommendations.

The Implementation table also provides a timeframe for implementation of the recommendations over the next decade. Four timeframes have been considered, based on the priority and urgency of the recommendation, the resources available, and the time required to initiate implementation. The implementation of some recommendations may be immediate, while others may be implemented on a short-term (1-3 years), intermediate (4-6 years) or long-term basis (7-10 years).

To promote timely implementation, the Town should appoint a Master Plan Implementation Steering Committee. The suggested Steering Committee membership is as follows:

- Two Planning Board representatives (Chairman and additional member elected by the Planning Board);
- Town Manager;
- Zoning Board of Appeals Chairman or designee;
- Conservation Commission Chairman or designee;
- Board of Selectmen Chairman or designee;
- Community Preservation Committee Chairman or designee;
- One Town Meeting Member; and
- One Citizen's Representative.

The Planning Board would solicit appointments from the various boards and commissions. The Town Manager would appoint the town meeting member and the citizen's representative. The Planning Board would then inform the Town Manager of the names of the appointees, and the Board of Selectmen would confirm the final appointments.

The Master Plan Implementation Steering Committee's role is to serve as a facilitator and coordinator of the implementation process, to advocate for the implementation of the recommendations, and to report annually to Town Meeting regarding the Town's progress in

implementing the recommendations. In addition, the Steering Committee would assist the Planning Board with any amendments that may be needed to either the Master Plan document or the Implementation table over time.

TABLE 8.1
IMPLEMENTATION TIME FRAMES AND RESPONSIBILITIES

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
1. Modify and revise the town's Zoning Bylaw and subdivision regulations to better accommodate and encourage redevelopment projects. At a minimum, revisions should include allowing for reduced setbacks and providing greater flexibility in terms of parking and landscaping requirements. The Special Permitting process should also be modified to require the issuance of one consolidated special permit for a redevelopment that is not allowed by right. Redevelopment projects should be designed to provide significant improvement in the non-conforming nature of a property, where applicable.	Land Use	Short Term	Planning Board
2. Establish a Redevelopment District along Route 110, from Hunt Road to Chamberlain Road. Regulations for this area should promote mixed-use development that provides additional economic development and housing opportunities for the community.	Land Use, Economic Development, Housing	Short Term	Planning Board
3. Implement expedited permitting for projects located within the Route 129 corridor.	Land Use, Economic Development	Short Term	Community Development
4. Target the following areas for redevelopment and streamlined permitting: the Route 129 corridor, Vinal Square, Center Village, the Route 110 corridor between the Center and I-495, and the Drum Hill area, including the vicinity of Glenview Sand and Gravel.	Land Use, Economic Development	Short Term	Community Development
5. Rezone the upper parking lots and four commercially zoned parcels in front of the Chelmsford Mall to allow neighborhood commercial uses with strict design guidelines thereby creating transitional zoning, which would provide additional buffering and screening for abutting residences, thereby preserving the character of the neighborhood. Furthermore, any future development on the even-numbered (northerly) side of Chelmsford Street, from Steadman Street to the East Gate Plaza, should remain residential.	Land Use, Economic Development	Immediate	Planning Board
6. Create mixed-use overlay zoning districts in the following areas: Vinal Square, the mill complexes of North Chelmsford, the Town Center, Route 110 from the Center to Fletcher Street, and Technology Drive.	Land Use, Economic Development	Intermediate	Planning Board
7. Create design guidelines for mixed-use development and redevelopment projects within the Town Center and Vinal Square to ensure consistency with the character and historic integrity of these villages.	Land Use	Immediate	Planning Board
8. Establish a Mill Reuse Overlay District and Bylaw for the mill complexes in North Chelmsford to provide greater flexibility in redeveloping or reusing the existing structures, to add value to the properties, to protect the area's historic resources, and to provide flexibility in meeting the town's housing and economic development goals.	Land Use, Economic Development, Housing	Intermediate	Planning Board
9. Modify the current zoning bylaw to allow residential uses with retail, offices and shops within the Town Center and Vinal Square.	Land Use, Economic Development	Short Term	Planning Board
10. Continue to monitor the progress of the Lowell to Nashua/Manchester commuter rail extension project, and position the community to take advantage of transit-oriented development opportunities should the extension project go forward.	Land Use, Transportation	Immediate	Board of Selectmen

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
11. Revise the town's zoning bylaw to allow the construction of four to six story buildings for lots abutting the Route 129 corridor in the area extending from the Billerica town line to Alpha Road, provided that such structures do not negatively impact abutting residences, while gaining a significant increase in open space exceeding our existing requirements. Design standards should also be developed for this area that address architecture, lighting, landscaping, parking, signage, etc.	Land Use	Short Term	Planning Board
12. Modify the zoning along the Route 129 corridor to provide support services for the office park developments located along the corridor. Desired support businesses include restaurants, dry cleaners, personal and professional services, and similar retail establishments.	Land Use, Economic Development	Immediate	Planning Board
13. Modify the zoning bylaw to allow for the development of an extended stay facility on Billerica Road, either side of Route 3 between the town line and Mill Road, in order to serve the needs of corporate tenants and businesses located along the Route 129 corridor.	Land Use, Economic Development	Short Term	Planning Board
14. Adopt a design review process that includes design guidelines for retail, commercial and industrial projects. Initiate design review as an advisory review coordinated within the town's existing approval process.	Land Use, Facilities and Services	Short Term	Planning Board
15. Modify the town's current zoning bylaw to enhance and reflect the existing character of its neighborhoods. Particular attention should be paid to modifying the zoning requirements for the Westlands, including, but not limited to, Manahan Street, Morgan Drive and Maple Avenue, and for the neighborhoods surrounding Heart Pond and Freeman Lake, where development has occurred at a much higher density than in other areas of town.	Land Use	Short Term	Planning Board
16. Address the land use and zoning conflicts that exist along the Route 40 corridor between Route 3 and the Westford town line. The Zoning Bylaw Review Committee should be reconvened and work with the neighborhood and the Planning Board to resolve these conflicts in a fashion that is amenable to the residents and beneficial to the community overall. The use of transitional zoning should be explored as a means of reducing existing and future conflicts between residential and commercial/industrial uses.	Land Use, Economic Development	Immediate	Planning Board
17. Implement revisions to the zoning bylaw that promote the creation of additional units of housing to meet local needs. In the RM zoning district, increase the affordability requirement from 10% to 25% and require a deed restriction in perpetuity for each affordable unit. In addition, establish an RM overlay zoning district for select parcels to provide future opportunities for multi-family housing. Modify the restrictions outlined in the RM zoning bylaw to include more reasonable criteria for establishing RM districts.	Land Use, Housing	Short Term	Planning Board
18. Adopt a comprehensive inclusionary zoning bylaw with a fair system of density bonuses or other cost offsets for on-site affordable units, and provide the option of creating equivalent housing through off-site units or through land donations to the Chelmsford Housing Authority.	Land Use, Housing	Short Term	Planning Board
19. Revise the zoning bylaw to allow the development of rental housing by right within the Village Center zoning district.	Land Use	Short Term	Planning Board
20. Review the in-law apartment regulations to improve the permitting process and to update the regulations to reflect the needs of today's families.	Land Use	Immediate	Zoning Board of Appeals

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
21. Amend the town's subdivision regulations to allow for and encourage the use of Low Impact Development (LID) techniques for managing storm water.	Land Use; Natural, Historical and Cultural Resources	Immediate	Planning Board
22. Amend the zoning bylaw to address the unique needs of agricultural enterprises and operations, in order to encourage the preservation of the town's remaining agricultural lands, and to allow agricultural enterprises to remain economically viable.	Land Use	Short Term	Planning Board
23. Develop a master plan for the University of Massachusetts Lowell West Campus, working collaboratively with the University and the neighborhood. The Master Plan should consider the town's open space and housing needs, and recommendations should be respectful of neighborhood character.	Land Use, Economic Development, Open Space and Recreation, Housing	Short Term	Board of Selectmen
24. Develop a master plan for the 66-acre Oak Hill parcel, which was acquired by the town in 1998. The Master Plan should include an open space and housing component.	Land Use, Open Space and Recreation, Housing	Short Term	Board of Selectmen
25. Revise the Planned Open Space Development zoning bylaw (Section 195-92) to provide stronger incentives for developers to contribute to the Town's open space goals.	Land Use	Immediate	Planning Board
26. Reinstate the position of the zoning enforcement officer.	Land Use	Immediate	Town Manager
27. Update and revise the entire zoning bylaw to improve readability, add clarity and make the overall document more user-friendly. The bylaw also needs to be modernized in terms of the table of uses, dimensional requirements, definitions, and provisions for dealing with commercial vehicle storage, etc.	Land Use	Immediate	Planning Board
28. Establish design guidelines for 40B projects to ensure compatibility with the neighborhood and to maintain the community's character.	Land Use	Immediate	Zoning Board of Appeals
29. Review and update all municipal bylaws every five years.	Land Use	Immediate	Town Manager
30. Reduce the maximum building height allowed in the Residential C district from 4 stories (45 feet) to three stories (35 feet).	Land Use	Immediate	Planning Board
31. Support the efforts of the Chelmsford Economic Development Commission (CEDC) in recruiting, retaining and expanding businesses for the community. Tie together the efforts of the CEDC with the Community Development Department to maintain and increase the Site Finder Database and update the annual survey of the Chelmsford business community.	Economic Development	Immediate	Town Manager
32. Build upon the Chelmsford Brand Strategy developed by the CEDC in April 2010 by incorporating it within the regional "brand strategy" being developed for the Route 3 corridor from Route 128 to I-495. Work with the state economic development agencies to promote the adopted brand strategy for Route 3.	Economic Development	Immediate	Town Manager

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
33. Streamline the permitting process. Adopt the specific procedures and processes for expedited permitting to ensure that permitting decisions for industrial, commercial and mixed-use applications are acted upon within the state's 180-day guidelines. The Community Development Department should develop a Permit Streamlining Guide and a Permitting Manual, as recommended in the Chelmsford 2008 Economic Development Plan. The Permitting Manual should be made available on line and through the Town Clerk's Office and the Community Development Department.	Economic Development, Land Use, Services	Short Term	Community Development
34. Extend the benefits of the EDIP program to the entire community by expanding the current Economic Target Area (ETA) through the establishment of a Regional Technology Center. Work with local businesses to apply for Recovery Zone Bonds (RZB) from the Commonwealth.	Economic Development	Immediate	Community Development
35. Prioritize redevelopment initiatives along the Route 129 corridor (from Riverneck Road to Route 3), in the Center Village and Vinal Square, in the Drum Hill area in the vicinity of Glenview Sand and Gravel and along the Route 110 corridor between the Center Village and I-495.	Economic Development	Immediate	Community Development
36. The Board of Selectmen should continue to review tax policy, on an annual basis, as means to determine the proper balance in terms of tax rates and tax burdens.	Economic Development	Short Term	Board of Selectmen
37. Work with the Greater Lowell Workforce Investment Board (GLWIB) to focus on the employment needs of those manufacturing industries with sophisticated technologies in the areas of nanotechnology, robotics, sensors, biometrics, electro-optics, lasers and clean energy.	Economic Development	Immediate	Community Development
38. Expand the public/private partnership initiated by the CEDC by working with the private sector to fill vacant commercial space and redevelop industrial properties. Through the utilization of the Site Finder Database, the Town can provide updated property information for prospective tenants and businesses.	Economic Development	Immediate	Community Development
39. Develop strategies to increase the capacity of the sewer and water systems to meet the growing demands of the business community and local residents. Renegotiate the contract with the Lowell Regional Wastewater Utility and/or develop an agreement with the Town of Billerica to increase sewer capacity for the future. Work with NMCOG and the other communities in the region to address infrastructure issues that impact future economic development initiatives.	Economic Development	Immediate	Town Manager
40. Direct the CEDC to host regular visioning sessions for the residents and business owners in Center Village and Vinal Square to hear their vision for these town centers and to educate them on what other communities have done to revitalize their town centers. Explore funding opportunities under the Business Improvement District (BID), District Improvement Financing (DIF), Community Development Action Grants (CDAG) and Community Development Block Grant (CDBG) programs in order to assist in the revitalization of these town centers.	Economic Development	Immediate	Town Manager
41. Working with the CEDC, the Chelmsford Business Association and the Greater Lowell Chamber of Commerce, the Town should develop a survey for its residents and employees at local businesses to assess what the commercial needs are for the community. The CEDC and Community Development Director could then work with MassDevelopment and the Massachusetts Alliance for Economic Development (MassEcon) to identify specific businesses that would address these needs.	Economic Development	Short Term	Town Manager

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
42. Focus on the extensive redevelopment and mixed-use opportunities in the Center Village/ Chelmsford Street area. The area between the Center Village and I-495 should be the focus of redevelopment activities, while mixed-use development should be targeted for the area from Village Center to Fletcher Street.	Economic Development	Immediate	Community Development
43. Encourage industrial development in the Route 129 Technology Corridor through the redevelopment of existing buildings and zoning changes related to the maximum building height and commercial support services. Utilize expedited permitting procedures for economic development projects in this area.	Economic Development, Land Use	Immediate	Community Development
44. Implement the recommendations in the Drum Hill Study conducted by NMCOG in 2008 to address traffic, design guidelines and streetscape issues. Identify development opportunities related to the Glenview Sand and Gravel site. Implement development and redevelopment opportunities at 10 Technology Drive and Jean Avenue/Wesley Street.	Economic Development, Transportation	Short Term	Town Manager
45. Support the extension of commuter rail service from Lowell to Nashua and Manchester and establish a commuter rail station with North Chelmsford, providing that there is proper community input and that adequate traffic mitigation is provided in North Chelmsford and elsewhere. Implement a District Revitalization program as part of the overall revitalization efforts in Vinal Square.	Economic Development, Transportation	Immediate	Board of Selectmen
46. Build upon the redevelopment opportunities in the Route 110/Route 3 Shopping District principally through the Stop & Shop project at the former Chelmsford Cinema site and the Chapter 43D site at 25-29 Katrina Road. These development projects will attract additional private investment to this area.	Economic Development	Immediate	Community Development
47. Prioritize the Potential Economic Development Sites for the CEDC and Community Development Department to implement.	Economic Development	Immediate	Town Manager
48. Identify and prioritize open space and potential recreation parcels to be targeted for future acquisition and protection.	Open Space and Recreation	Immediate	Community Preservation Committee
49. Construct a playground at the Pond Street Beach property, and lay out and define an adequate parking area at this facility.	Open Space and Recreation	Short Term	Town Manager
50. Pursue alternative methods of land conservation, through easements, participation in the Agricultural Preservation Program, and the use of limited development projects.	Open Space and Recreation	Immediate	Town Manager
51. Strengthen conservation and preservation incentives with the Town bylaws and regulations.	Open Space and Recreation	Short term	Planning Board
52. Maintain a current inventory of Chapter 61, Chapter 61A and Chapter 61B parcels and create a formal notification process to be utilized when a property owner seeks to remove a property from Chapter 61 status. This process should include notifying non-profit entities should the Town choose not to exercise its right-of-first-refusal.	Open Space and Recreation	Immediate	Town Manager
53. Develop criteria to determine the appropriate control, protection and management entity for Town-owned parcels that are presently undesignated, as well as for future properties that the town may acquire.	Open Space and Recreation	Immediate	Town Manager

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
54. Identify possible future linkages between open parcels and identify missing links within the town's trail network. This can be accomplished through GIS mapping.	Open Space and Recreation	Immediate	Conservation Commission
55. Promote a trail network that provides connectivity between neighborhoods, schools, recreation facilities, and conservation land.	Open Space and Recreation	Short Term	Conservation Commission
56. Seek trail easements through the development review process, where appropriate.	Open Space and Recreation	Immediate	Planning Board
57. Promote a regional approach to open space and recreation planning through outreach and cooperation with bordering communities.	Open Space and Recreation	Intermediate	Planning Board
58. Distribute Town-wide trail and conservation land maps to enhance awareness and increase the use of the town's trails and open spaces.	Open Space and Recreation	Immediate	Conservation Commission
59. Production of the Town-wide trail and conservation land maps could be sponsored by the business community or other community groups in exchange for advertising.	Open Space and Recreation	Short Term	Conservation Commission
60. Develop an overall management and maintenance plan for the Town's open space and recreation properties. Site-specific management plans for key parcels should be developed that address such issues as allowed uses and activities, trail and facilities maintenance, and habitat management.	Open Space and Recreation	Immediate	Town Manager
61. As indicated during the public involvement process, the Town will need to create additional active recreation areas. The establishment of an Open Space and Recreation Advisory Committee, as outlined in M.G.L. c. 45, Section 2, would assist in providing additional direction and guidance in the future.	Open Space and Recreation	Short Term	Town Manager
62. Improve access to open space and recreation facilities for those with disabilities.	Open Space and Recreation	Immediate	Town Manager
63. Create additional parking for the Bruce Freeman Rail Trail and for other open space and recreational areas, as appropriate.	Open Space and Recreation	Short Term	Town Manager
64. Seek additional resources, support and monetary assistance for the Chelmsford Open Space Stewardship.	Open Space and Recreation	Short Term	Conservation Commission
65. The use of deicing chemicals and lawn fertilizers should be minimized, and the town should require an Integrated Pest Management (IPM) Program for sizable development proposals. In addition, an IPM program should be utilized for addressing turf maintenance issues at the golf course and at the town's playing fields by the appropriate board or department.	Natural, Historical and Cultural Resources	Short Term	Planning Board/Town Manager
66. A public education and awareness program that encourages the protection of natural resources should be established for town residents and the schools. The town should emphasize the importance of educating its youth and the community regarding the significance of the town's history. The town should also tap into existing state and federal public education programs.	Natural , Historical and Cultural Resources	Intermediate	Conservation Commission

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
67. A forestry management and stewardship program should be developed for the community's remaining forested lands. In addition, the town should establish policies for tree protection, tree maintenance, and tree replacement for new development and redevelopment proposals undergoing site plan review.	Natural, Historical and Cultural Resources	Intermediate	Conservation Commission
68. The public should also be made aware of the Board of Selectmen's tree protection and replacement policy.	Natural, Historical and Cultural Resources	Long Term	Conservation Commission
69. The town should develop and implement an invasive species management plan.	Natural, Historical and Cultural Resources	Intermediate	Conservation Commission
70. The town should work with property owners to preserve the town's remaining agricultural lands. The town should also consider purchasing development rights for these agricultural properties or purchasing the properties in fee, where feasible and appropriate.	Natural, Historical and Cultural Resources	Immediate	Community Preservation Commission
71. A Historic and Cultural Resources Preservation Plan should be prepared to inventory resources, and outline a strategy to maintain, preserve, protect and promote the historic and cultural assets of the community.	Natural, Historical and Cultural Resources	Short Term	Historical Commission/Town Manager
72. An information booth should be established on the Town Common and/or in the Old Town Hall to promote tourism and benefit the local cultural economy. In addition, the Town should encourage the State to reopen the Visitor's Center at the rest area on I-495 northbound in Chelmsford.	Natural, Historical and Cultural Resources	Short Term	Town Manager
73. Design guidelines established for areas throughout the community should emphasize the importance of historic preservation.	Natural, Historical and Cultural Resources	Short Term	Historical Commission
74. The town's subdivision regulations and zoning bylaw should be modified to provide the development community with guidance relative to the preservation of historic resources.	Natural, Historical and Cultural Resources	Short Term	Planning Board
75. The town should participate in DCR's Historic Landscape Preservation Initiative, in order to develop an integrated and proactive approach to heritage landscape preservation.	Natural, Historical and Cultural Resources	Short Term	Historical Commission
76. Efforts to routinely maintain town-owned historic structures must be improved. A maintenance plan is needed for all town-owned buildings, including its historic properties. The need for improved maintenance of these structures should be reflected in the funding priorities of the Community Preservation Committee.	Natural, Historical and Cultural Resources	Immediate	Town Manager
77. Resources should be made available to provide support to several boards and commissions, including the Historical District Commission, Historical Committee and Agricultural Commission. This should include assistance in applying for grants.	Natural, Historical and Cultural Resources	Short Term	Town Manager
78. The town should establish a program that provides low-interest loans for façade improvements for private properties located in a designated historic district or along a scenic roadway. These funds should be provided in exchange for a preservation restriction or covenant in perpetuity.	Natural, Historical and Cultural Resources	Immediate	Community Preservation Commission

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
79. The town should institute procedures and train staff in acquiring, storing, and preserving historical records and documents. The town should also consider constructing an Archives Center to stabilize and preserve its historic records.	Natural, Historical and Cultural Resources	Intermediate	Town Manager
80. The town's Scenic Roads Bylaw and administrative procedures should be reviewed to determine whether they are practical, enforceable, up-to-date, and consistent with the practices and operating procedures of the town. Town staff, boards and commissions should be educated in terms of the significance of the bylaw and the permitting procedures that are to be followed.	Natural, Historical and Cultural Resources	Short term	Planning Board
81. The concept of establishing historic districts in North Chelmsford and in South Chelmsford should be further explored. An educational process should be initiated so that citizens understand the significance, restrictions and impact of creating a National Register district vs. a local historic district.	Natural , Historical and Cultural Resources	Long Term	Historical Commission
82. The Town should work with DEP, neighboring communities, residents and environmental organizations to improve environmental conditions and water quality along the town's waterways.	Natural, Historical and Cultural Resources	Intermediate	Conservation Commission
83. Establish an ongoing bicycle and pedestrian safety program as a joint effort between the School Department and the Police Department, in conjunction with the Department of Public Works.	Transportation	Immediate	Town Manager
84. Develop a Bicycle and Pedestrian Plan.	Transportation	Short Term	Town Manager
85. Provide wider shoulders on town roads, where possible, to better accommodate bicycles.	Transportation	Long Term	Town Manager
86. Perform more frequent street sweeping to remove sand and other materials from the shoulders and sidewalks throughout town.	Transportation	Intermediate	Town Manager
87. Provide erosion control along roadways where flooding conditions can deposit debris, creating a hazard for cyclists and pedestrians.	Transportation	Intermediate	Town Manager
88. Incorporate audible signals at signalized intersections, and ensure that all new traffic signals are pedestrian/bicycle actuated.	Transportation	Long Term	Town Manager
89. Erect bike route and "share the road" signs, where appropriate.	Transportation	Intermediate	Town Manager
90. Monitor bicycle/pedestrian crash rates for Chelmsford Street/Route 110.	Transportation	Immediate	Town Manager
91. Continue to participate in the Safe Routes to School Program.	Transportation	Immediate	Town Manager
92. Enhance snow removal on priority sidewalks and enforce the town's snow removal bylaw.	Transportation	Short term	Town Manager
93. Increase the number of bike racks throughout town.	Transportation	Short Term	Town Manager
94. Create additional municipal parking, including designated parking for the Bruce Freeman Rail Trail.	Transportation	Intermediate	Town Manager
95. Require bike racks and sidewalks for new commercial and industrial development projects, where appropriate.	Transportation	Immediate	Planning Board

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
96. The following provisions should be considered as part of the regulatory review process, or through incorporation into newly created design guidelines for development and redevelopment projects: • Require developers to provide sidewalks and streetscape amenities (lighting, bicycle parking, benches, etc.) through the project permitting and approval process; • Encourage traffic calming (physical street features that control vehicle speeds); • Provide bicycle and pedestrian accommodations on new or reconstructed local roads; • Require bike lanes and shared use paths, where feasible, practical and safe; • Provide for access management by limiting curb cuts (consolidating driveways); • Require strong landscaping plans that enhance the pedestrian experience; • While maintaining consistency with the parking requirements under the town's zoning bylaw, limit the size of individual parking areas, breaking large lots into smaller, more pedestrian-friendly landscaped areas with sidewalks and walkways; and • Require adequate internal bicycle and pedestrian site circulation and connectivity to adjacent sites.	Transportation	Short Term	Planning Board
97. Improve maintenance of line painting, striping and pavement markings, where the Town is responsible.	Transportation	Intermediate	Town Manager
98. Strongly promote traffic calming measures, in select areas, using objective criteria.	Transportation	Long Term	Town Manager
99. Provide additional resources for increased enforcement of motor vehicle and pedestrian safety laws.	Transportation	Short Term	Town Manager
100. Address traffic congestion issues, as needed.	Transportation	Long Term	Town Manager
101. Develop a pavement management and asset management program that considers all transportation modes to ensure that street maintenance and repair occur in a timely manner, thereby reducing the need to perform more costly reconstruction.	Transportation	Immediate	Town Manager
102. Inventory traffic signs and upgrade signage to comply with the requirements of the Manual of Uniform Traffic Control Devices (MUTCD).	Transportation	Intermediate	Town Manager
103. Work through NMCOG and MassDOT to address safety issues at high crash locations, to implement the recommendations for Exit 34 outlined in the I-495 Corridor Study, and to study the potential impacts of closing Exit 33 on I-495.	Transportation	Long Term	Planning Board
104. Implement the recommendations for the fifteen special study/ key intersections which are contained in Table 3.30 on page 104 of this document.	Transportation	Intermediate	Town Manager
105. Work with NMCOG to conduct a parking utilization and demand study in the Town Center and Vinal Square.	Transportation	Short Term	Town Manager
106. Update the parking requirements within the town's zoning bylaw to be consistent with current industry standards.	Transportation	Short Term	Planning Board
107. Increase the developer contribution requirements for new parking space additions under Section 53G.	Transportation	Immediate	Planning Board

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
108. The town should work with the LRTA on the following transit service initiatives: • Increase transit access into Westford via the Route 110 route; • Provide more frequent transit service along the town's major roadways including Route 110, Route 4, Route 129 and Route 27; • Expand transit service between the High School and Route 110, Route 129 and Riverneck Road to provide improved access to after-school jobs for students; • Provide additional transit access between the Senior Center and elderly housing; • Provide increased transit service between the town's larger neighborhoods and its major retail and business areas; • Create a transit hub within Chelmsford with shelter and seating; • Establish clearly marked bus stops with shelters, posted route maps and schedules along all bus routes; and • Extend hours of operation later into the evening.	Transportation	Short Term	Board of Selectmen
109. Establish a Transportation Advisory Committee to provide input on transportation- related issues, and to outline a clear process for addressing citizen concerns *(Other section)*	Transportation	Immediate	Town Manager
110. Ensure the continued and timely maintenance of all town and school facilities.	Facilities	Immediate	Town Manager
111. Ensure the continued use of a dedicated fund for the purpose of future capital improvements to the Center and North Town Halls.	Facilities	Short Term	Town Manager
112. Continue to seek options to reduce energy costs and usage such as LED Street Lights and parking lot lighting and Performance Contracting.	Facilities	Immediate	Town Manager
113. Plan for a school building project in 2020.	Facilities	Long Term	Town Manager
114. Identify and implement a long term solution for the Center Fire Station.	Facilities	Short Term	Town Manager
115. Ensure that the new DPW facility is completed on time and on budget.	Facilities	Short Term	Town Manager
116. Plan for Phase II and III of the new DPW facility.	Facilities	Intermediate	Town Manager
117. Plan for the re-use of the existing Richardson Road DPW facility.	Facilities	Intermediate	Town Manager
118. Plan for the relocation of the Dutton House.	Facilities	Immediate	Town Manager
119. Expand the role of the existing permanent Building Committee or create an ad-hoc committee to assist with a comprehensive assessment and needs analysis of recreational facilities and the planning and implementation of future facilities.	Facilities	Short Term	Town Manager

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
120. Continue to utilize the Permanent Building Committee to evaluate space needs for the town, building condition assessments and equipment life cycle analysis to determine long range financial planning of major equipment replacement and large building Capital Expenditures.	Facilities	Immediate	Town Manager
121. Continue to maximize the asset management software to enable a comprehensive predictive maintenance program for the town and to assist with capital planning projections.	Facilities	Immediate	Town Manager
122. Continually look to integrate modernized recreational fields and facilities to reduce potential injuries to school age children.	Facilities	Immediate	Town Manager
123. Consider a full-time grant writer for the town to maximize state and federal funding for the purposes of improving building needs, energy initiatives and infrastructure.	Facilities	Short Term	Town Manager
124. Fully fund the Facilities and DPW departments in order to insure that the maintenance of building and grounds.	Facilities	Short Term	Town Manager
125. Continue to be proactive in the capital planning process. Continue with the capital planning process of allocating a minimum of $2.5 million per year for capital projects.	Facilities	Immediate	Town Manager
126. Consider increasing the $2.5 million annual capital improvement budget to reflect a funding level more in line with the current needs and inflation.	Facilities	Short Term	Town Manager
127. Identify options to increase annual funding for preventative maintenance.	Facilities	Immediate	Town Manager
128. The Town should explore future opportunities to obtain additional sewer capacity as they arise, including potential opportunities to work with the City of Lowell and/or the Town of Billerica.	Services, Housing, Economic Development	Intermediate	Town Manager
129. Undertake a study to determine the feasibility of consolidating and managing the water supply and distribution system within Chelmsford.	Services	Intermediate	Board of Selectmen
130. When feasible, the Town Manager and Board of Selectmen should consider regionalizing additional services in partnership with other communities or NMCOG.	Services	Immediate	Town Manager
131. Consolidate municipal and school functions to the extent feasible, as long as current service levels are not negatively impacted.	Services	Short Term	Town Manager
132. Continue to improve inter-departmental communication and efficiency through technology enhancements and upgrades.	Services	Immediate	Town Manager

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
133. Every two years, evaluate the adequacy of fees charged for municipal services, and where appropriate, base fees on a full cost recovery analysis. Develop a policy to guide fee waiver decisions.	Services	Immediate	Town Manager
134. Periodically review the status, need and charge of all appointed committees, including those with ongoing responsibilities. Committees that have completed their charge should be abolished. Other committees may be reorganized or merged, if appropriate.	Services	Immediate	Town Manager
135. Provide manuals and training, as needed, for standing boards, commissions, and committees to ensure that they have the knowledge and skills to carry out their responsibilities in compliance with federal, state and local laws and regulations.	Services	Short Term	Town Manager
136. Periodically conduct all boards and joint boards meetings to improve coordination and cooperation, streamline the permitting process and to review the state of the town.	Services	Short Term	Board of Selectmen
137. Participate in mutual aid agreements for Public Works, as allowed by recently enacted legislation.	Services	Short Term	Town Manager
138. Recruit 2-3 community-minded individuals to serve as a Volunteer Coordinating Committee to recruit volunteers when needed, maximize the impact of current volunteers, and to coordinate volunteer schedules.	Services	Short Term	Board of Selectmen
139. If the economy and town finances improve, the Town should examine which services can be provided or restored.	Services	Short Term	Town Manager
140. Establish a committee to formulate recommendations for appropriate use of surplus town-owned land.	Services	Immediate	Town Manager
141. Expand and improve recreation programs for town residents, especially for the town's youth. Pursue alternative funding sources and corporate sponsorship as a means of expanding the town's recreation program, and provide an emphasis on offerings for the town's youth. Programs should be structured to take advantage of new technology in order to prevent injuries to sports participants.	Services	Short Term	Town Manager
142. Encourage additional telecommunication and utility providers to offer service to the town, in order to create price competition and improve the variety and quality of services available to residents and businesses.	Services	Short Term	Town Manager
143. Explore the feasibility and cost of providing a guaranteed minimum level of internet access for all town residents.	Services	Intermediate	Town Manager
144. Provide a properly sized, climate-controlled storage facility for town records and artifacts.	Facilities and Services	Intermediate	Town Manager
145. Build upon the partnership with the Chelmsford Housing Authority to create housing through a proactive approach that maintains and increases the supply and diversity of housing in the community.	Housing	Short Term-Intermediate	Board of Selectmen

Recommendation	Applicable Master Plan Elements	Time Frame	Primary Responsibility
146. Explore opportunities for the Town to continue to purchase available property and/or utilize funds from the Community Preservation Act (CPA) to address the community's housing needs. Identify available town-owned properties for potential housing development to meet local needs.	Housing	Immediate	Community Preservation Committee
147. Target the identified Potential Housing sites for development.	Housing	Short Term	Board of Selectmen
148. Develop design guidelines for housing development projects to ensure that the projects are consistent with the neighborhood characteristics.	Housing	Short Term	Planning Board
149. Preserve affordable housing through the retention of expiring affordable use properties where financially feasible.	Housing	Immediate	Community Preservation Commission
150. Prioritize mixed-use redevelopment projects that support the business community and the town's housing goals, and that are consistent with current neighborhood standards.	Housing	Intermediate	Community Development
151. Increase the availability of rental units in the community to address the growing needs of the elderly, young families and special needs populations.	Housing	Intermediate	Community Development
152. Utilize federal and state housing incentives, such as the Community Development Block Grant (CDBG), Chapter 40R and Chapter 40S programs, to expand the availability of housing in the community to meet local needs, Participate in housing rehab programs to support the renovation of older residences.	Housing	Short Term	Town Manager
153. Explore the development of an Affordable Housing Trust to supplement the current resources made available through CPA funds.	Housing	Short Term	Board of Selectmen
154. Update the Town's Affordable Housing Production Plan to be consistent with the new regulations from the Massachusetts Department of Housing and Community Development (DHCD).	Housing	Short Term	Board of Selectmen



PART 2: APPENDIX AND SUPPORTING DOCUMENTATION

Chelmsford Master Plan
Vision Quest 2020

APPENDIX A

Highlights of the Community Visioning Sessions and Public Forums

March 24, 2009 – Community Visioning Session

May 6, 2009 – Business Community Session

June 3, 2009 – Economic Development Session

September 17, 2009 – Transportation, Infrastructure, Services and Facilities

October 7, 2009 – Cultural and Natural Resources, Open Space and Recreation

The Chelmsford Master Plan Committee, the Chelmsford Planning Board and Northern Middlesex Council of Governments (NMCOG) sponsored a series of public meetings for the Chelmsford Master Plan: Vision Quest 2020 update. Community Visioning Session #1 was held on the evening of March 24, 2009, at the Chelmsford Senior Center. The Business Visioning Session was conducted on the evening of May 6, 2009, at the Chelmsford Police Station. A Public Forum was held on June 3, 2009, at the Chelmsford Senior Center. The last two Public Forums were held on September 17, 2009 and October 7, 2009 at the Chelmsford Senior Center. They were publicized in the local newspaper, posted at Town Hall and announced at various town and board meetings.

Visioning Session #1

Chelmsford Senior Center
March 24, 2009
7:00 – 9:00PM

The Chelmsford Vision Quest 2020 session held on March 24, 2009 at the Chelmsford Senior Center provided an opportunity for the public to learn more about the activities of the Chelmsford Master Plan Committee, and to provide input into "grass-roots" planning process for the Updated Chelmsford Master Plan. The Northern Middlesex Council of Governments (NMCOG) was pleased to lead the Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis portion of the program. The SWOT Analysis provided a forum for the approximately seventy (70) attendees to voice their opinions on the strengths, weaknesses, opportunities and threats associated with the Town of Chelmsford, as well as to have this information shared with the general public through the local cable channel.

The opinions expressed by the participants at the Visioning Session are summarized below. Summarized below are the ideas that were submitted by the participants. Participants assigned a point value to each idea based upon the number and color of the dots attached to each idea. As outlined during the session, participants were asked to prioritize the ideas as follows: red (first), green (second), blue (third) and yellow (fourth) and points were assigned to each color – red (4), green (3), blue (2) and yellow (1). Based upon the point totals for each category, the top ten priorities, as outlined by those participating in this session, were as follows:

Chelmsford's Strengths:

- High educational level of residents
- Chelmsford Conservation Commission partnering with local groups
- Education system
- Open space and cultural resources
- Excellent library program
- Value town tradition and events
- Neighborhood focus
- Rail line (accommodate transportation infrastructure)
- Respect for town history
- Historic charm (due to presence of older homes)

Chelmsford's Weaknesses:

- Divided state representation
- Need more support for bicycles on roads
- Three water districts affect aquifer and water resource protection
- Lack of bike routes
- Inadequate Chapter 70 funding for schools
- No long term strategic vision for town-owned properties
- Disconnect between North and South Chelmsford
- State Representation redistricting
- Traffic congestion at Drum Hill and in the town center
- Funding cuts in music and arts programs in the schools

Chelmsford's Opportunities:

- Train station in North Chelmsford
- Embrace alternative energy – solar is cost-effective
- Redistricting opportunities through 2010 Census
- Redevelopment opportunities- UMass West campus, etc.
- UMass Lowell nanotech – potential to partner with UML
- Intermodal transportation through the LRTA
- Mixed-use development
- Open space and green space with trail connections
- Great community, but not promoted
- Establish regional haz-mat facility to pay for fire station

Chelmsford's Threats:

- Inadequate economic development planning
- Chapter 40B – uncontrolled growth
- Neighborhoods threatened (40B, commercial and zoning changes)
- Asphalt plant – truck traffic
- Tax by fee
- Overdevelopment a threat to open space
- Lack of funding for transportation improvements
- Eliminating commuter rail
- Tolls on Rte 3
- Losing talented people to other communities (40B excludes many)

In addition to the input from the visioning session, we received the material from the Master Plan Committee regarding their priorities by specific groups – Cultural, Historical & Natural Resources (CH & NR), Housing (H), Land Use & Zoning (LU & Z), Transportation (T), Economic Development (ED), Infrastructure & Facilities (I & F), and Open Space and Recreation (OS & R). The Master Plan Committee ranked their priorities according to a first, second or third priority and these priorities differed somewhat from the priorities established through the visioning session.

Below is the list of the strengths, weaknesses, opportunities and threats identified by the Master Plan Committee. The abbreviation for the relevant work group follows the specific item. It is

interesting to note that in some cases, more than one group identified the same priority, such as the identification of sewer capacity as a threat by the Housing, Economic Development and Infrastructure and Facilities work groups. The focus of the Master Plan Committee on the specific work groups was designed to assist in developing specific goals and objectives that would support the overall vision of the Master Plan.

Committee Strengths:

Priority 1

- Performing Arts Center at the High School (CH & NR)
- Defined Historical Districts (CH & NR)
- History of Chelmsford (CH & NR)
- Educational and Historical groups (CH & NR)
- Primarily a residential and neighborhood community (H)
- Chelmsford Housing Authority (H)
- Zoning guidelines (LU & Z)
- Good administrative boards (LU & Z)
- Office parks and retail centers (LU & Z)
- Location of highways (T and ED)
- Traffic improvements (T)
- Single tax rate (ED)
- Locally-owned businesses (ED)
- UMass Lowell (ED)
- Drum Hill Master Plan (I & F)
- Permanent Building Committee (I & F)
- Chelmsford Land Stewards (OS & R)
- Variety of Conservation land and open space (OS & R)
- Community Preservation Committee (OS & R)

Priority 1-2

- Diversity of uses (LU & Z)

Priority 2

- Monuments and memorials (CH & NR)
- Senior housing (H)
- Zoning (H)
- Open space (LU & Z)
- Recreational facilities (LU & Z)
- Protection of residential neighborhoods (LU & Z)
- Senior Transportation (T)
- Proximity to Railroad (T)
- Workforce availability (ED)
- Diversity of businesses (ED)
- Chelmsford Business Association (ED)
- Road maintenance (I & F)
- Playgrounds (OS & R)

Priority 2-3

- Lowell Regional Transit Authority (T)
- Special Educational Transportation (T)

Priority 3

- Large development opportunities (LU & Z)
- School capital program (I & F)
- New police station (I & F)
- Waterways (OS & R)
- Boy Scouts (OS & R)

Committee's Weaknesses:

Priority 1

- Maintenance and use of town facilities (CH & NR)
- Lack of water resources (CH & NR)
- Zoning incentives for preservation (CH & NR)
- Lack of Chelmsford Housing Authority housing (H)
- Real estate taxes (H)
- Full range of housing stock (H)
- Design guidelines (LU & Z)
- Lack of redevelopment bylaw (LU & Z)
- Zoning flexibility (outdated zoning) (LU & Z)
- Route 495 off ramps at 110 and North Road (T)
- Speeding (T)
- Vacancy rate (ED)
- Marketing of the town (ED)
- Need for larger commercial tax base (ED)
- Sewer capacity (ED and I & F)
- Business amenities – zoning (ED)
- Center fire station and DPW (I & F)
- North Chelmsford water quality (I & F)
- Parking for Central and Vinal Squares (I & F)

Priority 1-2

- Traffic congestion (T)

Priority 2

- Use of Merrimack River (CH & NR)
- 40B housing development (H)
- Lack of affordable housing zoning (LU & Z)
- Non-motorized transportation (T)
- Lowell Regional Transit Authority (T)
- Commercial traffic (T)
- Back road commuter traffic (ED)
- Aging building stock (ED)

- Building height restrictions (ED)
- State roads, bridges and dams (I & F)

Priority 3

- Unused town halls (I & F)
- Lack of adult recreation (OS & R)
- Too little use of school facilities (OS & R)

Committee's Opportunities:

Priority 1

- Offer more cultural and historical activities (CH & NR)
- Utilization of Performing Arts Center (CH & NR)
- Create and develop preservation plans (CH & NR)
- Better use of Community Preservation Committee funds (CH & NR)
- Promote cultural diversity (CH & NR)
- Mixed-use in overlay districts (H)
- Redevelopment and mixed-use of Central Square and Vinal Square (H)
- Overlay districts for design guidelines and mixed-use zoning (LU & Z)
- Expedited permitting (LU & Z)
- New uses for existing parcels (LU & Z)
- Chelmsford train station (T)
- Alternate transportation (T)
- Traffic calming (T)
- Fast permitting (ED)
- UMass Lowell – West campus (ED)
- Redevelopment zoning (ED)
- Grow commercial base (ED)
- Mixed-use zoning (ED)
- Railroad stop – North Chelmsford (ED)
- Two town halls (I & F)
- Utilities underground (I & F)
- Community Preservation Committee funding (OS & R)
- Education and better use of Open Space (OS & R)
- Freeman Bicycle Trail (OS & R)

Priority 1-2

- Low impact development (LU & Z)
- Drum Hill Master Plan (I & F)

Priority 2

- Re-zoning where appropriate (H)
- Use of Community Preservation Committee funds (H)
- Bylaw review committee (LU & Z)
- Bike and walking trails (LU & Z)
- Energy building standards (LEED) (LU & Z)
- TIF usage (ED)

- Alternative energy (I & F)
- Regionalization (I & F)
- Use of Chelmsford Land Stewards (OS & R)
- Lewis Farm (OS & R)
- Improved zoning (OS & R)

Committee's Threats:

Priority 1

- Lose our sense of history and culture (CH & NR)
- Lack of water (CH & NR)
- Commercial and residential development (CH & NR)
- 40B housing development (H)
- Future affordability of housing (H)
- Sewer capacity (H, ED and I & F)
- Zoning enforcement and neglect of properties (H)
- Overuse of existing land (40B) (LU & Z)
- Loss of agricultural land (LU & Z)
- Traffic congestion (T)
- Lack of funding for traffic law enforcement (T)
- Competition for the same businesses (ED)
- Lack of funding for infrastructure and facilities (I & F)
- Lack of local and state funding for open space and recreation (OS & R)
- Disbanding of Chelmsford Land Stewards (OS & R)

Priority 2

- Lack of state and federal housing funding (H)
- Lack of town services (H)
- Overdevelopment (LU & Z)
- Zoning creep (LU & Z)
- Abandoned buildings (ED)
- Multiple water districts (I & F)
- Commercial and residential development (OS & R)
- Sale of town-owned assets (OS & R)

Priority 3

- Availability of water (H)
- Strip malls (LU & Z)

Visioning Session #2

Chelmsford Police Station
May 6, 2009
7:30 – 9:30PM

On May 6, 2009, the Northern Middlesex Council of Governments (NMCOG) conducted the Chelmsford Business Visioning Session at the Chelmsford Police Station in order to assure that the Chelmsford's business establishments had opportunities to participate in the Master Plan process. NMCOG sent a mailing to the business community and worked with the Chelmsford Business Association, the Greater Lowell Chamber of Commerce and the Master Plan Committee members to inform businesses of the Business Vision session. The input provided by the business community offered a unique perspective from one segment of the population in terms of how the community is viewed. The Vision session was structured to provide an overview of the Chelmsford Master Plan process, describe the economic development section of the plan, and illustrate how it ties in with NMCOG's regional economic development planning process under the Comprehensive Economic Development Strategy (CEDS). Through the participation of the 30-35 business representatives in the Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis portion of the program, we were able to collect their ideas, concerns, suggestions and recommendations on doing business in Chelmsford.

The opinions expressed by the business community at the Visioning Session are summarized below. While the opinions expressed by the business community do not vary that much from those expressed by the participants at the March 24th Visioning Session or the Master Plan Committee members, they appeared to be more focused on what helped them to maintain and expand their business. For instance, under the Strengths, the business community focused upon the town's location, workforce, infrastructure and working relationship with the town. The number of state representatives was identified as a Strength, a Weakness and a Threat. Under the Weaknesses, the business community identified permitting issues before the Planning Board and Zoning Board of Appeals, transportation issues (public transit, parking, traffic, etc.), redevelopment issues, enforcement standards, taxes (vis-a-vis New Hampshire) and housing. The business community identified many Opportunities for the Town of Chelmsford, including funding, internet/WiFi services, the commuter rail station in Vinal Square, redevelopment of various properties in the Center Village and Vinal Square, one-stop permitting opportunities, landscape improvements and networking opportunities through the Chelmsford Business Association and Greater Lowell Chamber of Commerce. The major Threats identified by the business community were local and state taxes, the cost of health insurance, traffic congestion, limitations on the use of land, limited funding and lack of definition by the town as to the types of industries it wants to attract. In conclusion, the business community felt that the Master Plan could create some stability, as well as promoting partnerships with the State.

The following is a summary of all the comments received during the business session.

Strengths

- Proximity to 1-495 and Route 3 and availability of sewer
- Chelmsford Business Association
- Location in region and state
- Professional planning staff at town hall
- Improved communication between the Town and business community
- Variety/depthltypes of businesses: diversity of industry types
- Educated labor force
- Responsive Building Department for permitting and approvals
- Proximity to UMass Lowell
- Single tax rate
- History of high quality of life/livability
- Representative Town Meeting form of government
- Number of state representatives
- Access to commuter rail service

Weaknesses

- Lack of predictability/uniformity from Planning Board
- Excessive parking requirements for businesses over 10,000 square feet
- Use variances, shifted from ZBA to Town Meeting, can take one year
- Being represented by four state representatives
- Length of permitting approval process and timing of board commission meetings
- Lack of enforcement of sign bylaw
- Ad hoc signs on utility poles are not removed in a timely manner
- Existing buildings may not meet current needs of businesses; mismatch between what is available for redevelopment and market demand
- Lack of definition of "center of excellence"; strength and character of the community is not well-defined
- Lack of public transit service to the commuter rail station
- Lack of parking in the Town Center
- Lack of an overlay district along Route 110 and Town Center to support redevelopment; need to address what is allowed by special permit vs. variance
- Need to create overlay district with design standards similar to what is in place in Wilmington
- Lack of undeveloped land zoned for industrial use
- Mixed use is not allowed in Town Center
- Need infill housing
- Lack of foot traffic in business areas
- Disadvantage from a tax perspective due to proximity to New Hampshire
- Town does not hold itself to the same standards as the business community

Opportunities

- UMass Lowell spinoffs and incubator model could be tapped for redeveloping existing buildings
- Verizon FIGS service
- Free WiFi in Town Center

- UMass Lowell Center for Sustainability could assist with efforts to redevelop North Chelmsford
- Grant money under the Green Communities Act
- Grants/monies available through the American Recovery and Reinvestment Act (aka the Stimulus Bill)
- Grant person at Town Hall to identify the various funding sources available
- Commuter rail station in North Chelmsford/opportunity for redevelopment of Vinal Square
- Better pedestrian accommodations in Vinal Square
- Apply Village Center concept to additional areas of town
- Engage interns from colleges and universities with training in planning and public administration
- Redevelop mills in North Chelmsford and redevelop portions of the Town Center
- Redevelop UMass Lowell West Campus
- Sites selected for redevelopment need additional trees and landscape improvements
- Additional landscaping and plantings are needed in the Town Center
- Need to define uses for vacant properties and buildings
- A market study should be considered as part of the Master Plan
- Availability of data lacking, particularly information regarding home occupations/self employed
- Permitting requirements for home businesses should be clarified
- Need one-stop shopping for permitting
- Town-owned property on Wilson Street should be redeveloped under a land lease agreement
- Create a small business center
- Businesses should better utilize networking opportunities through the Chelmsford Business Association and the Greater Lowell Chamber of Commerce

Threats

- Traffic congestion in the town center
- Local property taxes
- Limitations of uses of land, unreasonable landscaping requirements, and limits on density of development
- Chelmsford does not receive its fair share of local, particularly monies received through the state school aid funding formula (Chapter 70)
- Having four state representatives
- State taxes
- Cost of health insurance (for the Town); municipalities should have the same rights as the State to insure their employees through GIC
- Lack of definition of industries desired by the town contributes to conflicts in permitting and zoning
- Health insurance costs for businesses due to a lack of state regulation of the insurance industry in terms of allowed rate increases; perhaps businesses can be allowed to join the GIC

What can the Master Plan do to address your concerns?

- Create stability by focusing on what exists presently, preventing additional urbanization, density and traffic
- Promote partnerships with the State, such as providing additional tax incentives for job creation and seeking state funding to grow local businesses

Visioning Session #3

Chelmsford Senior Center
June 3, 2009
7:00 – 9:00PM

The Public Forum on Land Use/Zoning, Economic Development and Housing, held on June 3, 2009, at the Chelmsford Senior Center provided an opportunity for town residents, officials and the business community to identify their specific concerns regarding these three elements of the Master Plan, as well as to make recommendations on the policies to be considered as part of the Master Plan process. This Public Forum attracted more than sixty (60) participants and resulted in a lively discussion on policy differences related to each element.

The opinions expressed at the Public Forum are outlined below. These opinions and recommendations have been organized according to program element even though some of the opinions or recommendations may have been made out of sequence with the program agenda. For instance, many of the housing issues were raised throughout the course of the evening's discussion. The breakout of these statements by program element will be especially useful to our staff working on each element, as well as for your individual subcommittees.

Many constructive recommendations were made at the Public Forum and will be addressed in the draft Maser Plan sections being developed. It is expected that the draft Economic Development section will be available for discussion at the July 23rd Master Plan Committee meeting, while the draft Land Use/Zoning (August 27th) and Housing (September 24th) sections could be discussed at the identified meeting dates. We will be sending the draft documents to the Master Plan Committee members a week before the scheduled Master Plan Committee meeting and will arrange to meet with the specific subcommittee prior to that meeting. These draft sections will have a list of questions at the end that will help us develop the specific policies for each element. Your assistance in identifying contact people and relevant documents ahead of time, as well as your responses to the specific questions will be helpful to our overall process. We will work with the respective subcommittees to make the overall presentation to the full Master Plan Committee.

Draft Vision Statement:

- The Master Plan should be used as a brand asset management tool for the Town of Chelmsford. Chelmsford can refer to it during the decision-making process.

Land Use and Zoning:

- Conflicts? Chelmsford has approved Hillside Gardens Chapter 40B development ten feet from heavy industrial business (crane business and asphalt plant). The businesses have been a safety buffer zone and the new residential development creates a liability.
- Reissue density regulations? The regulations are not in conflict, open space + housing = a fallacy, density should not be revised.
- Happy about the work of the implementation committee.
- Should include policies of existing Master Plan into the new Master Plan:

- Larger more dense developments do not create a higher quality of life
- Cautious of growth
- Protect town character
- Carefully plan for current undeveloped land to preserve open space.
- Nothing in the current Master Plan about achieving 10% subsidized housing goal.
- Responsible development that is fair and equitable to all residents is needed.

- Upgraded elements:
  - "Optimum and maximum" number of units -those numbers are still the same from the 1996 Master Plan.
  - Chelmsford residents are not happy with growth and land use patterns over the last decade.
  - Need more open space; retain rural characteristics.
  - New construction has not solved any of the Towns problems, it only costs taxpayers more
  - Master Plan Committee must differentiate between types of growth.
  - Chelmsford does not have a strong tax base.
  - Residential development costs the town -$1.30; Commercial/Industrial $.75; Redevelopment -$.50.
- If the town rezones town-owned parcels to multi-family, can it address the 10% goal and not be controlled by developers?
- Town can be proactive rather than reactive, regain control over 40B developers.
- Slow vs. No growth -refute idea that you should not live here if you cannot afford it.
- Re-examine standards on existing zoning map. Ex: 1 acre single family lot regulations.
- Implement 2 acre zoning to raise property values.
- Examine zoning districts and zoning requirements, particularly in the Westlands and North Chelmsford, and revise to be consistent with current neighborhood character and conditions.
- Apply special permit standards rather than requiring variance
- Re-delegate use variances to ZBA, not town meeting (delays changes of use and is antithetical to goals of committee).
- Current standards for redevelopment of sites:
  - Unnecessary and very expensive
  - Makes redevelopment very hard (renovating vs. tear down).
  - Took three extra months for one resident to construct a drainage system.
- Create standards for redevelopment of sites that is less onerous and more progressive; for example, the requirement to handle drainage on site should not apply.
- Affordable housing:
  - Develop an "optional inclusionary" bylaw via Special Permit, in exchange for affordability (perhaps 50% affordable); include developer incentives.
  - Create a redevelopment zoning district (examples include Andover and Lexington)
  - Odd Fellows Building might be a good redevelopment project.
- Renovation and rehab are preferable to demolition and new construction.
- Zoning is a balancing act (reflective standards vs. no change).
- Diversity of housing (what about larger more expansive homes?).

- Example of Seaside, Florida (81 acres): completely walk able community. Cottage communities with 1,000 square foot units, at a density of six units per acre, should be constructed as infill development! as a way to increase affordable housing.
  - Key to concept of development: high density in center with farms on the perimeter.
  - Reduce traffic, promote village concept Ex: development in Westford
  - Much more attractive than 40B
  - Overlay district
- Walk able communities/new urbanism design should be encouraged.
- The Supreme Judicial Court of Massachusetts ruled that communities can prevent development of "McMansions." McMansions were the beginning of the end for moderate-income people. These should be prohibited.
- Mixed-use zoning should be implanted in the Center and Vinal Square to encourage pedestrian and bicycle use.
- Pedestrian, bike and commuter rail station will contribute to economic revitalization of North Chelmsford and Vinal Square
- Mixed-use development should include interconnected green space.
- Mixed-use/urban village concepts should be promoted with higher density residential/commercial/office uses with pedestrian paths.
- Mixed-use, especially in town center.
- Bike paths and sidewalks should be required.
- Redevelopment should occur along Route 110, in Vinal Square, and on town-owned land
- Development on Chelmsford Street should not be encouraged due to impacts on Steadman Street/110 intersection (highest number of crashes).
- Regaining control of building projects, legally very hard to implement own standards and will be subverted by developers.
- Committee should talk to towns that have achieved 10% (40B) to see if they actually are able to stave off additional 40B developers.
- Chelmsford is a town and not a city.
- DHCD 10% requirement is arbitrary and 40B developments will still be built.

Economic Development:

- Town should promote commercial development, but in line with character of town.
- Would like to see more industrial and commercial growth.
- Lack of industrial land, industry is critical to increasing tax base.
- Limited sewer capacity limits growth especially residential development and hinders the town's ability to attract businesses. This should be addressed.
- Responsible commercial and residential development, fair and equitable.
- Policies should promote redevelopment and rehabilitation.
  - Wilson Street Fire Dept site?
  - Rte 3 and 1-495 down to Chelmsford Center has many vacancies and commercial development opportunities.
  - Ball fields -relocate to develop 100 year leases for properties.
- Do not develop ball fields.
- Vinal Square has many prime redevelopment districts.

- Inadequate space for children to play.
- Address traffic congestion.
- Reoccupation of vacant buildings on Route 129 should be addressed.
- Redevelop mills and row houses in North Chelmsford.
- Revise zoning regulations if businesses agree to be an anchor tenant.
- Need to analyze demographics to better understand local and regional market.
- Distribution companies should be encouraged to take advantage of location at the junction of Route 3 and 1-495.
- Actively engage landlords and property owners rather than through generic mailings.
- PILOT program for nonprofit organizations in town.
- Town needs a grant specialist for economic development initiatives -no money for that position at this time.
- Mixed-use zoning on Route 129 should be allowed to improve traffic in the town center.
- Warehouse space on Brick Kiln Road could be used for distribution business (Best Buy)
- Don't turn Rte 129 into Rte 110.
- Why not preserve ball fields as open space?
- Concentrate on occupancy, not new development, especially on Route 129.
- Promote new technologies and revamp town partnerships; boost economic development commitment.
- Encourage more family-friendly businesses and entertainment, e.g. birthday party center, bowling, etc.
- Work with property owners to support start-up companies through incubator space.
- Need to brand Chelmsford

- Rte 129 corridor:
  - Good access and hotel, but a disjointed area
  - Find a high tech anchor business for that area in hopes that it will attract other high tech businesses.
  - Need to attract green technology companies.
  - Green Community: try to site solar facilities on building rooftops to help with the Governor's plan and promote Chelmsford as a renewable community.
  - Increase height limits allowed.
- Eliminate mixed-use restriction on Rte 129. Need services for employees in that area.
  - New strip mall on the other side of Rte 3 in Billerica provides services for Chelmsford businesses. Need to rectify the disjointed look of the corridor.

Housing:

- Need to create additional affordable housing and address income distribution
- 1,400 families, 146 elders, 77 disabled individuals and 43 vets are on the waiting list for affordable housing in Chelmsford.
- Chelmsford Housing Authority recently built 37 additional units for mixed-income residents near the Senior Center.
- Need more rental units and 3-bedroom units.
- Need to serve those at 50% of median (l out of 4 people in Chelmsford are in this income group).

- Accessory units can be counted toward 10% target, but must have a fair way to assign them to those on the waiting list.
- Row housing in Vinal Square could be redeveloped into affordable housing.
- How many names on affordable housing waiting list are people from Chelmsford? 73,000 total 14,000 from town.
- All new residential development should be accomplished through redevelopment in Vinal Square and buy downs.
- Beyond a certain number, residential development is not cost-effective, it becomes a cost burden.
- Residential development should focus on redevelopment.
- North Chelmsford buy downs, apartments above businesses, not new construction.
- Zero listings are affordable to people making 50% of the average median income.
- Waiting list for affordable housing has grown four fold since the 1996 Master Plan.
- All planning will be in vain if people can't afford to live there.
- Review 2005 Affordable Housing Plan and presentation by the Chelmsford Housing Authority.
- Preserving character = NIMBYism, exclusionary zoning =income discrimination.
- Need more rental housing: Chelmsford was just awarded 88 rental vouchers, but there are limited housing units to place the people that receive the vouchers?
- Need rental units with more bedrooms, hard to find 3 bedroom + rental units.
- 1 in 4 residents in Chelmsford are at the 50% AMI mark, the town needs to focus on these people.
- The Town first promoted commercial growth, then residential growth, now 40B.
- Most multi-family development has occurred on commercial/ industrial land.
- Town must balance demand for housing with the demand for commercial and industrial growth.
- It's harder to go back and amend zoning tensions than to plan carefully and avoid conflicts in the future.
- 40 acres in North Chelmsford along Route 3 and Ledge Road should be residentially developed.
- Wanted clarification of the purpose of the Master Plan committee? Should the policies be reflective of the desires of citizens? Then, no new construction.
- Home values: Higher density actually makes housing less affordable for everyone.
- Foreclosure: No options for these folks, single parents with children and divorced families who would like to remain in town.
- Support Housing Authority goals to promote affordable housing in town.
- Demographic changes -Accessory uses in bylaws to encourage the utilization of extra space and support families.
- In some places, accessory apartments can count but must figure out a way to manage a fair waiting list.
- By law review committee needs to be involved.

Public Forum: Transportation, Infrastructure, Municipal Services and Facilities

Chelmsford Senior Center
September 17, 2009
7:00 – 9:00PM

The Public Forum on Transportation, Infrastructure, Municipal Services and Facilities was held on September 17, 2009 at the Chelmsford Senior Center. This Public Forum provided an opportunity for town residents, officials and the business community to identify their specific concerns regarding transportation, infrastructure, municipal services and facilities, as well as to make recommendations on the policies to be considered as part of the Master Plan process. Within the Master Plan, NMCOG will address the transportation and infrastructure issues, while the Town of Chelmsford will deal with the municipal services and facilities issues. Approximately (25) participants attended the Public Forum and there was limited discussion on policy differences related to each element.

The Forum summary is outlined below and expresses the opinions according to each program element. It was surprising that more concerns were not raised about transportation and traffic issues in the community. The comments made related to sewer infrastructure reflected satisfaction with this component, although concerns were raised about the community's future sewer capacity (5-10 years). Recommendations were made on consolidating the three water districts and possibly placing them under the town's supervision, In addition, there was concern raised about the need for more cable/internet/phone service providers in order to reduce monthly fees and provide better customer service. The quality of cell phone service in the community was said to be acceptable. Issues related to municipal facilities and services focused principally upon the need for a new fire station and DPW facility, as well as a stronger capital planning process to address the facility needs of the community in the future. The facility needs of the school system and library were discussed briefly as well. There was not a great deal of discussion related to municipal services.

Many constructive recommendations were made at the Public Forum, which are addressed in this Master Plan.

Transportation

- Need more sidewalks; more students are walking to school due to school bus fees
- Need train station in North Chelmsford
- Phase 2 and 3 of the Bruce Freeman bike path need to be completed
- Need to create bike lanes (3-4 ft.) and add bicycle accommodations along major routes, such as Route 27. Need wider shoulders.

- Need additional parking for the Bruce Freeman Rail Trail -1,400 – 1,600 people use it on the weekend.
- Need to address congestion on Drum Hill Road; re-route traffic destined for Lowell; examine Technology Drive as an alternative route.
- Light on Route 110 at 129 in Center does not function well for vehicles turning left (signal has a leading green phase, according to Jim Pearson)
- Route 3 improvements have not alleviated traffic on Route 4; cut-through traffic destined for I-495 is still a problem
- Unposted speed limits on local roadways are too fast; needs to be 20-25 mph
- Traffic calming techniques should be employed more extensively
- Traffic congestion around the High School is a problem (Old Westford Rd./Davis Rd.) due to buses, cars, pedestrians, etc.

Infrastructure

- Final sewer contract will be issued in October. Once this contract is completed, the entire town will have sewer (Jim Pearson)
- There will be a sewer capacity problem 5-10 years from now; once the tie-ins are complete only 50-100,000/gallons per day (gpd) of capacity will remain. (Lowell contract expires in 2015 or 2016) Lowell has its own capacity issues as well.
- The three water districts should be consolidated and possibly placed under municipal control, which would provide additional benefits to the community
- A third provider of cable/internet/phone service is needed to create competition. Currently served by Verizon and Comcast, but a third company would help to lower prices and provide better customer service.
- Cell phone service is adequate; there are no known dead spots in town.

Services and Facilities

- A capital planning process is needed that looks ahead 5-20 years and factors in inflationary factors, opposed to the $2.5 million that has been budgeted for years for maintenance and related capital costs
- Fire station and DPW facility needs should be the next improvements addressed by the Town
- The schools have many unmet needs which the town must tackle
- The “old house” next to the library needs work—uses for the building should be identified
- The town should never allow the library to lose its accreditation

Public Forum: Cultural and Natural Resources, Open Space and Recreation

Chelmsford Senior Center
October 7, 2009
7:00 – 9:00PM

The Public Forum on Cultural and Natural Resources, Open Space and Recreation was held on October 7, 2009 at the Chelmsford Senior Center. This Public Forum provided an opportunity for town residents, officials and the business community to identify their specific concerns regarding cultural and natural resources, open space and recreation of the Master Plan, as well as to make recommendations on the policies to be considered as part of the Master Plan process. This Public Forum attracted approximately (20) participants and resulted in a lively discussion on policy differences related to each element.

Many constructive recommendations were made at the Public Forum, which are addressed in this Master Plan.

Cultural and Historic

- An initiative is under way to establish a Center for the Arts at the Old Town Hall (in the Center), which will include an art gallery and offices to be rented as studio space for artists, based on a lottery system. The Center for the Arts will be used by the Chelmsford Arts Society, Illumination Opera, Community Jazz Band and others.
- The arts should be supported and encouraged as a means to grow the local economy in conjunction with the Creative Economy activities in the region.
- If a large space were to become available, such as a mill, an Arts District might be possible. This could be similar to Western Avenue in Lowell.
- An "honorific" historic district should be established in North Chelmsford that doesn't have the restrictions of a traditional historic district.
- The schools have an outstanding environmental program; a park was created next to the McCarthy School where UML labeled the trees by species. The schools also maintain the award-winning parks within and around the Parker and McCarthy school area.
- The Library is an important part of the Cultural Community and is the center of cultural life within Chelmsford. There is a strong collaboration with the school system and there is an opportunity for residents to volunteer through www.chelmsfordvolunteers.org . The North Chelmsford Library has fairly limited hours of operation.
- The Gazebo in Vinal Square could be used for concerts.
- The McKay Library has been a concert venue since 1995—concerts are offered on Wednesday evenings during the summer months.
- Art Shows are held at the Library where there is space for two artists to exhibit their work each month. The arts shows are sponsored by the Friends of the Library.
- Speakers and lectures are also given at the Library.
- More than 200 volunteers offer their services within the community.

- The Library holds conversation circles in Spanish, French and Chinese to assist the immigrant community.
- Community service volunteers work at the library through the high school and the court system.
- There is strong collaboration between the Library and the School Department.
- More communication is needed between the Library and the residents in order to better understand community needs; a DVD is available outlining the services offered by the library.
- The Historical Society works to tell the early history of the town.
- The Garrison House and the Fourth of July celebration assist in educating folks about the town history and bring people together to celebrate this history in a way that promotes civic pride and patriotism.
- The hours at the McKay Library need to be expanded to better serve young families.
- Chelmsford Memorial Veterans Park is underutilized. The park was designed to be a place of reflection and nature, and was located near the school in hopes of bringing students to the area in order to appreciate the sacrifices made.
    - Plans are in place to construct a stage within the park.
    - Events take place in the park during the "Flag" holidays.
- The Historical Commission has been inventorying the town's monuments.
- The monuments need to be maintained—one entity should be given this responsibility.
- The Monument at the Triangle in North Chelmsford will be moved to another location.
- Flags flown in Iraq and Afghanistan could be used at the memorials.
- A walking tour of the monuments should be developed.
- There is a need for additional meeting space in town for nonprofits and community groups.
    - Meeting space is now available in the Old Town Hall
- Old Community Newsletter is missed since the size of the publication was reduced.
- Need to focus on intergenerational issues within the community.
- Local cable TV is an asset and should be maintained.
- www.chelmsfordvolunteers.org provides information relative to town-wide volunteer opportunities; a volunteer coordinator is needed for the town
- The Town-wide History Project focuses on preserving historic documents and invites all interested parties to collect and inventory pictures, documents and artifacts; see www.chelmsfordhistory.org.
- The Cultural Council consists of volunteers who help fund local art/cultural projects. Applications are accepted through 10/15/09 for a total of $8,000 that will be distributed.
- Information should be distributed through the mail as a well as online—not everyone has access to a computer.
- Designating a formal historic district in North Chelmsford would impose restrictions on businesses operating within the district, which is a concern for local business owners.
- The reuse of the North Town Hall is key to improving North Chelmsford
    - The Town Meeting approved plan calls for the North Town Hall to be used as a Community Center with a mini-museum and historical exhibits. Approval for the construction of the plan will be sought at Spring town meeting.
    - A digital audio history will be prepared.

- Historic properties that are at risk include 35 Boston Road and the Odd Fellows Building (The Housing Authority could use the Odd Fellows Building for affordable housing.)
- The demolition bylaw has been in place for five years but the town has never had to invoke the 12-month delay. The existence of the bylaw has encouraged property owners to cooperate.
- Moore's Canal-sections of the Canal have been filled to create a bridge. Interpretive signage should be constructed at the Freeman Lake end and at the park by the mill (at Bainbridge's).
- The creation of an "honorific" historic district in North Chelmsford would be a draw for tourists. North Chelmsford has the largest collection of mill era buildings in the Commonwealth (250 buildings).
- If the Barrett-Byam House, Little Red School House, the Garrison House and other historic resources were promoted, there would be economic benefits to the community.
    - An information booth should be established at the Old Town Hall or in the Toll House on the Common (the Toll House was used as an information center in 1955 and 1976).
- The 1802 School House was last renovated in 1976 and needs some structural repairs.

Open Space and Recreation

- The field house at Varney Park is being reconstructed. There should be a connection to the Senior Center and pond.
- Maintenance of open space and recreation facilities is an issue that needs to be addressed.
- The stewardship program has been highly successful (12 properties are now covered by the program) but more resources are needed. The town spends 25 cents per acre on maintenance.
- The CBA, the Garden Clubs and CPC provide some resources for maintenance.
- Labor and maintenance equipment is borrowed and there is no funding available for properties that are under the care and custody of the selectmen.
- The Chelmsford Land Trust, the Conservation Commission, the Police Department, the Fire Department and the Lowell Sportsmen's Club assist with maintenance.
- The Lowell Sportsmen's Club allows camping on the tree farm that they own in North Chelmsford.
- The town should give consideration to how a property will be used and maintained before it is purchased.
- An ADA accessible community garden is being developed.
- Need year-round town-wide recreation facility—should look at the Milford, NH model where the town established a partnership with the business community. Such a facility could be constructed at the High School or somewhere along Route 3.
- The town should acquire and improve the parcel of land between Freeman Lake and the dam (former Boston Ice Company land).
- More facilities are needed for girls sports.
- Better maintenance of athletic fields is needed.
- Need more shared-use bike paths similar to the Bruce Freeman Bike Path.
- Multi-family housing should be constructed with useful and accessible open space that includes trails and walking paths.
- The town should increase its open space by working with residents and developers.

- Covered dugouts and bathroom facilities should be provided at the playing fields.
- The beach at Varney Park should be open to only town residents-there are gang problems there now. There is a need for a ramp from the parking lot to the playground and the beach could use a platform.
- Parcels that have been identified as priority habitat should be protected in order to reduce flooding and improve water quality. These properties should be acquired in fee or a conservation restriction should be imposed. Regulatory boards should restrict development in these areas.
- Wildlife habitat should be preserved to reduce problems with coyotes, deer and other creatures—conflicts with domestic pets are becoming more frequent as habitat is reduced.
- Access to the Ledge Road property should be sought and use for the land should be identified.
- The apple orchard on Westford Road should be acquired and protected.
- The town needs to clarify whether public access exists along Canal Street from Riverneck Road.
- Attention should be paid to aquifer issues in order to protect wells.
- A public swimming pool should be constructed in town, perhaps at the Forum or the High School
- A neighborhood park should be constructed at the Pond Street Beach
- Parking is needed for the bike path and at Deep Brook where only one space is available
- Low interest loans should be provided to sustain farms and protect agricultural land
- The Glenview Sand and Gravel site needs to be addressed in order to protect Black Brook.
- Clinton Avenue at the end of Steadman Street is flooded—closing the sluice on Steadman Street has impaired water quality.
- Land along Route 3 should be reclaimed as a hay field.
- Precinct 6 has a lot of new wetland areas due possibly to increased beaver activity.
- Turtles have disappeared from the area near Smith Street and Black Brook.
- Historic Area Scavenger hunts would generate enthusiasm and educate participants.
- A map of the bike path should be created and made available to residents and visitors.

Other Issues

- Traffic entering and exiting the High School is a problem.
- Safety problems exist at the intersection of Steadman Street and Chelmsford Street—speeding and running red lights.
- No more building should be allowed on Chelmsford Street due to the traffic congestion and air quality issues.
- A leaf drop-off/composting center should be available for residents.

Chelmsford Master Plan
Vision Quest 2020

APPENDIX B

Methodology
2010 Commercial/Industrial
Build Out

Chelmsford Community Development Department
Town Offices
50 Billerica Road
Chelmsford, MA 01824
Phone: 978-250-5231 Fax: 978-250-5232

TO: Master Plan Committee

FROM: Evan Belansky, Community Development Director

RE: Supplemental Data – Commercial / Industrial Parcel Based Build Out - Methodology

DATE: April 2, 2010

In support of Section ??, Land Use and Zoning, specifically sub-section ??, Build Out Analysis, of the 2010 Master Plan, this memo outlines the methodology utilized by the Community Development Department for purposes of conducting the commercial / industrial parcel based build out.

Methodology

1. Based upon 2009 Chelmsford's Assessor's database.
2. Sorted all commercial / industrial parcel based upon assessors' land use code classification as follows:
    a. Commercial
    b. Auto related – dependent
    c. Industrial / Manufacturing

** It is important to note that this method of sorting by land use type, includes parcels that are currently being used for commercial / industrial purposes but are not zoned for commercial / industrial uses.

3. The following were removed:
    a. existing single family and multi-family
    b. Exempt uses such as town owned parcels, State owned, religious
    c. Vacant commercial / industrial
4. For each parcel within each land use type, identified existing Gross area (floor) based upon assessor's database.
5. For each parcel within each land use type, indentified existing land area based upon assessor's database.
    a. Converted original land area from acreage to square feet
6. For each parcel within each land use type, determined individual site Floor Area ratio (FAR) by dividing existing gross floor area by existing land area.
7. For each land use type, determined total gross floor area by summing all parcels.
8. For each land use type, determined total land area by summing all parcels.
9. For each land use type, determined an Effective FAR by dividing # 7 by # 8.
10. For each land use type, determined an AVERAGE FAR by summing individual parcel FAR's, per # 6, and dividing by the total number of parcels.
11. For each parcel within each land use type, determined individual parcel's capacity for additional gross square footage based upon #10.
12. For each land use type, determined total capacity for additional square footage.

SUMMARY OF RESULTS

Per # 2 of the methodology, the following was included in the land use code classifications:

107 of the parcels are occupied by commercial type uses
31 of the parcels are occupied by auto related / dependent uses.
49 of the parcels are occupied by office type uses
88 of the parcels are occupied by industrial / manufacturing type uses

Per # 4 of the methodology, the existing Gross Floor Area for each parcel within each land use type are on file with the Community Development Department.

Per # 5 of the methodology, the existing land areas (sq. ft.) for each parcel within each land use type are on file with the Community Development Department.

Per # 6 of the methodology, the individual site Floor Area Ratio (FAR) for each parcel within each land use type are on file with the Community Development Department.

Per # 7, of the methodology, the following total gross floor area was identified for each land use type:
1.7 million sq. ft of commercial type uses
140,000 sq. ft. of auto related / dependent uses
1.2 million sq. ft. of office type uses
5.1 million sq. ft. of light industrial / manufacturing

Per # 8 of the methodology, the following total land area were identified for each land use type:
10,715,760 sq. ft. (246 acres) of commercial type uses
1,045,440 sq. ft. (24 acres) of auto related / dependent uses
5,009,400 sq. ft. (115 acres) of office type uses
19,166,400 sq. ft. (440 acres) of light industrial / manufacturing

Per # 9 of the methodology, the following Effective FAR's were identified for each land use type:
.18 for commercial type uses
.13 for auto related / dependent uses
.24 for office type uses
.26 for light industrial / manufacturing

Per # 10 of the methodology, the following AVERAGE FAR's were identified for each land use type:
.36 for commercial type uses
.18 for auto related / dependent uses
.34 for office type uses
.29 for light industrial / manufacturing

** The AVERAGE FAR, although higher than the Effective FAR, is a more accurate representative of "on the ground conditions" based upon factors such as actual site characteristics (lot size, environmental constraints), zoning standards, local decisions on discretionary zoning permits and general market forces.

Per # 11 of the methodology, the capacity for additional gross square footage for each parcel within each land use type are on file with the Community Development Department.

Per # 12 of the methodology, the following Capacity for additional square feet were identified within each land use type:

Land Use type	Capacity for Additional Square footage
Commercial	1,360,000 – 1,719,658
Auto related	38,858 – 48,573
Office	381,201 – 476,502
Ind / Manu	325,955 – 407,444
Totals	2,106,014 – 2,652,177

** The additional square footages is presented as a range from a low to a high. The high range represents the totals based upon #11 of the methodology. The low range represents a 20% reduction based upon a variety of "unknown factors" such as site specific characteristics (wetlands), local decisions on discretionary zoning permits and general market forces.

EXAMPLE OF METHODOLOGY

The below table outlines the methodology for auto related / dependent uses. The column and / or cell related to each # of the methodology per labeled.

Map / Block/ Lot	LUC	Street #	Street Name	# 2 Land Use type	#4 Existing Gross Floor Area	#5 Gross Land Area		# 6 site FAR	.18 FAR	# 11 capacity to .18 FAR
15-19-3	3300	176	MIDDLESEX ST	Office Bldg	768	0.365794310	CB	0.05	2,868	2,100
9-10-1	330I	52	TYNGSBORO RD	Auto Sales Rpr	7824	0.938934800	CB	0.19	7,362	-462
8-12-8	331	65	TYNGSBORO RD	Commercial	1841	1.060009180	CB	0.04	8,311	6,470
4-3-4	3310	170	TYNGSBORO RD	Auto Sales Rpr	11118	0.688705230	CB	0.37	5,400	-5,718
8-10-11	3320	112	TYNGSBORO RD	Service Shop	3469	0.378236910	CB	0.21	2,966	-503
14-19-26	3320	164	MIDDLESEX ST	Service Shop	2520	0.487534440	CB	0.12	3,823	1,303
14-19-28	3320	154	MIDDLESEX ST	Service Shop	7220	1.900000000	CB	0.09	14,898	7,678
14-19-29	3320	160	MIDDLESEX ST	Service Shop	2820	0.313429750	CB	0.21	2,458	-362
14-19-31	3320	170	MIDDLESEX ST	Service Shop	2112	0.319100090	CB	0.15	2,502	390
19-59-6	3320	117	PRINCETON ST	Service Shop	3120	0.839325070	CB	0.09	6,581	3,461
19-59-8	3320	123	PRINCETON ST	Service Shop	3708	0.701193760	CB	0.12	5,498	1,790
100-378-4	3320	7	OAK ST	Service Shop	13440	1.000000000	CB	0.31	7,841	-5,599
32-113-2	3320	10	WESLEY ST	Serv Sta 2-bay	2900	0.273393020	CC	0.24	2,144	-756
63-234-1	3320	15	KATRINA RD	Service Shop	13012	2.210009180	IA	0.14	17,328	4,316
100-403-6	3320	293	LITTLETON RD	Service Shop	2998	0.919651060	IA	0.07	7,211	4,213
100-403-7	3320	295	LITTLETON RD	Service Shop	6400	0.965679520	IA	0.15	7,572	1,172
100-403-8	3320	297	LITTLETON RD	Service Shop	12834	0.918273650	IA	0.32	7,200	-5,634
8-12-5	3340	81	TYNGSBORO RD	Gas Mart	3040	2.260009180	CB	0.03	17,720	14,680
27-101-3	3340	5	DRUM HILL RD	Gas Mart	1200	0.290702480	CB	0.09	2,279	1,079
27-101-9	3340	71	DRUM HILL RD	Gas Mart	3896	0.919995410	CB	0.10	7,214	3,318
73-295-18	3340	76	CHELMSFORD ST	Gas Mart	1836	0.862465560	CD	0.05	6,762	4,926
73-322-4	3340	30	CHELMSFORD ST	Service Shop	12614	0.252295680	CD	1.15	1,978	10,636
112-426-1	334S	206	BOSTON RD	Serv Sta 2-bay	1680	0.853994490	CA	0.05	6,696	5,016
124-461-4	334S	371	ACTON RD	Serv Sta 2-bay	2205	0.918273650	CB	0.06	7,200	4,995
32-113-1	334S	100	DRUM HILL RD	Gas Mart	2948	0.656336090	CC	0.10	5,146	2,198
53-203-1	334S	293	CHELMSFORD ST	Serv Sta 2-bay	1746	0.222474750	CC	0.18	1,744	-2
73-295-4	334S	100	CHELMSFORD ST	Serv Sta 2-bay	2405	0.229017450	CD	0.24	1,796	-609
73-301-2	334S	95	CHELMSFORD ST	Gas Mart	912	0.234550050	CD	0.09	1,839	927
84-337-1	334S	8	LITTLETON RD	Serv Sta 2-bay	1581	0.402617080	CD	0.09	3,157	1,576
84-340-1	334S	30	CENTRAL SQ	Serv Sta 2-bay	1629	0.180303030	CD	0.21	1,414	-215
8-11-2	3350	115	TYNGSBORO RD	Car Wash	1872	0.410399450	CB	0.10	3,218	1,346
32-110-12	3350	59	PARKHURST RD	Car Wash	2430	1.089990820	CB	0.05	8,546	6,116
					140,098 **(# 7)**	1,048,171 **(# 8)**		0.18 **(# 10)**	188,671	48,573 **(# 12)**
				EFFECTIVE FAR	0.13 **(# 9)**	136,262				
				AVERAGE FAR	0.18	188,671				

Chelmsford Master Plan
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APPENDIX C

Technical Memorandum

April 1, 2010

CONCORD SQUARE
PLANNING & DEVELOPMENT, INC.

MEMORANDUM

To: Evan Belansky, AICP, Community Development Director

From: Karen M. Cullen, AICP, Principal Planner

Date: April 1, 2010

RE: Report on Zoning Analysis for Redevelopment

Executive Summary

Concord Square has completed an analysis of the Chelmsford Zoning Bylaw as well as parcel and assessor data to provide the Town with recommendations for zoning amendments and ideas for creating new overlay districts to encourage redevelopment of vacant and underutilized commercial and industrial properties throughout the town. We have found there are numerous parcels which would benefit from reduced site design standards, and modifying current permitting requirements would increase the chances that developers seeking redevelopment opportunities in the region would seriously contemplate locating in Chelmsford. There appear to be two primary categories in which parcels can be classified: existing commercial and industrial sites of any size and in any zoning district and small or undersized commercial parcels that cannot meet the stringent site design standards of the zoning bylaw.

Concord Square recommends that two overlay districts be created, one for each of the above mentioned conditions. Within these overlay districts, some or all of the current site design standards could be reduced or eliminated, and uses not currently permitted in the underlying zoning district could be permitted if certain conditions are met (which could include increased buffering, etc.). In addition, we recommend that some of the current site design standards be revised within the current zoning, thus applicable to all development in all districts.

This report addresses each of these issues and offers recommendations on how Chelmsford can deal with them to encourage economic growth and revitalization.

Introduction

Concord Square has prepared this memo in accordance with our contract for services to review the Town of Chelmsford Zoning By-law pursuant to Mass. Gen. Laws Ch. 43D Expedited Permitting. The scope of our review and a summary of our project approach for this work are outlined as follows:

Section 1 Redevelopment policy objectives & benefits of redevelopment
Section 2 Analysis of existing zoning provisions and processes as they apply to redevelopment
Section 3 Case studies to examine the potential result of current zoning on redevelopment projects
Section 4 Recommended amendments to existing zoning that would advance the Town's redevelopment objectives
Section 5 Framework for implementation

Our work scope did not include the preparation of specific zoning language, and it is understood that the Town is in the process of preparing a Master Plan that will lead to recommendations for zoning amendments. It is anticipated that our work will be considered within future discussions of zoning and land use policy reforms to implement the Town's economic development priorities, and this memo was prepared with the intent to support such consideration.

Section 1 – Redevelopment Objectives

Redevelopment Policy Objectives

Chelmsford's planning documents indicate that the Town is interested in facilitating redevelopment of underutilized commercial properties in a manner that enhances the municipal tax base while ensuring that redevelopment meets the Town's standards for design and construction. One of the prioritized actions in the January 2009 *Chelmsford Economic Development Plan* (EDP) is to "encourage the development of underutilized commercial and industrial buildings." Two other goals of importance in the EDP are to "encourage the growth of small businesses in Chelmsford" and to "grow and enhance the village business districts."

The EDP indicates that the Chelmsford commercial tax base has been stable over the past twenty-five years, and has contributed a predictable and substantial portion to the community's local revenue stream. The Chelmsford commercial share of property valuation is the second highest in the Lowell area, next only to Billerica. Commercial growth has continued in recent years, but at a slower rate.

Our intent in this analysis was to determine the extent to which existing permitting processes and requirements may be a disincentive to redevelopment of certain parcels, and to recommend modifications to facilitate such redevelopment consistent with Town planning objectives.

Benefits of Redevelopment

- Increased property values.
- Increased compliance with zoning standards – many sites pre-date current zoning standards such as landscaping, parking, lighting, etc.
- Environmental improvements – many sites have limited or no stormwater management controls or systems, and redevelopment would ensure compliance with DEP stormwater regs to the maximum extent feasible.
- Aesthetic improvements – where none currently exists, the addition of landscaping along public ways.
- Architectural improvements – redevelopment may result in buildings with higher quality architecture that reflects a more appropriate community character.

Section 2 – Analysis

The intent of our analysis was to determine whether the existing zoning provisions and permitting process are appropriate to encourage redevelopment of commercial and industrial properties.

Dimensional and Site Design Standards

There are many sites that could be redeveloped, however, the zoning provisions are such that redevelopment of many of these sites is impractical, if not impossible. Currently, redeveloping a commercial site can be challenging and usually requires several special permits. Our examination of the zoning by-law and the permitting history of prior commercial developments indicates that most of the required special permits for commercial redevelopment pertain to parking and landscaping. These special permit requirements apply even when the proposed use is allowed in a zoning district as-of-right.

One of the stated policy objectives in Chelmsford's planning is to channel new investment toward developed sites and to encourage redevelopment of underutilized sites. However, the existing commercial zoning applies uniformly (in a one size fits all approach) to new development as well as redevelopment, and, because of the issues raised above does not provide positive reinforcement of this policy intent. These standards include lot sizes, parking ratios, and landscaping. Conversely, the Center Village (CV) district seems to have been strategically crafted based upon the unique characteristics of the district and the desired redevelopment objectives. This type of specialized zoning could serve as a model for redevelopment of commercial or industrial properties throughout the town.

Current zoning requirements include specific prescriptive site design standards, and any reductions require a special permit. Often, a domino effect occurs where multiple special permits are needed for a development that does not meet the minimum requirements of one item. Section 4 of this report, Recommended Amendments, will provide details on this. The requirements for parking and loading (Sections 195-16 through 21) and landscaping (Sections 195-41 through 46), while written with good intentions to protect adjacent residential uses, lack flexibility (without a special permit) and inadvertently encourage project designers to design for zoning compliance rather than what makes the most sense for the particular site and it's situation. Furthermore, it is likely that for redevelopment projects, one or more special permits to gain approval of a plan that cannot physically meet all of these parking and landscaping requirements is the rule rather than the exception. This results in there being no predictable outcomes since each special permit decision is based on site specific circumstances and the Special Permit Granting Authority (SPGA) has the discretion to grant approval or not. If everyone must seek special permits to reduce the requirements in one fashion or another, then the zoning requirements themselves are too strict, at least for redevelopment projects on smaller parcels.

Some common challenges for redevelopment proposals include:

- For some parcels, when all the required setbacks and buffers are complied with, the maximum amount of space left for building on is significantly smaller than the FAR standard.
- For sites abutting a residential use or property, an additional 20' side and rear yard is required.
- Site design is often limited to locating the building in the middle of the lot due to the setback and landscaping requirements.
- Requirement for 150' separation between curb cuts is not achievable in many cases.
- Parking lot design can be limited by the restriction that dead-end parking aisles cannot exceed five parking spaces.
- Parking ratios are higher than common standards.

Analysis of Permitting Process

First, a brief discussion of how special permits influence redevelopment is in order. Commercial developers favor by-right permitting (approval by site plan only, without special permits) because of the improved predictability and shorter process that it offers. Not only does this matter for the actual permitting process, it also plays a significant role in a commercial developer's decision whether to pursue permitting in the first place. A developer's initial investment in site acquisition, due diligence and project design is all at risk up until a project is constructed and occupied, and that risk is perceived as substantially greater when one or more special permits are required. The allowance for more by-right development in Chelmsford can be expected to affect the development decisions of commercial entities looking to locate or expand in the region.

Current zoning requirements result in a situation where, for most commercial redevelopment sites, there is no by-right zoning, since virtually all sites will need at least one special permit. This is further complicated by the fact that both the Planning Board and Zoning Board of Appeals act as Special Permit Granting Authorities (SPGA), and sometimes an applicant must submit applications to both for a single project. In addition to special permits for some uses (twelve commercial uses require a special permit from either the ZBA or, less commonly, the Planning Board), special permits are needed to gain some level of variation from standards for design issues. The Planning Board is the SPGA for more than a dozen special permits for things such as nonconforming uses or structures, parking, landscaping, major business complexes (anything over 20,000 square feet GFA in commercial or industrial use), dimensional standards in the Center Village district, and two in the Aquifer Protection district (certain uses and lot coverage). The Zoning Board of Appeals is the SPGA for boundary issues of the Aquifer Protection district, uses or structures in the Floodplain district, and parking garages.

Furthermore, the ZBA serves as SPGA for many by-right uses that exceed a specified sq. ft. threshold per the Use Regulation Schedule footnote #5 which states "A special permit from the ZBA shall be required if more than 10,000 sq. ft. gross floor area is devoted to business use on the premises." This provision is applicable in CB, CC, CD and CV zoning districts for uses such as retail, restaurant and banks.

This results in a review and approval process that is not consolidated, one stop, or streamlined, and furthermore it is confusing to the applicant due to the appearance of overlapping jurisdiction and for some, the need to gain approval from two boards. While it could be argued that this approach allows more Town input to the proposal, it does not necessarily result in a better project – in fact it could weaken the Towns negotiating position since the applicant has the opportunity to present selected information to either Board in order to gain approval. It also creates the potential for the Boards to grant incompatible or conflicting approvals, which requires additional visits to each board to sort it out.

Concord Square's conclusion of this is that the current zoning does not support Chelmsford's redevelopment policy objectives. It also results in too high of a permitting risk, and too low of predictability, for many developers to propose redevelopment projects. This, in turn, results in low numbers of redevelopment projects in town, which either means a low rate of economic growth or a higher rate of development of previously undeveloped sites. To facilitate redevelopment of smaller, underutilized sites, Concord Square recommends providing an option for the Planning Board to grant waivers instead of special permits for some situations, as will be detailed in Section 4 of this report.

We found the Center Village (CV) district to have well written regulations that address the unique characteristics of the district and the Town's development and redevelopment objectives. This type of specialized zoning could serve as a model for regulations governing redevelopment of commercial or industrial properties elsewhere in town.

Section 3 – Case Studies

In order to gauge how existing regulations either advance or impede the Town's redevelopment objectives, we looked at two case studies and evaluated redevelopment options based on the current zoning. For this analysis, we assumed the uses would be retail, so only used one story buildings for our site plans. The zoning dimensional requirements for these case studies are summarized in the table to the right.

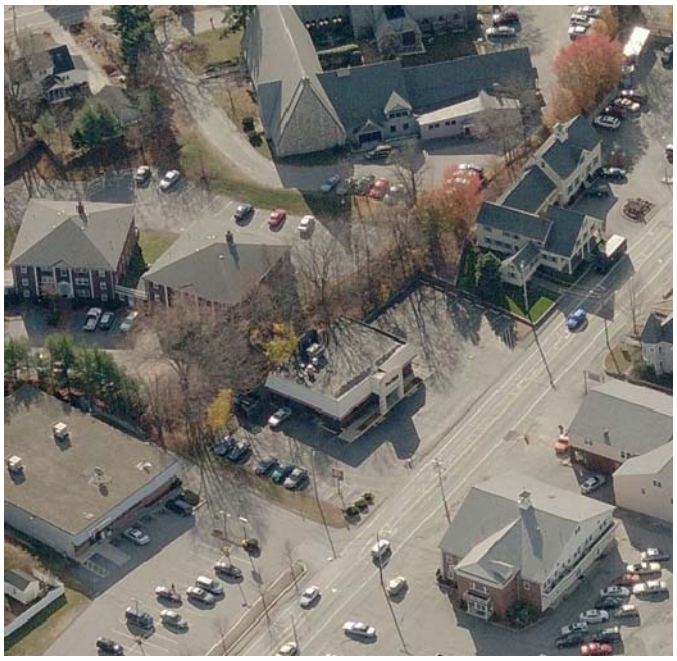
Zoning Requirements		
Case Study:	1	2
Zoning District:	CD	CC
Min. Lot Area:	10,000 sf	100,000 sf
Min. Lot Width:	50'	200'
Min. Lot Depth:	0'	200'
Min. Frontage:	50'	200'
Min. Front Yard:	20'	60'
Min. Side Yard:	10' *	30' *
Min. Rear Yard:	10' *	30' *
Max. Bldg Coverage:	40%	30%
Max. Stories:	4	3
Max. Height:	45'	35'
Max. FAR:	0.45	0.35

** Plus 20' if abutting residential use or zone.*

For each case study, we evaluated site development options given full compliance with zoning, and in some cases prepared alternate development scenarios that do not comply in all respects with current zoning requirements in order to illustrate theoretical development potential while maintaining reasonable site design standards. This was intended to identify potential opportunities for economic development that would not be permitted by existing zoning without significant zoning relief in the form of special permits and in some cases variances.

Case Study 1: 29 Chelmsford Street – Papa Gino's

29 Chelmsford Street is zoned CD, General Commercial. The existing developed site is almost completely impervious and the parking extends to the street. It is an existing Papa Gino's restaurant located in the Center Village/Chelmsford Street area, a commercial corridor that is envisioned within the EDP as a lively, mixed-use village with increased retail and commercial activity.



We created a schematic site plan for this site to evaluate the potential for commercial redevelopment in compliance with the current Zoning By-law (see Figure 1 on next page). The results show a site layout which is fairly inflexible. The zoning requires a 20' parking setback in the front and 19' parking buffer strip in the back and along the southwest property line, because the site abuts a residential use and zone. Because of these restrictions, it would not be possible to place the parking behind the building, which in other cases may be favored to reinforce a village design character. However, if these zoning requirements were loosened, it would provide more flexibility in site design and would allow some of the parking to be placed behind the building.

The maximum allowed building coverage for the site is 40%. However, the combined effect of the parking and setback requirements constrains site development to the point that our site design was only able to achieve 16% coverage of the site.

To design this site with a more creative layout, the applicant would need to receive several special permits under the current zoning including § 195-21 Parking and loading area design and location and § 195 -44 A &C Parking areas.



Note: Location and configuration of internal landscaping is conceptual and intended only to illustrate total landscaped area.

Figure 1

29 Chelmsford Street
Zoning: CD
Lot Size: 24,100 s.f.
Building Footprint: 3,900 s.f.
Required Parking: 19 spaces
Parking Area: 5,700 s.f.
Total Impervious: 9,600 s.f.
Internal Landscaping: 855 s.f.
Buffer Area:11,150 s.f.
Max Building Coverage: 40%
Site Building Coverage: 16%
Loading Berth: N/A (<5,000s.f.)

November 10, 2009

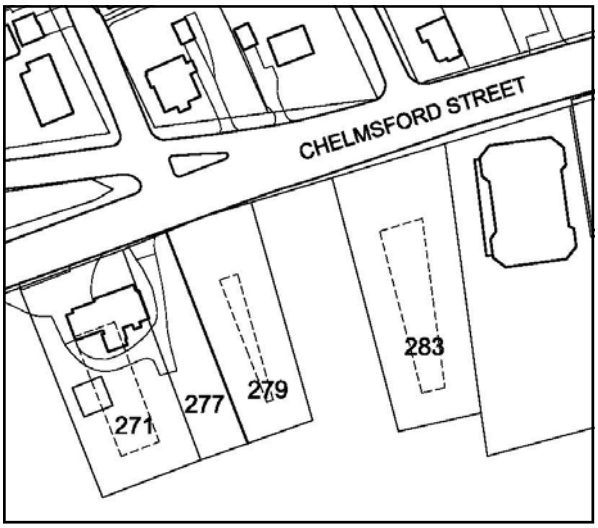
CONCORD SQUARE
PLANNING & DEVELOPMENT, INC.

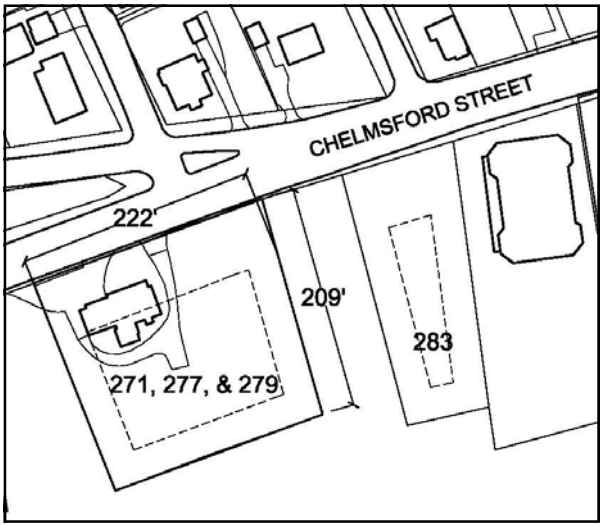
Case Study 2: 271, 277, 279, and 283 Chelmsford Street – Shopping Center Out-Parcels

These four parcels are zoned CC, Shopping Center District. They are in the Chelmsford Street/North area, which the EDP envisions as a location for premier local retail. Three of these sites are currently vacant, the fourth is occupied with a small retail store. All four of these sites are non-conforming with current zoning standards (do not meet the minimum lot size of 100,000 square feet or the minimum frontage requirement of 200 feet), which renders them undevelopable under current zoning unless variances are granted from the ZBA.



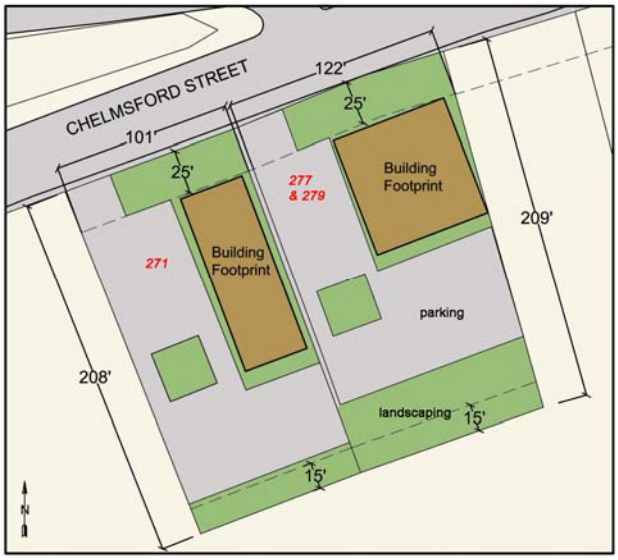
For the purpose of our analysis, we reviewed how the CC setback requirements would affect the study parcels leaving aside for the moment the issues of nonconforming lot area and frontage. The diagrams below illustrate the applicable setback requirements, looking at each parcel individually; and then in the hypothetical instance that the three abutting parcels were to be combined as a single parcel. The dashed lines in these diagrams outline the building envelope area.





The diagrams illustrate that, because these parcels are so narrow, the side yard setbacks and buffer requirements for parking lots would render these sites undevelopable under current zoning.

In our evaluation of an alternative development scenario, we reviewed the effect that a zero lot line for side yards would have on site redevelopment. We felt that this allowance would be reasonable considering the fact that adjacent land uses are commercial, and provided that the Town would retain authority within the permitting process to ensure that lots were designed with consideration of existing or potential future development of adjacent sites. In addition, we believe a reduction in the required front yard setback would give more flexibility in redeveloping the site while creating a strong street edge (see figures below).





Section 4 - Recommendations for Amendments

This section identifies provisions of the Zoning By-law that pertain to commercial and industrial development and provides recommendations on how these sections could be modified, within the context of the proposed overlay districts, to allow for redevelopment without compromising public planning objectives. Zoning amendments should create incentives for redevelopment of previously developed sites as part of Chelmsford's economic development strategy. Concord Square believes that revisions to certain requirements to allow for more flexibility may encourage more creative, attractive site design while advancing the opportunity for private investment and resulting benefits of redevelopment.

The following sections provide a excerpt from the current zoning by-law, and explanation of the issues in regard to redevelopment, and Concord Square's recommendations for addressing the issues.

1. Off-Street Parking

1a. § 195-16 Off-street parking to be provided; common parking areas.

C.(2) "A contract, agreement or suitable legal instrument acceptable to Chelmsford's Town Counsel shall be filed with the application for a building permit, occupancy permit or special permit for exception which shall specify the location of all spaces to be jointly used, the number of such spaces, the hours during the day that such parking shall be available and the duration or limit, if any, on such parking."

Explanation of issue: This language allows but does not encourage shared parking. However, the use of shared parking could offer several public benefits including minimized impervious area, consolidation of curb cuts, and enhancement of the pedestrian environment. The requirement for a legally binding contract is onerous and cost prohibitive for a small development, and in practice would be difficult to enforce.

Recommendations: One way to provide flexibility without creating potential abutter problems would be to allow owners of sites where a limited number of parking spaces to be shared – perhaps up to 10 spaces – to obtain a written agreement with the other owner without it being a formal legal document. The second point here is that if the parking ratio standards were reduced, the number of projects that would need shared parking should decline.

1b. § 195-16 Off-street parking to be provided; common parking areas.

C.(3) "Any reduction in area required for parking because of these joint use provisions shall be reserved in landscaped open space. Such area shall be computed at the rate of 400 square feet per parking space."

Explanation: Per the current zoning, if an owner shares 4 parking spaces with an adjacent owner, each owner will need to provide 1,600 sq. ft. of landscaped open space. It is unlikely that someone will be able to provide this open space if they are having problems meeting the parking requirement in the first place and are looking to share parking spaces with an adjacent owner.

Recommendation: We recommend disregarding this regulation for all parcels in certain areas where parcels are small and commercial development is close together, such as a village or neighborhood center, and instead consider having an open space requirement as a percent of total land area (see Open Space below).

1c. Open Space

Because we are recommending flexibility on landscaping and buffers throughout the zoning by-law, the amount of required open space may end up being reduced. To prevent open space from being eliminated completely, we are recommending adding an open space requirement of 10 or 15 percent of the total parcel area. This will allow more flexibility in design, while still requiring open space areas. This could also decrease the amount of impervious surface of many parcels in Chelmsford (redevelopment of parcels that currently have very little if any open space).

1d. § 195-17 Minimum parking requirements.

Use	Number of Spaces
Stores, retail business and	1 space per 200 square feet of net floor area or a minimum of
Business and professional offices	1 space per 200 sq. ft. net floor area
Fast-food establishments	1 space per 50 square feet of net floor area
Banks, libraries and post offices	1 space per 100 square feet of floor area devoted to public use, plus 1 space per employee

Explanation: The required number of parking spaces for commercial uses are higher than "normal" suburban standards. Many communities nationwide are trying to reduce the amount of impervious surfaces in their developments and are realizing that most of the year many of the parking lots are sitting half empty. In such cases, a reduction in the required parking can provide a benefit by decreasing stormwater runoff from parking lots which leads to non-point source pollution, decrease the micro-climate effects of expanses of pavement, and increase pedestrian safety by minimizing distances from parked vehicles to destinations. For redevelopment, a reduction in the number of required spaces will likely eliminate the need for a special permit, thus increasing the chances that redevelopment will occur.

Recommendation: Concord Square recommends reducing required parking for many of these uses to be more consistent with commercial parking ratios in other suburban communities. Reducing retail parking from 1 space per 200 sq. ft. to 1 space per 250 or 275 sq. ft. would be a reasonable reduction. Likewise, reducing office parking from 1 per 200 sq. ft. to 1 per 350 or 400 sq. ft. would be consistent with national standards. Parking requirements for fast food establishments could be significantly reduced from 1 per 50 sq. ft to 1 per 100 sq. ft. Finally, while banks and such typically have many customers over the course of the day, with modern banking there is no need to require so many spaces, the ratio could be reduced to 1 space per 250 sq. ft. It would be wise to perform a detailed search of parking ratios that Chelmsford is comfortable with, but these figures provide a starting point.

1e. § 195-20 Off-street loading.

"All buildings requiring the delivery of goods, supplies or materials or shipments of the same shall have bays and suitable maneuvering space for off-street loading of vehicles in accordance with the following:

A. Retail stores and services. For each establishment with a net floor area from 5,000 to 8,000 square feet, at least one berth shall be provided. Additional space is required at the rate of one

berth per 8,000 square feet or nearest multiple thereof. Where two or more such establishments are connected by a common wall, such as in a shopping center, common berths may be permitted for the use of all establishments at the rate of one berth space per 8,000 square feet in the entire shopping center.

Explanation: There are 260 parcels that are zoned commercial and are within the EDPA which have buildings on them; the mean building size is 10,247 square feet. 27 of these parcels have buildings between 8,000 and 12,000 square feet. Given the need for parking and landscaping, as well as the questionable need for more than one loading berth for retail businesses smaller than 12,000 (presumably multiple delivery trucks would not be at the site at the same time), it is believed the public good would be better served by allowing retail businesses up to 12,000 square feet to have only one loading berth.

Recommendation: Concord Square recommends an increase in square footage needed before a second loading bay is required, from 8,000 square feet to 12,000 square feet. This amendment should apply to all retail uses regardless of location (don't limit this benefit to any overlay district).

1f. **§ 195-21 Parking and loading area design and location.**

A. "No off-street parking area shall be located within 10 feet of a property line or within 20 feet of a street right-of-way."

Explanation: A 20' setback from the right-of-way can make parking layout options on small parcels challenging.

Recommendation: For parcels in the overlay district we recommend reducing setback requirements for parking to 10' from the street right-of-way, provided the reduced setback is planted with appropriate buffering vegetation.

1g. **§ 195-21 Parking and loading area design and location.**

D. "All required parking areas except those serving single family residences shall be paved, unless exempted on special permit from the Planning Board for such cases as seasonal or periodic use where unpaved surfaces will not cause dust, erosion, hazard, or unsightly conditions."

Explanation: This requirement limits the ability of a property owner to use low impact development types of pavement such as grass pavers, stabilized pavers, or even (arguably) pervious pavement.

Recommendation: We recommend revising the language of this provision to allow pervious pavement in all areas and paver type products in areas or larger parking lots where heavy traffic is unlikely to occur (i.e. the spaces less likely to be occupied on a regular basis). This amendment should apply to all properties, not just those in an overlay district.

1h. **§ 195-21 Parking and loading area design and location.**

G. "No dead-end aisle shall exceed five parking spaces in width."

Explanation: This requirement limits parking options on small or oddly shaped sites and for some, it makes meeting required parking infeasible.

Recommendation: We recommend disregarding this requirement in the overlay districts or changing the requirement to allow for more spaces, say 15, in a dead-end aisle.

***1i.* § 195-21 Parking and loading area design and location.**

J. Parking areas with 20 or more spaces. The following shall apply to entrances or exits to all parking areas with 20 or more spaces:

(1) Entrance or exit center lines shall not fall within 50 feet of an intersection of street side lines or within 150 feet of the center line of any other parking area entrance or exit on the same side of the street, whether on the same parcel or not, if serving 20 or more spaces. Uses shall arrange for shared egress if necessary to meet these requirements."

Explanation: 150' between curb cuts for parking entrances/exits would not be achievable in many places, in fact many existing sites do not conform to this requirement. In addition, many property owners do not want to allow shared access with abutting properties due to liability issues as well as the fear that their parking will be used by the abutting uses.

Recommendation: We recommend relief for owners of pre-existing sites with curb cuts less than 150'. Concord Square suggests a better approach would be to allow the Planning Board to waive the requirement during site plan review rather than require a special permit. This should apply to all sites in town since it is an issue that is not unique to any overlay district.

2. Landscaping and Buffers

***2a.* § 195-43 Property lines – Screening.**

"Property lines with residential uses or districts shall be screened from nonresidential uses by means of plantings or maintenance of trees of a species common to the area and appropriate for screening, spaced to minimize visual intrusion, and providing an opaque year-round visual buffer between uses. Such plantings shall be provided and maintained by the owner of the property used for nonresidential purposes. The buffer area may contain walks, sewerage and wells, but no part of any building, structure or paved space intended for or used as a parking area may be located within the buffer area. Planted buffer areas along property lines with residential districts or uses shall be of the following minimum depth in each district:" [Table lists 10 feet for the CA and CD districts and 30 feet for the CB and CC districts.]

Explanation: In the CB and CC district, a 30' rear or side buffer can make redeveloping smaller lots very difficult. In addition, the zoning requires screening in the form of trees which provide "an opaque year-round visual buffer" which means they should be evergreen trees planted in the following manner, as described in the Planted Areas section of the zoning ordinance:

§ 195-46. E. "Evergreens shall be a minimum of eight feet in height at the time of planting and shall be spaced five feet on center when planted in a single row. When planted in a double row, each row of evergreens shall be spaced 10 feet on center."

Recommendation: We recommend reducing the screened buffer between nonresidential and residential in the overlay district to 15', which is suitable for a row of evergreens. Additionally, there could be an allowance for a reduction in the buffer in exchange for a quality wood fence with landscaping on both sides (to be maintained by the commercial property owner).

***2b.* § 195-44 Parking areas – Landscaping.**

A. "Parking areas with more than 10 spaces shall contain 150 square feet of planted area for every 1,000 square feet of pavement related to parking spaces and aisles. Such planted areas shall be appropriately situated within the parking area and contain an appropriate mix of shade trees and other plants."

Explanation: This means that a planted area of 15% of the total parking area is required.

Recommendation: We recommend a more flexible regulation for landscaping in parking areas in the overlay districts, with the addition of a provision to allow the Planning Board to reduce or waive the requirement for sites that demonstrate it cannot be met (without requiring a special permit).

***2c.* § 195-44 Parking areas – Buffers.**

C. Buffer strips between parking lots and rear or side lot lines shall meet the following specifications:

Up to 10 spaces in parking lot, provide a 10 foot buffer
Between 11 and 24 spaces, provide a buffer of 10 feet plus 1 foot per space over 10
25 or more spaces, provide a 25 foot buffer.

Explanation: A 10'-25' buffer strip in the side yard between two commercial uses is unnecessary, and in areas where the town is trying to encourage a pedestrian environment, it is counterproductive since it forces buildings and uses to be physically separated by too great a distance to establish a "human scale" environment.

Recommendation: For sites in the overlay districts we recommend that if the adjacent uses are commercial, side yard buffer strips should be eliminated. We recommend keeping a 10' buffer in the rear yard. As discussed in item 2a, when a residential use or district abuts a property line, there should be a 15' buffer.

***2d.* § 195-45 Street frontage of nonresidential uses.**

"With the exception of the CA, CD and P Districts, a landscaped buffer area, except for approved accessways, at least 20 feet in width as measured from the layout of the roadway providing frontage shall be established. In the CA, CD and P Districts the required landscaped buffer area shall be 10 feet. The buffer area shall be planted with grass, medium-height shrubs and shade trees. Shade trees shall be planted at least every 35 feet along the road frontage."

Explanation: A 20' landscape buffer fronting the roadway may hinder site design and will keep buildings set far back from the road, creating a repetitive streetscape and diminishing visibility of the commercial use.

Recommendation: We recommend eliminating this requirement in the overlay districts. If an open space requirement is added (see item 1c) it would allow for flexibility in site design while still requiring green space. We recommend keeping the requirement that shade trees be planted at least every 35' along the road frontage, when it is feasible to do so.

***2e.* § 195-46 Planted Areas.**

"Planted areas shall contain an appropriate mix of the following types of plants. Plant species shall be appropriate to proposed use, siting, soils and other environmental conditions. Where the Planning Board determines that the planting of trees is impractical, the permit applicant may substitute shrubbery for trees.

D. Deciduous trees shall be at least two inches in caliper as measured six inches above the root ball at time of planting. Deciduous trees shall be expected to reach a height of 20 feet within 10 years after planting.

E. Evergreens shall be a minimum of eight feet in height at the time of planting and shall be spaced five feet on center when planted in a single row. When planted in a double row, each row of evergreens shall be spaced 10 feet on center. These minimum standards may be reduced by the Planning Board, subject to the recommendation of an arborist, landscape architect, or other competent individual. Areas planted in conformance with this subsection shall, at the time of planting, be deemed to comply with the opacity requirement of § 195-43."

Explanation: These requirements are quite prescriptive and could result in monotonous landscaping.

Recommendation: Concord Square recommends that for paragraph D, replace "reach a height of 20 feet within 10 years" with "reach mature height or a height of 20 feet within 10 years", and for paragraph E, change "eight feet in height" to "six feet in height".

3. Setbacks

***3a.* § 195 Attachment 2: Table of Dimensional Requirements.**

	Districts			
Dimensional Requirements	**CA**	**CB**	**CC**	**CD**
Minimum Lot Requirements				
Area (x 1,000 square feet)	20	40	100	10
Width (feet)	125	150	200	50
Depth (feet)	125	0	200	0
Frontage (feet)	125	150	200	50
Minimum Yard Requirements				
Front (feet)[3]	20	60	60	20
Side (feet)	10[6]	30[6]	30[6]	10[6]
Rear (feet)	10[6]	20[6]	30[6]	10[6]
Maximum Building				
Coverage	15%	30%	30%	40%
Stories	3	4	3	4
Height (feet)	35	45	35	45
Floor area ratio	.45	.45	.45	.45

Footnote 6: Increase by 20 feet where abutting a residentially used or zoned property.

Excerpt of Table of Dimensional Requirements

Explanation: The setback requirements for commercial districts are quite strict and allow for very limited flexibility in site design. The additional side and rear setback of 20' for lots abutting a residentially used or zoned property make site design extremely challenging. In addition, the maximum building coverage of 15% for the CA district seems low, and should likely be increased.

Recommendation: We recommend reducing the front yard building setback to 15', and the side and rear yard building setback to 10', except when abutting residential used or zoned property, when it should be at least 15' (to be consistent with buffers).

Section 5 - Framework for Implementation

The goal of Concord Square's analysis was to recommend zoning amendments that would improve the opportunity for economic development in Chelmsford without compromising the public interest in ensuring reasonable development design. The previous sections discussed the issues that are most likely to create roadblocks to redevelopment and recommendations for zoning amendments to address them. This section will discuss why and how Chelmsford should adopt an overlay district to specifically address redevelopment opportunities.

Why Adopt Redevelopment Zoning?

Based on Sections 1 through 4, Concord Square recommends that one or more "redevelopment" overlay districts could be created to serve the following purposes:

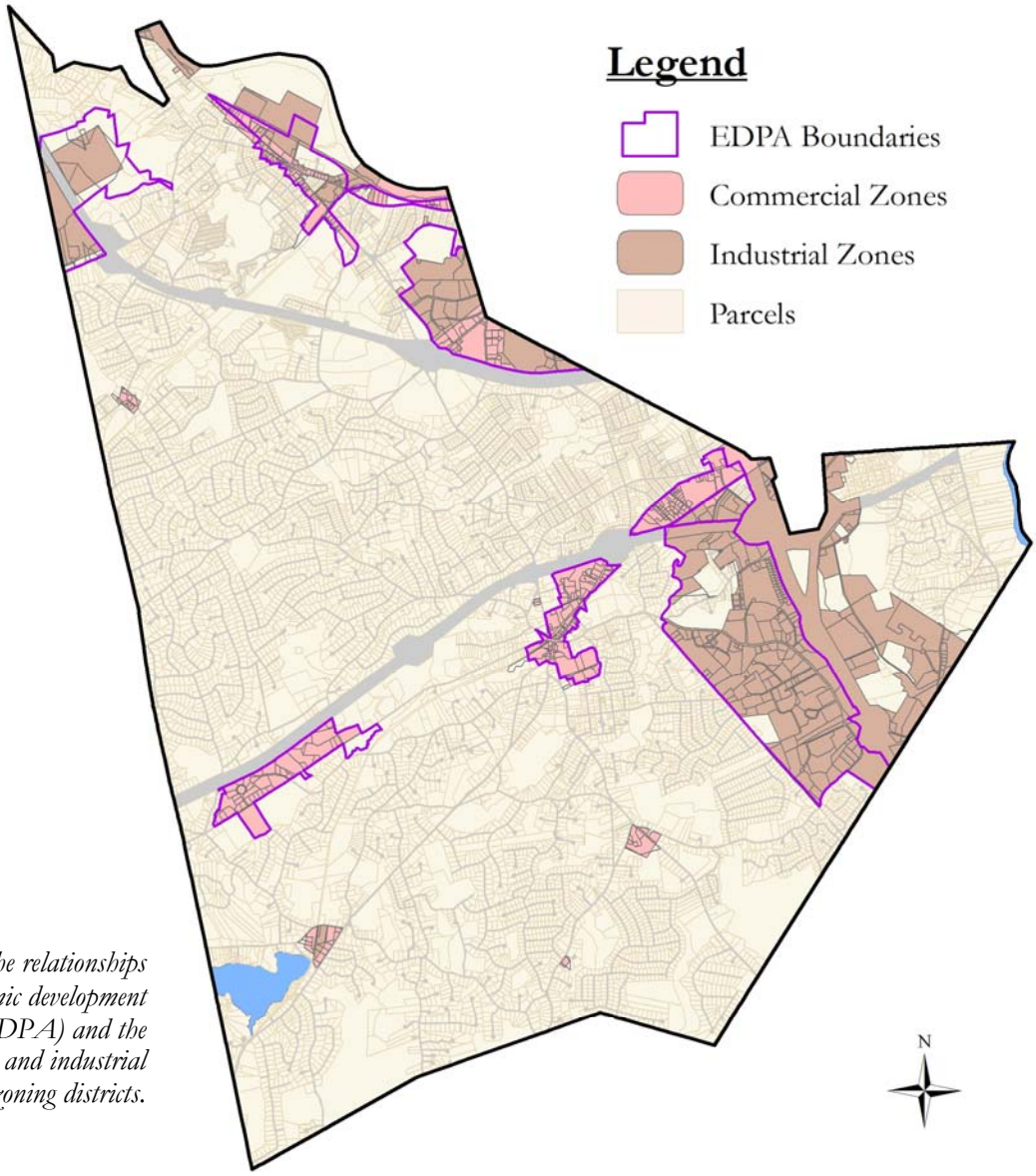
- Achieve benefits of redevelopment
  - Increased property values.
  - Increased compliance with zoning standards—many sites predate current zoning standards such as landscaping, parking, lighting, etc.
  - Environmental improvements – many sites have limited or no stormwater management controls or systems, and redevelopment would ensure compliance with DEP stormwater regs to the maximum extent feasible.
  - Aesthetic improvements – where none currently exists, the addition of landscaping along public ways.
  - Architectural improvements – redevelopment may result in buildings with higher quality architecture that reflects a more appropriate community character.
- Prioritize and incentivize redevelopment of underutilized, abandoned, obsolete, vacant, and nonconforming properties.
- Provide for expedited and/or streamlined permitting.
- Provide for reduced and/or flexible site design standards.
- Provide for by-right uses.

What Types of Parcels Should be Targeted?

Based upon our analysis of the zoning bylaw, case studies and a review of the assessors database, we view commercial and industrial redevelopment opportunities within one of two primary categories:

1. commercial and industrial parcels of any size and in any zoning district and;
2. small or undersized parcels in any commercial zoning district.

A quick GIS analysis shows there are 778 parcels with a total of 1,744 acres in the seven Economic Development Priority Areas (EDPA) from the 2009 Economic Development Plan. A query of the assessor's database finds there are 459 parcels with a use classification of either commercial or industrial, although some of these are multiple parcels in the same ownership and with a single building and parking occupying both parcels. In addition, there are 388 parcels zoned commercial and 330 zoned industrial; 128 of those parcels fall outside the EDPA: 49 are commercial and 79 are industrial. Many of these parcels outside the EDPA are located within the village centers of south Chelmsford. Based on discussions with Chelmsford's Community Development Director, it is understood there are also 28 commercial and industrial parcels that are NOT located in a commercial or industrial zoning districts. The figure on the following page shows the EDPA and the commercial and industrial zoning.



This map shows the relationships of the economic development priority areas (EDPA) and the commercial and industrial zoning districts.

An analysis was done of the parcel sizes to determine what percentage of commercially zoned parcels meet the minimum lot size requirements in the zoning by-law. The results show that on average, 55% of the commercially zoned parcels meet the minimum lot size, or conversely, 45% are undersized and classified as non-conforming and therefore would require significant zoning relief for development or redevelopment. The breakdown by district is:

- CA = 64 parcels, 28 meet 20,000 sf minimum (44%)
- CB = 127 parcels, 69 meet 40,000 sf minimum (54%)
- CC = 44 parcels, 11 meet 100,000 sf minimum (25%)
- CD = 118 parcels, 87 meet 10,000 sf minimum (74%)

Based on this analysis and an analysis of the current zoning, it appears the most significant problems in regard to redevelopment of smaller parcels are the setback, buffer, landscaping, and parking requirements. While somewhat arbitrary, it is believed that parcels less than 30,000 square feet are the most severely impacted by the current standards.

What Types of Projects Should be Applicable?

Based upon the case studies, a review of the assessors database and input from the Community Development Director, Concord Square recommends that the term "redevelopment" be applicable to the following types of projects:

- Proposed modifications or change to an existing commercial or industrial non-conforming use or structure.
- Proposed demolition and re-construction of 50% or more of an existing building.
- Reuse of an existing or former commercial or industrial use, now 50% or more vacant.
- Proposed re-construction of an existing parking lot/area.

What are the Keys for a Successful Redevelopment Bylaw?

In order to prioritize redevelopment and economically incentivize it as the preferred option, the new overlay districts should provide for expedited and/or streamlined permitting, reduced and/or flexible dimensional and site design standards, and for by-right uses. In addition to the recommendations contained in Section 4, the following specific recommendations are provided for consideration:

- Consolidate permitting process into one Board, the Planning Board, for all zoning approvals for commercial and industrial projects.
- Reduce regulatory threshold from special permits to waivers and/or findings for site design standards such as landscaping and parking.
- Permit zero side lot line setbacks for commercial and industrial parcels, for both structures and parking, that do NOT abut residential uses or districts.
- Enhance flexibility for site design standards for commercial and industrial parcels that do NOT abut residential uses or districts.
- Eliminate existing special permits such as Major Business Complex or certain retail over 10,000 sq. ft.
- Allow by-right uses where current zoning requires special permits.

What are the Next Steps?

Concord Square recommends the Town do further analysis on whatever criteria are ultimately chosen for the overlay districts to assist with determining what geographic area will be included. This will be needed to help people gain an understanding of the level of applicability—whether it will apply to a few dozen properties or a few hundred. This analysis will be helpful during the adoption process to allow town officials as well as the Town Meeting representatives to have a full understanding of the potential impacts of the proposed zoning amendments. In addition, such an analysis may lead to the conclusion that the suggested amendments should be applied "across the board" to all commercial and possibly industrial zoning districts.

The Town of Chelmsford is in the process of preparing a Master Plan that will lead to recommendations for zoning amendments; it is anticipated that this report will be considered within future discussions of zoning and land use policy reforms to implement the Town's economic development priorities.

Chelmsford Master Plan
Vision Quest 2020

APPENDIX D

Open Space and Recreation Parcel Inventory

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Permanently Protected Parcels														
PUBLIC LANDS														
State	87	271	1	27.64		Billerica Rd	9240	IA	Permanent	State	Mass DOT	Rt3 mitigation	No	11152 / 95
	87	271	6	7.91		Middlesex Turnpike	9240	IA	Permanent	State	Mass DOT	Rt3 mitigation	No	11152 / 95
	133	475	26	20.60		Proctor Rd	910	RB	Permanent	State	DCR	DEM	No	
				8.82	Bruce Freeman Trail				Permanent	State	Mass DOT	Recreation	Yes	
	4 Parcels		**Total**	**64.97**										
Town	7	4	11	15.67	Deep Brook Reservation	Dunstable Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		
	8	4	10	0.40		Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	12	0.40	Swain's Pond	Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	13	0.40		Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	15	0.52		Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	18	0.40	Swain's Pond	Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	19	0.44		Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	20	0.43		Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	21	0.52		Swan Drive	903V	RB	Permanent	Town	Conservation Commission	Conservation		2088 / 27
	8	4	22	2.89	Swain's Pond	Swain Pond	903V	RB	Permanent	Town	Conservation Commission	Conservation		LCD 63453
	8	10	27	2.35	Frank Brox	Tyngsborough Rd	903V	CB	Permanent	Town	Conservation Commission	Conservation		11212 / 278
	18	41	23	0.52		Willis Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		4876/311
	18	41	25	2.52		Willis Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		4876/311
	18	41	28	0.24		Willis Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		4876/311
	19	48	30	4.00	Freeman Lake / Tax Taking 1970	Shore Dr	903V	RB	Permanent	Town	Conservation Commission	Spillway		1942 / 689
	19	86	1	0.52	Freeman Spillway	Shore Dr,	903V	RB	Permanent	Town	Conservation Commission	Spillway		
	24	98	13	21.00	Stony Brook	Meadow Brook Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		
	36	121	1	37.44	Margaret Robbins Mills/ Crooked Springs Brook Reservation	Crooked Springs Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		1731 / 349
	51	131	9	5.31	Jensen Ave	Jensen Ave	903V	RB	Permanent	Town	Conservation Commission	Conservation		2328 / 249
	64	283	1	14.84	Riverneck Rd Triangle	Riverneck Rd	903V	IA	Permanent	Town	Conservation Commission	Conservation		2045 / 187
	65	271	13	9.25	Middlesex Canal	Riverneck Rd	903V	IA	Permanent	Town	Conservation Commission	Conservation		2220 / 294
	67	168	9	1.60		Gorham St	903V	RB	Permanent	Town	Conservation Commission	Conservation		2099 / 320
	82	320	1	26.23	Lime Quarry	Littleton Rd	903V	RB	Permanent	Town	Town	Conservation		
	82	337	4	0.68	Lime Quarry Reservation	Littleton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		
	83	320	1	25.10	Lime Quarry Reservation	Littleton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		1797 / 242
	83	320	36	6.09		Littleton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2223 / 137

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Town (Con't)	85	324	30	0.51	Lot 14	Winter St	903V	RC	Permanent	Town	Conservation Commission	Conservation		2354 / 137
	85	324	35	0.78	Lot 15	Winter St	903V	RC	Permanent	Town	Conservation Commission	Conservation		2354 / 137
	85	324	44	0.85	Lot 16	Winter St	903V	RC	Permanent	Town	Conservation Commission	Conservation		2354 / 137
	85	324	51	1.01	Lot 17	Winter St	903V	RC	Permanent	Town	Conservation Commission	Conservation		2354 / 137
	87	271	12	20.47	Middlesex Canal	Lowell Tpk	903V	IA	Permanent	Town	Conservation Commission	Conservation		2219 / 740
	92	337	1	6.27	Lime Quarry Reservation	Littleton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2223 / 140
	95	368	11	0.67		11 Harold St	903V	RB	Permanent	Town	Conservation Commission	Conservation		6218 / 67
	95	368	12	0.58		13 Harold St	903V	RB	Permanent	Town	Conservation Commission	Conservation		6218 / 66
	95	368	46	2.15		University Ln	903V	RB	Permanent	Town	Conservation Commission	Conservation		6250 / 135
	97	271	2	1.26	Middlesex Canal	Billerica Rd	903V	IA	Permanent	Town	Conservation Commission	Conservation		6761 / 165
	102	357	1	8.23	Robin Hill Reservation	Acton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2380 / 170
	102	357	6	11.73	Robin Hill Reservation	Summit Ave	903V	RB	Permanent	Town	Conservation Commission	Conservation		2329 / 302
	102	357	8	2.32		Summit Ave	903V	RB	Permanent	Town	Conservation Commission	Conservation		2329 / 302
	102	357	9	8.85	Robin Hill Reservation	Acton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2329 / 302
	102	357	16	1.89	Robin Hill Reservation	Locust Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2329 / 302
	102	410	3	30.74	George B.B. Wright Reservation	Parker Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		1858 / 648
	104	387	5	1.54		University Ln	903V	RB	Permanent	Town	Conservation Commission	Conservation		6250 / 134
	108	428	13	1.05		Alcorn Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		04928 / 0144
	108	428	21	5.42	Deed 1989	Lori Ln	903V	RB	Permanent	Town	Conservation Commission	Conservation		04928 / 0144
	109	421	32	14.00	Community Gardens	168 Robin Hill Rd.	903V	RB	Permanent	Town	Selectmen		Yes	
	109	421	36	8.52	Community Gardens	Robin Hill Rd.	903V	RB	Permanent	Town	Selectmen		Yes	
	110	410	2	1.25		10 Dewolf Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	410	4	0.97		15 Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	410	5	1.15		8 Dewolf Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	5	1.11		Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	7	9.96	George B.B. Wright Reservation	Old Stage Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	9	1.22		Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	10	2.15		Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	18	1.32	Deed 1973	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	21	1.61	Deed 1973	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	25	0.97	George B.B. Wright Reservation	14 Crockett Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	110	415	28	0.96	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	34	0.93	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	37	0.91	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	42	0.94	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	30	0.95		Green Valley Dr,	903V	RB	Permanent	Conservation	Conservation Commission	Conservation		
	110	415	47	0.94	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Town (Con't)	110	415	49	0.93	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	54	0.92	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	415	55	1.32	George B.B. Wright Reservation	Topeka Dr	903V	RB	Permanent	Town	Undesignated	Conservation		LCD 66962
	110	415	56	0.92	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	110	429	3	1.52		Burning Tree Ln	903V	RB	Permanent	Town	Undesignated / Town	Power Lines		0274 / 718
	110	433	1	1.13	George B.B. Wright Reservation	11 Dewolf Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		20741 / 718
	110	433	2	0.91	George B.B. Wright Reservation	9 Dewolf Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		20741 / 718
	110	433	7	6.21		Burning Tree Ln	903V	RB	Permanent	Town	Town	Power Lines		2074 / 718
	110	433	8	1.02	George B.B. Wright Reservation	21 Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	111	412	34	5.60	George B.B. Wright Reservation	Old Stage Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	111	412	76	2.24		Stage Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		8919 / 155
	115	437	14	3.10		Parkerville Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2444 / 621
	116	393	14	12.56	Redwing Farm / Deed 2002	Maple Rd	903V	RB	Permanent	Town	Conservation Commission	Redwing Farm		13881 / 6
	118	415	1	0.79	George B.B. Wright Reservation	Old Stage Rd & Sierra Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	118	415	3	1.06	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	118	415	4	0.93	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	118	415	8	1.00	George B.B. Wright Reservation	Green Valley Dr	903V	RB	Permanent	Town	Conservation Commission	Conservation		2074 / 718
	118	415	12	0.92	George B.B. Wright Reservation / Deed 1959	9 Sierra Dr	9030	RB	Permanent	Town	Conservation Commission	Conservation		4992 / 36
	118	451	6	0.41	George B.B. Wright Reservation	Sierra Dr & Bonanza	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	118	451	22	0.53	George B.B. Wright Reservation	Dakota and Bonanza Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	118	460	5	7.35	George B.B. Wright Reservation	El Dorado Rd	9030	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	119	450	12	4.37	George B.B. Wright Reservation	Concord Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145/431
	121	431	1	132.00	Murphy Field/ Town Forest	Mill Rd	903V	RB	Permanent	Town	Town	Recreation		
	121	431	4	1.37	Execution 1976	South Row St	903V	RB	Permanent	Town	Conservation Commission	Conservation		6250 / 136
	124	461	3	2.83	Deed 1976	Acton Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2227 / 100
	124	463	2	1.82		Pond St.	903V	RB	Permanent	Town	Board of Selectmen	Recreation		23008/292
	124	468	15	0.30		Pond St.	903V	RB	Permanent	Town	Board of Selectmen	Recreation		23008/292
	126	477	3	7.00	George B.B. Wright Reservation	El Dorado Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		2145 / 431
	127	450	1	13.20	Concord Rd Forest	Concord Rd	903V	RB	Permanent	Town	Town	Recreation		
	128	446	2	2.18	Deed 1967	Cambridge St	903V	RB	Permanent	Town	Conservation Commission	Conservation		1791 / 540
	128	446	36	0.57	Thanksgiving Ground Forest	Janet Rd.	903V	RB	Permanent	Town	Town	Recreation		
	128	446	40	23.12	Thanksgiving Ground Forest	Concord Rd	903V	RB	Permanent	Town	Town	Recreation		
	128	446	44	0.32	Thanksgiving Ground Forest / Deed 1962	Gary Rd	903V	RB	Permanent	Town	Conservation Commission	Conservation		1583 / 568
	128	446	51	6.00	Thanksgiving Ground Forest / Deed 1962	Concord Rd	903V	RB	Permanent	Town	Town	Recreation		1583 / 568
	132	462	15	180.00	Cranberry Bog Reservation	Acton Rd	9030	RB	Permanent	Town	Conservation Commission	Conservation	No	0384 / 0244

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Town (Con't)	135	446	1	4.73	Thanksgiving Ground Forest / Deed 1962	Concord Rd	903V	RB	Permanent	Town	Town	Recreation		1583 / 567
	135	446	2	11.00	Thanksgiving Ground Forest / Deed 1962	Concord Rd	903V	RB	Permanent	Town	Town	Recreation		1583 / 566
	100 Parcels		**Total**	**778.11**										
Water Districts	29	125	1	1.83		Jordan St	9200	RB	Permanent	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	93	357	51	0.94		Reservoir Rd	903V	RB	Permanent	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	2 Parcels		**Total**	**2.77**										
Conservation Restriction	125	443	1	5.06	Kroll/ Calder/ Larter Pasture	Proctor Rd	903V	RB	Permanent	Conservation Commission	Conservation	Conservation Restriction		62861 / 45
	1 Parcel		**Total**	**5.06**										
Total Permanently Protected Public Parcels				**850.91**										
PRIVATE LANDS														
Chelmsford Land Trust	83	336	1	10.07	Bartlett Woodlot	Acton Rd	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	83	336	2	0.36	Bartlett Woodlot	Acton Rd	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		01655 / 0493
	83	337	15	1.94	Miriam E. Warren Wetlands Preserve	Littleton Rd	9030	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	83	337	16	0.33	Miriam E. Warren Wetlands Preserve	Littleton Rd	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	83	337	17	0.74	Miriam E. Warren Wetlands Preserve	Littleton Rd	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		
	84	343	1	3.25	Bartlett Park	9 Bartlett St	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	92	336	3	9.00	Bovey Memorial Woodlot	High St	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	92	383	1	1.15	McDermott / Bovey Woodlot	High St	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	92	383	2	0.71	McDermott / Bovey Woodlot	High St	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	92	383	7	0.93	McDermott / Bovey Woodlot	4 Ray Hill Dr	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Chelmsford Land Trust (Con't)	94	368	12	12.74	Archer Meadowbrook Preserve	17 East Putnam Ave	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	117	443	18	9.06	Kroll/ Calder/ Larter Pasture	Proctor Rd	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation Restriction		6286 / 45
	128	446	1	24.00	Warren Wildlife Sanctuary	Boston Rd	903V	RB	Permanent	Chelmsford Land Con TR Inc.	Chelmsford Land Con TR Inc.	Conservation		03690 / 0007
	13 Parcels		**Total**	**74.28**										
Conservation Restriction	37	130	2	3.50		Old Farm Way	1320	RB	Permanent	Sack Roberts TRS ETAL	Private	Conservation Restriction	No	6846/ 95
	37	130	6	8.60		Old Farm Way	1320	RB	Permanent	Sack Roberts TRS ETAL	Private	Conservation Restriction	No	6846/ 95
	49	206	36	4.60	Talbot Cluster Subdivision	Hornbeam Rd			Permanent	Talbot Estates Homeowners	Private	Conservation Restriction	No	13055/ 286
	106	391	3	4.59		Mill Rd	1320	RB	Permanent	Lyons II Elmer H. TR	Private	Conservation Restriction		7505/ 127
	111	412	26	5.41		Brittany Ln	130V	RB	Permanent	Kayla Estates Trustee	Conservation	Conservation Restriction		8033 / 85
	112	425	7	14.88	Red Wing Farm	Arthur Ave	1320	RB	Permanent	Charles Wojtas Trustee	Conservation	Conservation Restriction		10424/254
	118	449	1	8.79		Farley Brook Rd	1320	RB	Permanent	Dorobiala Lee Metals TRS	Private	Conservation Restriction		7194/ 244
	127	450	15	9.80		Trailside Dr	1320	RB	Permanent	Flaherty Joseph TR	Private	Conservation Restriction	Yes	7980/ 296
	138	484	26	5.80		Arrowhead Cr	1320	RB	Permanent	Caraco Joseph ETAL TRS	Private	Conservation Restriction		5864/ 64
	9 Parcels		**Total**	**65.97**										
Total Permanently Protected Private Land				**140.25**										
Total Permanently Protected				**991.16**										

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Limited and Unprotected Parcels														
PUBLIC LANDS														
State	32	116	3	0.72		Parkhurst Rd	9240	IA	Unprotected	State	Mass DOT	Vacent Land	No	11152 / 95
	98	271	2	8.00		123 Brick Kiln Rd	9170	IA	Unprotected	State	Umass Lowell	Vacant / Wetlands	No	2453 / 408
	102	357	14	0.06	Robin Hill Tower	30 Summit Ave	910	RB	Unprotected	State	DCR	DEM	No	585/40
	3 Parcels		**Total**	**8.78**										
Town	2	1	4	0.74	Tax lien 1993	329 Dunstable Rd	903V	RB	Unprotected	Town	Undesignated / Town			7718 / 6
	3	3	1	0.13	Tax lien 1993	Mission Rd	903V	CB	Unprotected	Town	Undesignated / Town			6218 / 65
	3	8	8	0.21		Dunstable Rd	903V	RB	Unprotected	Town	Undesignated / Town			1943 / 126, 129
	6	4	21	0.07	Tax Lien 1987	Ledge Rd	903V	RB	Unprotected	Town	Undesignated / Town			04822 / 0011
	7	4	46	1.74		Oak Hill Rd	903V	RBI	Unprotected	Town	Undesignated / Town			2153 / 302
	9	6	2	26.00	Southwell Park	Middlesex St	903V	IA	Limited or Unprotected	Town	School Dept	Southwell Field	Yes	01895 / 0412
	9	12	4	10.80	1998 purchase	Tyngsborough Rd	9030	IA	Unprotected	Town	Undesignated / Town			9111 / 137
	10	4	1	0.47		Groton Rd	9240	IS	Unprotected	State	Mass DOT		No	11152 / 95
	11	4	1	66.37	1998 purchase	Dunstable Rd	9030	IS	Unprotected	Town	Town			9111 / 130
	11	4	5	16.76	Swain Rd Dump	40 Swain Rd	903V	CX	Unprotected	Town	Selectmen	Landfill		804 / 193
	11	4	6	1.75	Lowell Sportsmen Club 1987	Swain Rd	903V	RB	Limited or Unprotected	Town	Town			04293 / 0284
	11	4	15	0.27	Swain Rd Dump	Groton Rd	903v	CX	Unprotected	Town	Undesignated / Selectmen	Landfill		01993 / 0021
	11	4	18	0.18	Swain Rd Dump	Groton Rd	903V	CX	Limited or Unprotected	Town	Undesignated / Selectmen	Landfill		04352 / 0234
	11	4	19	0.21	Swain Rd Dump	Groton Rd	903V	CX	Limited or Unprotected	Town	Undesignated / Selectmen	Landfill		04352 / 0233
	11	4	20	0.24	Swain Rd Dump	Groton Rd	903v	CX	Limited or Unprotected	Town	Undesignated / Selectmen	Landfill		
	11	4	21	0.37	Swain Rd Dump	Groton Rd	903v	CX	Limited or Unprotected	Town	Undesignated / Selectmen	Landfill		04532 / 0231
	11	4	22	0.28		Groton Rd	903V	RB	Limited or Unprotected	Town	Undesignated / Town	Landfill		4532/230
	12	4	3	2.07	Swain's Pond	Swain Rd	903V	RB	Limited or Unprotected	Town	Town	Landfill		04293 / 0284
	12	30	1	0.03	tax taking	Wood St	903V	RC	Unprotected	Town	Undesignated/ Selectmen	Vacant Land		9992 / 48
	12	30	10	0.21	Varney Playground	Adams St	9030	RC	Limited or Unprotected	Town	Varney Playground	Recreation	Yes	

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Town (Con't)	13	30	4	6.78	Varney Field	25 Adams St.	903V	RC	Limited or Unprotected	Town	School Dept.	Recreation	Yes	
	13	30	5	0.06		Sherman St	903V	RC	Limited or Unprotected	Town	Undesignated / Town	Park		
	13	31	1	0.40	North Common	Princeton/ Middlesex St	903V	CD	Limited or Unprotected	Town	Undesignated/ Selectmen	Common	Yes	
	17	82	23	0.49		0 Main St	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	2153/ 302
	17	89	1	0.34	Chelmsford High School	Richardson Rd	903V	RB	Limited or Unprotected	Town	School Dept	High School	Yes	
	18	41	1	27.80	Parker Middle School	75 Graniteville Rd	9033	RB	Limited or Unprotected	Town	School Dept	Parker School	Yes	
	18	41	3	0.01	Tax Lien 1959	Willis Dr	9030	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	1456/ 240
	18	41	21	0.02		Willis Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	7055/ 296
	18	48	1	12.55		54 Richardson Rd	9030	RB	Limited or Unprotected	Town	Selectmen	DPW	No	
	18	48	38	0.10		Mallory St	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	1077/ 483
	18	66	6	0.25	Tax Lien 1992	Second Ave	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	6608/ 121
	18	71	8	0.03		Third Ave	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	8452/ 260
	18	75	13	0.06	Tax Lien 1993	Fourth Ave	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	6438/ 290
	18	76	5	0.06		Main St	903V	RB	Unprotected	Town	Undesignated / Town			2224 / 377
	18	83	1	13.86	Harrington School	120 Richardson Rd	9033	RB	Limited or Unprotected	Town	School Dept		Yes	0002 / 0002
	18	83	17	0.06	Tax Lien 1993	Seventh Ave	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land		6456/ 338
	18	83	18	0.06	Tax Taking 1975	Seventh Ave	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	02153/ 0300
	18	83	19	0.03		Seventh Ave	903V	RB	Unprotected	Town	Undesignated / Town			02224 / 0377
	18	83	28	0.03	Tax Taking 1975	Eighth Ave	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	02153/ 300
	18	83	30	0.06	Tax Taking 1975	Eighth Ave			Unprotected	Town	Undesignated/ Selectmen	Vacant Land		
	18	94	2	0.08	Freeman Lake	Shore Dr	903V	RB	Unprotected	Town	Undesignated / Town			1741 / 565
	19	48	31	1.40		0 Taunton St	903V	P	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	
	19	48	34	0.10		Mallory St	9030		Unprotected	Town	Undesignated/ Selectmen	Vacant Land		03041/ 0053
	19	87	1	2.00		Shore Dr	903V	RA	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	
	20	50	25	3.03	Highland Field	Princeton St	903V	RB	Limited or Unprotected	Town	School Dept.	Recreation	Yes	
	20	50	28	0.03	Tax Taking 1975	Eighth Ave	903V	RB	Unprotected	Town	Undesignated / Town			02153 / 0300
	20	50	30	0.06	Tax Taking 1975	Eighth Ave	903V	RB	Unprotected	Town	Undesignated / Town			02153 / 0300
	23	92	9	0.41		0 Groton St			Unprotected	Town	Undesignated/ Selectmen	Vacant Land		
	23	98	1	0.46		Meadowbrook Rd.	9200	RB	Limited or Unprotected	State	Mass DOT		No	15291/226
	23	99	6	1.06	Tax Lien 1986	0 Meadowbrook Rd	9030	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	03452/ 0256
	23	99	7	0.93	Tax Lien 1986	17 Meadowbrook Rd	9030	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	03452/ 0257
	24	48	10	7.00	Tax Lien 1989	Twiss Rd	903V	RB	Unprotected	Town	Undesignated / Town			6523 / 150

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Town (Con't)	24	48	32	0.10		Shore Dr	9030	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	06041/ 0054
	24	48	39	0.11	Tax Lien 1992	Shore Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	6218/ 59
	24	48	41	0.10	1998	Shore Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	9219/ 97
	24	48	52	0.05	Tax Lien 2000	Shore Dr			Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	11227/ 296
	24	48	53	0.11		Elton St			Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	
	24	48	54	0.14		Elton St	903V		Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	
	24	94	2	0.20	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	Yes	03862/ 0223
	24	94	3	0.09	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	Yes	0386/ 223
	24	94	5	0.10	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	Yes	03862/ 223
	24	94	7	0.03	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	Yes	03862/ 223
	24	98	1	1.26	Shore Drive	Shore Dr	903V	RB	Unprotected	Town	Undesignated / Town	Vacant		
	24	98	4	0.01	Sliver off Rte 3	Meadow Brook Rd	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	
	24	98	10	5.85	Stony Brook RR	Meadowbrook Rd.	9030	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	1043/ 574
	24	98	12	0.10	Freeman Lake / Tax Lien 1957	Mallory St	903V	RB	Unprotected	Town	Undesignated / Town			01456 / 0240
	24	98	19	0.01		Meadow Brook Rd	903V	RB	Unprotected	Town	Undesignated / Town			
	25	111	1	0.34	Sliver along Rte 3/ deed taking	0 Richardson Rd			Unprotected	Town	School Department	Vacant Land	No	1786/ 37
	26	93	2	0.20	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated / Town	Freeman Lake		03862 / 0223
	26	93	3	0.09	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated / Town	Freeman Lake		0386 / 223
	26	93	5	0.10	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated / Town	Freeman Lake		03862 / 223
	26	93	7	0.03	Deed 1986	Shore Dr	903V	RB	Unprotected	Town	Undesignated / Town	Freeman Lake		03862 / 223
	26	93	9	12.00		No road frontage	903V		Unprotected	Town	Town			9556 / 164
	26	93	11	1.10		North Rd	903V	RB	Unprotected	Town	Town	Vacant	Yes	9556 / 164
	28	92	14	22.85	Tax Lien 1992	Main St	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	6238/ 162
	29	104	1	8.02	Deed 1976	Meadow Brook Rd	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	2181/ 676
	29	112	17	0.11		85 Meadowbrook Rd	903V		Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	10461/ 246
	29	124	1	1.50	Strawberry Hill Field	Jordan St	903B	RB	Unprotected	Town	Town	Recreation	Yes	
	30	111	2	16.29		120 Richardson Rd	903V	RB	Limited or Unprotected	Town	Town	High School		1906 / 408
	31	111	1	18.11	Chelmsford High School	200 Richardson Rd	9033	RB	Limited or Unprotected	Town	School Dept		Yes	0001 / 0001
	31	111	2	34.42	Chelmsford High School	Old Westford Rd	903V	RB	Limited or Unprotected	Town	School Dept		Yes	1852 / 575
	31	111	3	23.88	Chelmsford High School	Graniteville Rd	903V	RB	Limited or Unprotected	Town	School Depart.	Recreation	Yes	
	31	111	5	3.61	Parker Middle School	Graniteville Rd	903V	RB	Limited or Unprotected	Town	School Dept	Parker School	Yes	1914 / 514
	37	130	73	0.90	Tax Lien 1993	Old Westford Rd	9030	RB	Unprotected	Town	Undesignated / Town			7502 / 122
	38	117	1	38.26	McCarthy Middle School	230 - 50 North Rd	903	RB	Limited or Unprotected	Town	School Dept		Yes	1351 / 572
	40	131	19	1.50	Tax Taking 1979	Smith St Rear	903V	RB	Unprotected	Town	Undesignated / Town			2457 / 347, 348

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Town (Con't)	40	131	23	1.85	Tax Taking 1979	Smith St Rear	903V	RB	Unprotected	Town	Undesignated / Town			2457 / 347, 348
	40	131	33	0.93		Smith St	903V	RB	Unprotected	Town	Undesignated / Town			2153 / 302
	40	131	38	1.36		Smith St	903V	RB	Unprotected	Town	Undesignated / Town			16502 / 121
	41	140	12	1.90		Arlington St	903V	RB	Unprotected	Town	Undesignated / Town			2153 / 302
	41	140	22	1.99		Arlington St	903V	RB	Unprotected	Town	Undesignated / Town			2153 / 302
	41	140	54	0.01		Fair St	903V	RB	Unprotected	Town	Undesignated / Town			6978 / 141
	46	199	4	0.28	Tax Taking 1979	School St	903V	RB	Unprotected	Town	Undesignated / Town			2457 / 347, 348
	52	169	7	6.03	Westlands School	170 Dalton Rd	9033	RB	Limited or Unprotected	Town	School Dept		Yes	
	52	210	1	0.15		Dalton Rd	903V	RB	Unprotected	Town	Undesignated / Town	Intersection Land		
	52	210	2	0.11		Dalton Rd	903V	RB	Unprotected	Town	Undesignated / Town			
	53	218	2	0.03	Tax Lien 2005	B St	903V	RB	Unprotected	Town	Undesignated / Town			20618 / 129
	54	233	2	0.01	Tax Lien 2003	Donald Ave	903V	RB	Unprotected	Town	Undesignated / Town			19500 / 56
	54	262	1	0.01		Bartlett Ave	903V	IA	Unprotected	Town	Town	Sliver for I-495		
	54	262	3	0.67	Tax Lien 2001	Riverneck Rd	903V	IA	Unprotected	Town	Undesignated / Town			11732 / 223
	58	276	1	20.65	Roberts Field	260 Old Westford Rd	903C	RB	Limited or Unprotected	Town	School Dept	Recreation	Yes	1730 / 516
	61	288	7	0.13	Tax Lien 1992	North Rd	903V	RB	Unprotected	Town	Undesignated / Town			6258 / 145
	62	230	14	0.36	Tax Lien 2004	Pine Hill Rd	903V	RB	Unprotected	Town	Undesignated / Town			16956 / 213
	62	230	15	0.23		Pine Hill Rd	903V	RB	Unprotected	Town	Undesignated / Town	Sliver for I-495		
	62	230	17	0.12		Pine Hill Rd	903V	RB	Unprotected	Town	Undesignated / Town	Sliver for I-495		
	62	230	34	0.32	Lot 15	Diane Lane	903V	RB	Unprotected	Town	Undesignated / Town			8306 / 172
	62	270	10	0.60	Tax Lien 1992	Dalton Rd	903V	RB	Unprotected	Town	Undesignated / Town			5793 / 265
	63	275	14	0.16	Tax Lien 1959	Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			1448 / 40
	63	275	15	0.37		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2153 / 301
	63	275	17	0.08		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			
	63	275	18	0.10		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			
	63	275	20	0.15	Tax Lien 1993	Riverneck Rd	903V	RB	Unprotected	Town	Town			6523 / 151
	63	275	21	0.40		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2153 / 302
	63	275	22	0.15		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2153 / 303
	63	275	23	0.32		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2153 / 301
	64	275	1	7.00	Tax Lien 2004	Riverneck Rd	903V	IA	Unprotected	Town	Undesignated/ Selectmen	Electric Transmissions		17552 / 183
	64	275	10	0.07		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			
	64	275	12	0.08		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2153 / 301
	64	275	13	0.12		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2153 / 301
	64	275	14	0.14		Orleans St	903V	IA	Unprotected	Town	Undesignated / Town			2457 / 347 , 348
	64	275	15	0.16	Tax Lien 1959	Orleans St	903V	IA	Unprotected	Town	Town			1448 / 48

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Town (Con't)	66	250	2	2.53	East School	Carlisle St	903V	RB	Limited or Unprotected	Town	Parks Dept	Fields	Yes	762/355
	69	309	14	0.12		Cliff Rd off	903V		Unprotected	Town	Undesignated/ Selectmen	Vacant Land		04591/ 0001
	70	294	21	3.35	Crabapple Ln	Crabapple Ln	903V	RB	Unprotected	Town	Selectmen	Church		0183 / 1968
	70	306	3	0.08		Bentley Ln	903V	RB	Unprotected	Town	Undesignated / Town			
	71	306	17	0.64		15 Bentley Ln	903V	RB	Unprotected	Town	Undesignated / Town			2153 / 301
	71	311	6	0.96		12 Bentley Ln	903V	RB	Unprotected	Town	Undesignated / Town			2153 / 301
	72	323	1	0.10	Worthen & Westford triangle	Westford St			Unprotected	Town	Undesignated/ Selectmen	Common	No	
	73	289	2	6.15	Center School	75 Chelmsford St	903V	RB	Limited or Unprotected	Town	School Dept	center School	Yes	
	73	289	3	3.30	Center School	Billerica Rd	903V	RB	Limited or Unprotected	Town	School Dept	Center School	Yes	
	73	289	4	8.10	Center School	Billerica Rd	903V	RB	Limited or Unprotected	Town	School Dept		Yes	
	73	289	5	8.69	Town Offices / McFarlin Complex	50 Billerica Rd	903V	RB	Limited or Unprotected	Town	Selectmen	Recreation	Yes	2381 / 178
	73	295	5	0.51	Tax Taking 1980	North Rd	903V	RB	Unprotected	Town	Undesignated / Town			2457 / 347, 348
	73	313	1	0.04		North Rd	903V	RB	Unprotected	Town	Undesignated / Town	Sliver / Island		
	73	326	10	0.23	Tax Lien 1984	Billerica Rd	9030	RC	Unprotected	Town	Undesignated / Town			02854 / 0194
	73	330	1	1.00	Town Common	North Rd			Unprotected	Town	Undesignated/ Selectmen	Common	No	
	74	289	10	2.10	Center School	Billerica Rd	903V	RB	Limited or Unprotected	Town	School Dept		Yes	
	74	289	11	6.30	Center School	84 Billerica Rd	903I	RB	Limited or Unprotected	Town	School Dept	School	Yes	1331 / 596
	74	289	14	0.33	Center School	Billerica Rd	903V	RB	Limited or Unprotected	Town	School Dept	School	Yes	
	74	325	1	0.26		Turnpike Rd	903V	RC	Limited or Unprotected	Town	Undesignated / Town	Park		1647 / 599
	75	291	17	0.35	Tax Lien 1982	Monmouth Rd	9030	IA	Unprotected	Town	Undesignated / Town			02539 / 0082
	75	291	33	0.06	Tax Lien 1959	Lexington St	903V	RB	Unprotected	Town	Undesignated / Town			1448 / 44
	77	307	15	0.03	Tax Lien 2002	Brick Kiln Rd	9030	RB	Unprotected	Town	Undesignated / Town			13181 / 38
	83	337	19	4.00		0 Littleton Rd	903V		Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	11893/ 9
	84	334	3	0.72	Tax Lien 1993	Summer St	903V	RC	Unprotected	Town	Undesignated / Town			6608 / 120
	84	338	4	0.07	Central square	Central Square			Unprotected	Town	Undesignated/ Selectmen	Common	No	
	84	346	1	0.02		Adams Ave	903V	RB	Unprotected	Town	Undesignated / Town			
	84	349	1	0.03		Bartlett St	903V	RB	Unprotected	Town	Undesignated / Town			
	86	328	34	0.01	Tax lien 2005	Turnpike Rd	903V	IA	Unprotected	Town	Undesignated / Town	Sliver		19574 / 134
	88	271	6	5.50	Tax lien 1993	Brick Kiln Rd	903V	IA	Unprotected	Town	Undesignated / Town			6438 / 289
	92	337	2	0.72	Tax Lien 2004	Littleton Rd	903V	RB	Unprotected	Town	Town			11421 / 285
	94	359	4	0.08	Tax Lien 1994	Second St	903V	RC	Unprotected	Town	Undesignated / Town			6933 / 38
	94	386	1	0.13		Boston Rd	903V	RB	Unprotected	Town	Undesignated / Town	Sliver		

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Town (Con't)	103	386	4	0.68	Tax Lien 1987	Kevin Rd	903V	RB	Unprotected	Town	Undesignated / Town			04046 / 0334
	103	386	6	0.72	Tax Lien 1987	Kevin Rd	903V	RB	Unprotected	Town	Undesignated / Town			04046 / 0333
	103	386	7	0.75	Tax Lien 1987	Kevin Rd	903V	RB	Unprotected	Town	Undesignated / Town			04046 / 0332
	103	386	9	0.87	Tax Lien 1987	Kevin Rd	903V	RB	Unprotected	Town	Undesignated / Town			04046 / 0331
	103	386	13	0.88	Tax Lien 1985	Kevin Rd	903V	RB	Unprotected	Town	Undesignated / Town			4317 / 206
	103	399	2	0.38	Tax Lien 1987	Brian Rd	903V	RB	Unprotected	Town	Undesignated / Town			04046 / 0335
	103	399	5	0.30	Deed 2005	15 Brian Rd	903V	RB	Unprotected	Town	Undesignated / Town			18114 / 81
	103	412	9	6.90	Tax Taking	Rosemary Ln	903V	RB	Unprotected	Town	Town			15651 / 164
	105	387	1	11.77		Turnpike Rd	903V	RB	Limited or Unprotected	Town	Town	Power Lines		2145 / 431
	105	397	25	6.70		Mill Rd	903V	RB	Limited or Unprotected	Town	Town	Soccer Fields		3732 / 12
	107	430	4	0.05		Littleton Rd	9030	RB	Unprotected	Town	Undesignated / Town			8444 / 112
	108	428	19	1.44	Tax Lien 1984	9 Alcorn Dr	9030	RB	Unprotected	Town	Undesignated / Town			02875 / 0234
	108	428	28	2.50		Lori Ln	903V	RB	Limited or Unprotected	Town	Town			2107 / 548
	109	429	4	15.80		Acton Rd	903V	RB	Limited or Unprotected	Town	Conservation Commission	Conservation		2319 / 584
	110	415	16	0.52		Crockett Dr	903V	RB	Unprotected	Town	Undesignated / Town			2145 / 431
	110	415	17	0.88		Crockett Dr	903V	RB	Unprotected	Town	Undesignated / Town			2145 / 431
	110	429	10	1.03	Tax Lien 2000	15 Country Club Dr	903V	RB	Unprotected	Town	Undesignated			10635 / 26
	111	423	12	0.01		Concord Rd	903V	RB	Unprotected	Town	Undesignated / Town	Sliver		10430 / 204
	112	426	10	13.20	South Row School	250 Boston Rd	903V	RB	Limited or Unprotected	Town	School Dept	School	Yes	
	112	426	22	5.64	South Row School	Boston Rd	903V	RB	Limited or Unprotected	Town	School Dept	School	Yes	
	113	397	4	3.40		Mill Rd	9030	RB	Limited or Unprotected	Town	Town	Soccer Fields		02906 / 0246
	113	431	9	1.17	Tax Lien 1988	27 Freeman Rd	903V	RB	Unprotected	Town	Town			8761 / 44
	116	428	1	26.14	Byam School	25 Maple Rd	903V	RB	Limited or Unprotected	Town	School Dept	School	Yes	
	116	428	6	3.63	Byam School	Maple Rd	903V	RB	Limited or Unprotected	Town	School Dept	School	Yes	1884 / 773
	117	429	4	0.03	Deed 2004	Park Place	903V	RB	Unprotected	Town	Undesignated			18196 / 33
	117	429	5	0.06	Deed 2004	Park Place	903V	RB	Unprotected	Town	Undesignated			17554 / 53
	117	449	2	3.95	Chelmsford Country Club	Park Rd	903V	RB	Limited or Unprotected	Town	Selectmen	Golf Course	Yes	7566 / 110
	118	429	1	31.50	Chelmsford Country Club	66 Park Rd	903C	RB	Limited or Unprotected	Town	Selectmen	Golf Course	Yes	7566 / 110
	119	448	11	0.56	Tax Lien 2004	3A Stillwater Dr	903V	RB	Unprotected	Town	Undesignated			6250 / 136
	124	461	2	1.88	Tax Lien 1992	Acton Rd	903V	CB	Unprotected	Town	Town			6258 / 237

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Town (Con't)	127	485	2	1.04	Tax Lien 2000	4 Tuttle Rd	903V	RB	Unprotected	Town	Undesignated			04165 / 0156
	130	493	1	0.09		Acton Rd	903V		Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	18114/ 82
	130	493	2	1.75	Tax Lien 1987	Acton Rd	903V	RB	Unprotected	Town	Undesignated / Town			11120 / 237
	133	475	45	2.13	Tax Lien 2000	Park Rd	903V	RB	Unprotected	Town	Undesignated / Town			7024 / 245
	137	493	4	8.68	Tax lien 1994	Acton Rd	903V	RB	Unprotected	Town	Undesignated			04352 / 0232
	137	493	7	0.58		0 Acton Rd	903V	RB	Unprotected	Town	Undesignated/ Selectmen	Vacant Land	No	
	189 Parcels		**Total**	**661.23**										
OTHER PUBLIC														
Cemeteries	14	19	23	3.84	Riverside Cemetery	Middlesex St	903V	RC	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	216 / 556
	18	56	21	14.17	Fairview Cemetery	Main St	903V	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	
	36	125	23	0.01	Strawberry Hill	Strawberry Hill RD	903V	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	
	36	145	1	1.48	West Chelmsford Cemetery	Strawberry Hill RD	903V	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	
	44	174	1	0.43	Edson Cemetery	Carlisle St	903V	RB	Limited or Unprotected	City of Lowell	City of Lowell	Cemetery	No	
	73	320	2	5.00	Forefathers Burying Ground	Littleton Rd	903V	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	
	74	291	1	27.00	Pine Ridge Cemetery	130 Billerica Rd	9030	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	1478 / 551
	75	291	20	0.29		Riverneck Rd	903V	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	1448 / 43
	75	291	27	0.12		Riverneck Rd	9030	IA	Limited or Unprotected	Town	Undesignated / Town	Cemetery		05277 / 0292
	75	291	30	0.18		Riverneck Rd	903V	IA	Limited or Unprotected	Town	Cemetery Comm.	Vacant Land		1540/ 42
	116	437	12	3.86	Heart Pond Cemetery	Parkerville Rd	903V	RB	Limited or Unprotected	Town	Cemetery Comm.	Cemetery	No	
	11 Parcels		**Total**	**56.38**										
Other	55	175	1	14.20	Edson Cemetery	Carlisle St.	9030	RB	Limited or Unprotected	City of Lowell	City of Lowell	Recreation/Open Space	Yes	
	1 Parcel		**Total**	**14.20**										

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
North Chelmsford Water District	12	16	26	3.25		35 Swain Rd	9030	RB	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	7113 / 118
	19	30	1	6.35		Grant St	9200	RC	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	19	30	2	0.27		Adams St	9200	RC	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	19	30	3	1.21		Holt St	9030	RC / P	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	19	30	4	2.80		64 Washington St	920C	RC	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	19	59	14	2.56		Princeton St	9030	RA	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	02963 / 0570
	19	59	15	0.51		Princeton St	9030	RA	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	02750 / 0281
	25	59	1	57.74		55 Richardson Rd	9200	RB	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	25	59	2	2.23		Richardson Rd	9200	RA	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	25	59	4	2.80		Richardson Rd	9200	RA	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	25	59	6	0.24		Richardson Rd	9200	RA	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	
	26	93	24	7.98		Frank St	903V	RB	Limited or Unprotected	North Chelmsford Water District	North Chelmsford Water District	Wellhead Protection	No	11503 / 283
	12 Parcels		**Total**	**87.94**										
East Chelmsford Water District	55	168	15	10.55		Gorham St	9030	RB	Limited or Unprotected	East Chelmsford Water District	East Chelmsford Water District	Wellhead Protection	No	15240 / 174
	66	268	9	0.25		Carlisle St	9200	RB	Limited or Unprotected	East Chelmsford Water District	East Chelmsford Water District	Wellhead Protection	No	
	76	271	1	6.10		Riverneck Rd	903V	IA	Limited or Unprotected	East Chelmsford Water District	East Chelmsford Water District	Wellhead Protection	No	01709 / 0020
	76	271	2	15.80		75 Canal St	903V	IA	Limited or Unprotected	East Chelmsford Water District	East Chelmsford Water District	Wellhead Protection	No	01709 / 0020
	76	271	10	1.40		Billerica Rd	9200	IA	Limited or Unprotected	East Chelmsford Water District	East Chelmsford Water District	Wellhead Protection	No	1700 / 123
	5 Parcels		**Total**	**34.10**										

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Chelmsford Water District	24	98	15	1.23		22 Maynard Cr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	12169 / 208
	24	98	16	1.44		20 Maynard Cr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	12169 / 208
	24	98	17	1.22		18 Maynard Cr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	12169 / 208
	25	98	1	0.99		Maynard Cr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	12169 / 208
	25	98	3	0.98		Maynard Cr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	12169 / 208
	29	98	1	1.12		16 Maynard Cr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	12169 / 208
	29	112	3	10.63		Meadowbrook Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	29	112	7	7.40		Crooked Springs Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	29	112	8	14.35		50 Jordan St	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	30	98	1	10.50		Doak Dr	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1543 / 371
	30	98	34	5.00		50 Doak Dr	903C	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1543 / 371
	30	98	35	11.30		Crooked Springs Rd	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	30	98	44	1.15		Crooked Springs Rd	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	30	98	47	1.98		Crooked Springs Rd	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	30	98	65	11.00		Richardson Rd	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	40	131	16	20.55		14 Smith Rd	920I	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	60	206	30	0.92		106 Locke Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	944 / 305
	63	275	25	0.37		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Vacant Land	No	1882/ 292
	63	275	26	0.31		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	63	275	27	0.48		Riverneck Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	63	275	28	0.33		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	63	275	32	0.57		Orleans St	903V	P / IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 290

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Chelmsford Water District (Con't)	64	275	20	0.16		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	64	275	23	0.33		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	64	275	26	0.33		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	64	275	31	0.16		Orleans St	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882/ 292
	64	275	32	0.57		Orleans St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 290
	64	275	33	0.15		Orleans St	9030		Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	LCD # 223398
	69	318	4	1.48		Amble Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	74	275	1	15.06		50 Orleans St	9030	IAR	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1882 / 292
	75	275	2	2.50		Riverneck Rd	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	18589 / 287
	85	324	12	2.14		Turnpike Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	02659 / 0084
	85	324	14	0.34		Turnpike Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	85	324	20	2.25		Turnpike Rd	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	85	324	25	2.03		Warren Ave	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	87	271	2	1.38		Canal St	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	87	271	3	21.70		Brick Kiln Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	87	271	4	6.00		Brick Kiln Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	87	271	8	1.35		Billerica Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	87	271	10	1.74		Billerica Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	87	271	11	0.43		Brick Kiln Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	01676 / 0033
	88	271	1	2.50		Brick Kiln Rd	903V	IA	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	1769 / 401
	93	357	32	1.83		High St	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	7184 / 183
	93	357	38	0.08		Hillside Ln	9200	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	93	357	41	0.08		Robin Hill Rd	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST														
Note: Land use codes provided by Vision Appraisal	**Map**	**Block**	**Lot**	**Acres**	**Name**	**Address**	**Land Use Code**	**Zoning**	**Level of Protection**	**Owner**	**Manager**	**Use**	**Recreation Potential**	**Book - Page**
Chelmsford Water District (Con't)	93	357	45	2.09		9 Hillside Ln	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	93	380	9	2.62		High St	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	7184 / 183
	93	380	18	0.21		Hillside Ln	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	95	368	1	17.29		63 Warren Ave	903C	RCR	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	104	387	33	52.95		20 Watershed Ln	903V	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	106	397	1	1.43		203 Turnpike Rd	903V	RC	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	124	462	15	1.23	Cranberry Bog Reservation	Elm St	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	10506 / 134
	129	446	19	6.21		Cambridge St	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	
	131	462	15	1.95		Elm St	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	10506 / 128
	132	462	16	6.02		Southwood Dr	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	10943 / 008
	132	462	17	6.02		Deer Run Ln	9030	RB	Limited or Unprotected	Chelmsford Water District	Chelmsford Water District	Wellhead Protection	No	11076 / 008
	56 Parcels		**Total**	**266.43**										
PRIVATE LANDS														
Chapter 61 Land	7	4	40	4.36		Glendale Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	01107 / 0424
	7	4	41	7.50		Dunstable Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	01107 / 0424
	7	4	43	1.12		Dunstable Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	011661 / 0271
	7	4	44	1.95		Dunstable Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	01107 / 0424
	8	4	26	1.14		Swain Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	00044 / 0387
	8	4	29	0.30		Swain Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	Pro#1/9930
	11	4	2	41.00		50 Swain Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	
	12	4	1	0.21		Swain Rd	1320	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	Pro#1/9930
	12	4	2	2.51		Swain Rd	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Lowell Sportsmen Club	Recreation	Yes	01080 / 0237
	72	320	14	13.72		Bridge St	6010	RB	Limited or Unprotected	Lowell Sportsmen Club	Bridge St Realty Trust	Recreation	Yes	02050 / 0592

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Chapter 61 Land (Con't)	119	450	8	17.26		Concord Rd	1010	RB	Limited or Unprotected	A. Visniewski	A. Visniewski	Natural Resource Area	Yes	6078/300
Partial	81	321	1	21.16		24 Misty Meadow	101	RB	Limited or Unprotected	M. hennessy	M. Hennesy	Natural Resource Area	Yes	843/488
	12 Parcels		**Total**	**112.23**										
Chapter 61A Land	19	59	5	23.02		Princeton St	7170	RB	Limited or Unprotected	Mahoney Group LLC	Mahoney Group LLC	Agricultural		2116 / 24
	19	59	12	1.98		Richardson Rd	7220	RB	Limited or Unprotected	Mahoney Group LLC	Mahoney Group LLC	Agricultural		2116 / 24
	20	59	1	3.26		165 Prinston St.	3220	CBR	Limited or Unprotected	Mahoney Group LLC	Mahoney Group LLC	Agricultural		2116/24
	41	140	13	6.67		Clinton Ave	101	RB	Limited or Unprotected	Manville, Claire	Doris S. Mainville	Agricultural		02335 / 0537
	59	276	14	11.87		Westford St	714	RB	Limited or Unprotected	Lupien, Albert Jr.	Maria K. Lupien Trustees	Agricultural		7231 / 295
	60	206	31	6.93		30 Lantern Lane	1010	RB	Limited or Unprotected	J. Sanborn	J. Sanborn	Agricultural		8700/104
	81	316	7	0.05		Pine Hill Rd	7220	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315/396
	81	316	8	1.89		Pine Hill Rd	7220	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315/396
Partial	81	321	1	18.00		24 Misty Meadow	101	RB	Limited or Unprotected	M. hennessy	M. Hennesy	Natural Resource Area	Yes	843/488
	81	321	17	8.19		Pine Hill Rd	7160	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315 / 196
	81	321	35	14.00		Pine Hill Rd	1010	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315 / 196
	81	321	44	3.36		Pine Hill Rd	7160	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315 / 196
	81	321	46	2.76		Pine Hill Rd	7160	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315 / 196
	91	321	2	2.33		Pine Hill Rd	7160	RB	Limited or Unprotected	Parlee, Henry G Jr.	Parlee, Henry G Jr.	Agricultural		11315 / 196
	94	348	14	53.32		Boston Rd	106	RB	Limited or Unprotected	Pohl, Martha L. & David C	Warren Franklin E & Mary E	Agricultural		6138 / 64
	99	370	1	29.68		249 Pine Hill Rd	7130	RB	Limited or Unprotected	Sheehan, Andrew	Sheehan, Donna J	Agricultural		8080 / 65
	104	387	48	27.00		56 Mill Rd.	1010	RA	Limited or Unprotected	John & Marion Chase	John & Marion Chase	Agricultural		7211/326
	117	443	1	5.00		Acton Rd	7130	RB	Limited or Unprotected	Parlee, Charles A.	Parlee, Jeanne L	Agricultural		04036 / 0181
	117	443	31	1.06		26 Proctor Rd.	7130	RB	Limited or Unprotected	Parlee, Charles A.	Parlee, Jeanne L	Agricultural		LCD245468

APPENDIX D: INVENTORY OF LANDS OF CONSERVATION AND RECREATION INTEREST

Note: Land use codes provided by Vision Appraisal	Map	Block	Lot	Acres	Name	Address	Land Use Code	Zoning	Level of Protection	Owner	Manager	Use	Recreation Potential	Book - Page
Chapter 61A Land (Con't)	119	450	4	7.00		Concord Rd	7130	RB	Limited or Unprotected	McKay, Marlee E. Trustee	Center Real Estate Trust	Agricultural		6669 / 264
	119	450	10	1.00		Concord Rd	7130	RB	Limited or Unprotected	McKay, Marlee E. Trustee	Center Real Estate Trust	Agricultural		6669/ 262
	126	449	2	11.85		Proctor Rd.	7220	RB	Limited or Unprotected	Frank Wojtas	Frank Wojtas	Agricultural		LCD15/1160
	126	449	3	11.50		Proctor Rd.	7220	RB	Limited or Unprotected	Frank Wojtas	Frank Wojtas	Agricultural		6856/273
	131	462	2	5.25		122 Proctor Rd,	1010	RB	Limited or Unprotected	Patricia Wojtas	Patricia Wojtas	Agricultural		0597/0004
	24 Parcels		**Total**	**256.97**										
Chapter 61B Land	57	215	9	0.93		Spaulding Road	8030	RB	Limited or Unprotected	William Harman	William Harman	Recreation	Yes	PR46/6569
	108	393	1	17.00		133 Robin Hill Rd	8110	CB	Limited or Unprotected	Chelmsford Swimming	Tennis Club Inc.	Recreation	Yes	01718 / 0183
	113	397	7	11.00		160 Mill Rd	8110	RC	Limited or Unprotected	S. Chelmsford Rod & Gun Club	S. Chelmsford Rod & Gun Club	Recreation	Yes	01258 / 0174
	3 Parcels		**Total**	**28.93**										
Privately Owned Parcels	41	128	1	2.52	Lowell Hebrew Community	Lancaster Ave	9200	RB	Unprotected	Lowell Hebrew Comm. CTR Corp	Lowell Hebrew Comm. CTR Corp	Cemetery	No	1031 / 325
	65	257	1	7.75	St. Joseph Cemetery	Riverneck Rd	9090	IS / RB	Unprotected	Roman Catholic Arch of Boston	Roman Catholic Arch of Boston	Cemetery	No	875 / 232
	65	271	4	57.00	St. Joseph Cemetery	96 Riverneck Rd	953C	RB	Unprotected	OMI Rufus Whitley ETALS	TR of Oblate Real Estate TR	Cemetery	No	10717 / 103
	76	271	3	17.00	St Josephs Cemetery	50 Canal St	909R	IA	Unprotected	St Josephs Cemetery	St Josephs Cemetery	Cemetery	No	12707 / 32
	76	271	7	11.60	St. Joseph Cemetery	Riverneck Rd	903V	IA	Unprotected	St Josephs Cemetery	St Josephs Cemetery	Cemetery	No	9839 / 275
	76	271	11	6.20	St. Joseph Cemetery	96 Riverneck Rd	909	RB	Unprotected	St Josephs Cemetery	St Josephs Cemetery	Cemetery	No	12707 / 29
	6 Parcels		**Total**	**102.07**										

Limited or Unprotected Public Parcels 1,129.06 Total Acres	**Limited or Unprotected Private Parcels 500.20 Total Acres**	**Limited or Unprotected Parcels 1,629.26 Total Acres**	**Protected, Limited and Unprotected Parcels Total 2,620.42 Total Acres**

Chelmsford Master Plan
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APPENDIX E

Wildlife, Rare and Endangered Species in Chelmsford

Wildlife Species found in Chelmsford

The following is a list of Amphibians, Reptiles, Birds, and Mammals, currently believed to be present within the Town. Species are listed in alphabetical order by common name; bird groupings are based generally and broadly on accepted relationships. The list does not distinguish between common and rare species, or, in the case of birds, among over-wintering, migratory, breeding, and year-round populations. Plant species are not included in the tables provided below. A complete list of plant species can be obtained from the Massachusetts Natural Heritage and Endangered Species Program (NHESP), part of the Massachusetts Division of Fisheries and Wildlife. http://www.mass.gov/dfwele/dfw/nhesp/species_info/mesa_list/mesa_list.htm#PLANTS Residents are encouraged to report to the Open Space and Recreation Plan Committee any sightings of rare or new specie. Names are taken from Richard M. DeGraaf & Mariko Yamasaki, 2001, New England Wildlife, University Press of New England, Hanover, NH.

(I: introduced; E: endangered; SC: special concern; T: threatened)

AMPHIBIANS

Common Name	Scientific Name
Blue-spotted Salamander	*Ambystoma laterale* **(SC)**
Bullfrog	*Rana catesbeiana*
Eastern American Toad	*Bufo americanus*
Gray Treefrog	*Hyla versicolor*
Green Frog	*Rana clamitans melanota*
Northern Leopard Frog	*Rana pipiens*
Northern Red-Backed Salamander	*Plethodon cinereus*
Northern Spring Peeper	*Pseudacris crucifer crucifer*
Northern Two-lined Salamander	*Eurycea bislineata*
Pickerel Frog	*Rana palustris*
Red-Spotted Newt	*Notophthalmus viridescens viridescens*
Spotted Salamander	*Ambystoma maculatum*
Wood Frog	*Rana sylvatica*

REPTILES

Common Name	Scientific Name
Blanding's Turtle	*Emydoidea Blandingii* **(T)**
Common Musk Turtle	*Sternotherus oderatus*
Common Snapping Turtle	*Chelydra serpentina serpentina*
Eastern Garter Snake	*Thamnophis sirtalis sirtalis*
Eastern Milk Snake	*Lampropeltis triangulum triangulum*
Eastern Painted Turtle	*Chrysemys picta picta*
Northern Black Racer (snake)	*Coluber constrictor constrictor*
Northern Water Snake	*Nerodia sipedon sipedon*
Spotted Turtle	*Clemmys guttata* **(SC)**

REPTILES

Common Name	Scientific Name
Wood Turtle	*Clemmys insculpta* **(SC)**
Eastern Box Turtle	*Terrapene carolina* **(SC)**

MAMMALS

Common Name	Scientific Name
Beaver	*Castor canadensis*
Big Brown Bat	*Eptesicus fuscus*
Black Bear	*Ursus americanus*
Canada Porcupine	*Erethizon dorsatum*
Coyote	*Canis latrans*
Eastern Chipmunk	*Tamias striatus*
Eastern Cottontail (Rabbit)	*Sylvilagus floridanus*
Eastern Gray Squirrel	*Sciurus carolinensis*
Eastern Mole	*Scalopus aquaticus*
Ermine (Short-tailed Weasel)	*Mustela erminea*
Fisher	*Martes pennanti*
Gray Fox	*Urocyon cinereoargentus*
House Mouse	*Mus musculus*
Long-Tailed Weasel	*Mustela frenata*
Masked Shrew	*Sorex cinereus*
Meadow Jumping Mouse	*Zapus hudsonius*
Meadow Vole	*Microtus pennsylvanicus*
Mink	*Mustela vison*
Moose	*Alces alces*
Muskrat	*Ondatra zibethicus*
Norway Rat	*Rattus norvegicus*
Porcupine	*Erethizon dorsatum*
Raccoon	*Procyon lotor*
Red Fox	*Vulpes vulpes*
Red Squirrel	*Tamiasciurus hudsonicus*
River Otter	*Lutra canadensis*
Southern Red-Backed Vole	*Clethrionomys gapperi*
Southern Flying Squirrel	*Glaucomys volans*
Striped Skunk	*Mephitis mephitis*
Virginia Opossum	*Didelphis virginiana*
White-Footed Mouse	*Peromyscus sp.*
White-Tailed Deer	*Odocoileus virginianus*
Woodchuck ("Groundhog")	*Marmota monax*

BIRDS : Water Birds, Shorebirds

Common Name	Scientific Name
American Black Duck	*Anas rubripes*
Blue-Winged Teal	*Anas discors*
Canada Goose	*Branta canadensis*
Common Merganser	*Mergus merganser*
Common Goldeneye	*Bucephala clangula*
Double-Crested Cormorant	*Phalacrocorax auritus*

BIRDS : Water Birds, Shorebirds

Common Name	Scientific Name
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Green Heron	*Butorides virescens*
Green-Winged Teal	*Anas crecca*
Herring Gull	*Larus argentatus*
Hooded Merganser	*Lophodytes cucullatus*
Mallard	*Anas platyrhynchos*
Ring-Necked Duck	*Aythya collaris*
Spotted Sandpiper	*Actitis macularia*
Wood Duck	*Aix sponsa*

BIRDS: Game Birds, Pigeons, Doves, etc.

Common Name	Scientific Name
American Woodcock	*Scolopax minor*
Common Snipe	*Gallinago gallinago*
Killdeer	*Charadrius vociferus*
Mourning Dove	*Zenaida macroura*
Northern Bobwhite	*Colinus virginianus*
Ring-Necked Pheasant	*Phasianus colchicus* **(I)**
Rock Dove ("Pigeon")	*Columba livia* **(I)**
Ruffed Grouse ("Partridge")	*Bonasa umbellus*
Wild Turkey	*Meleagris gallopavo*

BIRDS: Hawks, Owls, Eagles, Vultures

Common Name	Scientific Name
American Kestrel ("Sparrow Hawk")	*Falco sparverius*
Bald Eagle	*Haliaeetus leucocephalus* **(E)**
Barn Owl	*Tyto alba*
Barred Owl	*Strix varia*
Cooper's ("Chicken") Hawk	*Accipiter cooperi*
Eastern Screech Owl	*Otus asio*
Great-Horned Owl	*Bubo virginianus*
Merlin ("Pigeon Hawk")	*Falco columbarius*
Northern Harrier ("Marsh Hawk")	*Circus cyaneus* **(T)**
Northern Saw-Whet Owl	*Aegolius acadicus*
Osprey	*Pandion haliaetus*
Red-Tailed Hawk	*Buteo jamaicensis*
Sharp-Shinned Hawk	*Accipiter striatus* **(SC)**
Turkey Vulture ("Buzzard")	*Cathartes aura*

BIRDS: Swifts, Swallows, Kingfishers, Hummingbirds, Nighthawks

Common Name	Scientific Name
Barn Swallow	*Hirundo rustica*
Belted Kingfisher	*Ceryle alcyon*
Chimney Swift	*Chaetura pelagica*
Cliff Swallow	*Petrochelidon pyrrhonota*

BIRDS: Swifts, Swallows, Kingfishers, Hummingbirds, Nighthawks

Common Name	Scientific Name
Common Nighthawk	*Chordeiles minor*
Northern Rough-Winged Swallow	*Stelgidopteryx serripennis*
Purple Martin	*Progne subis*
Ruby-Throated Hummingbird	*Archilochus colubris*
Tree Swallow	*Tachycineta bicolor*

BIRDS: Blackbirds, Orioles, Meadowlarks, Tanagers, Crows, Jays, Cuckoos, Starlings

Common Name	Scientific Name
American Crow	*Corvus brachyrhynchos*
Baltimore Oriole	*Icterus galbula*
Black-Billed Cuckoo	*Coccyzus erythropthalmus*
Blue Jay	*Cyanocitta cristata*
Bobolink	*Dolichonyx oryzivorus*
Brown-Headed Cowbird	*Molothrus ater*
Common Grackle	*Quiscalus quiscula*
Eastern Meadowlark	*Sturnella magna*
European Starling	*Sturnus vulgaris* **(I)**
Red-Winged Blackbird	*Agelaius phoeniceus*
Scarlet Tanager	*Piranga olivacea*

BIRDS: Woodpeckers

Common Name	Scientific Name
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Northern Flicker	*Colaptes auratus*
Pileated Woodpecker	*Dryocopus pileatu*
Red-bellied Woodpecker	*Melanerpes carolinus*

BIRDS: Flycatchers, Larks, Waxwings

Common Name	Scientific Name
Cedar Waxwing	*Bombycilla cedrorum*
Eastern Kingbird	*Tyrannus tyrannus*
Eastern Phoebe	*Sayornis phoebe*
Eastern Wood Pewee	*Contopus virens*
Great Crested Flycatcher	*Myiarchus crinitus*
Horned Lark	*Eremophila alpestris*
Least Flycatcher	*Empidonax minimus*
Olive-Sided Flycatcher	*Contopus cooperi*

BIRDS: Thrushes (incl. Robins, Bluebirds, Kinglets), Mimic Thrushes, (Mockingbirds)

Common Name	Scientific Name
American Robin	*Turdus migratorius*
Eastern Bluebird	*Sialia sialis*

BIRDS: Thrushes (incl. Robins, Bluebirds, Kinglets), Mimic Thrushes, (Mockingbirds)

Common Name	Scientific Name
Brown Thrasher	*Toxostoma rufum*
Gray Catbird	*Dumetella carolinensis*
Hermit Thrush	*Catharus guttatus*
Northern Mockingbird	*Mimus polyglottos*
Ruby-Crowned Kinglet	*Regulus calendula*
Veery	*Catharus fuscescens*
Wood Thrush	*Hylocichla mustelina*

BIRDS: Chickadees, Titmice, Nuthatches, Creepers

Common Name	Scientific Name
Black-Capped Chickadee	*Poecile atricapillus*
Brown Creeper	*Certhia americana*
Red-Breasted Nuthatch	*Sitta canadensis*
Tufted Titmouse	*Baeolophus bicolor*
White-Breasted Nuthatch	*Sitta carolinensis*

BIRDS: Sparrows, Finches, Grosbeaks, Buntings, Towhees, Juncos, Cardinals

Common Name	Scientific Name
American Goldfinch	*Carduelis tristis*
American Tree Sparrow	*Spizella arborea*
Chipping Sparrow	*Spizella passerina*
Common Redpoll	*Carduelis flammea*
Eastern Towhee	*Pipilo erythrophthalmus*
Evening Grosbeak	*Coccothraustes vespertinus*
Dark-Eyed Junco	*Junco hyemalis*
Field Sparrow	*Spizella pusilla*
Fox Sparrow	*Passerella iliaca*
House Finch	*Carpodacus mexicanus*
House ("English") Sparrow	*Passer domesticus* **(I)**
Indigo Bunting	*Passerina cyanea*
Northern Cardinal	*Cardinalis cardinalis*
Pine Siskin	*Carduelis pinus*
Purple Finch	*Carpodacus purpureus*
Rose-Breasted Grosbeak	*Pheucticus ludovicianu*
Savannah Sparrow	*Passerculus sandwichensis*
Snow Bunting	*Plectrophenax nivalis*
Song Sparrow	*Melospiza melodia*
White-Crowned Sparrow	*Zonotrichia leucophrys*
White-Throated Sparrow	*Zonotrichia albicollis*

BIRDS: Wrens , Warblers, Vireos

Common Name	Scientific Name
American Redstart	*Setophaga ruticilla*
Black-and-White Warbler	*Mniotilta varia*
Blackburnian Warbler	*Dendroica fusca*

BIRDS: Wrens , Warblers, Vireos

Common Name	Scientific Name
Black-Throated Blue Warbler	*Dendroica caerulescens*
Blue-Winged Warbler	*Vermivora pinus*
Carolina Wren	*Thryothorus ludovicianus*
Chestnut-Sided Warbler	*Dendroica pensylvanica*
Common Yellowthroat	*Geothlypis trichas*
House Wren	*Troglodytes aedon*
Ovenbird	*Seiurus aurocapillus*
Pine Warbler	*Dendroica pinus*
Red-Eyed Vireo	*Vireo olivaceus*
Winter Wren	*Troglodytes troglodytes*
Yellow Warbler	*Dendroica petechia*
Yellow-Rumped Warbler	*Dendroica coronata*

Definitions:

An “endangered” species (E) is a native species that is in danger of extinction through-out all or part of its range or which is in danger of extirpation from Massachusetts, as documented by biological research and inventory.

A “threatened” species (T) is a native species that is likely to become endangered in the foreseeable future, or which is declining or rare as documented by biological research and inventory.

A “special concern” species (SC) is a native species that has been documented by biological research and inventory to have suffered a decline that could threaten the species if allowed to continue unchecked, or that occur in such small numbers or with such restricted distribution or specialized habitat requirements that they could easily become threatened within Massachusetts.

Chelmsford Master Plan
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APPENDIX F

Hazardous Waste Sites

RTN	City/Town	Release Address	Site Name/ Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type
3-0000049	CHELMSFORD	11 SCHOOL ST	NYES JAPENAMELAC FMR	NONE	12/10/1985	RAO	8/28/2007		A3	Oil
3-0000290	CHELMSFORD	275 BILLERICA RD	ELECTROMETALS INC FMR	NONE	1/15/1987	RAO	12/9/2009	PHASE V	C2	
3-0000565	CHELMSFORD	30 CHELMSFORD ST	BILL & ANDYS	NONE	1/15/1987	REMOPS	12/23/2005	PHASE V		
3-0000709	CHELMSFORD	95 CHELMSFORD ST	AMOCO 1166 FMR	NONE	7/15/1991	REMOPS	3/25/2008	PHASE V		Oil
3-0000789	CHELMSFORD	293 CHELMSFORD ST	CHEVRON STATION 118723	NONE	1/15/1990	RAO	6/16/2009		A2	
3-0000790	CHELMSFORD	5 DRUM HILL RD	DRUM HILL EXXON	NONE	10/15/1986	RAO	8/2/1995	PHASE II	A2	
3-0000834	CHELMSFORD	80 CHELMSFORD ST	EXXON SERVICE STATION FMR	NONE	1/15/1989	RAO	10/3/2006		A2	Oil and Hazardous Material
3-0000908	CHELMSFORD	7 STUART RD	OPTRONICS	NONE	1/20/1987	DEPNFA	7/23/1993			
3-0000910	CHELMSFORD	187 BILLERICA RD	UNITED GLASS ALTID ENTERP FMR	NONE	3/3/1987	PENNFA	8/1/1995			Oil
3-0001053	CHELMSFORD	89 CHELMSFORD ST	SAV MOR FUEL	NONE	9/2/1986	DEPNDS	5/10/1996			
3-0001071	CHELMSFORD	91-99 DRUM HILL RD	DRUM HILL SERVICE STATION	NONE	10/15/1988	RAO	6/20/1994		A3	Oil
3-0001157	CHELMSFORD	9 PROGRESS AVE	PROPERTY	NONE	10/15/1989	RAO	3/11/1996			
3-0001205	CHELMSFORD	27 KATRINA RD	SILICON TRANSISTOR CORPORATION	NONE	10/15/1989	TIER 1A	10/5/1994	PHASE IV		
3-0001360	CHELMSFORD	164 MIDDLESEX ST	PROPERTY	NONE	10/15/1988	LSPNFA	3/14/1997			
3-0001490	CHELMSFORD	81 TYNGSBORO RD	GULF SERVICE STATION	NONE	9/2/1986	TIER 2	2/20/2009	PHASE V		Oil
3-0001582	CHELMSFORD	7 ACTON RD	CHELMSFORD GULF FMR CITGO	NONE	1/15/1990	RAO	10/29/2008		C1	Oil
3-0001664	CHELMSFORD	100 WOTTON ST COMBING CO	WELLMAN RLTY SOUTHWELL FMR	NONE	1/15/1987	LSPNFA	3/14/1997			
3-0002098	CHELMSFORD	188 PRINCETON ST	SHELL OIL CO	NONE	4/15/1989	REMOPS	7/11/2002	PHASE V		Oil
3-0002111	CHELMSFORD	DRUM HILL RD	DRUM HILL SHOPPING CENTER	NONE	4/15/1989	PENNFA	8/10/1993			
3-0002668	CHELMSFORD	152 STEDMAN ST	GLENVIEW SAND & GRAVEL	NONE	5/17/1994	ADEQUATE REG	8/14/1997			
3-0002739	CHELMSFORD	28 CENTRAL SQ	CARE CLEANERS	NONE	1/15/1990	TIER 1C	8/5/1997	PHASE IV		Oil
3-0002740	CHELMSFORD	286 CHELMSFORD ST	ANTONS CLEANERS	NONE	12/5/1989	LSPNFA	8/1/1996			Oil
3-0002747	CHELMSFORD	30 CENTRAL SQ	CENTRAL SQUARE MOBIL STATION	NONE	4/15/1991	REMOPS	11/29/2002	PHASE V		Oil
3-0002958	CHELMSFORD	21 ALPHA RD	PROPERTY A	NONE	1/17/1990	DEPNDS	7/23/1993			
3-0002973	CHELMSFORD	25 KATRINA RD	NYES JAPENAMELAC	NONE	1/17/1990	PENNFA	6/14/1996			Oil
3-0002974	CHELMSFORD	27 INDUSTRIAL AVE	PROPERTY	NONE	1/22/1990	DEPNDS	7/23/1993			Oil
3-0003090	CHELMSFORD	16 MAPLE RD	FREQUENCY SOURCES INC FACILITY	NONE	4/15/1990	RAO	9/13/2000	PHASE III	A2	Oil
3-0003177	CHELMSFORD	100 DRUM HILL RD	SUNOCO SERVICE STATION	NONE	10/15/1990	RAO	11/29/2002	PHASE IV	A2	Oil
3-0003534	CHELMSFORD	8 LITTLETON RD	TEXACO SERVICE STATION	NONE	4/15/1991	RAO	5/25/1994		A2	
3-0003606	CHELMSFORD	177 BOSTON RD	TRIANGLE SERVICE STATION	NONE	7/15/1991	RAO	4/5/2004	PHASE IV	A3	
3-0003616	CHELMSFORD	16-17 OAK ST AND LITTLETON	MASS BITUMINOUS PRODUCTS	NONE	7/15/1991	RAO	6/21/2000	PHASE III	B1	Oil
3-0003629	CHELMSFORD	108-110 MIDDLESEX ST	INDUSTRIAL PROPERTY	NONE	7/15/1993	RAO	4/18/1997		B1	Oil
3-0003933	CHELMSFORD	18 ALPHA RD	PROPERTY	NONE	4/15/1992	LSPNFA	6/9/1994			
3-0003977	CHELMSFORD	230 NORTH RD	CHELMSFORD POLICE STATION	NONE	7/15/1993	DEPNDS	6/4/1996			
3-0004260	CHELMSFORD	34 CHELMSFORD ST	PROPERTY	NONE	4/22/1993	DEPNFA	6/4/1996			
3-0004283	CHELMSFORD	154 MIDDLESEX ST	WEBBER LUMBER CO FMR	NONE	7/15/1993	LSPNFA	6/18/1997			Oil
3-0004353	CHELMSFORD	114 TURNPIKE RD	INDUSTRIAL PROPERTY	NONE	7/15/1993	RAO	7/31/1997			Oil
3-0004532	CHELMSFORD	10-11 JEAN AVE	DR NICKS TRANSMISSION	NONE	5/18/1992	RAO	11/25/1998	PHASE II	A2	Oil
3-0004550	CHELMSFORD	9 KIDDER RD	COMMERCIAL PROPERTY	NONE	10/1/1993	RAO	4/28/2003	PHASE II	B1	Oil
3-0004757	CHELMSFORD	100 CHELMSFORD ST	AMPET GASOLINE STATION	NONE	8/6/1992	RAO	8/27/2009		C1	Oil

RTN	City/Town	Release Address	Site Name/ Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type
3-0010076	CHELMSFORD	RTE 3 NORTH BY RTE 495	NO LOCATION AID	TWO HR	10/20/1993	RAO	11/9/1993			
3-0010101	CHELMSFORD	279 BILLERICA RD	ALPHA RD SIDE OF BLDG	TWO HR	10/25/1993	RAO	12/24/1993		A1	Oil
3-0010580	CHELMSFORD	43 DRUM HILL RD	REAR DELIVERY AREA	TWO HR	2/12/1994	RAO	3/30/1994		A1	Oil
3-0010778	CHELMSFORD	17 PROGRESS AVE	NO LOCATION AID	72 HR	3/31/1994	RAO	5/31/1994		A1	Oil
3-0010824	CHELMSFORD	23 GLEN AVE	LOCK UP DEVELOPMENT CORP CO	120 DY	3/11/1994	DPS	3/16/1995			Hazardous Material
3-0010848	CHELMSFORD	9 ALPHA RD	AT INTERSECTION WITH TRACY RD	120 DY	2/6/1995	DPS	2/23/1996	PHASE II		Hazardous Material
3-0010885	CHELMSFORD	285 MILL RD	MICROWAVE LOGIC	TWO HR	4/20/1994	RAO	6/8/1994		A1	Oil
3-0011209	CHELMSFORD	RTE 495 S	REST AREA	TWO HR	6/27/1994	RAO	3/24/1995		A1	Oil
3-0011288	CHELMSFORD	120 CHELMSFORD ST	SHELL OIL STATION	72 HR	7/12/1994	RAO	9/12/1994		A2	Oil and Hazardous Material
3-0011400	CHELMSFORD	CHELMSFORD STY	BEHIND WANG TOWERS	TWO HR	8/1/1994	RAO	9/21/1994		A2	Oil
3-0012244	CHELMSFORD	45 ALPINE RD	US POST OFFICE	72 HR	3/7/1995	RAO	5/15/1995		A1	Oil
3-0012353	CHELMSFORD	WESTFORD ST OFF OF	ACCESS RD TO GLENVIEW SAND & GRAVEL	TWO HR	4/5/1995	RAO	4/12/1996		A2	Hazardous Material
3-0012429	CHELMSFORD	RTE 495	AT ROUTE 3	TWO HR	4/30/1995	RAO	6/19/1995		A1	Oil
3-0012504	CHELMSFORD	100 PINE HILL RD	EAST OF HUNT BRIDGE RD	120 DY	5/22/1995	RAO	6/23/1995		A2	Oil
3-0012751	CHELMSFORD	40 CHELMSFORD ST	NO LOCATION AID	72 HR	9/19/1995	RAO	6/5/2002	PHASE II	A2	Oil and Hazardous Material
3-0012795	CHELMSFORD	TRACY RD	NEAR 310 TRACY RD	TWO HR	8/10/1995	RAO	10/5/1995		A2	Oil
3-0012928	CHELMSFORD	17 PROGRESS AVE	17 PROGRESS AVE	120 DY	9/12/1995	RAO	7/2/2007		A2	Hazardous Material
3-0013014	CHELMSFORD	16 PROGRESS AVE	NO LOCATION AID	72 HR	10/6/1995	RAO	10/11/1996		A2	Oil
3-0013256	CHELMSFORD	10 INDEPENDENCE DR	NO LOCATION AID	120 DY	12/13/1995	DPS	12/13/1995			Hazardous Material
3-0013476	CHELMSFORD	RTE 495 N	2 MILES NORTH OF BOSTON RD	TWO HR	2/23/1996	RAO	4/22/1996		A2	Oil
3-0013511	CHELMSFORD	WESTERN AVE (RTE 4 N OF RT 3)	MA HWY DEPT FACILITY #61	120 DY	2/29/1996	RAO	2/27/1997		A2	Oil and Hazardous Material
3-0013620	CHELMSFORD	19 PROGRESS AVE	NO LOCATION AID	120 DY	4/12/1996	DPS	4/12/1996			Hazardous Material
3-0013829	CHELMSFORD	RTE 495N	BETWEEN RTE 110 & RTE 3 EXITS	TWO HR	5/28/1996	RAO	8/2/1996		A1	Oil
3-0014114	CHELMSFORD	RAMP FR RT 495 TO RT 3 N	LOWELL CONNECTOR	TWO HR	8/12/1996	RAO	10/10/1996		A2	
3-0014176	CHELMSFORD	2-28 ALPINE LN	PARLMONT PLAZA	120 DY	8/14/1996	RAO	12/15/1999	PHASE IV	C1	Hazardous Material
3-0014486	CHELMSFORD	23 RUTH ELLEN DR	NO LOCATION AID	TWO HR	11/7/1996	RAO	1/10/1997		A1	Oil
3-0014491	CHELMSFORD	36 BARTLETT ST	NO LOCATION AID	TWO HR	11/8/1996	RAO	1/10/1997		A1	
3-0014501	CHELMSFORD	15 CONCORD RD	SUBSTATION	TWO HR	11/16/1996	RAO	1/14/1997		A2	Oil
3-0014504	CHELMSFORD	35B HUNT ST	NO LOCATION AID	TWO HR	11/18/1996	RAO	5/13/1997		A2	Oil
3-0014625	CHELMSFORD	54 CHELMSFORD ST	COMMERCIAL PROPERTY	120 DY	12/13/1996	REMOPS	1/18/2008	PHASE V		Oil
3-0014664	CHELMSFORD	76-80 CHELMSFORD ST	SUNOCO SERVICE STATION	120 DY	12/23/1996	TIER 1C	3/18/1998			Hazardous Material
3-0014716	CHELMSFORD	13 KIDDER RD	KENNEDY PROF SUPPLY	TWO HR	1/9/1997	RAO	5/12/1997		A2	Oil
3-0014920	CHELMSFORD	RAMP FROM RTE 3S TO RTE 495S	NO LOCATION AID	TWO HR	3/15/1997	RAO	6/8/1997		A1	Oil
3-0014934	CHELMSFORD	260 BILLERICA RD	NO LOCATION AID	72 HR	3/21/1997	RAO	3/24/1998		A2	Oil and Hazardous Material
3-0015083	CHELMSFORD	RTE 3N @ RTE 129	NO LOCATION AID	TWO HR	5/9/1997	RAO	5/8/1998		A2	Oil
3-0015143	CHELMSFORD	16 PROGRESS AVE	NYNEX LEASED GARAGE FACILITY	120 DY	5/22/1997	RAO	9/19/1997		A2	Oil
3-0015239	CHELMSFORD	RTE 3 SOUTHBOUND	NO LOCATION AID	TWO HR	6/25/1997	RAO	7/25/1997		A1	Oil
3-0015244	CHELMSFORD	RTE 40 AND MAIN ST	FRONT OF 148	TWO HR	6/25/1997	RAO	8/29/1997		A1	Hazardous Material
3-0015252	CHELMSFORD	RTE 495 S	RTE 4 &amp110	TWO HR	6/27/1997	RAO	8/28/1997		A2	Oil
3-0015509	CHELMSFORD	310 TRACY RD	NO LOCATION AID	120 DY	9/11/1997	RAO	9/11/1998		B1	Hazardous Material

RTN	City/Town	Release Address	Site Name/ Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type
3-0015620	CHELMSFORD	STEDMAN ST	NO LOCATION AID	120 DY	10/17/1997	ADEQUATE REG	7/27/1998			
3-0015728	CHELMSFORD	31 DRUM HILL RD	CUMBERLAND FARMS	TWO HR	11/19/1997	RAO	12/16/1997		A1	Oil
3-0015769	CHELMSFORD	RTE 495 SOUTH AT RTE 3 S	RTE 35 RAMP TO RTE 110	TWO HR	11/30/1997	RAO	1/30/1998		A1	Hazardous Material
3-0015882	CHELMSFORD	187 CHELMSFORD ST	BEST WESTERN HOTEL	TWO HR	1/5/1998	RAO	3/6/1998		A1	Oil
3-0016645	CHELMSFORD	15 QUIGLEY AVE	NORTH CHELMSFORD SUBSTATION	TWO HR	3/30/1998	RAO	3/31/1999		A3	Oil
3-0016647	CHELMSFORD	261 BILLERICA RD	NO LOCATION AID	120 DY	3/31/1998	DPS	1/22/1998			Oil
3-0016783	CHELMSFORD	700 WELLMAN AVE	WILLIAMSBURG CONDOMINIUMS	TWO HR	5/11/1998	RAO	7/20/1998		A1	
3-0016996	CHELMSFORD	9 ACTON RD	NO LOCATION AID	120 DY	7/1/1998	DPS	7/1/1998			Oil and Hazardous Material
3-0017070	CHELMSFORD	293 CHELMSFORD ST	INTERSECTION WITH GLENN AVE	120 DY	7/21/1998	RAO	7/21/1999		A2	Oil and Hazardous Material
3-0017075	CHELMSFORD	RTE 495 N	STATION # 87.4	TWO HR	7/23/1998	RAO	9/14/1998		A2	Oil
3-0017730	CHELMSFORD	3 KENNEDY DR	US POST OFFICE	120 DY	12/18/1998	RAO	8/27/2002	PHASE III	A2	Oil
3-0018870	CHELMSFORD	15 SPRAGUE AVE	NO LOCATION AID	TWO HR	10/22/1999	RAO	2/18/2000		A1	Oil
3-0018899	CHELMSFORD	RTE 495 N	NO LOCATION AID	TWO HR	10/29/1999	RAO	5/17/2000		A1	
3-0019088	CHELMSFORD	177 BOSTON RD	TRIANGLE SERVICE CENTER	120 DY	12/17/1999	RTN CLOSED	11/15/2000			Hazardous Material
3-0019627	CHELMSFORD	RTE 495 SOUTH EXIT TO RT 3 N	NO LOCATION AID	TWO HR	6/14/2000	RAO	8/14/2000		A1	Oil
3-0019820	CHELMSFORD	5 DRUM HILL RD	NO LOCATION AID	120 DY	8/1/2000	RAO	7/30/2003	PHASE III	B1	Oil and Hazardous Material
3-0020002	CHELMSFORD	279 BILLERICA RD	3M ELECTRICAL PRODUCTS DIVISION	120 DY	10/26/2000	RAO	3/12/2007		A2	Hazardous Material
3-0020073	CHELMSFORD	ACTON RD RTE 27	IN FRONT OF 371 ACTON RD	120 DY	10/25/2000	URAM	7/24/2001			Oil and Hazardous Material
3-0020242	CHELMSFORD	20 BOSTON RD	PARAMOUNT CLEANERS	72 HR	12/29/2000	RAO	5/18/2009		C1	Hazardous Material
3-0020264	CHELMSFORD	7 ACTON RD	NO LOCATION AID	72 HR	1/5/2001	RAO	10/29/2008			Oil and Hazardous Material
3-0020265	CHELMSFORD	30 CENTRAL SQ	NO LOCATION AID	72 HR	1/5/2001	RTN CLOSED	1/11/2002			Oil and Hazardous Material
3-0020316	CHELMSFORD	28 CENTRAL SQ	NO LOCATION AID	72 HR	1/26/2001	RTN CLOSED	1/23/2002			Hazardous Material
3-0020366	CHELMSFORD	RTE 495 NORTHBOUND	LOWELL REST AREA	TWO HR	2/3/2001	RAO	4/4/2001		A1	Oil
3-0020526	CHELMSFORD	16 PROGRESS AVE	NO LOCATION AID	TWO HR	3/26/2001	RAO	5/25/2001		A1	
3-0020612	CHELMSFORD	71 DRUM HILL RD	PLYMOUTH ST	72 HR	4/20/2001	RAO	6/19/2001		A2	Oil
3-0020939	CHELMSFORD	222 RIVERNECK RD	NO LOCATION AID	TWO HR	7/25/2001	RAO	9/25/2001		A1	Hazardous Material
3-0020955	CHELMSFORD	BRICK KILN RD	UPS RD	TWO HR	8/1/2001	RAO	11/16/2001		A1	Oil
3-0020974	CHELMSFORD	540 GROTON RD	NO LOCATION AID	TWO HR	8/7/2001	RAO	12/4/2001		A1	Oil
3-0020986	CHELMSFORD	LITTLETON RD	NO LOCATION AID	TWO HR	8/9/2001	RAO	11/29/2002		A1	Oil
3-0020999	CHELMSFORD	RTE 495 NORTHBOUND	MILE MARKER 87.7	TWO HR	8/13/2001	RAO	1/28/2002		A1	Oil
3-0021130	CHELMSFORD	49-50 HALL RD	ROADWAY	TWO HR	10/4/2001	RAO	12/3/2001		A2	
3-0021132	CHELMSFORD	JORDAN ST	UTILITY POLE 8	TWO HR	5/29/2001	RAO	9/24/2001		A2	
3-0021157	CHELMSFORD	FIELDSTONE DR	PROCTOR RD	TWO HR	10/15/2001	RAO	12/4/2001		A2	
3-0021411	CHELMSFORD	RTE 3 SOUTHBOUND AT RTE 495	NO LOCATION AID	TWO HR	1/25/2002	RAO	5/16/2002		A1	
3-0021644	CHELMSFORD	275 BILLERICA RD AND LOWELL CR	LOWELL CONNECTOR RAMP	120 DY	4/4/2002	DPS	4/4/2002			Hazardous Material
3-0021663	CHELMSFORD	95 CHELMSFORD ST	CHELMSFORD ST AND ALPINC LANE	120 DY	4/10/2002	RTN CLOSED	4/8/2003			Hazardous Material
3-0021903	CHELMSFORD	42 BRICK KILN RD	NO LOCATION AID	TWO HR	6/28/2002	RAO	8/22/2002		A2	Oil
3-0022108	CHELMSFORD	7 NORTH RD	CHELMSFORD FIRE STATION	TWO HR	9/15/2002	RAO	10/21/2002		A1	Oil
3-0022131	CHELMSFORD	95 CHELMSFORD ST	CHELMSFORD ST & ALPINE LANE	120 DY	9/20/2002	RTN CLOSED	4/8/2003			Hazardous Material
3-0022222	CHELMSFORD	27 KATRINA RD	NO LOCATION AID	TWO HR	10/17/2002	TIER1D	10/24/2003			Hazardous Material

RTN	City/Town	Release Address	Site Name/ Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type
3-0022306	CHELMSFORD	RTE 495 S	NO LOCATION AID	TWO HR	11/13/2002	RAO	1/17/2003		A1	Oil
3-0022533	CHELMSFORD	RTE 495 N	UTM 19T 307969ME 4719707MN EXIT 110	TWO HR	1/31/2003	RAO	3/31/2003		A1	Oil
3-0022572	CHELMSFORD	71 DRUMHILL RD	PUMPS 7 & 8	TWO HR	2/15/2003	RAO	4/7/2003		A1	Oil
3-0022616	CHELMSFORD	RT 495 S	NO LOCATION AID	TWO HR	2/22/2003	RAO	4/23/2003		A1	Oil
3-0022740	CHELMSFORD	20 BOSTON RD	NO LOCATION AID	TWO HR	4/2/2003	RTN CLOSED	4/1/2004			Hazardous Material
3-0023000	CHELMSFORD	RTE 495 S	NO LOCATION AID	TWO HR	7/10/2003	RAO	9/15/2003		A2	Oil and Hazardous Material
3-0023215	CHELMSFORD	RTE 495 S	SOUTH OF HUNT RD OVERPASS	TWO HR	9/29/2003	RAO	11/25/2003		A2	Oil
3-0023270	CHELMSFORD	189 CHELMSFORD ST	SHELL GASOLINE STATION	120 DY	10/7/2003	REMOPS	11/20/2009	PHASE V		Oil and Hazardous Material
3-0023444	CHELMSFORD	RTE 495 NORTHBOUND	1/2 MILE NORTH OF EXIT 34	TWO HR	12/15/2003	RAO	2/10/2004		A1	
3-0023455	CHELMSFORD	1 WARD WAY	FIRST STUDENT	TWO HR	12/18/2003	RAO	4/20/2004		A2	Oil
3-0023457	CHELMSFORD	81 TYNGSBORO RD	FORMER GULF STATION	120 DY	12/18/2003	TIER 2	2/20/2009			Hazardous Material
3-0023803	CHELMSFORD	RTE 495 SOUTH @ EXIT 35C	SOUTH OF ROUTE 3	TWO HR	4/26/2004	RAO	8/24/2004		A1	Oil
3-0023824	CHELMSFORD	7 NORTH RD	CENTRAL FIRE STATION	72 HR	5/3/2004	RAO	5/9/2005		A2	Oil
3-0023878	CHELMSFORD	@ 254 BILLERICA RD	UTILITY POLE NO. 68	TWO HR	5/19/2004	RAO	7/19/2004		A2	Oil
3-0023918	CHELMSFORD	I-495 NORTH ON RAMP TO RTE 3 N	ROADSIDE SPILL	TWO HR	5/28/2004	RAO	9/14/2004		A2	
3-0023927	CHELMSFORD	RTE 3 N	NO LOCATION AID	TWO HR	6/3/2004	RAO	10/1/2004		A1	
3-0024165	CHELMSFORD	63 CHELMSFORD ST	RT 110 BETWEEN VS RTE 495 AND FLETCHER S	TWO HR	8/20/2004	RAO	5/10/2005		A1	
3-0024284	CHELMSFORD	RTE 3 SOUTHBOUND	BEFORE EXT 29 (RTE 129)	TWO HR	9/29/2004	RAO	11/24/2004		A1	Oil
3-0024342	CHELMSFORD	I-495 S	REST AREA NEAR EXIT 33	TWO HR	10/19/2004	RAO	12/20/2004		A2	Oil
3-0024393	CHELMSFORD	OAK ST	UTILITY POLE #9	TWO HR	11/6/2004	RAO	12/22/2004		A1	Oil
3-0024443	CHELMSFORD	100 CHELMSFORD ST	AMPET GASOLINE STATION	120 DY	11/26/2004	RTN CLOSED	11/23/2005			Oil and Hazardous Material
3-0024487	CHELMSFORD	RTE 3 NORTHBOUND	BREAKDOWN LANE	TWO HR	12/12/2004	RAO	1/25/2005		A1	Oil
3-0024540	CHELMSFORD	RTE 3 N SOUTH OF EXIT 32	NO LOCATION AID	TWO HR	1/6/2005	RAO	3/8/2005		A1	Oil
3-0024563	CHELMSFORD	MILL RD	UTILITY POLE NO 63	TWO HR	1/14/2005	RAO	3/11/2005		A2	
3-0024688	CHELMSFORD	GELDING RD	UTILITY POLE NO 5	TWO HR	3/9/2005	RAO	4/22/2005		A1	Oil
3-0025012	CHELMSFORD	REISS AVE	MEADOWBROOK SUBSTATION	TWO HR	7/6/2005	RAO	9/7/2005		A2	
3-0025046	CHELMSFORD	100 DRUM HILL RD	SUNOCO SERVICE STATION	TWO HR	7/19/2005	RAO	11/16/2005		A1	Oil
3-0025108	CHELMSFORD	20 ALPHA RD	PAD-MOUNTED TRANSFORMER	120 DY	8/5/2005	RAO	8/5/2005		A2	Oil
3-0025194	CHELMSFORD	7 ACTON RD	NO LOCATION AID	120 DY	9/14/2005	RAO	10/29/2008			Oil
3-0025376	CHELMSFORD	FLETCHER ST	BEHIND ONE VILLAGE SQUARE	120 DY	11/9/2005	TIER 2	11/9/2006	PHASE V		Oil
3-0025489	CHELMSFORD	8 EMERSON AVE	COLONIAL OIL	TWO HR	12/15/2005	RAO	2/14/2006		A1	Oil
3-0025508	CHELMSFORD	GRANDVIEW RD	POLE NO. 4	TWO HR	12/15/2005	RAO	2/8/2006		A1	Oil
3-0025669	CHELMSFORD	95 CHELMSFORD RD	GASOLINE STATION	72 HR	2/17/2006	RTN CLOSED	2/6/2007			Hazardous Material
3-0025806	CHELMSFORD	71 DRUM HILL RD	CUMBERLAND FARMS INC	TWO HR	4/12/2006	RAO	5/18/2006		A1	Oil
3-0025836	CHELMSFORD	16 OAK ST	AGGREGATE INDUSTRIES	TWO HR	4/21/2006	RAO	6/20/2006		A1	
3-0025847	CHELMSFORD	16 OAK ST	AGGREGATE INDUSTRIES	TWO HR	4/26/2006	RAO	6/20/2006		A1	Oil
3-0025858	CHELMSFORD	RTE 495N	BETWEEN RTES 4 & 110	TWO HR	5/4/2006	RAO	7/10/2006		A2	Oil
3-0025883	CHELMSFORD	81 TYNGSBOROUGH RD	MOBIL STATION	TWO HR	5/15/2006	TIER 2	2/20/2009			Oil
3-0025972	CHELMSFORD	16 OAK ST	NO LOCATION AID	TWO HR	6/9/2006	RAO	8/8/2006		A1	Oil and Hazardous Material
3-0026062	CHELMSFORD	RTE 495S @ MM 86	NO LOCATION AID	TWO HR	7/18/2006	RAO	8/29/2006		A1	Oil

RTN	City/Town	Release Address	Site Name/ Location Aid	Reporting Category	Notification Date	Compliance Status	Date	Phase	RAO Class	Chemical Type
3-0026096	CHELMSFORD	16 OAK ST	AGGREGATE INDUSTRIES	TWO HR	7/26/2006	RAO	9/27/2006		A1	Oil
3-0026437	CHELMSFORD	RTE 495 NORTH @ RTE 3 EXIT	INTERCHANGE	TWO HR	12/1/2006	RAO	2/6/2007		A2	Oil
3-0026438	CHELMSFORD	40 PARKHURST RD	NO LOCATION AID	TWO HR	12/1/2006	RAO	1/30/2007		A2	Oil
3-0026536	CHELMSFORD	7 ACTON RD	GULF SERVICE STATION	TWO HR	1/18/2007	RAO	3/6/2007		A1	Oil
3-0026552	CHELMSFORD	250 APOLLO DR	PARKING LOT	TWO HR	1/30/2007	RAO	3/29/2007		A1	
3-0026715	CHELMSFORD	RTE 495 SOUTH EXIT 34	AT GOLDEN COVE ROAD	TWO HR	3/30/2007	RAO	7/27/2007		A2	Oil
3-0026737	CHELMSFORD	ADJACENT TO 756 WELLMAN AVE	PAD MOUNTED ELECTRICL TRNSFMR PAD #7B	120 DY	3/28/2007	RAO	4/6/2007		A2	Oil
3-0026862	CHELMSFORD	WELLMAN AVE	MERRIMACK RIVER	TWO HR	5/29/2007	RAO	8/31/2007		A1	Hazardous Material
3-0026923	CHELMSFORD	88 TURNPIKE RD	NO LOCATION AID	TWO HR	7/3/2007	RAO	8/24/2007		A1	Oil
3-0027017	CHELMSFORD	6 STUART RD	WNA COMET EAST INC	120 DY	8/3/2007	TIER 2	8/5/2008	PHASE II		
3-0027066	CHELMSFORD	30 CENTRAL SQ	TOWN CENTER	TWO HR	8/20/2007	RTN CLOSED	10/19/2007			Oil
3-0027095	CHELMSFORD	81 TYNGSBOROUGH RD	NO LOCATION AID	72 HR	9/10/2007	TIER 2	2/20/2009			Oil
3-0027190	CHELMSFORD	371 ACTON RD	NO LOCATION AID	120 DY	10/24/2007	TIER1D	10/31/2008			Oil and Hazardous Material
3-0027226	CHELMSFORD	16 OAK ST	NO LOCATION AID	TWO HR	11/1/2007	RAO	1/3/2008		A1	Oil
3-0027293	CHELMSFORD	RTE 495 N	OFFRAMP TO RTE 3 S	TWO HR	11/29/2007	RAO	1/7/2008		A1	Oil
3-0027297	CHELMSFORD	84 TURNPIKE RD	TP REALTY CO	120 DY	11/29/2007	RAO	10/14/2008		B1	Hazardous Material
3-0027446	CHELMSFORD	6 STUART RD	NO LOCATION AID	72 HR	1/17/2008	RTN CLOSED	8/5/2008			
3-0027537	CHELMSFORD	6 STUART RD	NON PCB PAD MOUNTED ELECTRICAL TRANSFORM	120 DY	2/29/2008	TIER 2	2/27/2009	PHASE II		Oil
3-0027688	CHELMSFORD	54 RICHARDSON RD	TOWN DPW YARD	TWO HR	5/12/2008	RAO	7/24/2008		A1	Oil
3-0027712	CHELMSFORD	21 ALPHA RD	NON-PCB PAD-MOUNTED ELECTRICAL TRANS	120 DY	5/23/2008	TIER 1C	5/22/2009	PHASE II		Oil
3-0027720	CHELMSFORD	16 OAK ST	AGGREGATE INDUSTRIES	TWO HR	5/27/2008	RAO	7/22/2008		A1	Oil
3-0027786	CHELMSFORD	21 ALPHA RD	NONPCB PAD MTD ELECTRICAL TRANSFMR	72 HR	6/20/2008	RTN CLOSED	5/22/2009			Oil
3-0027913	CHELMSFORD	81 TYNGSBOROUGH RD	GASOLINE STATION	72 HR	8/18/2008	RTN CLOSED	2/20/2009			Oil
3-0027953	CHELMSFORD	14-16 FLETCHER ST	NO LOCATION AID	72 HR	9/5/2008	RTN CLOSED	7/2/2009			Oil
3-0028264	CHELMSFORD	RTE 495 SOUTHBOUND	ROUTE 495 SOUTHBOUND @ LOWELL CONNECTOR	TWO HR	1/7/2009	RAO	3/11/2009		A1	
3-0028541	CHELMSFORD	MIDDLESEX ST	RAILROAD TRACKS	TWO HR	6/8/2009	RAO	8/7/2009		A2	Oil
3-0028543	CHELMSFORD	16 OAK ST	AGGREGATE INDUSTRIES	TWO HR	6/9/2009	RAO	7/24/2009		A1	Oil
3-0028577	CHELMSFORD	RTE 3 NORTHBOUND	ROUTE 3 NORTHBOUND - NORTH OF EXIT 32	TWO HR	6/24/2009	RAO	8/31/2009		A1	Oil
3-0028868	CHELMSFORD	16 OAK ST	AGGREGATE INDUSTRIES	TWO HR	11/7/2009	RAO	1/6/2010		A1	
3-0028910	CHELMSFORD	RTE 3 NORTHBOUND	ROUTE 3 NORTHBOUND (PRIOR TO EXIT #32)	TWO HR	11/22/2009	RAO	1/19/2010		A2	Oil
3-0029204	CHELMSFORD	RTE 3 S	ROUTE 3 SOUTH NORTH OF EXIT 32/ROUTE 4	TWO HR	4/14/2010	UNCLASSIFIED	4/14/2010			Oil
3-0029228	CHELMSFORD	3 WATERFORD PL	NO LOCATION AID	TWO HR	4/26/2010	UNCLASSIFIED	4/26/2010			Oil
3-0029230	CHELMSFORD	15 WATERFORD PL	NO LOCATION AID	TWO HR	4/26/2010	UNCLASSIFIED	4/26/2010			Oil

Chelmsford Master Plan
Vision Quest 2020

APPENDIX G

Historically Significant Structures, Places or Buildings

Inventory No.	Property Name	Street	Town	Year
CLM.A	Chelmsford Center Historic District		Chelmsford	
CLM.B	Chelmsford Center Historic District		Chelmsford	
CLM.C	Middlesex Canal Historic and Archaeological		Chelmsford	
CLM.D	Middlesex Canal		Chelmsford	
CLM.902	Clarke School for the Deaf Marker	Academy St	Chelmsford	1952
CLM.921	Chelmsford Revolutionary Monument	Academy St	Chelmsford	1859
CLM.37	Fletcher, William Benjamin House	1 Academy St	Chelmsford	1804
CLM.240	Chelmsford Central Baptist Church Parsonage	7 Academy St	Chelmsford	1955
CLM.239	Chelmsford Central Baptist Church	11 Academy St	Chelmsford	1868
CLM.280	Elliott, Jasper House	23-25 Acton Rd	Chelmsford	1890
CLM.266	Farwell, John House	35 Acton Rd	Chelmsford	1866
CLM.281	Jefts, William H. House	43 Acton Rd	Chelmsford	1890
CLM.62	Parkhurst, G. Thomas House	51 Acton Rd	Chelmsford	1893
CLM.309	Young, Louis A. House	77 Acton Rd	Chelmsford	1888
CLM.142	Young, Louis A. - Smith, George House	85 Acton Rd	Chelmsford	1887
CLM.283	Wright, Calvin - Chamberlain, Benjamin House	200 Acton Rd	Chelmsford	1843
CLM.298	Richardson, Elijah Jr. House	246 Acton Rd	Chelmsford	1853
CLM.67	Byam, Lyman - Proctor, Peter House	305 Acton Rd	Chelmsford	1824
CLM.275	South Chelmsford Village Improvement Association	318 Acton Rd	Chelmsford	1878
CLM.284	Byam, Ezekiel General Store and Post Office	321-323 Acton Rd	Chelmsford	1828
CLM.223	Byam, Stillman House	326 Acton Rd	Chelmsford	1843
CLM.222	Dudley, Dea. Benjamin House	330 Acton Rd	Chelmsford	1840
CLM.201	Larcom, Jonathan House	15 Adams Ave	Chelmsford	1850
CLM.282	Scoboria, Dr. Arthur G. House	Ann's Way	Chelmsford	1904
CLM.292	Dutton, Paul House	10 Bartlett St	Chelmsford	1896
CLM.18	Bartlett, Dr. John Call House	15 Bartlett St	Chelmsford	1792
CLM.149	Bartlett, Charles E. House	22 Bartlett St	Chelmsford	1890
CLM.908	Chelmsford Lime Quarries and Kilns	Beaver Brook	Chelmsford	1740
CLM.25	Fiske House	1 Billerica Rd	Chelmsford	1798

Inventory No.	Property Name	Street	Town	Year
CLM.24	All Saints' Episcopal Church Rectory	6 Billerica Rd	Chelmsford	1765
CLM.248	Fiske, Eustace B. House	9 Billerica Rd	Chelmsford	1929
CLM.247	Chelmsford All Saints' Episcopal Church	10 Billerica Rd	Chelmsford	1880
CLM.303	Ingham, William A. House	15-17 Billerica Rd	Chelmsford	1902
CLM.202	Fiske, Benjamin M. House	19 Billerica Rd	Chelmsford	1900
CLM.56	Holt, Emma Etta - MacElroy, Archibald G. House	27 Billerica Rd	Chelmsford	1911
CLM.23	Bridge, Ebenezer Jr. - Bailey, Joseph House	32 Billerica Rd	Chelmsford	1810
CLM.301	Parkhurst, Elizabeth R. House	37 Billerica Rd	Chelmsford	1889
CLM.153	Sweet, Almon J. House	40 Billerica Rd	Chelmsford	1883
CLM.114	Fowle, William R. House	41 Billerica Rd	Chelmsford	1893
CLM.259	Emerson, Warren House	44 Billerica Rd	Chelmsford	1875
CLM.260	Parker, Jesse H. House	49 Billerica Rd	Chelmsford	1875
CLM.261	Brown, Isaac Woodward - Bean House	55 Billerica Rd	Chelmsford	1888
CLM.262	Ricker, Fannie D. - Grant, Philena House	59 Billerica Rd	Chelmsford	1886
CLM.22	Spaulding, J. S. House	109 Billerica Rd	Chelmsford	1750
CLM.21	Manning, Jonathan Tavern and House	110 Billerica Rd	Chelmsford	1816
CLM.224	Adams Library	25 Boston Rd	Chelmsford	1894
CLM.219	Parkhurst, Henry House	41 Boston Rd	Chelmsford	1830
CLM.17	Parkhurst, H. House	47 Boston Rd	Chelmsford	1769
CLM.221	Manning, Lucinda House	55 Boston Rd	Chelmsford	1860
CLM.16	Lamphere, A. J. House	59 Boston Rd	Chelmsford	1830
CLM.14	Blanchard, John - Warren, Joseph House	97-101 Boston Rd	Chelmsford	1680
CLM.12	Parker, Jonathan House	134 Boston Rd	Chelmsford	1756
CLM.940	LeFebre, Lance Corporal Rudolph Jr. Monument	177 Boston Rd	Chelmsford	1967
CLM.320		14 Brick Kiln Rd	Chelmsford	1988
CLM.904	Chelmsford Town Pound Marker	Bridge St	Chelmsford	1926
CLM.229	Haley, Daniel and Patrick H. House	2 Bridge St	Chelmsford	1880
CLM.230	Haley, Daniel E. House	4 Bridge St	Chelmsford	1915
CLM.254	Robbins, Martin House	7 Bridge St	Chelmsford	1895

Inventory No.	Property Name	Street	Town	Year
CLM.270	Caverly, John H. House	11 Bridge St	Chelmsford	1892
CLM.72	Barrett, Thomas - Byam House	40 Byam Rd	Chelmsford	1740
CLM.319		50 Canal St	Chelmsford	1900
CLM.941	East Chelmsford World War II Veteran's Monument	Carlisle St	Chelmsford	1943
CLM.74	Marshall, Thomas House	61 Carlisle St	Chelmsford	1753
CLM.299	Norton, Michael H. House	84 Carlisle St	Chelmsford	1894
CLM.906	Chelmsford Concord Battle Monument	Central Sq	Chelmsford	1899
CLM.250	Wilson, George H. Sr. Stable	1 Central Sq	Chelmsford	1884
CLM.204	Wilson Block - Central House	3-8 Central Sq	Chelmsford	1884
CLM.20	Chelmsford Mill Company Office	24 Central Sq	Chelmsford	1846
CLM.249	Chelmsford Odd Fellows' Building	41-44 Central Sq	Chelmsford	1896
CLM.243	Kidder, Rothesay P. Commercial Block	59-61 Central Sq	Chelmsford	1922
CLM.58	Adams, Isaac Sr. and Charles House	24 Chamberlain Rd	Chelmsford	1800
CLM.945	Perham Park Armed Services Monument	Chelmsford St	Chelmsford	1925
CLM.205	Parkhurst, Edwin King Grocery Store	2 Chelmsford St	Chelmsford	1862
CLM.218	Hill, Asa Jr. - Osborn House	8 Chelmsford St	Chelmsford	1858
CLM.246	Ripley, Julia S. House	9-11 Chelmsford St	Chelmsford	1894
CLM.244	Sweetser, Ervin W. Restaurant and Store	10 Chelmsford St	Chelmsford	1923
CLM.206	Kittredge, Dr. Paul - Sweetser House	20 Chelmsford St	Chelmsford	1831
CLM.207	Kittredge, Dr. Francis M. - Howard House	21 Chelmsford St	Chelmsford	1833
CLM.245	Wilson, Edith F. House	24 Chelmsford St	Chelmsford	1894
CLM.285	Kydd's Diner and Ice Cream Stand	116 Chelmsford St	Chelmsford	1936
CLM.152	Scoble, William - Dowd, Francis House	191 Chelmsford St	Chelmsford	1890
CLM.312	McNelley, Mary - Bowers, Sewall House	15 Church St	Chelmsford	1872
CLM.910	NY, NH & H RR Bridge - Framingham Branch #5.66	Conrail	Chelmsford	1920
CLM.911	NY, NH & H RR Bridge - Framingham Branch #5.20	Conrail	Chelmsford	1930
CLM.912	NY, NH & H RR Bridge - Framingham Branch #4.09	Conrail	Chelmsford	1927
CLM.913	NY, NH & H RR Bridge - Framingham Branch #6.59	Conrail	Chelmsford	1920
CLM.109	Stetson, Zenas House	1 Cottage Row	Chelmsford	1836

Inventory No.	Property Name	Street	Town	Year
CLM.137	Drake, Lincoln - Pratt, Oliver R. House	7 Cottage Row	Chelmsford	1835
CLM.110	Drake, Capt. Lincoln - Woodward, Horace W. House	10 Cottage Row	Chelmsford	1840
CLM.132	Gay and Silver Machine Shop Worker Housing	15 Cottage Row	Chelmsford	1844
CLM.903	Chelmsford First Town Meeting Marker	Crosby Ln	Chelmsford	1925
CLM.40	Fletcher, Capt. Josiah House	14 Crosby Ln	Chelmsford	1802
CLM.273	Corey, George House	4 Dalton Rd	Chelmsford	1858
CLM.42	Perham, Proctor House	30 Dalton Rd	Chelmsford	1720
CLM.99	Spalding, John House	21 Davis Rd	Chelmsford	1820
CLM.4	Adams, Thomas J. Reed Factory	15-21 Dunstable Rd	Chelmsford	1835
CLM.80	Blodgett House	100 Dunstable Rd	Chelmsford	1860
CLM.118	Richardson, Jonathan House	133-135 Dunstable Rd	Chelmsford	1725
CLM.308	Trubey, Arthur William House	204 Dunstable Rd	Chelmsford	1890
CLM.121	Cummings, Oliver House	2 Edwards Ave	Chelmsford	1844
CLM.123	Pike, James Jr. - Edwards, Dr. Nathan B. House	6 Edwards Ave	Chelmsford	1845
CLM.82	Sheldon, Arthur H. - Swett, Charles House	14 Edwards Ave	Chelmsford	1845
CLM.279	Peckens, Rev. John House	19 Elm St	Chelmsford	1782
CLM.108	Hutchins, Oliver House	79 Elm St	Chelmsford	1820
CLM.212	Knowlton, John K. House	14 Evergreen St	Chelmsford	1898
CLM.208	Proctor, Charles and Jonas R. House	22 Fletcher St	Chelmsford	1840
CLM.801	Heart Pond Cemetery	Garrison Rd	Chelmsford	1776
CLM.11	Parker, Jonathan House	105 Garrison Rd	Chelmsford	1775
CLM.100	Old Chelmsford Garrison House Complex	105 Garrison Rd	Chelmsford	1702
CLM.135	Gay and Silver Machine Shop Worker Housing	43 Gay St	Chelmsford	1840
CLM.136	Rogers, Edmund - Ridings, Peter House	44 Gay St	Chelmsford	1847
CLM.127	Gay, Silver and Company Workers House	47 Gay St	Chelmsford	1835
CLM.129	Kennon, Willard M. - Grow, D. Alonzo House	48 Gay St	Chelmsford	1855
CLM.128	Pierce, Joseph B. - Ripley, Royal S. House	55 Gay St	Chelmsford	1850
CLM.274	Mitchell, William A. House	31 Golden Cove Rd	Chelmsford	1888
CLM.91	Middlesex Turnpike Toll House	47 Golden Cove Rd	Chelmsford	1810

Inventory No.	Property Name	Street	Town	Year
CLM.943	Blazonis, Peter V. Monument	Gorham St	Chelmsford	1991
CLM.919	Fletcher Granite Company	Groton Rd	Chelmsford	1880
CLM.949	Harvey Family Monument	2 Harvey Rd	Chelmsford	1989
CLM.93	Parkhurst, Sewall House	35 High St	Chelmsford	1820
CLM.150	Rix, Dr. Frank R. House	55 High St	Chelmsford	1893
CLM.307	Marshall, Thomas W. House	58-60 High St	Chelmsford	1876
CLM.306	Brennan, Peter J. House	61 High St	Chelmsford	1891
CLM.141	Elliot, Jasper - Smith, William H. House	66 High St	Chelmsford	1876
CLM.151	Hanson, Enos H. House	72 High St	Chelmsford	1882
CLM.3	Parkhurst, S. Waldo House	78 High St	Chelmsford	1876
CLM.315	Luce, Jedd C. House	79 High St	Chelmsford	1916
CLM.302	Elliott, Ephraim House	84 High St	Chelmsford	1881
CLM.258	Woodworth, Artemas B. House	85 High St	Chelmsford	1883
CLM.316	Lane, Daniel W. - Gage, Roger W. House	94 High St	Chelmsford	1878
CLM.922	I-495 Access Road Bridge	I-495	Chelmsford	1961
CLM.932	I-495 Bridge over Route 3	I-495	Chelmsford	1961
CLM.251	Osborn Service Station	8 Littleton Rd	Chelmsford	1950
CLM.209	Chelmsford Ginger Beer and Ale Company	28-34 Littleton Rd	Chelmsford	1913
CLM.265	Hutchins, Matthias House	46-48 Littleton Rd	Chelmsford	1892
CLM.269	Hutchins, Matthias House	52-54 Littleton Rd	Chelmsford	1893
CLM.278	Parkhurst, Charles E. House	53 Littleton Rd	Chelmsford	1890
CLM.113	Ludwig, John - Hall, William H. House	57 Littleton Rd	Chelmsford	1890
CLM.263	Parkhurst, Charles E. House	65 Littleton Rd	Chelmsford	1888
CLM.933	Lowell Connector Bridge over Route 3	Lowell Connector	Chelmsford	1960
CLM.946	Clark, Allan and Herbert World War II Memorial	Main Rd	Chelmsford	2000
CLM.961	Quessy, Cpl. George Ralph Monument	Main St	Chelmsford	1925
CLM.84	Messenger, Elias House	189 Main St	Chelmsford	1828
CLM.86	Messenger, George S. - Perry, John N. House	197 Main St	Chelmsford	1827
CLM.87	Farwell, Dea. John - Roby, Christopher House	203 Main St	Chelmsford	1823

Inventory No.	Property Name	Street	Town	Year
CLM.57	Pollard, Dawson House	231 Main St	Chelmsford	1837
CLM.214	Chelmsford First Baptist Church	2-4 Maple Rd	Chelmsford	1836
CLM.69	Byam, Marcus D. House	11 Maple Rd	Chelmsford	1835
CLM.70	Hildreth - Robbins House	19 Maple Rd	Chelmsford	1735
CLM.112	Sweetser, Lorenzo - Fletcher, Benjamin House	45 Maple Rd	Chelmsford	1898
CLM.909	Meadowbrook Road Bridge over unnamed canal	Meadowbrook Rd	Chelmsford	1950
CLM.907	Middlesex Canal	Middlesex Canal	Chelmsford	1802
CLM.294	U. S. Worsted Company - Silesia Woolen Mills	Middlesex St	Chelmsford	1912
CLM.802	Riverside Cemetery	Middlesex St	Chelmsford	1845
CLM.965	North Chelmsford Vietnam War Memorial	Middlesex St	Chelmsford	2006
CLM.139	Varney, Dr. House and Office	34 Middlesex St	Chelmsford	1901
CLM.83	Hall House	35 Middlesex St	Chelmsford	1840
CLM.300	U. S. Worsted Company - Silesia Woolen Mills	51-57 Middlesex St	Chelmsford	1910
CLM.122	Britton, Jared B. - Woodward, Horace Watson House	54 Middlesex St	Chelmsford	1844
CLM.226	Brookside Railroad Station	60-66 Middlesex St	Chelmsford	1850
CLM.210	Chelmsford Schoolhouse #4	Mill Rd	Chelmsford	1870
CLM.211	Chelmsford Center Railroad Station	37 Mill Rd	Chelmsford	1871
CLM.6	Adams, Joseph - Russell, Abbott House	101 Mill Rd	Chelmsford	1816
CLM.7	Adams, Dea. Benjamin - Hodge, Benjamin House	171 Mill Rd	Chelmsford	1775
CLM.81	Chamberlain, Isaac House	3 Mission Rd	Chelmsford	1810
CLM.111	Spaulding, John F. - McGuinness, William House	35 Newfield St	Chelmsford	1897
CLM.138	Ripley, Lewis House	75 Newfield St	Chelmsford	1850
CLM.905	Chelmsford War Memorial	North Rd	Chelmsford	1955
CLM.951	Veterans' Memorial Park	North Rd	Chelmsford	1990
CLM.952	Veterans' Memorial Park - Desert Storm Monument	North Rd	Chelmsford	1991
CLM.953	Veterans' Memorial Park - POW/MIA Monument	North Rd	Chelmsford	1992
CLM.954	Bagni, William L. Memorial Stone and Bridge	North Rd	Chelmsford	1991
CLM.955	Veterans' Memorial Park - Contributor's Stone	North Rd	Chelmsford	1997
CLM.956	Veterans' Memorial Park - Soldiers Wall	North Rd	Chelmsford	1992

Inventory No.	Property Name	Street	Town	Year
CLM.957	Merrimac Valley Vietnam Veterans Memorial Stone	North Rd	Chelmsford	1997
CLM.958	Veterans' Memorial Park - Soldier & Boy Stone	North Rd	Chelmsford	1995
CLM.959	Veterans' Memorial Park - Kinney, Milton Bench	North Rd	Chelmsford	1998
CLM.962	Operations Enduring - Iraqi Freedom Monument	North Rd	Chelmsford	2005
CLM.36	Davis, Albert H. - Richardson House	1-3 North Rd	Chelmsford	1844
CLM.225	Chelmsford Old Town Hall	1 North Rd	Chelmsford	1879
CLM.242	Davis, Leslie Richardson House	5 North Rd	Chelmsford	1904
CLM.241	Chelmsford Center Fire Station	7 North Rd	Chelmsford	1952
CLM.38	Emerson, J. P. House	11 North Rd	Chelmsford	1836
CLM.115	Hodges, Frank H. House	32-34 North Rd	Chelmsford	1877
CLM.39	Fletcher, William House	33 North Rd	Chelmsford	1819
CLM.271	Holt, Almon W. House	43 North Rd	Chelmsford	1883
CLM.41	Spaulding, Col. Simeon House	75 North Rd	Chelmsford	1736
CLM.43	Butterfield, Capt. John House	96 North Rd	Chelmsford	1750
CLM.256	Whittemore, Floyer J. House	127 North Rd	Chelmsford	1890
CLM.49	Spaulding, Henry 3rd - Staples, William H. House	212 North Rd	Chelmsford	1801
CLM.960	Chelmsford Police Officers' Monument	2 Old North Rd	Chelmsford	2003
CLM.33	Spaulding, Dea. Isaiah House	263 Old Westford Rd	Chelmsford	1735
CLM.276	Park, Alexander J. House	69 Park Rd	Chelmsford	1898
CLM.50	Parkhurst, John R. and Andrew House	16 Parkhurst Rd	Chelmsford	1804
CLM.98	Shed, John House	217 Pine Hill Rd	Chelmsford	1830
CLM.900	B & M Railroad Bridge - Stony Brook Branch #12.8	Princeton St	Chelmsford	1955
CLM.918	North Chelmsford Canal	Princeton St	Chelmsford	1823
CLM.131	Wright, Samuel T. - Swett, George House	25-27 Princeton St	Chelmsford	1873
CLM.124	North Chelmsford Town Hall	31 Princeton St	Chelmsford	1853
CLM.126	Drake, Lincoln - Kennon, Ephraim House	38 Princeton St	Chelmsford	1835
CLM.125	North Chelmsford Congregational Church Parsonage	45 Princeton St	Chelmsford	1870
CLM.293	Silver and Gay's Machine Shop	70 Princeton St	Chelmsford	1850
CLM.296	Southwell Wool Combing Company	70 Princeton St	Chelmsford	1922

Inventory No.	Property Name	Street	Town	Year
CLM.297	Chelmsford Foundry Company	70 Princeton St	Chelmsford	1890
CLM.295	Moore, George C. Company	71 Princeton St	Chelmsford	1850
CLM.286	Moore, George C. Wool Scouring Mill	87 Princeton St	Chelmsford	1903
CLM.311	Gorman, Phillip House	201 Princeton St	Chelmsford	1852
CLM.54	Bateman, Lt. John House	4 Proctor Rd	Chelmsford	1790
CLM.252	Chelmsford Grange Hall	17 Proctor Rd	Chelmsford	1908
CLM.964	September 11 Memorial Bench	200 Richardson Rd	Chelmsford	2003
CLM.924	Riverneck Road Bridge over Route 3	Riverneck Rd	Chelmsford	1954
CLM.318		121 Riverneck Rd	Chelmsford	2005
CLM.942	Middlesex Canal Monument	127 Riverneck Rd	Chelmsford	1987
CLM.950	Parkhurst's Pulpit	10 Robin Hill Rd	Chelmsford	1850
CLM.104	Parkhurst, Rev. John House	147 Robin Hill Rd	Chelmsford	1823
CLM.65	Osgood, Hannah House	187 Robin Hill Rd	Chelmsford	1842
CLM.305	Spaulding, Orrin J. House	192 Robin Hill Rd	Chelmsford	1879
CLM.963	Lucifer Match Factory Monument	192 Robin Hill Rd	Chelmsford	1975
CLM.66	Parker, Eli Packard House	195 Robin Hill Rd	Chelmsford	1840
CLM.931	Route 129 Bridge over Route 3	Rte 129	Chelmsford	1954
CLM.923	Route 3 Bridge over B & M Railroad	Rte 3	Chelmsford	1959
CLM.925	Route 3 Bridge over Conrail	Rte 3	Chelmsford	1941
CLM.926	Route 3 Bridge over Route 110	Rte 3	Chelmsford	1941
CLM.927	Route 3 Bridge over Parkhurst Road	Rte 3	Chelmsford	1941
CLM.934	Route 3 Bridge over River Meadow Brook	Rte 3	Chelmsford	1959
CLM.935	Route 3 Bridge over Richardson Road	Rte 3	Chelmsford	1959
CLM.936	Route 3 Bridge over Stony Brook	Rte 3	Chelmsford	1959
CLM.937	Route 3 Bridge over Moores Canal	Rte 3	Chelmsford	1961
CLM.938	Route 3 Bridge over Main Street	Rte 3	Chelmsford	1959
CLM.939	Route 3 Bridge over Route 40	Rte 3	Chelmsford	1959
CLM.929	Eastbound Route 4 Bridge over Route 3	Rte 4	Chelmsford	1958
CLM.930	Westbound Route 4 Bridge over Route 3	Rte 4	Chelmsford	1958

Inventory No.	Property Name	Street	Town	Year
CLM.803	West Chelmsford Cemetery	School St	Chelmsford	1855
CLM.310	Whidden, John H. - Olson, Sven House	32 School St	Chelmsford	1862
CLM.255	Holt, George H. - Reis, Andrew House	108 School St	Chelmsford	1870
CLM.228	Chelmsford District Schoolhouse #7	142 School St	Chelmsford	1877
CLM.35	Spaulding, George House	55 Spaulding Rd	Chelmsford	1775
CLM.928	Stedman Street Bridge over Route 3	Stedman St	Chelmsford	1940
CLM.215	Golden Cove School	12 Stedman St	Chelmsford	1896
CLM.267	Butters, Stella J. House	34 Stedman St	Chelmsford	1895
CLM.917	Stony Brook Railroad Bridge	Stony Brook	Chelmsford	1850
CLM.901	Chelmsford World War I Monument	Vinal Sq	Chelmsford	1922
CLM.143	Davis, Alonzo A. House	5-7 Washington St	Chelmsford	1854
CLM.120	Wright, Samuel T. - Whidden, George W. House	16 Washington St	Chelmsford	1876
CLM.133	Southland, Henry House	29 Washington St	Chelmsford	1852
CLM.1	Chelmsford Brick Schoolhouse	Westford St	Chelmsford	1802
CLM.2	Merrimack River Locks Toll House	Westford St	Chelmsford	1832
CLM.804	Forefathers' Cemetery	Westford St	Chelmsford	1690
CLM.238	Ward, Charles C. House	1-3 Westford St	Chelmsford	1884
CLM.213	First Parish Unitarian Universalist Church	2 Westford St	Chelmsford	1842
CLM.217	Sullivan - Haley, Patrick House	4 Westford St	Chelmsford	1845
CLM.231	Day, George W. House	8 Westford St	Chelmsford	1908
CLM.232	Robbins, Edward J. House	12 Westford St	Chelmsford	1904
CLM.237	Gale, Lyman S. - Smith House	15 Westford St	Chelmsford	1881
CLM.29	Packard, Rev. Hezikiah House	16 Westford St	Chelmsford	1794
CLM.233	Elliott, Jasper House	22 Westford St	Chelmsford	1887
CLM.234	Dutton, Lewis M. House	28 Westford St	Chelmsford	1880
CLM.95	Mansfield - Emerson, Arthur House	41 Westford St	Chelmsford	1790
CLM.140	Perham, Walter House	45 Westford St	Chelmsford	1897
CLM.313	Proctor, Henry B. House	46 Westford St	Chelmsford	1884
CLM.304	Kimball, Wilson House	54 Westford St	Chelmsford	1887

Inventory No.	Property Name	Street	Town	Year
CLM.31	Spaulding, Joseph and Benjamin House	219 Westford St	Chelmsford	1690
CLM.32	Spaulding, Edward House	243 Westford St	Chelmsford	1664
CLM.236	Chelmsford Central Congregational Church	1 Worthen St	Chelmsford	1959
CLM.235	Nichols, Martha E. - Hemenway, Rodney F. House	9 Worthen St	Chelmsford	1909
CLM.27	Davis, Samuel House	10 Worthen St	Chelmsford	1790
CLM.28	Proctor, Azariah Jr. House	14 Worthen St	Chelmsford	1808
CLM.920	Wotton Road - Deep Brook Railroad Bridge	Wotton Rd	Chelmsford	1937
CLM.314	Bradley, John House	25-27 Wright St	Chelmsford	1874
CLM.119	Sprague, Cordice R. - Vinal, Fred I. House	36 Wright St	Chelmsford	1873
CLM.317	Fletcher - Wright, Otis D. House	37-39 Wright St	Chelmsford	1872

Search Criteria: Town(s): Chelmsford; Resource Type(s): Area, Building, Burial Ground, Object and Structure

Source: Massachusetts Historical Commission, MACRIS, www.sec.state.ma.us/mhc

Chelmsford Master Plan
Vision Quest 2020

APPENDIX H

Energy Conservation Projects Detailed Itemization

Town of Chelmsford
Department of Public Facilities
Updated 10/20/09

Energy Rebates Massachusettes Electric Co.

Location	Year	Item	MECO Rebate	Savings To Date
Parker School	1998	DDC Controls	14,400	170,379.00
Byam School	2001	DDC Controls	7,200	77,192.00
Harrington School	2001	DDC Controls	7,200	77,192.00
Westlands School	2002	DDC Controls	7,200	45,920.00
Chelmsford High School	2002	DDC Controls	1,200	18,788.00
Center School	2003	DDC Controls	14,400	110,208.00
South Row School	2003	DDC Controls	7,200	13,692.00
Parker School	2003	Added to DDC Controls	8,000	14,718.00
Parker School	2004	Added to DDC Controls	4,000	6,130.00
South Row School	2006	DDC Controls Full Building	14,400	14,733.00
Total			**85,200**	**548,952.00**

Town of Chelmsford

Department of Public Facilities

National Grid Lighting Project

Updated 10/20/09

Building	Project Year	Estimated Savings Per Year	Pay Back Period in Months	1st Year Savings	Savings to Date	MECO Contribution	Town Contribution
Westlands School	1997	3,583.00			36,582.44		
South Row School	1998	3,180.00			33,540.00		
Harrington School	2000	2,075.00	4	1,383.44	15,563.52	39,602.04	7,920.41
Byam School	2000	2,040.00	4	1,360.24	15,302.16	41,301.78	8,260.36
Chelmsford High School	2004	15,857.89	36	-15,857.89	48,895.13	117,459.44	46,983.78
Parker Middle School	2005	8,144.24	14	-1,357.38	29,861.84	46,453.38	9,290.68
McCarthy Middle School	2005	4,971.71	18	-2,485.86	14,915.16	37,858.29	7,571.66
North Fire	2007	441.35	10	73.56	735.60	1,849.24	314.37
West Fire	2007	427.34	13	-35.62	605.36	2,249.23	382.37
East Fire	2007	1,802.65	10	300.44	3,004.40	7,199.44	1,223.90
South Fire	2007	549.22	9	137.31	961.18	2,127.59	361.69
Center Fire	2007	1,002.51	11	91.14	1,594.86	4,652.45	790.92
Byam School	2009	916.31	19.5	-916.31	-916.31	4,090.44	1,753.05
Center School	2009	1,353.92	17.3	-1,353.92	-1,353.92	5,347.22	2,291.67
South Row School	2009	759.36	20.3	-759.36	-759.36	3,531.56	1,513.53
Harrington School	2009	568.79	28.4	-568.79	-568.79	3,691.67	1,582.14
Westlands School	2009	1,001.20	19.6	-1,001.20	-1,001.20	4,492.43	1,925.33
Total		**48,674.49**		**-20,990.20**	**196,962.07**	**321,906.20**	**92,165.86**

Town of Chelmsford
Department of Public Facilities

School Building Project Rebates

Updated 10/20/09

Location	Company	Date	Amount		1st Year Savings	Savings To Date
Parker School	Keyspan Rebate	March 3, 2005	30,735	95% Efficient Boilers/Controls - Full Modulating Steam Boiler	56,045	256,873
McCarthy School	National Grid	November 16, 2006	9,330	New Lighting Fixtures	1,683	4,909
Parker School	National Grid	November 28, 2006	2,765	HVAC Cool Choice	1,018	2,969
Chelmsford High School	National Grid	November 28, 2006	7,818	HVAC Rebate	3,456	10,080
Parker School	National Grid	December 6, 2006	1,425	New Lighting Fixtures	204	578
McCarthy School	National Grid	December 12, 2006	2,694	Performance Lighting	1,421	4,026
McCarthy School	National Grid	February 2, 2007	3,600	Variable Frequency Drives	4,507	12,019
McCarthy School	Keyspan Rebate	February 13, 2007	28,500	Aerco Boilers and DHW	92,556	246,816
Chelmsford High School	National Grid	February 28, 2007	1,155	Motors	1,165	3,107
Chelmsford High School	Keyspan Rebate	February 22, 2007	23,414	Roof, DVC Controls, HVAC Roof Top Units	57,830	154,213
Parker School	Keyspan Rebate	February 22, 2007	8,129	Novar Controls, High Performanc Windows	22,659	60,424
McCarthy School	Keyspan Rebate	February 22, 2007	30,021	Novar Controls, BMS, High Performanc Windows	48,086	128,229
McCarthy School	National Grid	March 22, 2007	243	Motors	268	692
Total			**149,829**		**290,898**	**884,935**

Town of Chelmsford
Department of Public Facilities

Energy Rebates Keyspan
Updated 10/20/09

Location	Date	Amount	Project	1st Year Savings	Savings To Date
Chelmsford High School	September 19, 2001	22,500	95% Efficient Boilers	81,000	654,750
Chelmsford High School	September 19, 2001	2,500	BMS	3,750	30,313
Byam School	October 1, 2002	18,000	95% Efficient Boilers	6,810	47,670
Harrington School	October 1, 2002	18,000	95% Efficient Boilers	8,947	62,629
Westlands School	October 1, 2002	12,000	95% Efficient Boilers	8,280	57,960
Byam School	November 14, 2002	5,805	Boiler Reset/EMS/Separation of DHW and Pipe Insulation	5,337	36,470
Harrington School	November 14, 2002	5,805	Boiler Reset/EMS/Separation of DHW and Pipe Insulation	5,337	36,470
Westlands School	November 14, 2002	6,217	Boiler Reset/EMS/Separation of DHW and Pipe Insulation	6,402	43,747
Center School	January 8, 2003	1,228	EMS Computer	1,125	7,594
South Row School	January 11, 2002	11,727	High Performance Windows/Full Modulating Burners/BMS/EMS	18,779	145,537
Parker School	January 11, 2005	6,735	Novar DDC Tie In/Full Modulating Burner	10,228	48,583
Harrington School	February 4, 2005	1,377	Roof Insulation	0	0
Byam School	March 27, 2004	4,899	High Performance Windows	7,887	44,036
Harrington School	March 27, 2004	5,913	High Performance Windows	9,520	53,153
Westlands School	March 27, 2004	3,183	High Performance Windows	5,125	28,615
West Fire Station	July 3, 2007	2,350	Convert Oil Boiler to Gas	0	0
Total		**128,239**		**178,527**	**1,297,525**

Chelmsford Master Plan
Vision Quest 2020

APPENDIX I

School Buildings:

Debt Exemption Improvement List

Town Supported 31 Million Debt Exemption Improvement List

Chelmsford High School **$17,025,379.29**

Fire Alarm – Technology upgrade to electrical
Science Wing Renovation – 16 new 1,200 square foot Science Labs/Classrooms
- 2 new Computer Labs
- 1 Consumer Science Room

New 1000 seat Auditorium
New rooftop units with DDC Controls
New roof and exhaust fans
Rebuild fire pump
Ceiling replacement hallways
Renovation of School Administration Building

McCarthy Middle School **$8,249,339.52**

New roof, phase 3 and roof top exhaust fans
Electrical upgrades for Technology
New windows
New 5,000 square foot Library
Renovation to Music/Art Wing – 6 new classrooms
4 new classrooms (former Library)
Complete new heating system
New DDC Controls
Some ceiling replacement

Parker Middle School **$5,159,895.31**

New modular classrooms (4 rooms)
New boilers
Electrical upgrade for Technology
New Windows
New 5,000 square foot Library
2 – 1,200 square foot Computer Labs
New boys and girls bathrooms
New access corridor
Repave and stripe rear lot
New roof top exhaust fans
New floor tile in hallways
Repaint all hallways (ceilings/walls)
Repaint all lockers
Repaint Gym (ceilings/walls)

Chelmsford Master Plan
Vision Quest 2020

APPENDIX J

School Buildings:
Capital Improvements
1999-2010

CHELMSFORD SCHOOLS CAPITAL IMPROVEMENTS 1999-2010

SCHOOL	YEAR	IMPROVEMENT		AMOUNT
Byam	2001	Fire Alarm Electrical Upgrade		258,750.00
Byam	2002	Boiler Replacement		200,000.00
Byam	2004	Window Replacement		275,000.00
Byam	2004	Generator Replacement		65,000.00
Byam	2005	Roof Top Exhaust Fans		35,000.00
Byam	2006	Chalkboard Replacement		15,000.00
Byam	2006	Classroom Furniture		44,000.00
Byam	2007	Parking Lot & Sidewalks		140,000.00
Byam	2008	Floor Tile Replacement		100,000.00
			Byam Total	1,132,750.00
Harrington	2001	Fire Alarm Electrical Upgrade		258,750.00
Harrington	2002	Boiler Replacement		200,000.00
Harrington	2004	New Roof & Roof Top Exhaust		375,000.00
Harrington	2004	Window Replacement		275,000.00
Harrington	2005	Generator Replacement		67,600.00
Harrington	2006	Chalkboard Replacement		15,000.00
Harrington	2007	Floor Tile Replacement		112,000.00
			Harrington Total	1,303,350.00
South Row	1999	New Roof		340,000.00
South Row	2001	Fire Alarm Electrical Upgrade		258,750.00
South Row	2002	Window Replacement		285,000.00
South Row	2003	Boiler & Generator Replacement		240,100.00
South Row	2005	Univent Replacement		386,000.00
South Row	2006	Chalkboard Replacement		10,000.00
South Row	2006	Floor Tile Replacement		90,000.00
South Row	2006	Parking Lot, Curbs & Sidewalks		100,000.00
South Row	2006	Classroom Furniture		44,000.00
			South Row Total	1,753,850.00
Westlands	2001	Fire Alarm Electrical Upgrade		258,750.00
Westlands	2002	Boiler Replacement		200,000.00
Westlands	2003	New Roof & Roof Top Exhaust		330,000.00
Westlands	2004	Window Replacement		225,000.00
Westlands	2005	Generator		67,600.00
Westlands	2006	Chalkboard Replacement		10,000.00
Westlands	2006	Classroom Furniture		44,000.00
Westlands	2008	Floor Tile Replacement		80,000.00
			Westlands Total	1,215,350.00

CHELMSFORD SCHOOLS CAPITAL IMPROVEMENTS 1999-2010

SCHOOL	YEAR	IMPROVEMENT		AMOUNT
CHS	2006	Roof Replacement		750,000.00
CHS	2007	Chalkboard Replacement		46,000.00
CHS	2008	Security - Emclose Stariwells		625,000.00
CHS	2008	Carpet, Casework, Furniture Library IDC's		270,000.00
CHS	2008	Lockers		258,000.00
CHS	2009	Building Façade		350,000.00
CHS	2009	Stadium Seating and Press Boxes		625,000.00
			CHS Total	2,924,000.00
McCarthy	2001	Roof Replacement		390,000.00
McCarthy	2004	Roof Replacement		400,000.00
McCarthy	2008	Chalkboard Replacement		40,000.00
McCarthy	2008	Locker Replacement		87,000.00
McCarthy	2009	Gymnasium Upgrade		125,000.00
			McCarthy Total	1,042,000.00
Parker	2003	Modular Classrooms		400,000.00
Parker	2008	Chalkboard Replacement		25,000.00
Parker	2008	Roof Replacement		750,000.00
			Parker Total	775,000.00
School Administrtion	2006	Partial Renovation and Addition		750,000.00
			Admin. Total	750,000.00
			School Total	10,896,300.00

CHELMSFORD TOWN BUILDINGS CAPITAL IMPROVEMENTS 1999-2010

BUILDING	YEAR	IMPROVEMENT	AMOUNT
Town Offices	FY2003	Roof Replacement - last 2 areas done, all levels complete	25,000.00
Town Offices	FY2003	Exterior Rehab/Window Replacement-1st phase	80,000.00
Town Offices	FY2009	Window Replacement - 2nd phase	95,000.00
Old Town Hall	FY2001	Air Conditioning	60,000.00
Old Town Hall	FY2004	Roof	43,000.00
Highway Department	FY2009	Ventilation Project	35,000.00
Senior Center	FY1999	Kitchen Steamer	15,000.00
Senior Center	FY2000	Kitchen Equipment	19,000.00
Senior Center	FY2005	Carpet Replacement	27,000.00
Senior Center	FY2009	Parking Lot Repavement	36,560.00
Senior Center	FY2010	Boilerless Steamer	37,500.00
West Fire	FY1999	Roof	15,000.00
North Fire	FY2000	Roof	15,000.00
Center/North/South	FY2003	Boiler Replacements	78,000.00
North/West Fire	FY2007	Roof Replacement	50,000.00
Library Dutton House	FY2002	Improvements-roof,painting,siding and floor shoring	50,000.00
		Town Total	681,060.00
		School and Town Total	**11,577,360.00**

Chelmsford Master Plan
Vision Quest 2020

APPENDIX K

Capital Improvement Program Summary Fiscal Years 2011-2020

Town of Chelmsford
Capital Improvement Program Summary
Fiscal Years 2011-2020

Projects by Functional Category	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	Total
Municipal Facilities											
Town Offices											
Renovation gym, restrooms, stage, heating, Parking lot lighting		$166,400									$166,400
Parking lot, curbs and walks				$28,125							$28,125
Roof replacement						$140,000					$140,000
Adams Library								$227,040			$227,040
Upgrade to controlers for 3 AHU's			$25,000								$25,000
MacKay Library											
Repair clap boards, replace shutters and paint			$25,000								$25,000
Roof replacement					$40,950						$40,950
Center Fire Station											
Renovation or replacement of Fire Headquarters will be re-visited to come up with a solid plan on what is best for the town that can be brought to the town residence.			$5,000,000							$7,000,000	$12,000,000
East Fire Station											
Roof replacement		$56,000		$78,740							$78,740
Replace hose tower											$56,000
North Fire Station											
South Fire Station											
Roof replacement							$63,540				$63,540
West Fire Station											
DPW Facility											
DPW on Alpha Road phase 1 is scheduled to be on the ballet for April 6th for 4.6million. A proposed Phase 2 is to be brought to the table in 2015 for 6.0million.	$4,600,000				$6,000,000						$10,600,000
Police Station and Maint Garage											
Center Town Hall (Old)											
The Old Town Hall is to go to a vote at town meeting in April by the CPC. It is for a full renovation of 2.56million.	$2,560,000										$2,560,000
North Town Hall											
The North Town Hall is also going to a vote at April town meeting by the CPC. It is a full renovation of $2.85 million.	$2,850,000										$2,850,000
Chelmsford Country Club											
Replace HVAC systems				$25,000							$25,000

Town of Chelmsford
Capital Improvement Program Summary
Fiscal Years 2011-2020

Projects by Functional Category	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	Total
Senior Center											
Install emergency generator		$110,000									$110,000
Replace HVAC systems					$58,000						$58,000
Replace roof							$101,750				$101,750
Dwelling (Dutton House)											
Replace windows and doors			$32,300								$32,300
Repair clap boards, replace shutters and paint				$25,000							$25,000
replace front pourch		$22,000									$22,000
repair walls, ceilings and paint interior					$17,000						$17,000
Replace old steam system/with hot water						$26,000					$26,000
Domestic water piping needs to be replaced								$22,000			$22,000
* The above work will not make the building ADA accecable. It would need ramps, ADArestrooms,some doors widend and an elevator. Estimated cost of $195,000									$195,000		$195,000
Chelmsford Forum											
Redo parking lot and add islands	$135,000										$135,000
Non-School Facilities Subtotal	**$10,145,000**	**$354,400**	**$5,082,300**	**$156,865**	**$6,115,950**	**$166,000**	**$165,290**	**$249,040**	**$195,000**	**$7,000,000**	**$29,629,845**
											$29,629,845

Town of Chelmsford
Capital Improvement Program Summary
Fiscal Years 2011-2020

Projects by Functional Category	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	Total
Public Education											
Byam School											
Gymnasium Upgrades			$83,519								$83,519
Kitchen/ Cafeteria Upgrades				$172,977							$172,977
DDC Control System		$49,645									$49,645
Univent Air Handling Replacement		$409,299									$409,299
Doors and Hardware							$186,988				$186,988
Plumbing					$284,915						$284,915
Casework and paint						$215,540					$215,540
Parking lot light replacement								$41,000			$41,000
Roof replacement										$557,600	$557,600
Byam School Subtotal	**$0**	**$458,945**	**$83,519**	**$172,977**	**$284,915**	**$215,540**	**$186,988**	**$41,000**	**$0**	**$557,600**	**$2,001,483**
Center School											$2,001,483
Harrington School											
Gymnasium Upgrade				$86,679							$86,679
Kitchen/ Cafeteria Upgrades			$51,555					$206,795			$206,795
DDC Control System			$442,227								$51,555
Univent Air Handling Replacement	$150,000										$442,227
Parking Lot, Curbs and Sidewalks											$150,000
Doors and Hardware											$187,418
Plumbing					$274,739		$187,418				$274,739
Casework and paint						$211,670					$211,670
Create New Parking Lot		$236,250									$236,250
Parking lot light replacement									$28,000		$28,000
Harrington School Subtotal	**$150,000**	**$236,250**	**$493,781**	**$86,679**	**$274,739**	**$211,670**	**$187,418**	**$206,795**	**$28,000**	**$0**	**$1,875,333**
Westlands School											$1,875,333
Gymnasium Upgrade		$70,937									$70,937
Kitchen/ Cafeteria Upgrades			$167,267								$167,267
DDC Control System				$55,521							$55,521
Univent Air Handling Replacement	$150,000			$476,244							$476,244
Parking Lot, Curbs and Sidewalks											$150,000
Doors and Hardware							$186,988				$186,988
Plumbing					$295,090						$295,090
Casework and paint						$201,230					$201,230
Parking lot light replacement								$28,000			$28,000
Westlands School Subtotal	**$150,000**	**$70,937**	**$167,267**	**$531,765**	**$295,090**	**$201,230**	**$186,988**	**$28,000**	**$0**	**$0**	**$1,631,278**
											$1,631,278

Town of Chelmsford
Capital Improvement Program Summary
Fiscal Years 2011-2020

Projects by Functional Category	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	Total
South Row School											
Gymnasium Upgrade			$64,897								$64,897
Kitchen/ Cafeteria Upgrades							$206,820				$206,820
Doors and Hardware					$168,678						$168,678
Plumbing				$255,441							$255,441
Casework and paint						$195,850					$195,850
Repair, paint trim and sand blast &paint canopy		$38,000									$38,000
Parking lot light replacement								$28,000			$28,000
South Row School Subtotal	**$0**	**$38,000**	**$64,897**	**$255,441**	**$168,678**	**$195,850**	**$206,820**	**$28,000**	**$0**	**$0**	**$957,685**
											$957,685
Parker School											
Floor Tile Replacement	$145,000										$145,000
Parking Lot, Curbs and Sidewalks							$327,175				$327,175
Univent Replacement & DDC controls				$575,770							$575,770
Plumbing						$354,960					$354,960
Doors and Hardware		$110,323									$110,323
Gymnasium Upgrade			$118,973								$118,973
Kitchen/Cafeteria and Stage Upgrade					$255,898						$255,898
Ceiling Additions to Classrooms										$378,151	$378,151
Furniture							$58,238				$58,238
Casework and paint								$334,653			$334,653
Renovate locker rooms		$30,000									$30,000
Parking lot light replacement									$31,000		$31,000
Parker School Subtotal	**$145,000**	**$140,323**	**$118,973**	**$575,770**	**$255,898**	**$354,960**	**$385,413**	**$334,653**	**$31,000**	**$378,151**	**$2,720,140**
											$2,720,140
McCarthy School											
Floor Tile Replacement						$531,991					$531,991
Parking Lot, Curbs and Sidewalks		$400,982									$400,982
Plumbing				$383,846							$383,846
Doors and Hardware					$137,251						$137,251
Cafeteria/Kitchen/Teachers Rm Upgrade	$100,000										$100,000
Auditorium Refurbish					$626,149						$626,149
Kitchen/Cafeteria Upgrade			$211,116								$211,116
Casework and paint			$353,173								$353,173
Furniture							42,000		$62,057		$104,057
Renovate locker rooms								$35,000			$35,000
Renovate lecture hall										$95,000	$95,000
Replace curtain wall windows (Big Gym)								$204,000			$204,000
Parking lot light replacement							$64,400				$64,400
McCarthy School Subtotal	**$100,000**	**$400,982**	**$564,289**	**$383,846**	**$763,401**	**$531,991**	**$106,400**	**$239,000**	**$62,057**	**$95,000**	**$3,246,966**
											$3,246,966

Town of Chelmsford
Capital Improvement Program Summary
Fiscal Years 2011-2020

Projects by Functional Category	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	Total
High School											
Univent Air Handling Replacement		$865,613									$865,613
Parking Lot, Curbs and Sidewalks						$528,720					$528,720
Window Replacement				$1,663,334							$1,663,334
Kitchen/Cafeteria Upgrade					$248,212						$248,212
Plumbing			$713,837								$713,837
Doors and Hardware		$163,200									$163,200
Lecture Halls Upgrade (2)				$95,962							$95,962
Casework and paint			$565,000								$565,000
Furniture									$133,560		$133,560
Gymnasium			$167,210								$167,210
Ceiling Replacement - Café 1 & 2	$100,000										$100,000
Stadium Field					$137,251						$137,251
Renovate locker & team rooms (7 rooms)							$80,600				$80,600
Renovate career center					$175,000						$175,000
Renovate tennis courts								$88,588			$88,588
Parking lot light replacement							$101,200				$101,200
High School Subtotal	**$100,000**	**$1,028,813**	**$1,446,047**	**$1,759,296**	**$560,463**	**$528,720**	**$181,800**	**$88,588**	**$133,560**	**$0**	**$5,827,287**
The above capital list will take care of the needs of the elementary schools, we expect to be able to continue to service them though capital. The High School and two Middle Schools needs on the capital list will exceed our ability to complete this work with capital funds alone. The lists do not take in to account the full ADA needs, address SBA standards for classroom sizes and new Science rooms, as well as items not completed in the $31 million school renovations. We believe a School Building project will be necessary around 2020.											$5,827,287
School Administration Offices											
Replace roof					$121,800						$121,800
All Town Buildings											
Light Sensor Project			$80,000								$80,000
Install LifeGuard System		$133,000									$133,000
Maintenance/ Misc.											
Bucket Truck Replacement	$65,000										$65,000
Pick-Up/ Truck Replacement		$35,493			$41,180						$76,673
ADA Compliance		$26,000									$26,000
Tractor Replacement			$46,764								$46,764
Central Storage Facility				$179,128							$179,128
Spider Lift					$174,000						$174,000
Maintenance/ Misc. Subtotal	**$65,000**	**$194,493**	**$126,764**	**$179,128**	**$336,980**	**$0**	**$0**	**$0**	**$0**	**$0**	**$902,365**
											$902,365
Municipal Facilities Total	**$10,855,000**	**$2,923,144**	**$8,147,836**	**$4,101,767**	**$9,056,113**	**$2,405,961**	**$1,607,118**	**$1,215,076**	**$449,617**	**$8,030,751**	**$48,792,382**

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ACRONYMS AND ABBREVIATIONS

ADA – Americans with Disabilities Act

ADT – Average daily traffic

AME- Average monthly employment

AASHTO – American Association of State Highway and Transportation Officials

BID – Business Improvement District

BPAC – Bicycle and Pedestrian Advisory Committee

CA – Commercial Neighborhood zoning district

CB – Commercial Roadside zoning district

CBA – Chelmsford Business Association

CC – Shopping Center zoning district

CD – General Commercial zoning district

CDAG – Community Development Action Grant

CDBG – Community Development Block Grant

CEDC – Chelmsford Economic Development Commission

CEDS – Comprehensive Economic Development Strategy

CHA – Chelmsford Housing Authority

CLCT – Chelmsford Land Conservation Trust

COA – Council on Aging

COSS – Chelmsford Open Space Stewards

CPA – Community Preservation Act

CPC – Community Preservation Committee

CR – Conservation Restriction

CSO- Combined sewer overflow

CTPS – Central Transportation Planning Staff

CV – Center Village zoning district

CX – Adult Entertainment zoning district

DCR – Department of Conservation and Recreation

DCS – Division of Conservation Services

DEP – Department of Environmental Protection

DHCD – Department of Housing and Community Development

DIF – District Improvement Financing

DOER – Department of Energy Resources

DPH – Department of Public Health

DPW – Department of Public Works

EDA – Economic Development Administration

EDIP – Economic Development Incentive Program

EMS – Emergency medical services

EOEEA – Executive Office of Energy and Environmental Affairs

EOHED – Executive Office of Housing and Economic Development

EPA – Environmental Protection Agency

EPDO – equivalent property damage only

ERA – Expanding Rental Affordability program (MassHousing)

ETA – Economic Target Area

FAR - floor area ratio

FEMA – Federal Emergency Management Agency

FHWA – Federal Highway Administration

FIRM – Flood Insurance Rate Maps

FO- Functionally obsolete [bridges]

GCI – Greener Chelmsford Initiative

GPD – Gallons per day

HSF – Housing Stabilization Fund

HUD – U.S. Department of Housing and Urban Development

IA- Limited Industrial zoning district

IS – Special Industrial zoning district

IPM – Integrated Pest Management

LEPC – Local Emergency Planning Committee

LID – Low Impact Development

LIP – Local Initiative Program

LOS – Level of service

LQ – Location quotient

LRTA - Lowell Regional Transit Authority

LSP – Licensed Site Professional

MACRIS – Massachusetts Cultural Resources Information System

MAPC – Metropolitan Area Planning Council

MARPA – Massachusetts Association of Regional Planning Agencies

MassDOT – Massachusetts Department of Transportation

MBTA – Massachusetts Bay Transportation Authority

MFI – Median family income

MHC – Massachusetts Historical Commission

MHI – Median household income

MPC – Master Plan Committee

MPO – Metropolitan Planning Organization

MUTCD – Manual of Uniform Traffic Control Devices

NEF – New England Fund

NHDOT – New Hampshire Department of Transportation

NHESP – Natural Heritage and Endangered Species Program

NMCOG - Northern Middlesex Council of Governments

NRPA – National Recreation and Park Association

OS – Open Space zoning district

P – Public land zoning district

PCI – Per capita income

PDS – Priority Development Site

POS – Planned Open Space residential developments

RA- Residential A zoning district

RAO – Remedial action outcome

RB – Residential B zoning district

REO – Real estate owned [property]

RFP – Request for proposals

RM – Residential Multifamily zoning district

RZB – Recovery Zone Bond

SD – Structurally deficient [bridges]

SFHA – Special Flood Hazard Areas

SHI – Subsidized housing inventory

SPGA – Special permit granting authority

SuAsCo – Sudbury, Assabet and Concord River watershed

TCA - Trichloroethane

TCE – Trichloroethylene

TIF – Tax increment financing

TIP – Transportation Improvement Program

TND – Traditional neighborhood development

TOD – Transit-oriented development

VOC- Volatile organic compound

WHPA – Wellhead protection area

ZBA – Zoning Board of Appeals

GLOSSARY

Age cohort: A group of people with a similar age**.**

Build out analysis: A land use planning tool used to help a community understand the impacts of developing available land to the capacity allowed under current zoning.

Business Improvement District - Special assessment districts in which property owners vote to initiate, manage and finance supplemental services or enhancements above and beyond the baseline of services already provided by their local city or town governments. A special assessment, or common area fee, is levied only on property within the district. The assessments are collected and expended within the district for a range of services and/or programs, including marketing and public relations, improving the downtown marketplace or city/town center, capital improvements, public safety enhancements, and special events. A BID creates a stable local management structure that provides a sustainable funding source for the revitalization and long-term maintenance of downtowns and city/town centers.

Chapter 40B: Chapter 40B is a state statute, which enables local Zoning Boards of Appeals (ZBAs) to approve affordable housing developments under flexible rules if at least 20-25% of the units have long-term affordability restrictions. Also known as the Comprehensive Permit Law, Chapter 40B was enacted in 1969 to help address the shortage of affordable housing statewide by reducing barriers created by local approval processes, local zoning, and other restrictions. The goal of Chapter 40B is to encourage the production of affordable housing in all cities and towns throughout the Commonwealth. The standard is for communities to have a minimum of 10% of their housing inventory designated as affordable.

Chapter 40R: Smart Growth Zoning Overlay District Act, Chapter 149 of the Acts of 2004, codified as M.G.L. chapter 40R (the Act), encourages communities to create dense residential or mixed-use smart growth zoning districts, including a high percentage of affordable housing units, to be located near transit stations, in areas of concentrated development such as existing city and town centers, and in other highly suitable locations. Projects must be developable under the community's smart growth zoning adopted under Chapter 40R, either as-of-right or through a limited plan review process akin to site plan review. Upon state review and approval of a local overlay district, communities become eligible for payments from a Smart Growth Housing Trust Fund, as well as other financial incentives.

Chapter 40S: Under Chapter 40S additional state funding will be directed to cities and towns that establish a 40R district, to cover the costs of educating any school-age children who move into such districts. This legislation was in response to the common concern that new housing was costly in terms of municipal finances, given the imbalance of tax revenues and service costs. Qualifying communities will be reimbursed for the net cost of educating students living in new housing in smart growth districts.

Chapter 43D: Provides incentives for local communities to adopt a "priority development site," which would then commit the municipality to a 180-day permitting process for that particular site. The Act defines a "priority development site" as a privately- or publicly-owned property that is: (1) commercially or industrially zoned; (2) eligible under applicable zoning provisions, including special permits or other discretionary permits, for the development or redevelopment of a building at least 50,000 sq. ft. of gross floor area in new or existing buildings or structures; (3) located adjacent to areas of existing development or in underutilized buildings or facilities and with adequate water and sewer infrastructure and adequate water supplies, or close to appropriate transit services; and (4) designated as a priority development site. Several parcels or projects may be included within a single priority development site. Whenever possible, priority development sites should be located adjacent to areas of existing development or in underutilized buildings or facilities, or close to appropriate transit services.

Chapter 61: The forest land classification program under Massachusetts General Laws Chapter 61 is designed to encourage the preservation and enhancement of the Commonwealth's forests. It offers significant local tax benefits to property owners willing to make a long term commitment to forestry. In exchange for these benefits, the city or town in which the land is located is given the right to recover some of the tax benefits afforded the owner when the land is removed from classification and an option to purchase the property should the land be sold or used for non-forestry uses.

Chapter 61A: The agricultural and horticultural land classification program under Massachusetts General Laws Chapter 61A is designed to encourage the preservation of the Commonwealth's valuable farmland and promote active agricultural and horticultural land use. It offers significant local tax benefits to property owners willing to make a long term commitment to farming. In exchange for these benefits, the city or town in which the land is located is given the right to recover some of the tax benefits afforded the owner and an option to purchase the property should the land be sold or used for any purpose other than to continue raising farm products.

Chapter 61B: The recreational land classification program under Massachusetts General Laws Chapter 61B is designed to encourage the preservation of the Commonwealth's open space and promote recreational land uses. It offers significant local tax benefits to property owners willing to make a long term commitment to preserving land in an undeveloped condition or for use for outdoor activities. In exchange for these benefits, the city or town in which the land is located is given the right to recover some of the tax benefits afforded the owner when the land is removed from classification and an option to purchase the property should the land be sold or used for any other purpose other than to maintain it as open space or for recreational use.

District Improvement Financing: The District Improvement Financing Program (DIF) is a locally driven public financing alternative available to all cities and towns in the Commonwealth. DIF enables municipalities to fund public works, infrastructure and development projects by allocating future, incremental tax revenues collected from a predefined district to pay project costs.

Economic Development Incentive Program: A tax incentive program designed to foster job creation and stimulate business growth throughout the Commonwealth. Participating companies may receive state and local tax incentives in exchange for job creation, manufacturing job retention and private investment commitments.

Economic Target Area: To obtain ETA designation, the municipality must make a request to the State to designate the municipality as an ETA. This designation is based on income, unemployment, and other economic characteristics of the area, and may also be appropriate where the area contains certain special features, as identified in M.G.L. c. 23A, § 3D and in 402 CMR 2.05.

Floodplain: A flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding. It includes the floodway, which consists of the stream channel and adjacent areas that carry flood flows, and the flood fringe, which are areas covered by the flood, but which do not experience a strong current.

Floor area ratio: is the ratio of the total floor area of building on a certain parcel to the size of the land of that location, or the limit imposed on such a ratio. As a formula: Floor Area Ratio = (Total covered area on all floors of all buildings on a certain plot)/(Area of the plot). Thus, an FAR of 2.0 would indicate that the total floor area of a building is two times the gross area of the plot on which it is constructed, as may be found in a multiple-story building.

Functional Classification: The process by which the nation's network of streets and highways are ranked according to the type of service they provide. It determines how travel is "channelized" within the roadway network by defining the part that any road or street should play in serving the flow of trips through a highway network. Functional classification is used in transportation planning, in roadway design and for the allocation of federal roadway improvement funds. It was introduced by the Federal Highway Administration in the late 1960s, which developed guidelines for local governments and planning organizations to use in maintaining the functional classification system in their own jurisdictions.

Inclusionary zoning: refers to zoning regulations that require a given share of new housing construction to be affordable for people with low to moderate incomes.

Land use: The manner in which a parcel of land is used or occupied.

Location quotient: A ratio of the concentration of a particular industry in one area to the concentration of the same industry in larger geographic area.

Low Impact Development: An approach to environmentally-friendly land use development that includes landscaping and design techniques that maintain the natural, pre-development ability of a site to manage rainfall.

Master Plan: A comprehensive planning document that establishes long-term policy recommendations for a community's physical development, and outlines implementation strategies that address land use issues, transportation, community facilities and services, the local economy and the environment.

Median family income: An annual income figure representing the point at which there are as many families earning more than that amount as there are earning less than that amount.

Median household income: is commonly used to provide data about geographic areas and divides households into two equal segments with the first half of households earning less than the median household income and the other half earning more. The median income is considered by many statisticians to be a better indicator than the average household income as it is not dramatically affected by unusually high or low values.

Mixed-use development: A mixed-use development is a real estate project with planned integration of some combination of retail, office, residential, hotel, recreation or other functions. It is pedestrian-oriented and contains elements of a live-work-play environment. It maximizes space usage, has amenities and architectural expression and tends to mitigate traffic and sprawl.

New urbanism - An urban design movement which promotes walkable neighborhoods containing a range of housing and job types. It arose in the United States in the early 1980s and continues to reform many aspects of planning and development

Overlay zoning district: Overlay zoning is a regulatory tool that creates a special zoning district placed over an existing base zone(s), and identifies special provisions in addition to those in the underlying base zone. The overlay district can share common boundaries with the base zone or cut across base zone boundaries. Regulations or incentives are attached to the overlay district to protect a specific resource or guide development within a special area. An overlay district does not change the underlying zoning and does not restrict an owner's property rights

Per capita income: Average obtained by dividing aggregate income by the total population of an area.

Recovery Zone Bond: Governor Deval Patrick issued an Executive Order that established the state's Recovery Zone Bond Program. The Recovery Zone Bonds, authorized through the American Recovery and Reinvestment Act, support both public and private development efforts

by offering favorable borrowing rates for projects within areas designated as “Recovery Zones”. The Governor’s Executive Order identifies existing state Economic Target Areas (ETAs) as Recovery Zones thereby deeming projects within those 209 communities as eligible for consideration. The Secretary of Housing & Economic Development may designate additional Recovery Zones at his discretion.

Subsidized housing inventory: The Subsidized Housing Inventory is used to measure a community's stock of low-or moderate-income housing for the purposes of M.G.L. Chapter 40B, the Comprehensive Permit Law. While housing developed under Chapter 40B is eligible for inclusion on the inventory, many other types of housing also qualify to be counted toward a community's affordable housing stock.

Sustainable development: A pattern of resource use that aims to meet human needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come.

Tax Increment Financing - The municipality and the prospective Certified Project proponent agree to a property tax exemption based on a percentage of the value added through new construction or significant improvement for a period of no less than five and no more than twenty years. The real estate taxes generated by the new increased assessed value are then allocated by the agreed-upon percentage of value added to one or more of three categories. The categories are: (1) exemption from real estate taxes; (2) payment of real estate taxes; or (3) payment of betterment fee in lieu of real estate taxes to finance related infrastructure.

Traditional Neighborhood Development: includes a variety of housing types, a mix of land uses, an active center, a walkable design, and often a transit option within a compact neighborhood scale area either as infill in an existing developed area or as a district scale project.

Transit-Oriented Development: A mixed-use community within walking distance of a transit stop that mixes residential, retail, office, open space, and public uses in a way that makes it convenient to travel on foot or by public transportation instead of by car.

Vision Statement: An aspirational description of what the community would like to be ten years into the future. It is intended to serve as a guide for making recommendations within the Master Plan document.

Zone I – A land area that includes a 400-foot radius around a wellhead with a greater than 100,000 gallon per day withdrawal rate.

Zone II – A land area that includes all land deemed influential to the quality and quantity of water drawn from a well under stressed pumping conditions (i.e. the recharge area).

Zone III – includes the watershed surrounding a water supply.